

HISS 1833 REET



Reed and clay – modern construction materials with a traditional relationship

Content:

1. Introduction
2. Reed - the plant
3. Characteristics of reed
4. Reed products for Construction



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Introduction:

- Hiss Reet - the company
- Reed and clay as construction materials



Reed houses in South Africa

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Reed the plant:

About Reed:

Reed is spread world wide from the 66° northern degree of latitude (the polar circle) to the 23° southern degree of latitude



The spreading of reed

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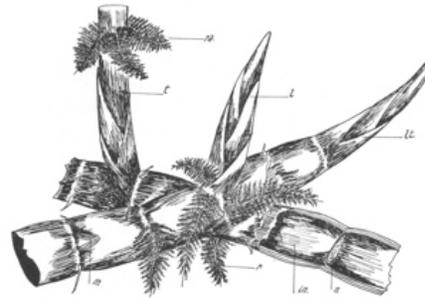
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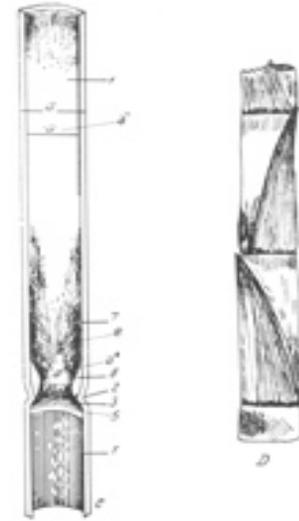
Reed the plant:

Build up:

- Rhizome
- Underwater stem
- Overwater stem



The reed rhizome



Longitudinal section and elevation of a reed segment.

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Characteristics of reed:

Water resistance and flame resistance:

- Reed contains a high level of silica
- Silica is a crystal and semi-conductor, with long molecule chains
- Effects on reed:
 - water resistance,
 - low flammability,
 - elasticity.



Silica

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Characteristics of reed:

Thermal insulation:

- Reed is made of several air filled sections
- Gases heat up slower than solids, the sections function as insulating layers
- Processed in a thick layer (for example 8cm) air spaces also built up between the stems



Reed processed in a thick layer

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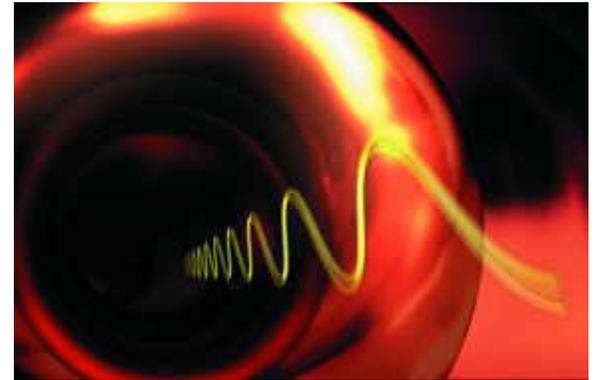
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Characteristics of reed:

Sound insulation:

- Similar to the transmission of heat is the transmission of sound
- The sound waves are partly thrown back and partly broken down as they enter a new medium



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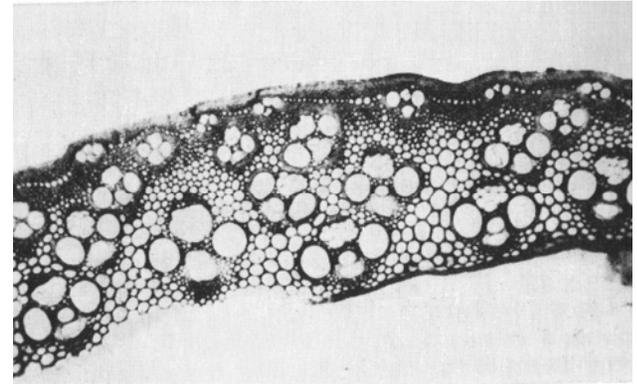
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Characteristics of reed:

Static characteristics:

- Structural design: Circular arranged cells with alternate wooden and unwooden cell walls and wooden water pipes
- The main material of the cell walls is cellulose, which is arranged in thin traces, which built up in many layers that are merged with each other.
- Effects on reed:
 - Elasticity
 - Firmness



Cross section of the twenty fourth segment of a reed spear.

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Reed products for construction:

Reed as a roofing material:

- The heat insulating characteristics of reed and its water resistance are fully applied
- The elasticity of the roof covering is necessary to keep up with the wind pressure and the extension of the substructure.



The south elevation of a north German reed roofed house. A conservatory delivers light and heat by the passive use of solar energy

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Reed products for construction:

Reed in combination with clay to:

- seal the roof against wind
- dehumidify the reed and to preserve the roof beams
- to hold up the fire from the interior



The interior of the north German house. The reed roof plastered with clay.

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Reed products for construction:

The reed panel – reed as insulation:

- In this case the good heat insulating qualities are brought to bear.
- Reed panels are used as roof and wall insulation for the interior or exterior.



Reed upon the rafters used for roof insulation

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Reed products for construction:

Reedpanels in combination with clay to:

- balance the humidity between interior and exterior
- preserve the insulation from molding and rotting
- mount insulation



Interior insulation with a reed panel.



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Reed products for construction:

Reed as armor:

- The rough surface structure lets the plaster (clay) stick perfectly to the reed.
- The good static character of the reed gives stability to the canvas and eases the installation.



Reed armor for plaster

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Reed products for construction:

Reed as a partition wall:

- for the ReedBoard the good sound insulating and heat insulating characteristics of reed are applied.
- ReedBoards are made for ecological dry construction



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Reed products for construction:

ReedBoard combined with clay to:

- balance the interior humidity
- support the natural character of the ReedBoard

