

## **Implementation of a splitting testing procedure to measure the tensile strength of adobe masonry**

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This paper presents a testing procedure to measure the tensile strength of adobe masonry. The procedure is based on the Brazilian splitting test, commonly used to measure the tensile strength of concrete. The test specimens are adobe sandwiches, composed of two adobe blocks joined by a layer of mud mortar. A compressive load is applied on two opposing edges of the mortar surface. The distribution of internal stresses is such that tension stresses appear in the center regions of the sample under the applied load. The specimen then fails by splitting, usually along the block-mortar interface.

A finite element study was performed to determine the maximum tensile stress in the block-mortar interface of prismatic specimens subjected to this indirect tension test. This peak stress was used to characterize the tensile strength of the adobe masonry, and was expressed as the standard Brazilian splitting stress, multiplied by a dimensionless coefficient, which depends on the geometric properties of the prismatic adobe sandwich tested.

The design and implementation of a simple device to perform the indirect tension test on adobe sandwiches is finally presented, along with some experimental data obtained during a research program recently developed to study the strength of adobe masonry repaired with mud grout injections.