

SINIAT-DIST Project: Innovative Plasterboard Partitions for Seismic Prone Zones

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Abstract. Plasterboard partitions are nowadays very common nonstructural elements in buildings and they are more and more spread all over the world. However, recent experimental results, confirmed by survey reports, have shown that, during strong earthquakes, they may suffer heavy damage and collapse, even though their seismic performance is generally better than brick partition. This issue is even more critical when high partitions are considered, i.e. partitions with height larger or equal to 5m: high partitions are generally used in commercial buildings, like cinemas, shopping malls, conference centers, and in buildings where the downtime leads to large losses, like industrial buildings.

One of the aims of the SINIAT-DIST project was to develop innovative solutions to reduce the damage and the downtime of common-height and high plasterboard partitions. The project merges the knowledge and research experience in terms of seismic engineering of the Department of Structures for Engineering and Architecture of University of Naples Federico II with the industry knowledge in terms of products and ability to make and modify them. Innovative plasterboard partitions were developed at the SINIAT research center in Avignon, France. Shake table tests according to AC156 and quasi-static tests according to FEMA 461 were performed at the DIST laboratory in Naples.

The paper reports the main findings of the project in terms of common-height and high plasterboard partitions. Innovative solutions are described and their performance during shake table and quasi-static tests is compared to the performance of brick and standard high plasterboard partitions, tested within the same project.

Keywords: Plasterboard partitions, Non-structural elements, Innovative seismic solutions.