

Shaking Table Tests on Cluttered Levels of Typical Medicine Shelves and Contents Subjected to Earthquakes

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Synopsis

Cluttered situations due to overturned and fallen objects is a frequently observed phenomenon after earthquakes. This study investigates quantitatively cluttered situations due to typical medicine shelves and contents in hospitals by shaking table tests. Three types of typical medicine shelves are adopted: stock shelf, tablet and powder medicine shelves. Input excitations include sinusoidal waves and real earthquake motions. From the results of sinusoidal wave tests, quantitative information on cluttered situations is expressed in maximum input accelerations and velocities. Then, from the results of earthquake motion tests, the results of sinusoidal excitation tests are compared and revised for evaluating the cluttered situations under earthquakes.

Keywords: clutter, overturning, hospital, medicine shelf, shaking table

振動台実験による典型的な薬剤棚・内容物の地震時散乱状況の評価

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要旨

本研究では、災害拠点である病院の薬剤棚・内容物を対象として、地震時の室内散乱状況について、振動台実験を実施して定量的に評価する。試験体はストック棚、錠剤棚、散剤棚の3種類の典型的な棚を含む。まず、正弦波を入力し、棚の種類による散乱の特徴の違いなど定性的な把握を行うとともに、入力の加速度や振動数による散乱距離の変化などを定量的に評価した。次に、地震波を入力し、正弦波の入力で得られた結果との関係を分析した上で、地震時に棚の内容物が散乱する距離及び面積の予測式を導く。

キーワード: 散乱, 転倒, 病院, 薬剤棚, 振動台