

# EXPERIMENTAL TESTING OF MASONRY AND MASONRY PIERS

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**Abstract:** In this work are presented the new testing methods and so determined mechanical properties of the masonry bricks and mortar produced and used in Croatia for regular masonry buildings. Testing methods and procedures are as specified in Eurocode 6: Design of masonry structures (1 and 2) and relevant European standards. According to EC6 and EC8, only the use of dimensioned masonry units is allowed for the construction of masonry buildings. Requirements regarding materials and manufacture, dimensions and tolerances, density mechanical strength, water absorption, frost resistance, soluble salt content, etc. are specified for each type of masonry unit.

The experimental methods and results of the preformed tests are presented for three different brick elements commonly used in Croatia: perforated fired clay block, perforated concrete block and aerated-autoclaved concrete blocks. Mortar used for binding the blocks together was general purpose mixed cement-lime mortar M5. For verification of the load bearing capacity of masonry walls and structures for vertical and lateral loads, the values of mechanical properties of masonry considered as an assemblage of masonry units and mortar, and not mechanical properties of constituent materials are used. Tests outlined and performed are the typical ones for determination of the brick group, compressive strength of a brick, shear strength of the wall segments, compressive strength of wall segments and modulus of elasticity of the wall segment. They represent the main input data for any further analysis of the masonry buildings and they could be used as good reference for designers, brick industry and masonry builders in Croatia.

**Key words:** masonry, experimental test setup, brick types, masonry wall characteristics.



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