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Possible Applications for Waste Fishing nets in Unfired Adobe Bricks of Greenlandic Sediments



Fine-grained sediments

Discarded fishing nets

Production of sustainable building materials from locally available resources



Photo: Minik Rosing

Adobe Bricks - Advantages

Large amounts of suitable raw materials in Greenland

Simple and sustainable production technique (only formed and dried) Improved indoor climate





Adobe Bricks - Challenges

Strong traditions for constructing with wood and concrete in $GL \rightarrow Alternative building material$

Mechanical strength

Low durability in harsh environments \rightarrow Mainly for indoor use





DTU Discarded fishing nets in adobe bricks

R-PE fibres or nets added to adobe bricks Materials *can* be reused!





Aim of experimental study

1) Mechanical performance and drying

shrinkage cracking of adobe materials

2) Influence of waste polyethylene

(R-PE) fibres from discarded fish nets





Mechanical performance of adobes

Mechanical strength increases with the addition of fishing net fibres (R-PE) (flexural and compressive) Improved post-crack performance

Reduced linear shrinkage and surface cracking



Shrinkage cracking

Influence of R-PE fibres (0-5wt%)





Fishing net pieces in adobe

Photos and work by Kira Jensen







REF







2 fish nets



Fishing net pieces in adobe

Photos and work by Kira Jensen

Mechanical performance (flexural bending test) for specimens with 0, 1 and 2 fish nets



Thank you for your attention!

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Construction and Building Materials



Influence of synthetic waste fibres on drying shrinkage cracking and mechanical properties of adobe materials



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Shrinkage cracks





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