

Abstract

Purpose Experimental field test apparatus has been used to determine the inter-variability and intra-variability floodwater ingress rates of the masonry wall of a domestic building, before and after preparation with an improved surface treatment procedure.

Design/methodology/approach Replicated and repeated simulations of floodwater conditions (600 mm head) outside a building were created, before and after the masonry wall was treated with a combination of mortar admixture and surface impregnation.

Findings Untreated and treated floodwater ingress rates were 4.99 litres/hour (234.99 litres/hour/m²) and 1.74 litres/hour (81.90 litres/hour/m²), respectively, and display high intra-variability before treatment. These preliminary results indicate water penetration through masonry is linked to the initial rate of absorption of brick units and perceivably the workmanship of the bricklayer.

Originality/value Reductions in floodwater penetration from outside a building, by the impregnation and admixture treatments of masonry walls, can be achieved to manageable levels. However, the target for rates of water ingress through permeable masonry of <10 litres/hour/m², to accord with values for kitemark products, still needs further work.

Keywords Climate change adaptation, Property protection, Water penetration, Waterproof coatings, Initial rate of absorption.

Paper type Research paper

