

# Development of sustainable fired clay bricks by adding kindling from vine shoot: Study of thermal and mechanical properties

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This paper studies the addition of kindling from vine shoots in the production of fired clay bricks in order to achieve a better insulation of the buildings enclosure and a new way for recycling vine shoots, a waste which is widely produced in vineyards. Therefore, the influence of kindling addition on the thermal and mechanical properties of the fired clay bricks has been investigated in partnership with a local brick factory. As result, it could be concluded that the amount of kindling that can be added is around 11%, whereby the brick's mechanical and physical properties abide by settled regulations for structural clay bricks, in accordance with current regulations. The added waste has improved bricks conductivity properties by reducing it up to 62% compared to the brick made without any waste. This means an improvement up to 34% for the equivalent thermal transmittance of a typical single-leaf wall assembly. © 2015 Elsevier B.V.

Compressive strength

Eco-bricks

Lightweight fired clay bricks

Recycling vine shoot

Thermal conductivity

Compressive strength

Mechanical properties

Recycling

Thermal conductivity

Clay bricks

Conductivity properties

Current regulations

Equivalent thermal

Fired clay bricks

Mechanical and physical properties

Single-leaf walls

Thermal and mechanical properties

Brick

building

clay

compressive strength

construction material

insulation

mechanical property

sustainable development

thermal conductivity

thermodynamic property