

# Can painted glass felt or glass fibre cloth be used as vapour barrier?

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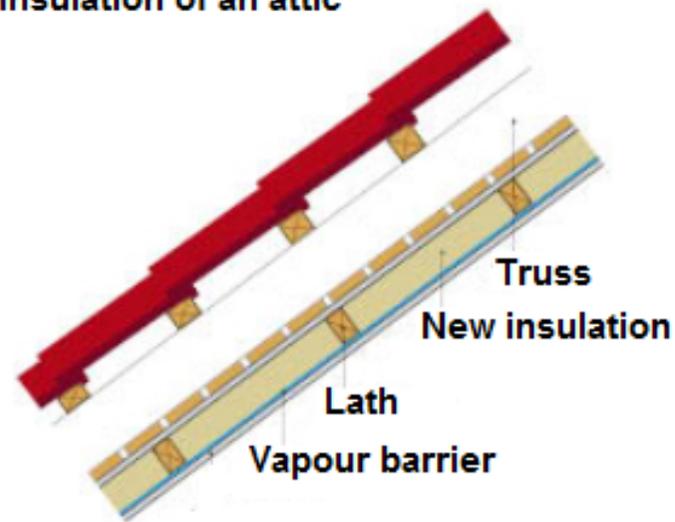
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# Introduction

Post-insulation of an attic



The hypothesis :

Will the water vapour resistance be increased if the paint layer is supplemented with a layer of glass felt or glass fibre cloth?

Can common surface treatments act as vapour barriers?

The hypothesis was investigated by experiments.

# Experiment

## Materials

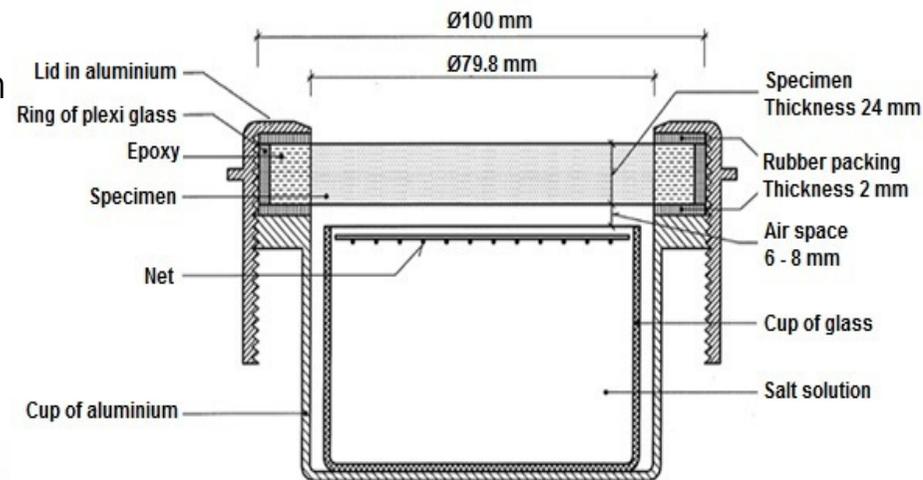
Aerated concrete

Seven test specimen series:

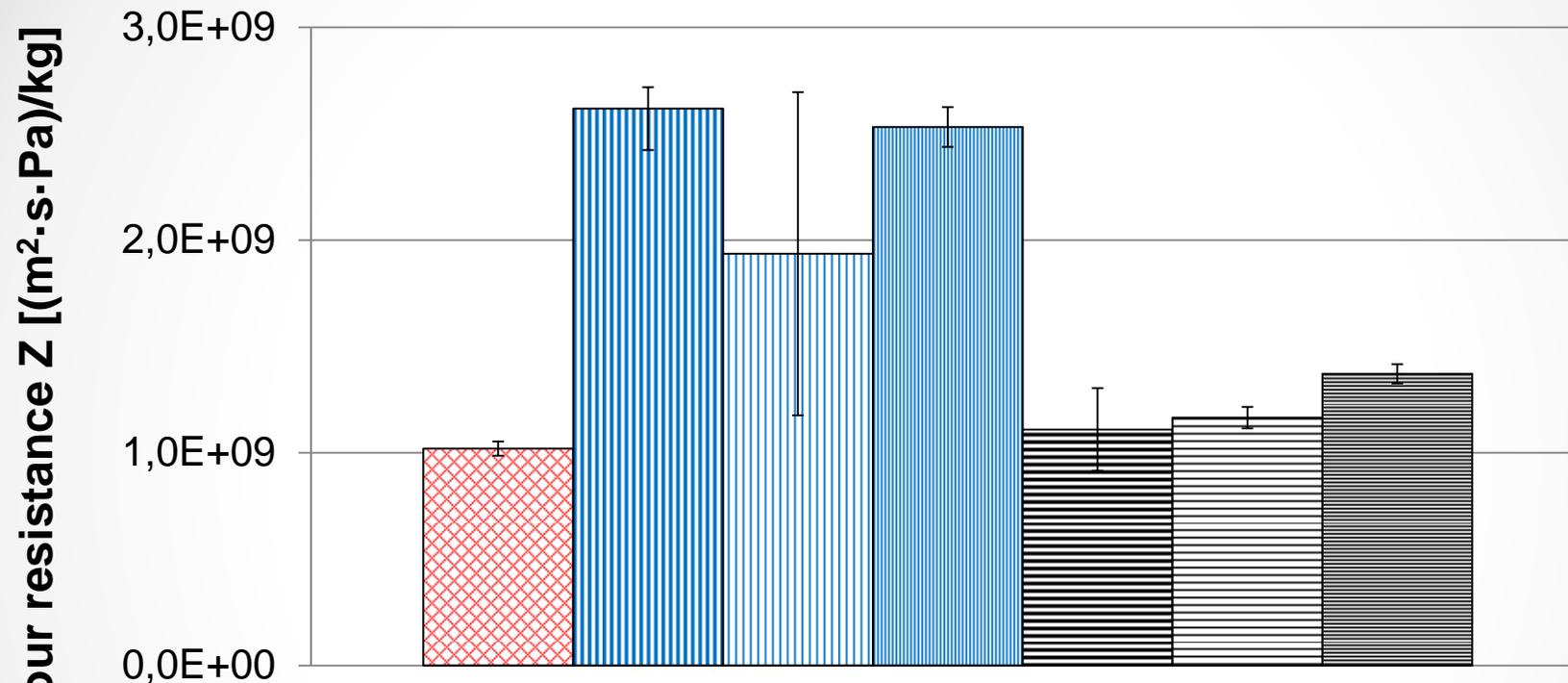
1. No surface treatment (pure aerated concrete)
2. Aerated concrete with two layers of *acrylic paint* (three series)
  - a. Only acrylic paint
  - b. Glass felt
  - c. Glass fibre cloth
3. Aerated concrete with two layers of *silicate paint* (three series)
  - a. Only silicate paint
  - b. Glass felt
  - c. Glass fibre cloth

## Methods

The wet cup method



# Results



- 1. Aerated concrete with no surface treatment
- 2.a. Aerated concrete and two layers of acrylic paint
- 2.b. Aerated concrete, glass felt and two layers of acrylic paint
- 2.c. Aerated concrete, glass fibre cloth and two layers of acrylic paint
- 3.a. Aerated concrete and two layers of silicate paint
- 3.b. Aerated concrete, glass felt and two layers of silicate paint
- 3.c. Aerated concrete, glass fibre cloth and two layers of silicate paint

# Discussion

- The water vapour resistance is not changed if silicate paint in two layers is used.
- Glass fibre cloth or glass felt as an underlay tissue for the paint has no significant effect on the average water vapour resistance.
- Glass felt as an underlay for acrylic paint has higher standard deviation than the other surface treatments. Maybe the glass felt makes the distribution of the paint more uneven.
- Acrylic paint in two layers enhances the water vapour resistance by  $1-1.6 \cdot 10^9$  (Pa·s·m)/kg and a vapour barrier should not be less than  $50 \cdot 10^9$  (Pa·s·m)/kg.

# Conclusion

- It is not possible to use painted glass felt or glass fibre cloth as a vapour barrier. The glass felt or glass fibre cloth does not absorb more paint than without this layer.
- It could be interesting to investigate if more than two layers would increase the water vapour resistance.

**Thank you!**

