

## **Seismic strengthening of masonry using some advanced composite materials**

### ***Consolidarea seismică a zidărie cu ajutorul unor materiale compozite avansate***

***DRAGOMIR Claudiu Sorin*** <sup>1, a \*</sup>, ***DOBRE Daniela*** <sup>2, b</sup> and ***GEORGESCU Emil-Sever*** <sup>3, c</sup>

<sup>1</sup>University of Agronomical Science and Veterinary Medicine, Faculty of Land Reclamation and Environmental Engineering, Department of Environment and Land Improvement, Marasti Bvd., no. 59, 011464, Sector 1; National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development “URBAN-INCERC” & European Center for Building Rehabilitation- ECBR, Pantelimon Street, no. 266, 021652 Bucharest, Romania.

<sup>2</sup>Technical University of Civil Engineering Bucharest, Lacul Tei Bvd., no. 122 – 124 RO 020396; National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development “URBAN-INCERC” & European Center for Building Rehabilitation- ECBR, Pantelimon Street, no. 266, 021652, Bucharest, Romania.

<sup>3</sup>National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development “URBAN-INCERC” & European Center for Building Rehabilitation- ECBR, Pantelimon Street, no. 266, 021652, Bucharest, Romania.

*E-mail: <sup>a</sup>dragomirclaudiu sorin@yahoo.com, <sup>b</sup>dobred@hotmail.com, <sup>c</sup>emilsevergeorgescu@gmail.com*

#### **Abstract**

The seismic vulnerability of masonry buildings may be reduced through the increasing of strength and rigidity by reinforcement or confinement. In order to support the provisions of Romanian codes, some modern manufacturing technologies have produced a lot of new composite building materials. The paper presents the theoretical basis of reinforcing masonry with polymer grids and the results of experimental and numerical analysis research on a 3D masonry model with the mechanical performance enhanced by the reinforcement polymer grids.

#### **Keywords**

Masonry, seismic strengthening, polymeric grids.