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# Compressive Strength and Water Absorption Capacity of Clay Bricks in South Africa

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## Abstract

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Some masonry unit manufacturers and suppliers make available to the public the compressive strength and water absorption capacity of burnt clay masonry units, as designers frequently request them. For this study, the compressive strength and water absorption capacity of several

commonly used burnt clay bricks in South Africa were determined. The clay brick samples came from all over South Africa, but predominantly Durban (KwaZulu Natal). There were 37 different types. Seventeen were solid and twenty were perforated bricks. An analysis of the relationship between the compressive strength and water absorption capacity of solid clay bricks revealed that compressive strength increases as water absorption capacity decreases. This finding corroborates prior research indicating that a decrease in compressive strength results in an increase in water absorption. Correlation analysis between the capacity of perforated clay bricks to absorb water and their compressive strength revealed no significant relationship between the two. This is unsurprising, given that the compressive strength of perforated bricks decreases proportionately to the reduction in solid cross-sectional area. The study discovered that the type of brick affects the water absorption capacity after examining the effect of size (perforated versus solid) possibly, because they were unmatched low or high porosity burnt clay masonry units.

#### Keywords

**Clay units**

**Water absorption**

**Compressive strength**

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