**CELLULAR MATERIALS FOR SEISMIC ISOLATION**

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**ABSTRACT**

The limited number of applications of seismic isolation systems to residential and commercial buildings is partially due to the need for extensive full scale testing, which results in increased costs and lengthening of construction. Periodic cellular materials with optimized seismic isolation properties can be used in alternative to traditional seismic isolation devices to overcome these limitations. The internal structure of the cellular material can be characterized through small scale static and dynamic testing, and replicated in periodic assembly to create the seismic isolation layer. Different manufacturing processes have been investigated for the creation of cellular materials with a wide range of properties and constitutive materials, including metals and rubber materials. The mechanical characterization of the material has been carried out by means of small scale testing in quasi-static and dynamic conditions. The range of applied loads and displacements is representative of a large variety of seismic isolation application, spanning from light objects to heavy buildings.

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