


CHALMERS
UNIVERSITY OF TECHNOLOGY

Fuktcentrumdagen, Lund 2013



Gamla byggnader med vakuumisolering, mätningar och beräkningar

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Introduktion, bakgrund

Labförsök med invändig
tilläggsisolering med VIP
av en tegelvägg

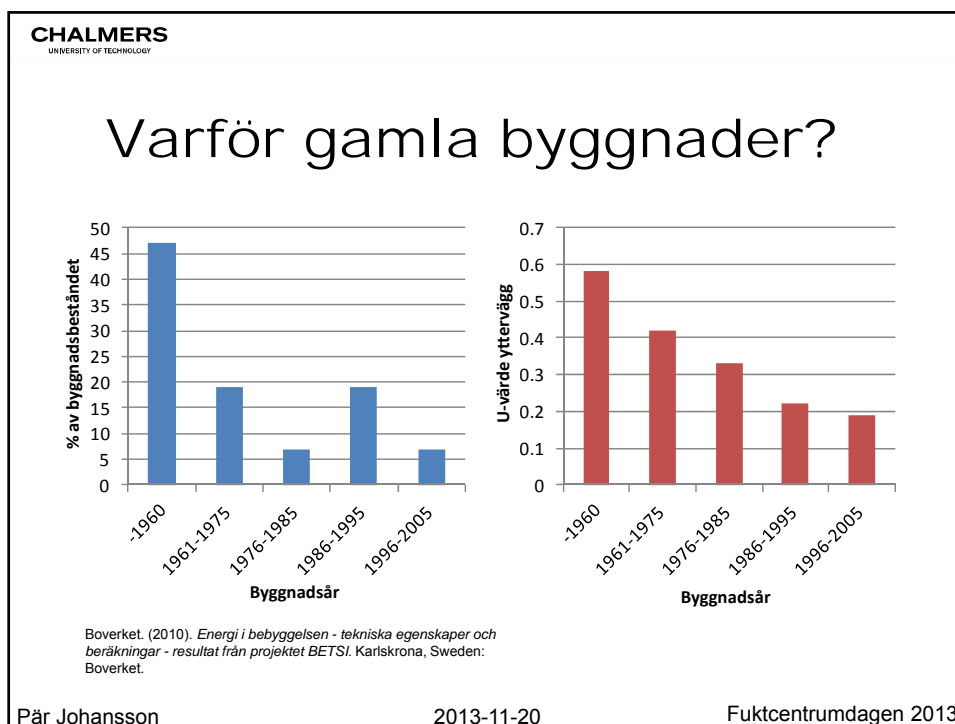


Fältförsök med utvändig
tilläggsisolering med VIP
av ett landshövdingehus

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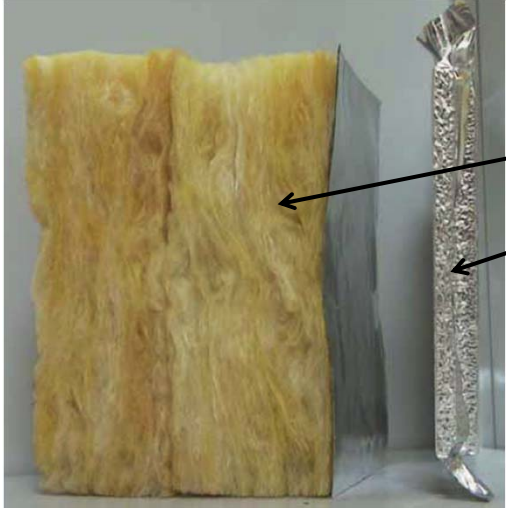
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Vakuumisoleringspaneler (VIP)



The image shows two vertical panels of insulation material. On the left is a thick, yellow, fibrous mineral wool panel. On the right is a much thinner, silver, reflective VIP panel. Arrows point from the text labels to the respective panels.

Mineralull
33-42 mW/(m·K)

VIP
7-8 mW/(m·K) (25 år)
20 mW/(m·K) (punkterad)

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Vakuumisoleringspaneler (VIP)



The image shows a cross-section of a rectangular VIP panel. The top surface is covered in a crinkled, reflective silver foil. The bottom surface is a white, porous material. A thin white layer is visible between the foil and the porous material. Arrows point from the text labels to these different layers.

Laminat med tunna aluminiumskikt

Svetsfog

Poröst kärnmaterial (kisel)

Skyddande lager

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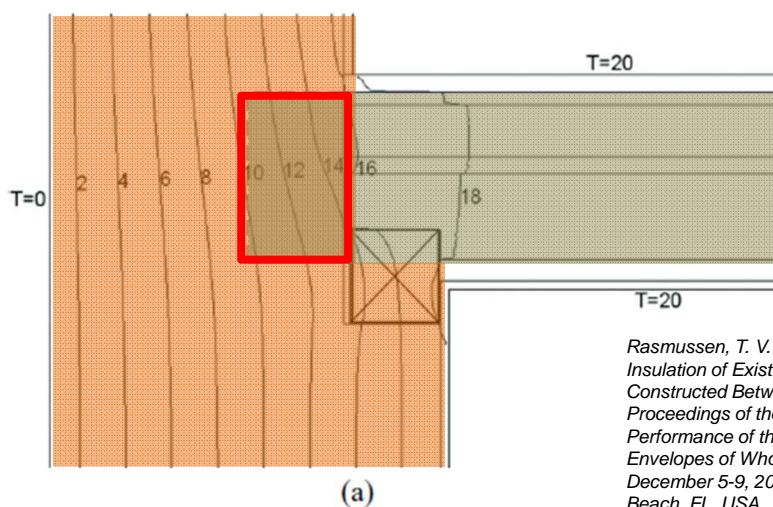
Invändig tilläggsisolering

- Mer kritiskt än utvändigt tilläggsisolering
 - Fukthalten ökar, risk för skada på organiskt material!
- Enda lösningen för vissa skyddade byggnader
- Hela fasaden?
- Tjocklek på isolering?
- När ökar risken?



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Träbalksände

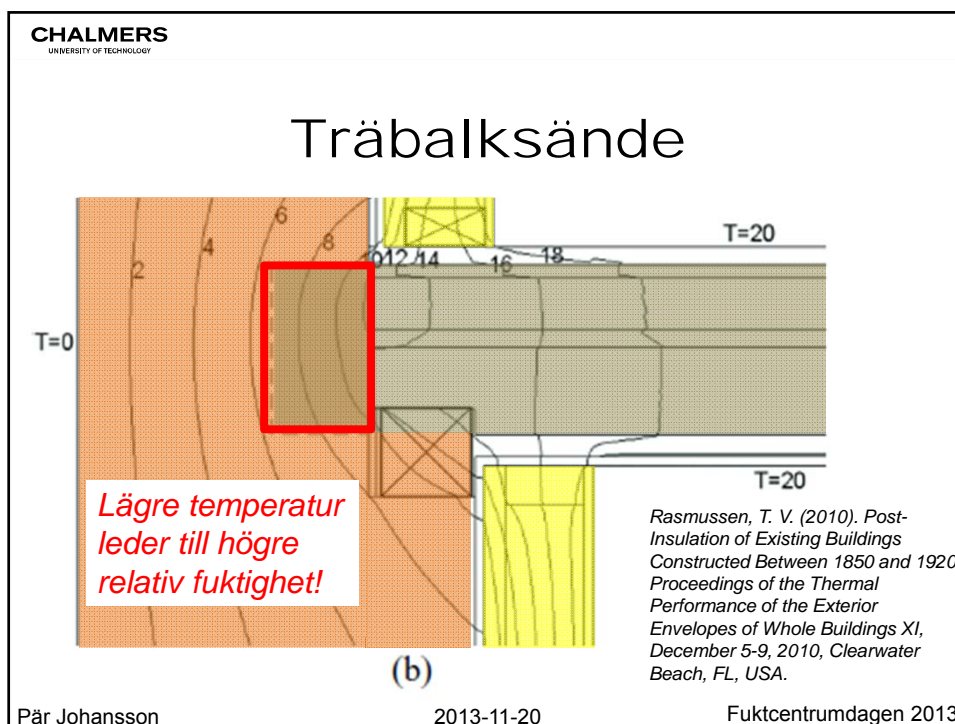


Rasmussen, T. V. (2010). *Post-Insulation of Existing Buildings Constructed Between 1850 and 1920. Proceedings of the Thermal Performance of the Exterior Envelopes of Whole Buildings XI, December 5-9, 2010, Clearwater Beach, FL, USA.*

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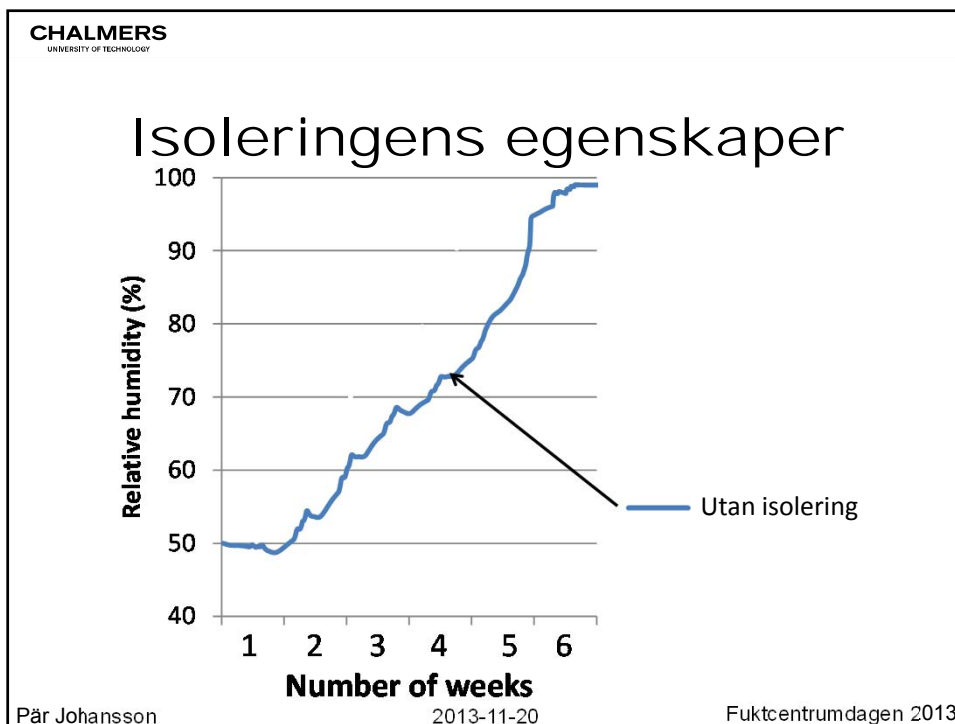
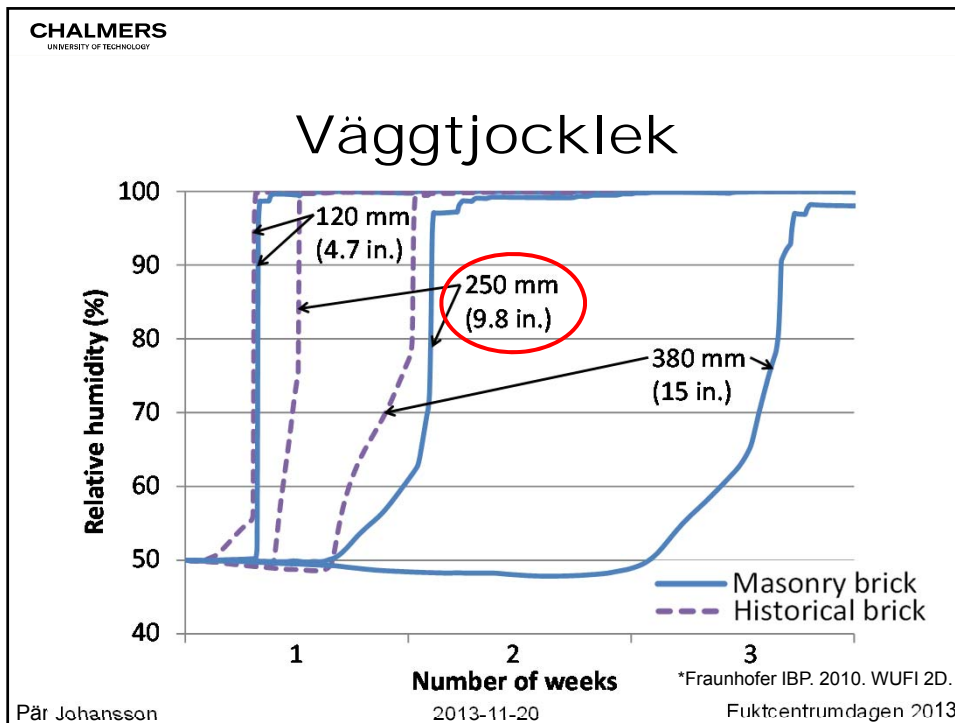


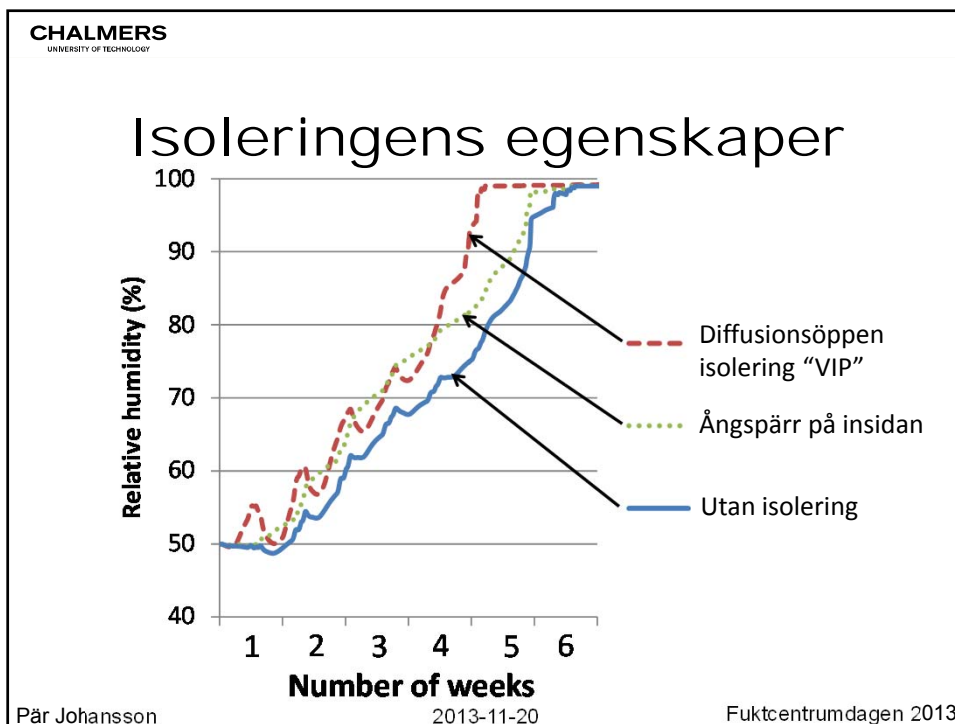
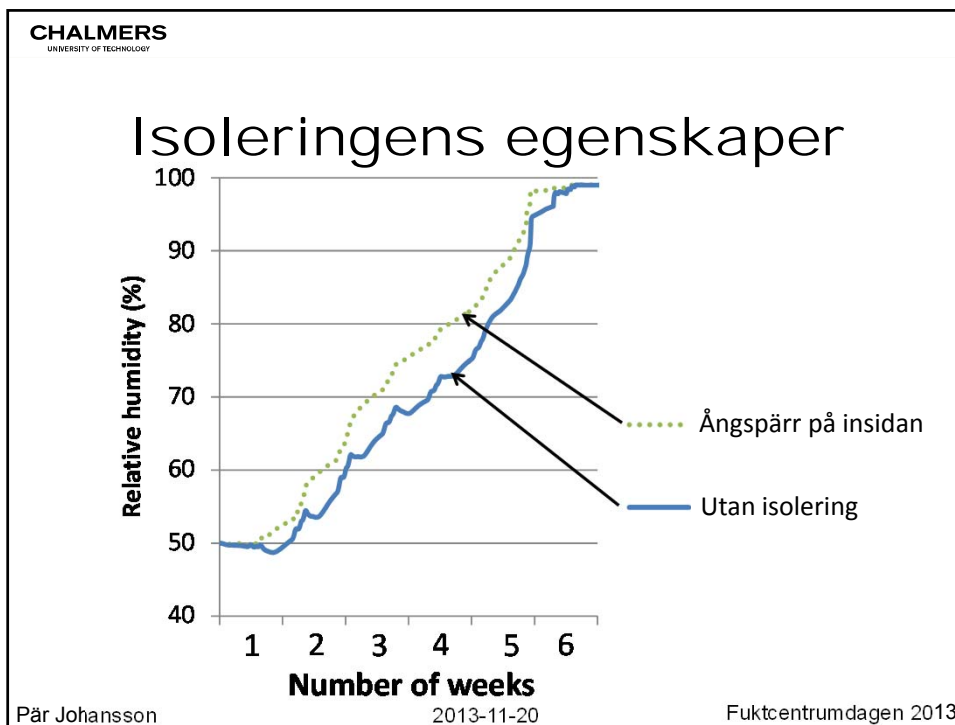
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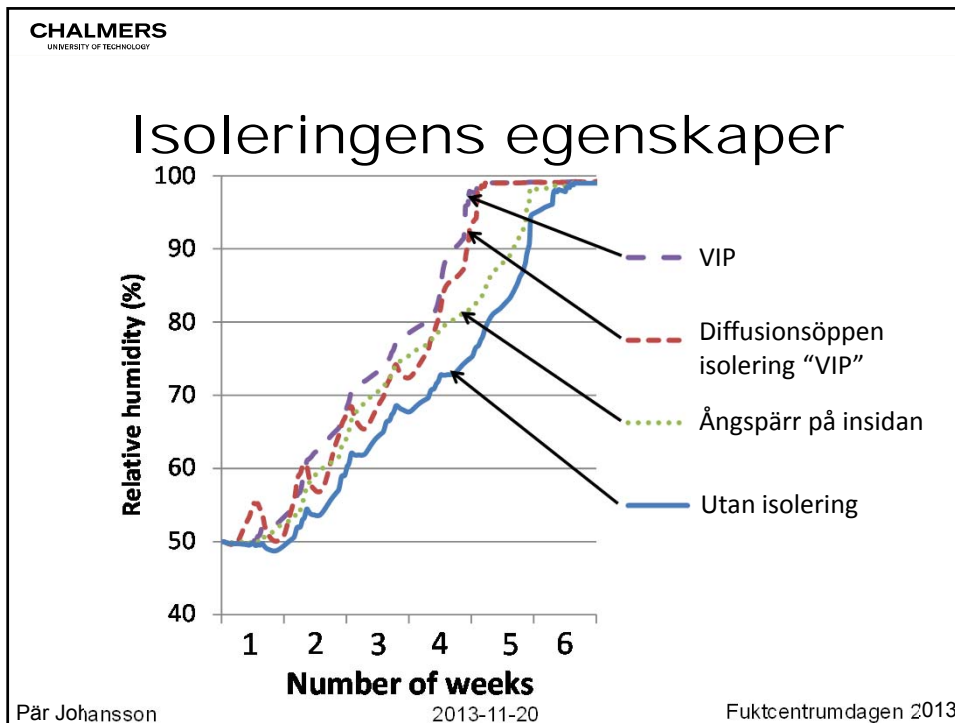
Före labförsöket startar

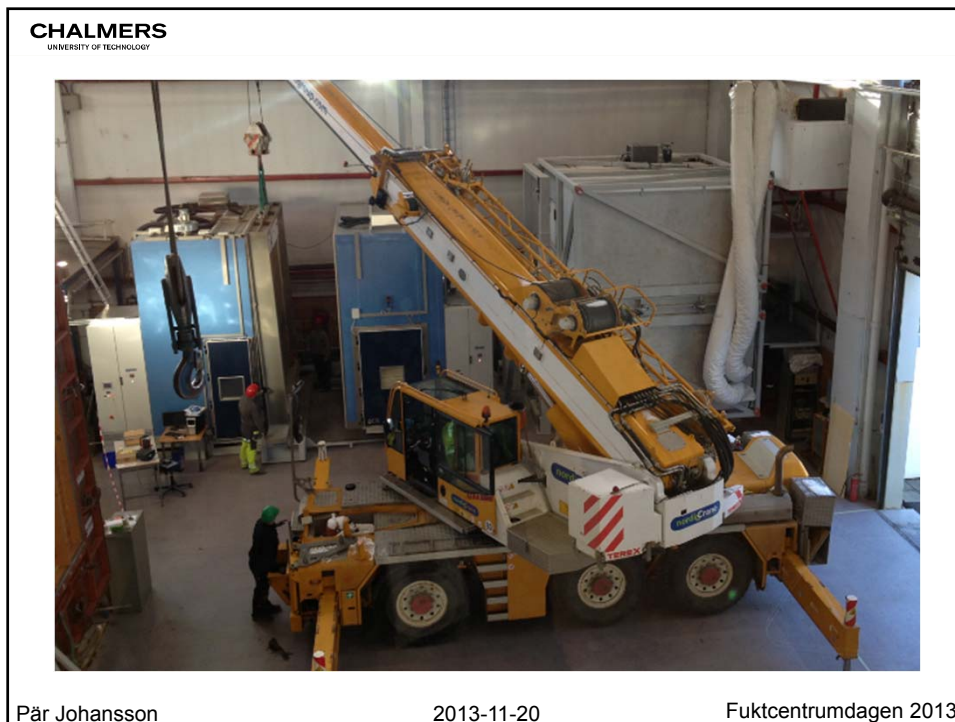
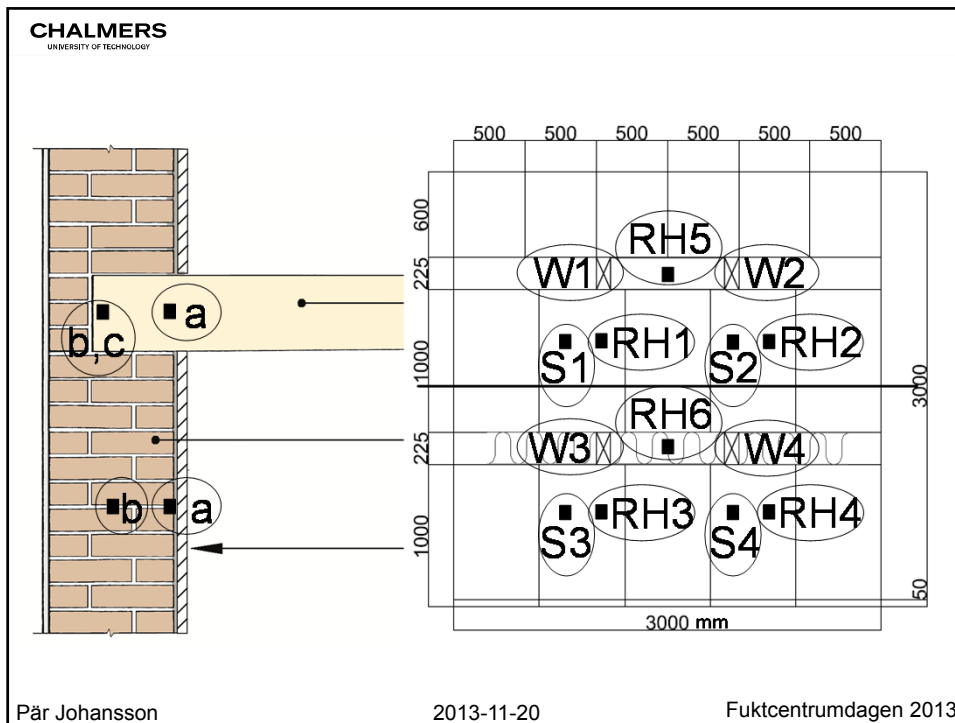
- Hygrotermiska simuleringar
 - Möjligt minska tjockleken?
 - Vilket tegel?
 - Testade 4 sorter
 - Vilket murbruk?
 - Testade 6 sorter
 - Vilket klimat?

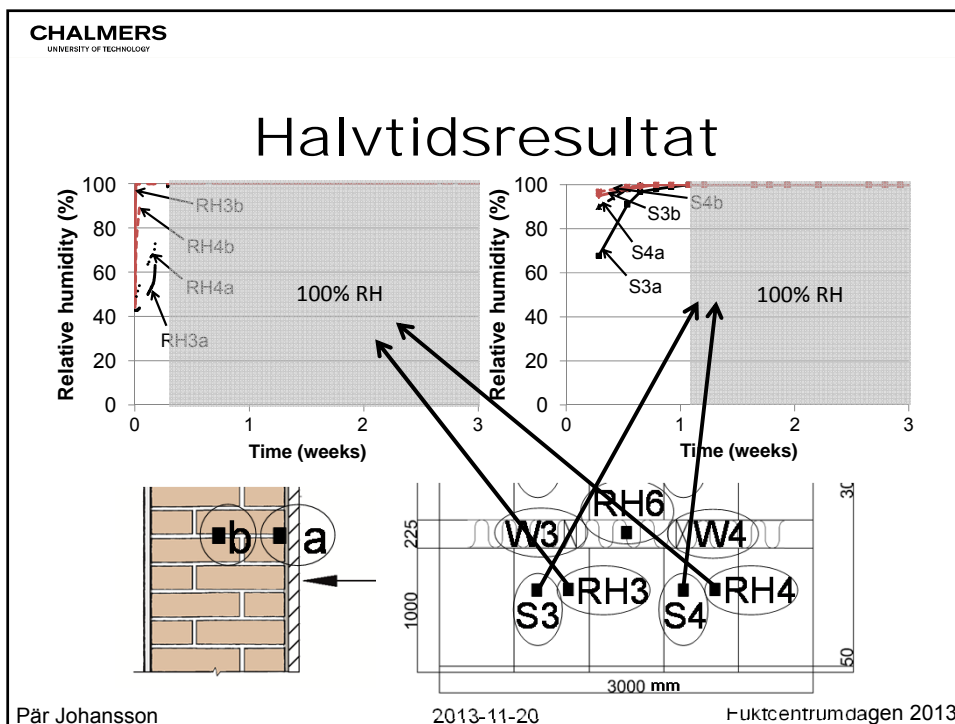
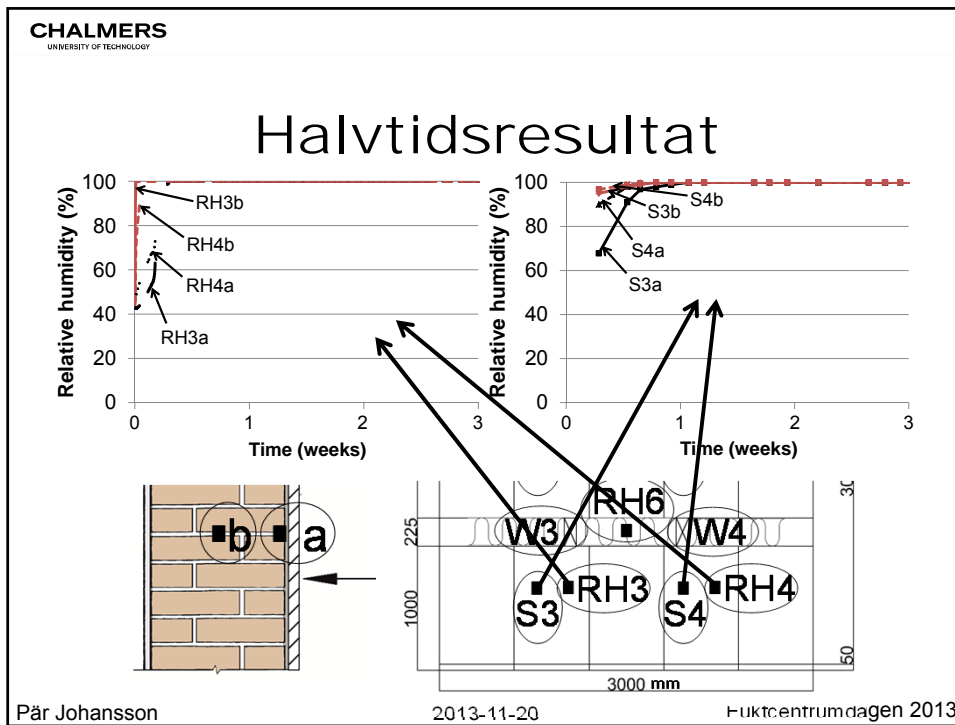
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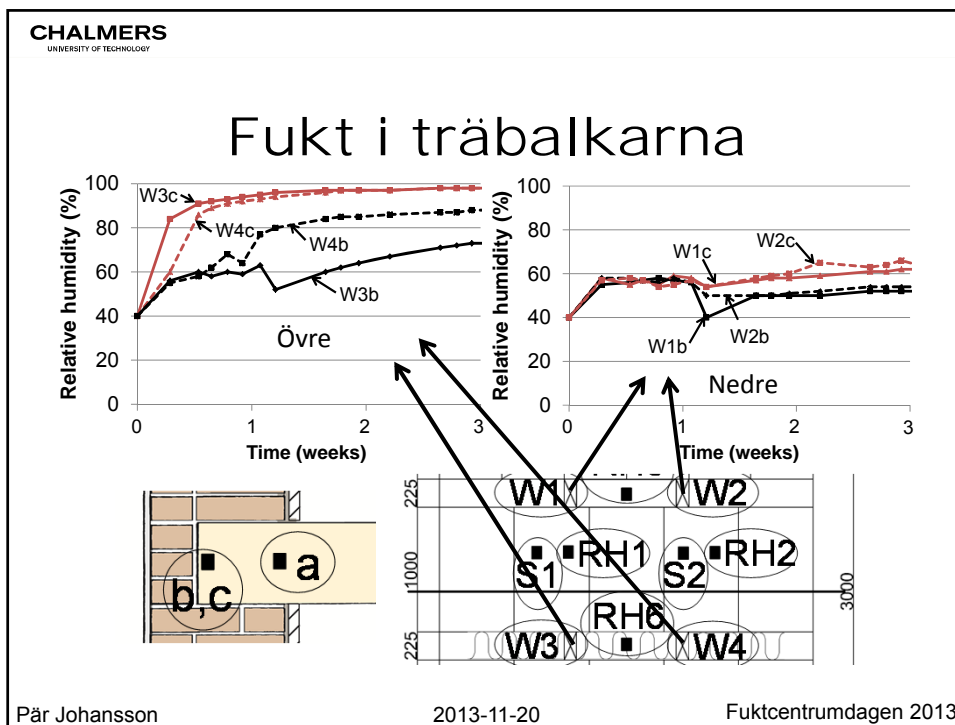


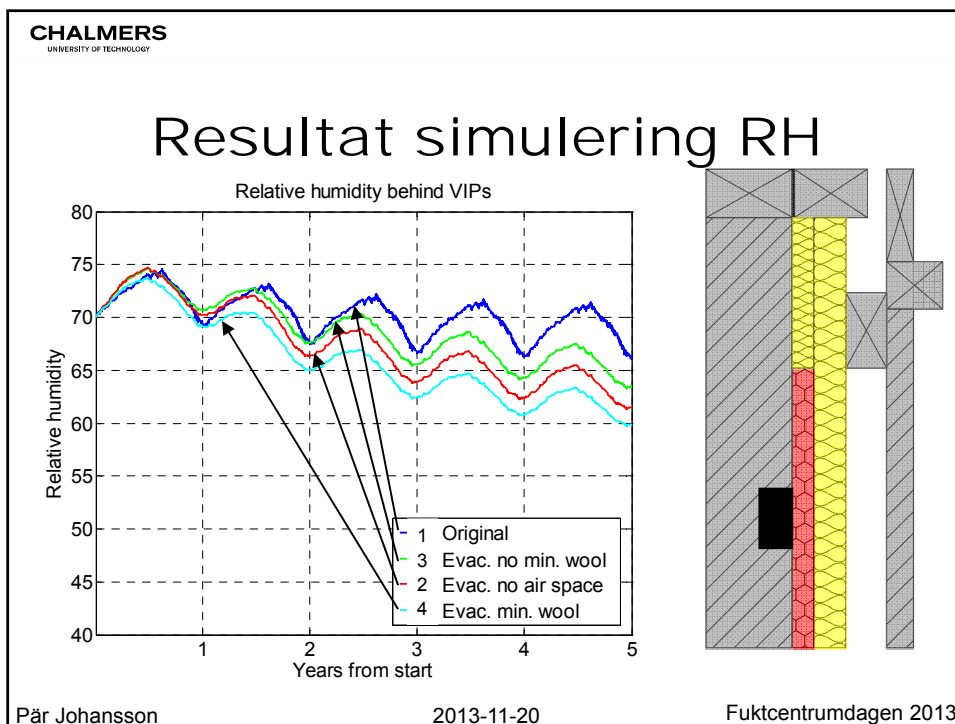
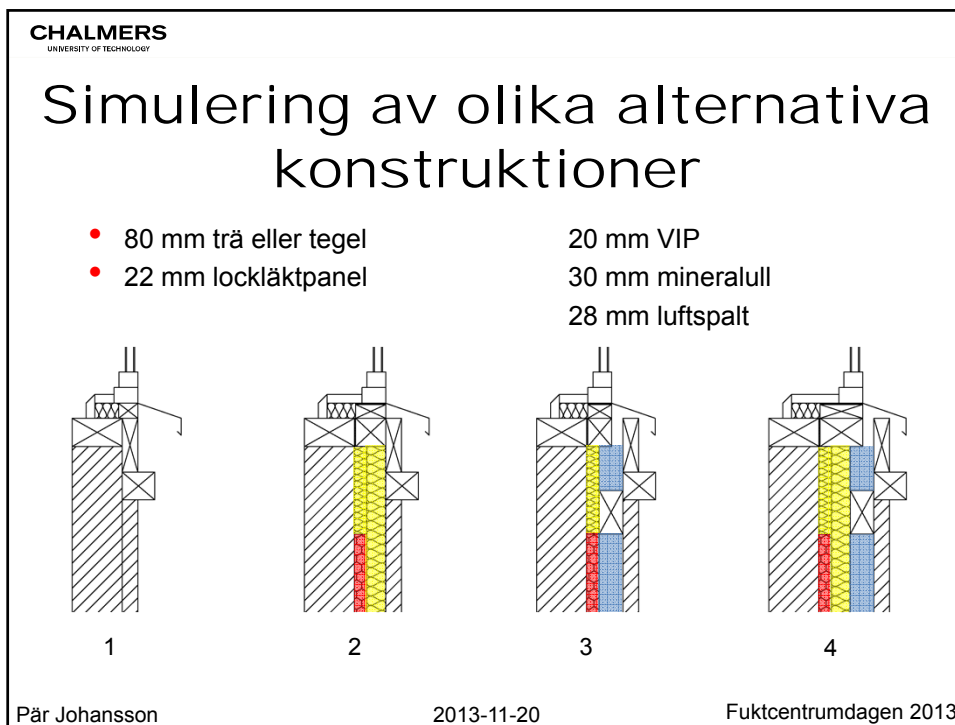


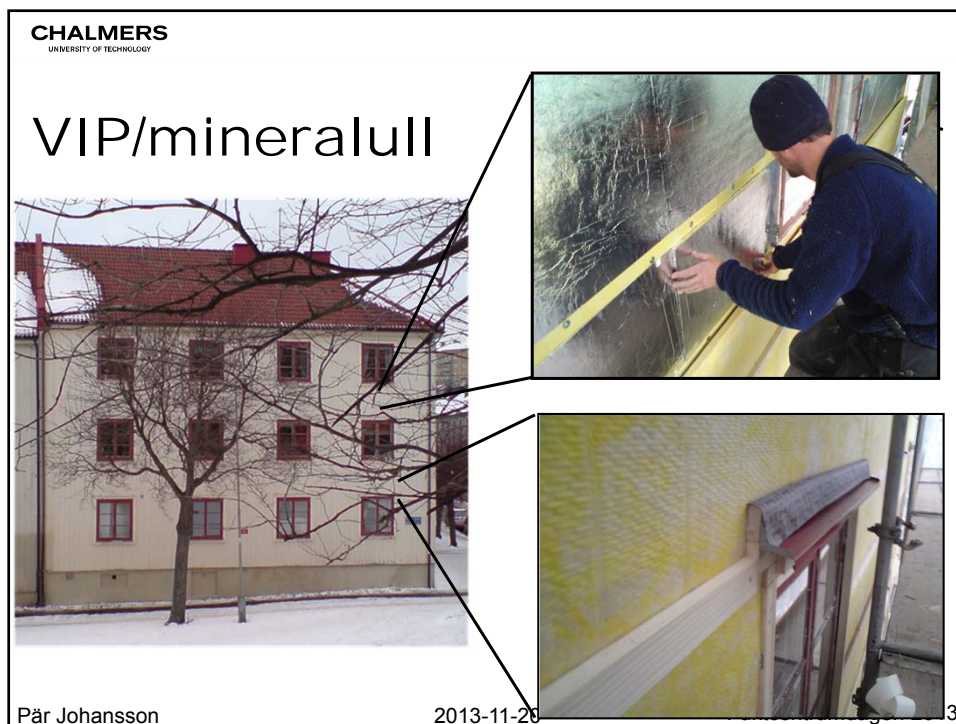
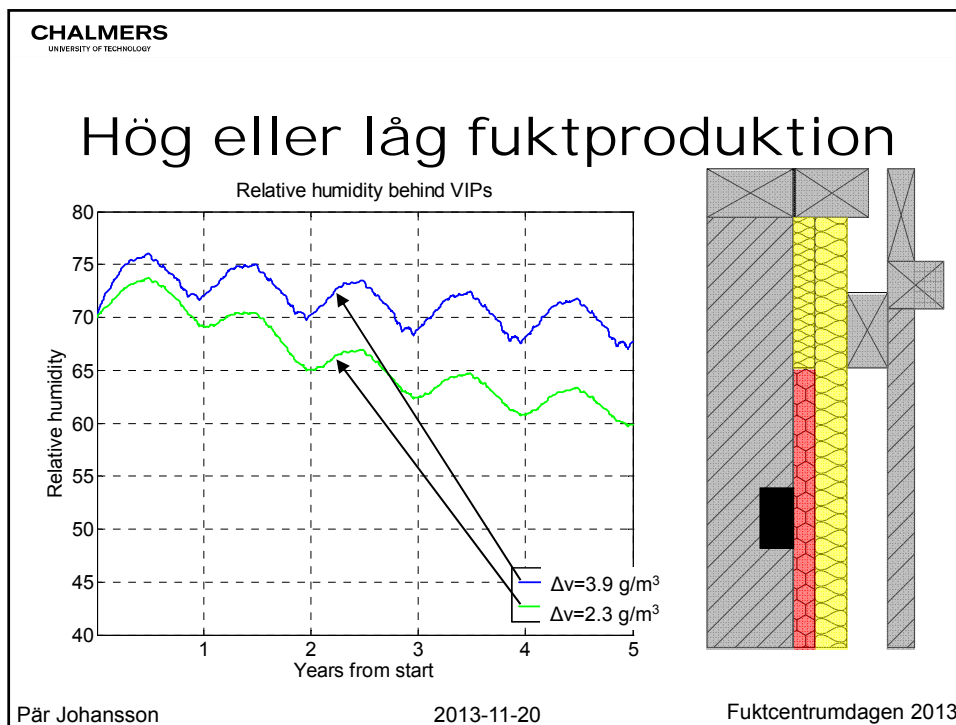












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Utvändig tilläggsisolering: kvarteret Malörten



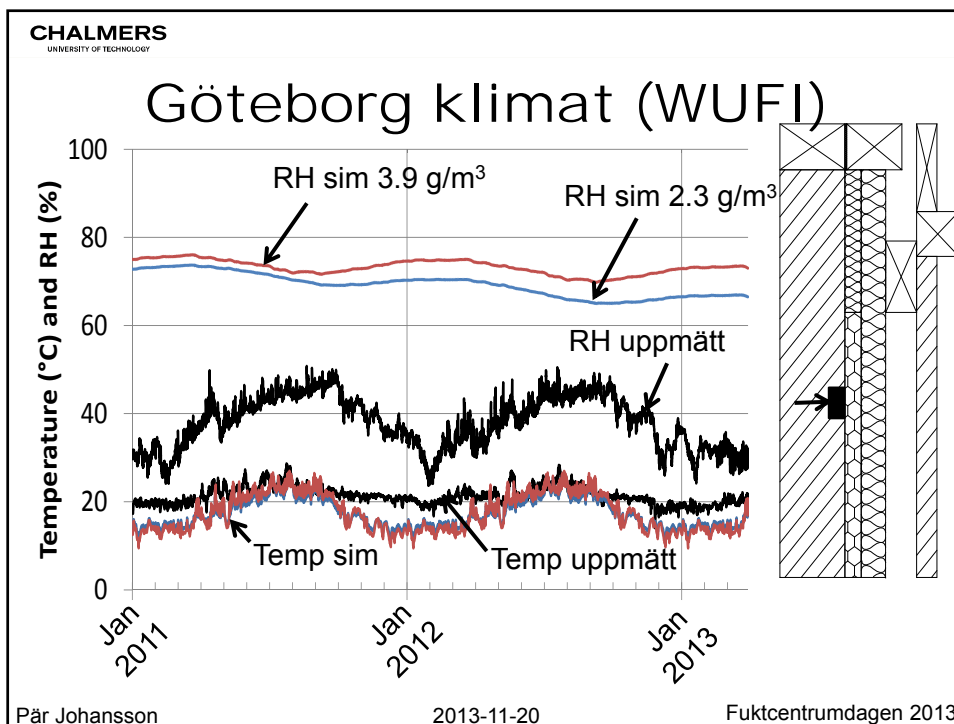
Referens

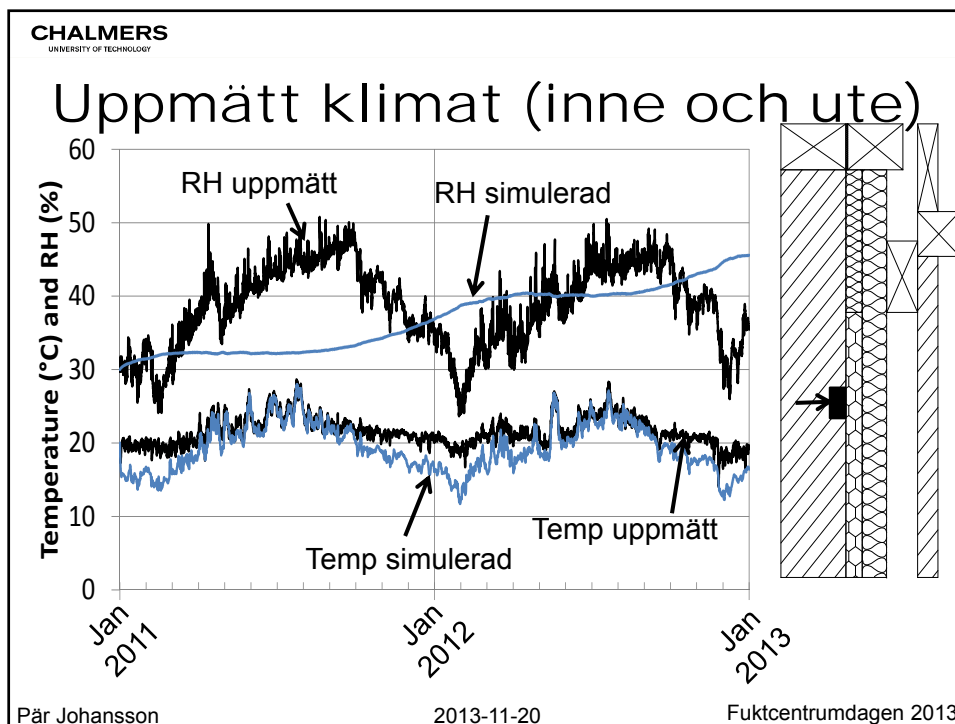
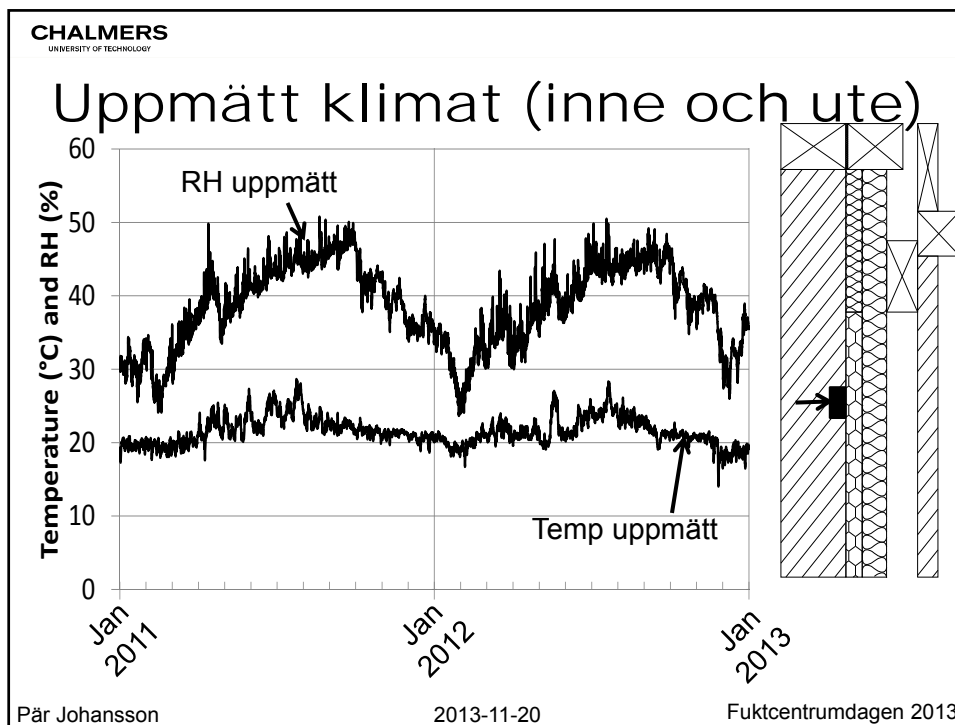
Trä

Testvägg
110 m²

Tegel

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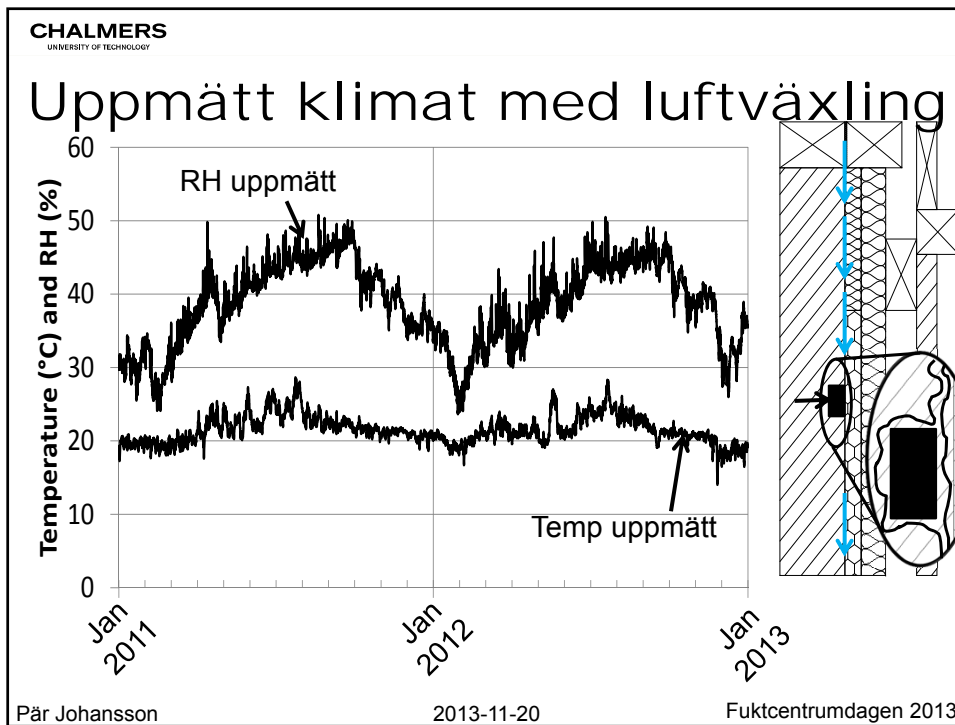


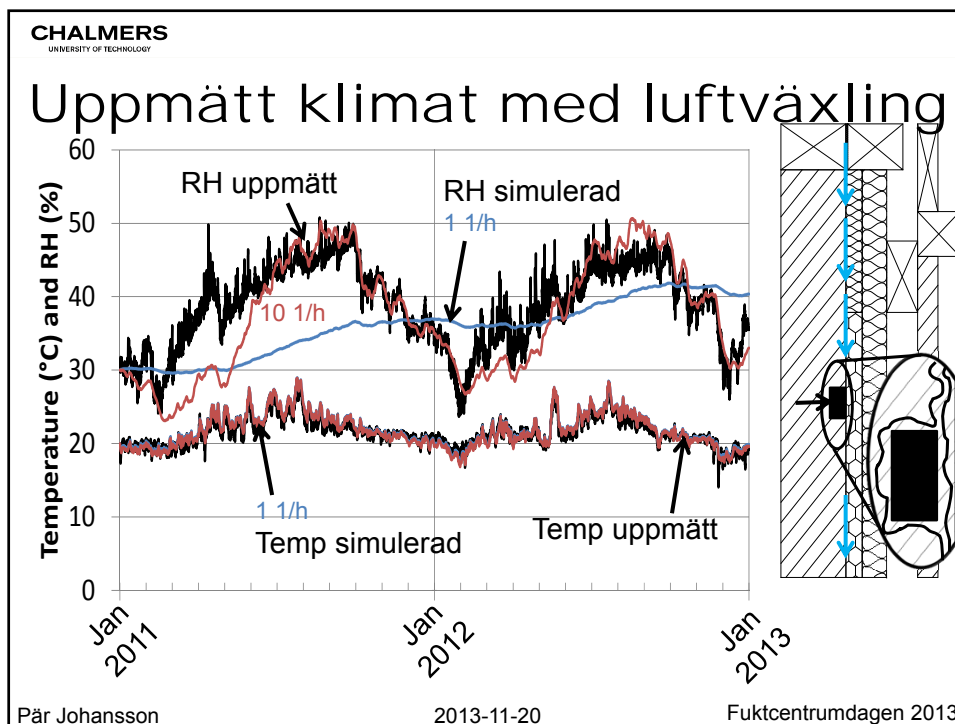
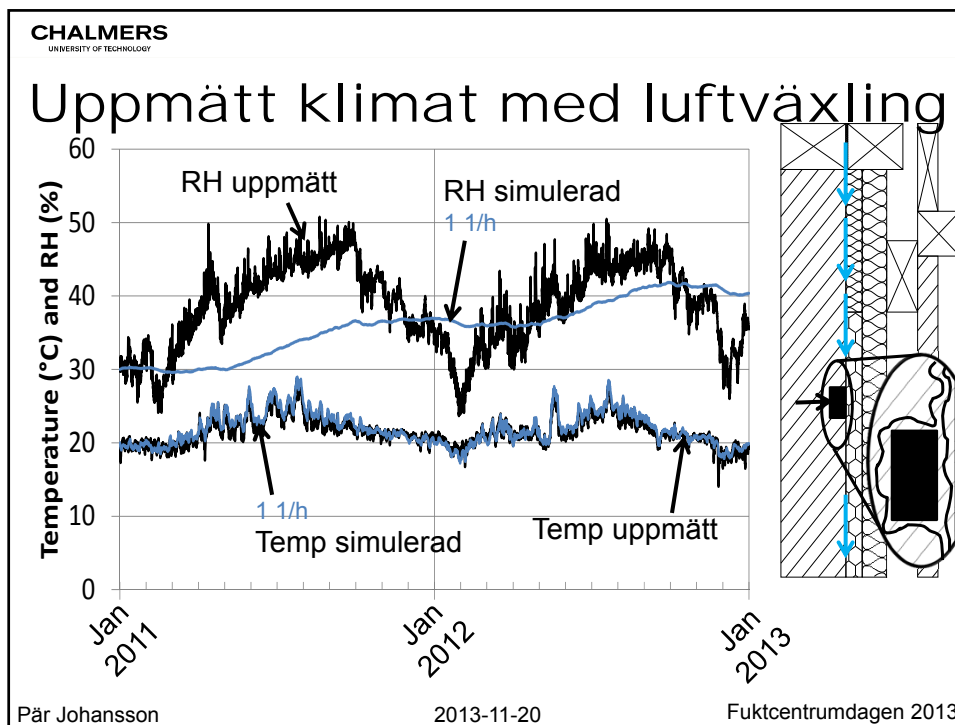


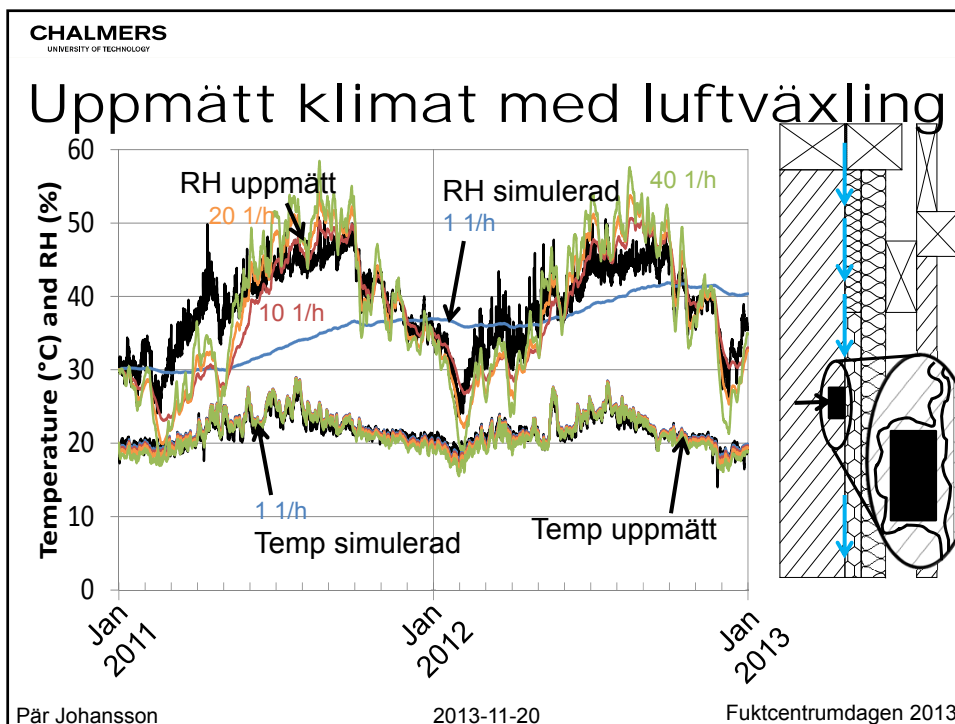
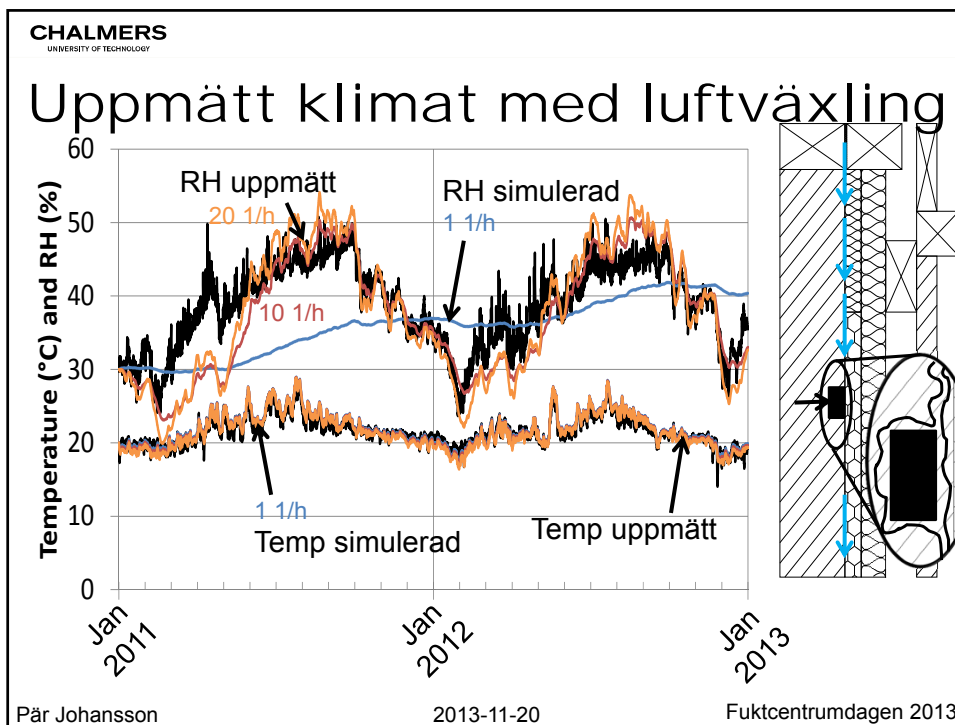
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Varför skillnad?

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Slutsatser

- Invändig tilläggsisolering (pågående)
 - Skydd mot slagregn
 - Lufttätet
 - Träbalksändarna

- Utvändig tilläggsisolering
 - Liten påverkan av inomhusluftens fuktillskott
 - Lufttäteten i konstruktionen viktig!