

Masonry is a heterogeneous anisotropic continuum, made up of the brick and mortar arranged in a periodic manner. Obtaining the effective elastic stiffness of the masonry structures has been a challenging task. In this study, the homogenization theory for periodic media is implemented in a very generic manner to derive the anisotropic global behavior of the masonry, through rigorous application of the homogenization theory in one step and through a full three-dimensional behavior. We have considered the periodic Eshelby self-consistent method and the finite element method. Two representative unit cells that represent the microstructure of the masonry wall exactly are considered for calibration and numerical application of the theory.