

Masonry Wall Reinforcement

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Abstract – Unreinforced masonry has been used as a construction material for thousands of years. While some of these structures survive to this day, these tend to have massive walls and would be unpractical for modern use. Unreinforced masonry can be reinforced with proper masonry techniques. As a result, reinforced and confined types of masonry were developed to exploit the strength potential of masonry and to solve its lack of tensile strength, significantly improving not only resistance, but also ductility and energy dissipation capacity.

Fiber reinforced polymer composites have emerged as an effective means of reinforcing masonry structures due to their high mechanical characteristics, low weight and durability. The role of FRP materials is to act as a tensile reinforcement which can be used to improve the ability of a wall against in-plane shear and/or out-of-plane bending.

This contribution, based on experimentation and numerical modelling, aims at a better understanding of the behaviour of structures in masonry. Multiple reinforcement techniques and methods are illustrated in this summary, such as the reinforcement of masonry walls by composite materials like CFRP (Carbon Fiber Reinforced Polymer) and glass fibre reinforced polymer (GFPR), also there are Near surface mounted (NSM), carbon fibers reinforced polymer (CFRP) and other techniques are cited in this work.

Keywords – Masonry Walls, NSM CFRP Strips, GFPR. Reinforcement, In-Plane Behavior, Micro-Concrete Layers