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Abstract

Numerous archaeological discoveries made all over the Mediterranean area have highlighted the use of a particular building technique based on fictile tubules bricks. This building technique was commonly used for the building of walls and domes in thermal baths and masonry kilns since the Roman Empire. This paper investigates the behavior of structures employing such technology via experimental tests and numerical analysis. In order to obtain the value of force that induced in the structure the develop of the first cracks, a masonry scale arch was built and tested in the laboratory of University of Calabria. After that, numerical and analytical models were performed to verify and validate the experimental results obtained.

Introduction

Fictile tubules are cylindrical clay bricks with a hollow conformation that provides thermal insulation and ensures lightness in the structural elements (Fig. 1). This well serves the purposes of thermae and kilns [1], since heat dispersion affects their functionality. Fictile tubules were usually