

DESIGN RELATIONSHIPS FOR THE STRENGTHENING OF MASONRY WALLS WITH MORTAR-BASED COMPOSITES

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The paper presents a design method for the strengthening of masonry walls with Fabric reinforced cementitious matrix (FRCM) and composite reinforced mortar (CRM) systems. These innovative mortar-based composites have already experimentally proved effective for the enhancement of structural capacity and are particularly suitable for masonry and historic structures. More recently, research efforts have been devoted to the development of certification and design criteria. Analytical relationships were developed, which are consistent with Eurocodes, are suitable for engineering practice, and have been incorporated in design guides [1,2]. Both the bending strengthening under out-of-plane loads and the shear strengthening under in-plane loads are considered in the paper. The validation of the resisting models and the calibration of partial coefficients according to the design-by-testing approach are described. Assessment relationships for ultimate limit state assessment and expeditious expressions for preliminary evaluation are compared. Their different assumptions, limitations and advantages are discussed, with the aim of fostering the knowledge transfer from the academia to engineering practice and the proper use of FRCM and CRM in the rehabilitation of architectural heritage.

REFERENCES

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