

Passivhaus Conference 2014

Erneley Close: Technical Challenges & Lessons Learned

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Thursday, 16th of October 2014

Ar1: min 4.6 max 12.8 avg 8.5

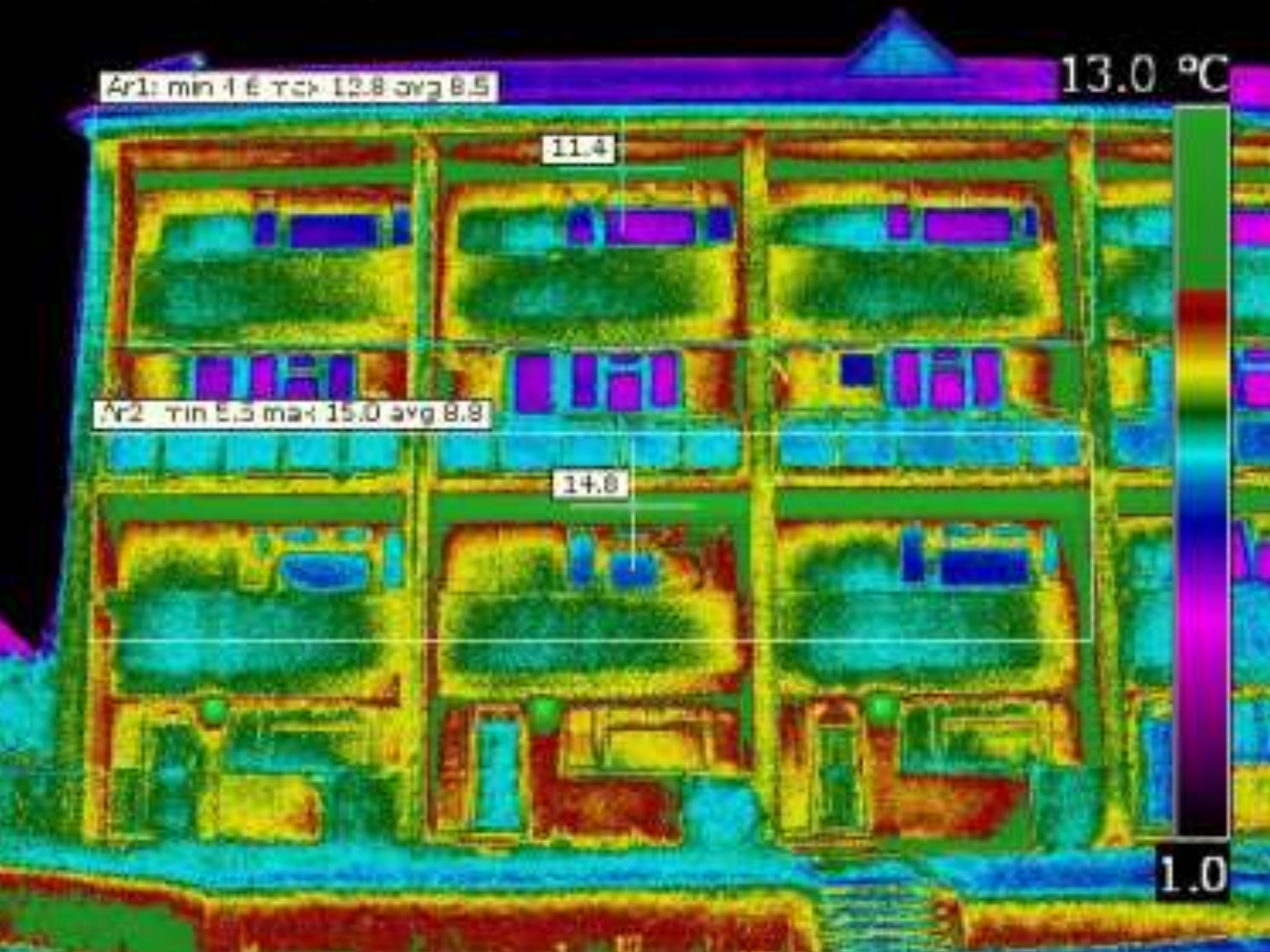
13.0 °C

11.4

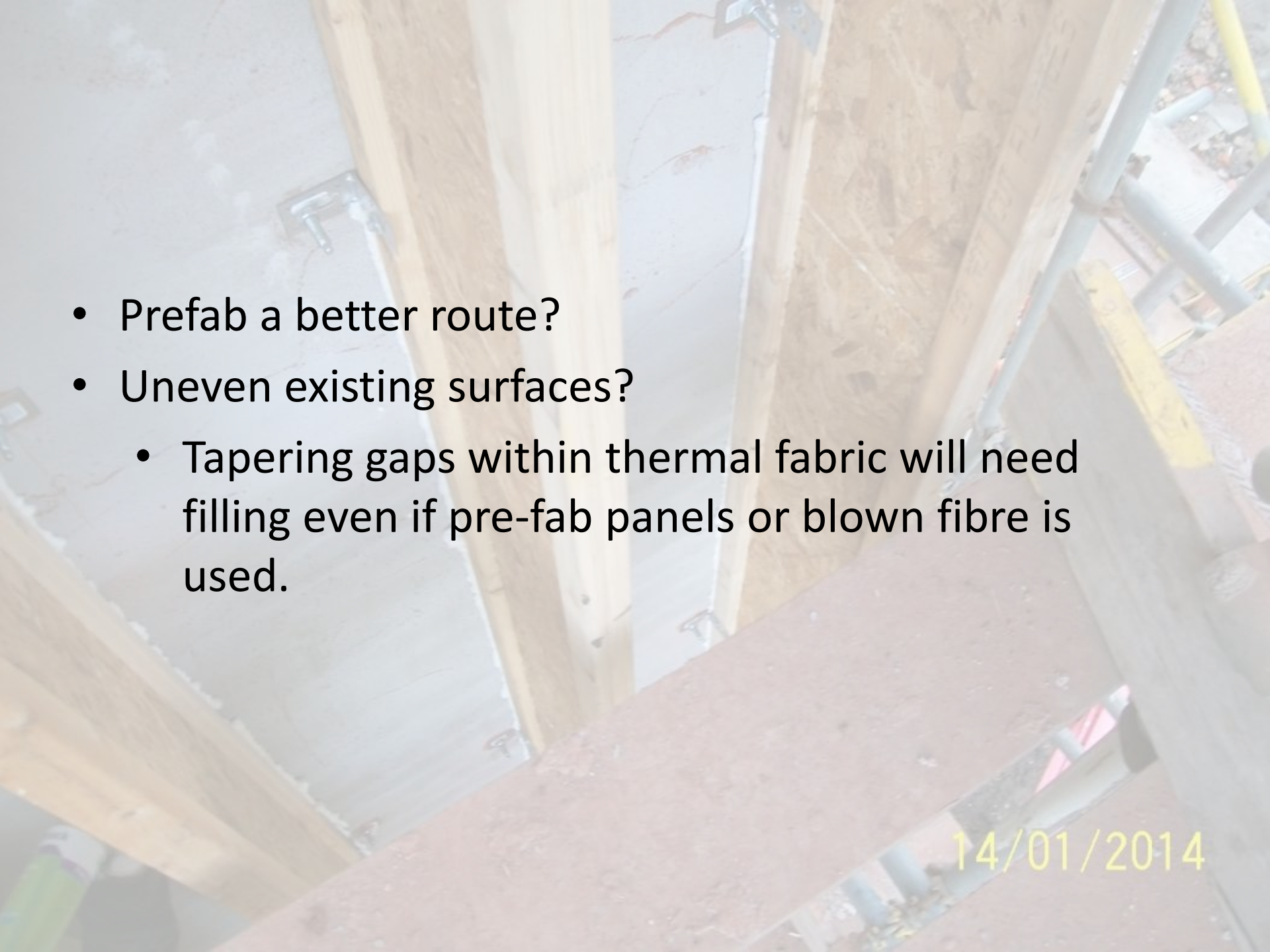
Ar2: min 5.5 max 15.0 avg 8.8

14.8

1.0





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- Prefab a better route?
 - Uneven existing surfaces?
 - Tapering gaps within thermal fabric will need filling even if pre-fab panels or blown fibre is used.

14/01/2014

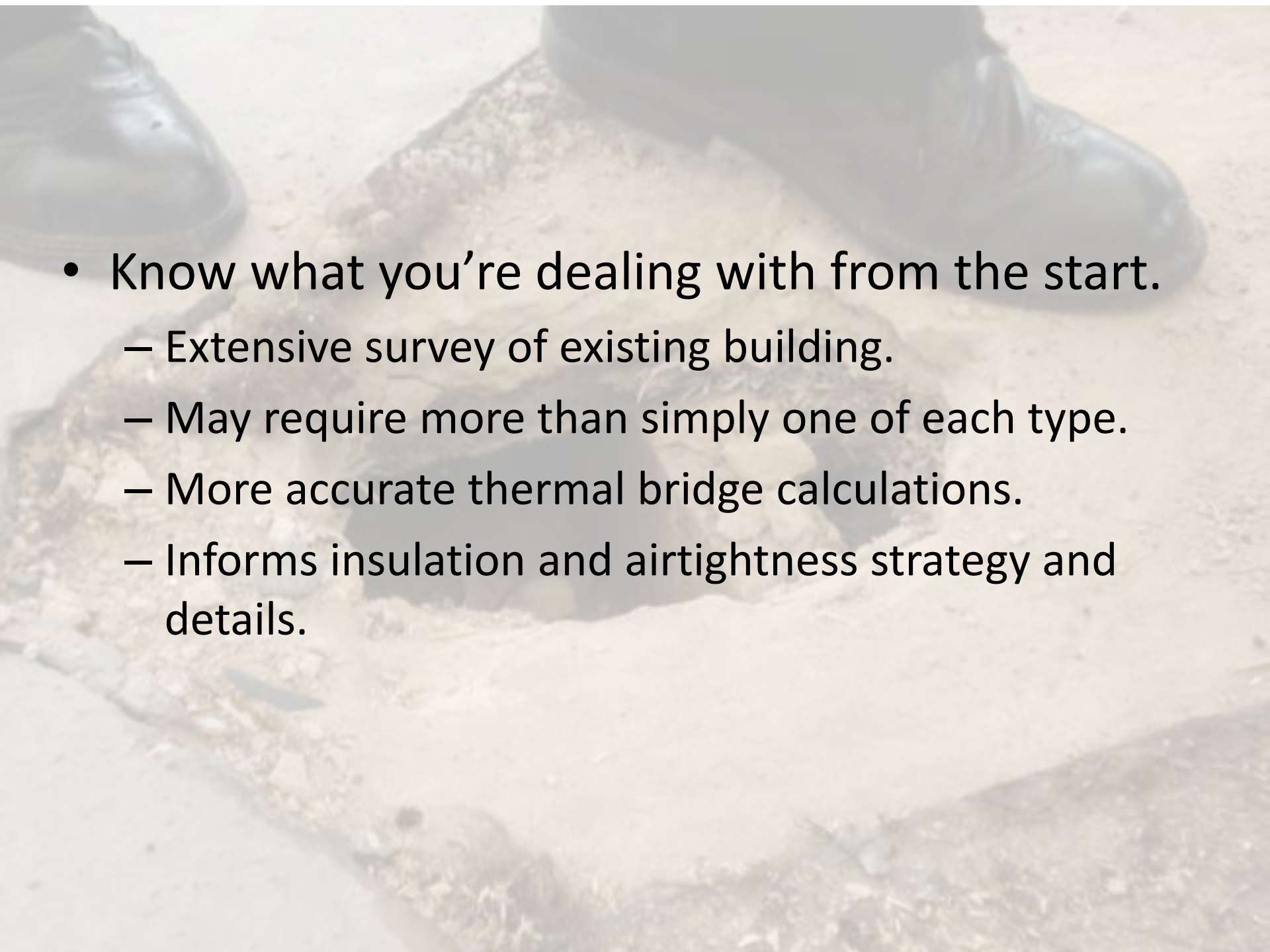


KEEP OUT!

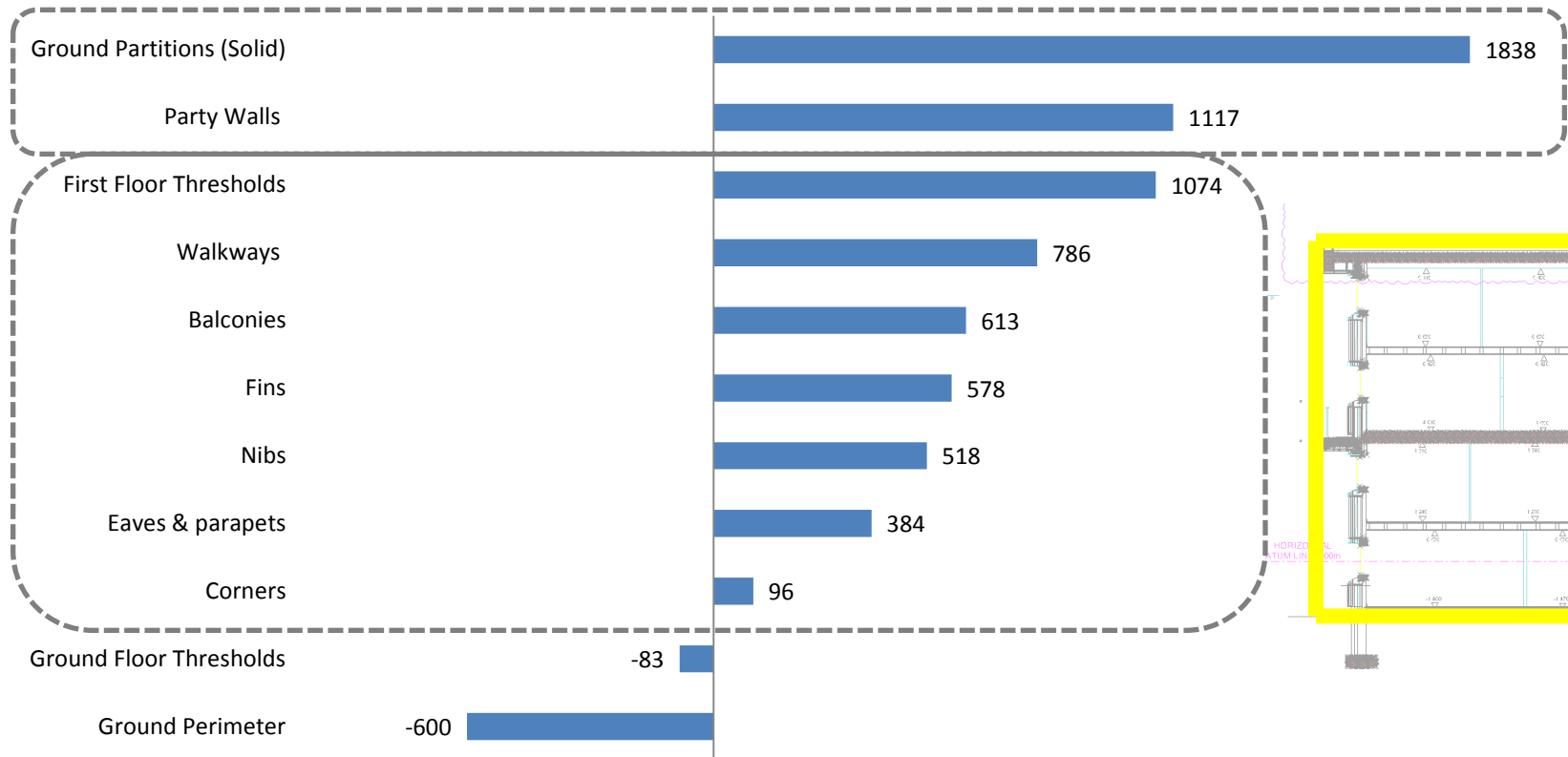
Delicate Flooring

pro clima DA

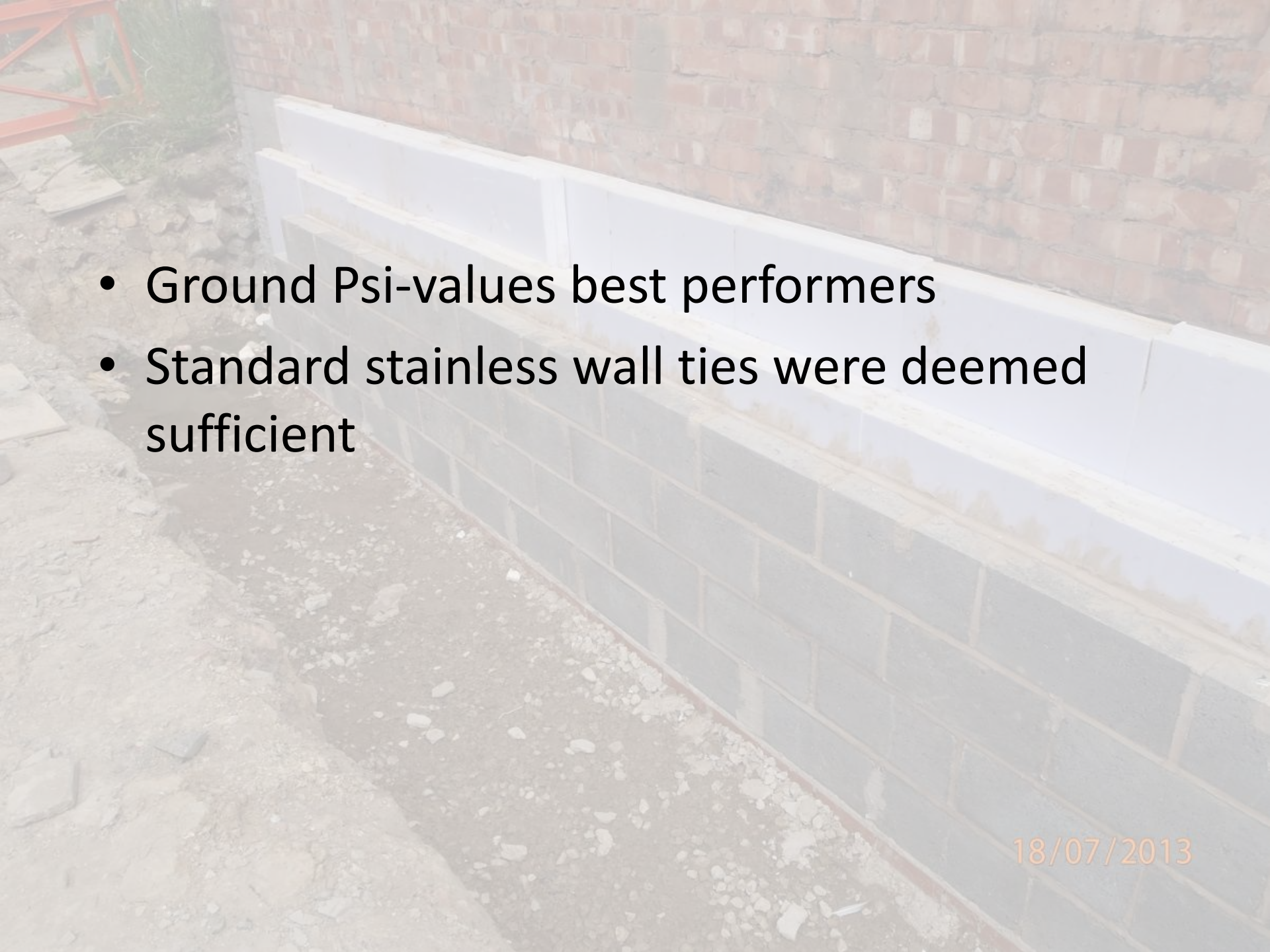
13/12/

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- A person wearing black boots is walking on a concrete surface. There is a large, irregular hole in the concrete in the center of the frame. The person's feet are positioned on either side of the hole, suggesting they are stepping over it. The background is a plain, light-colored concrete floor.
- Know what you're dealing with from the start.
 - Extensive survey of existing building.
 - May require more than simply one of each type.
 - More accurate thermal bridge calculations.
 - Informs insulation and airtightness strategy and details.

Thermal Bridging Losses (kWh/a)



Around 1/3 of total annual heat losses

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- Ground Psi-values best performers
 - Standard stainless wall ties were deemed sufficient

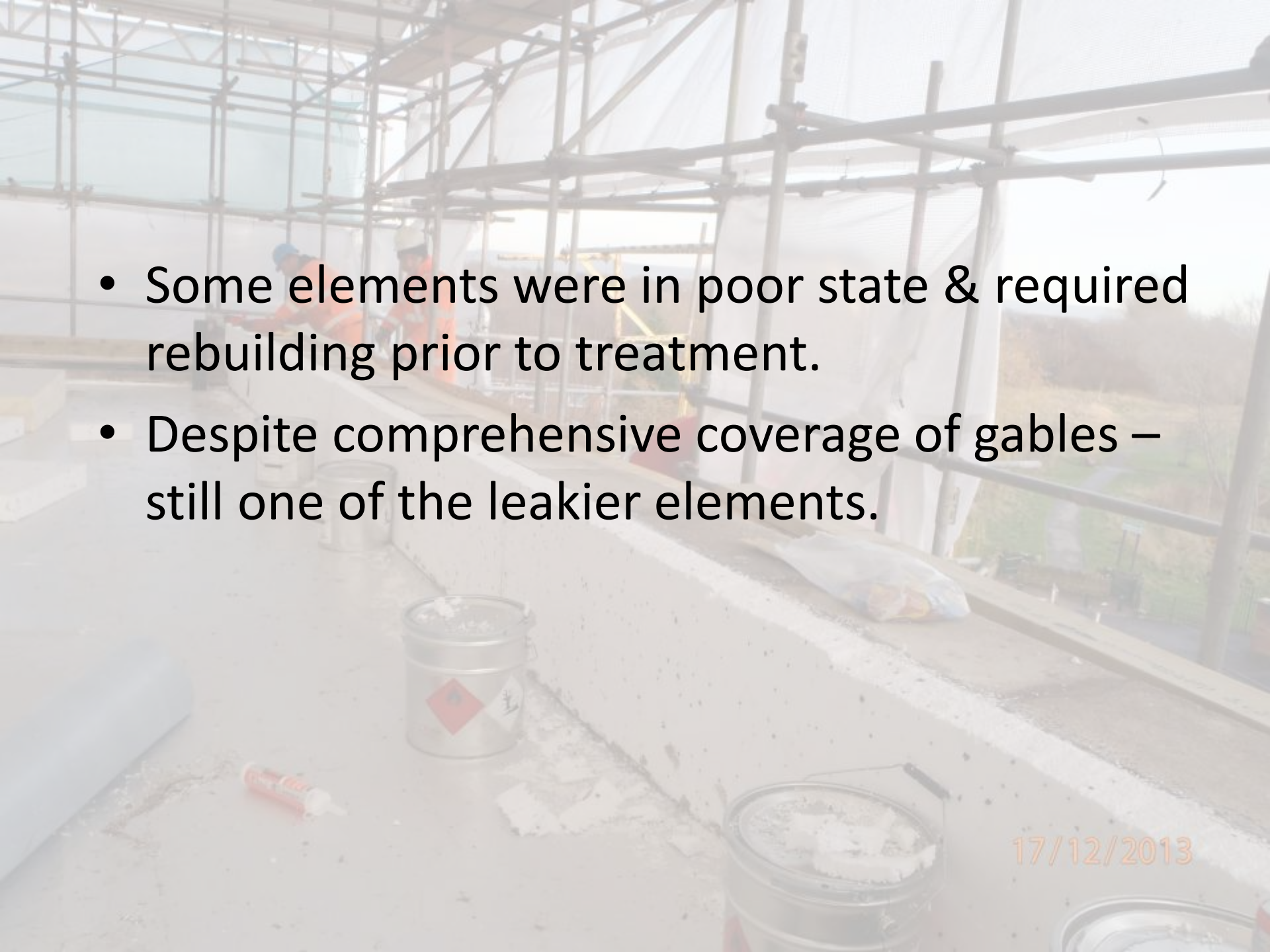
18/07/2013



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VAPORSTOP

09/07/2014

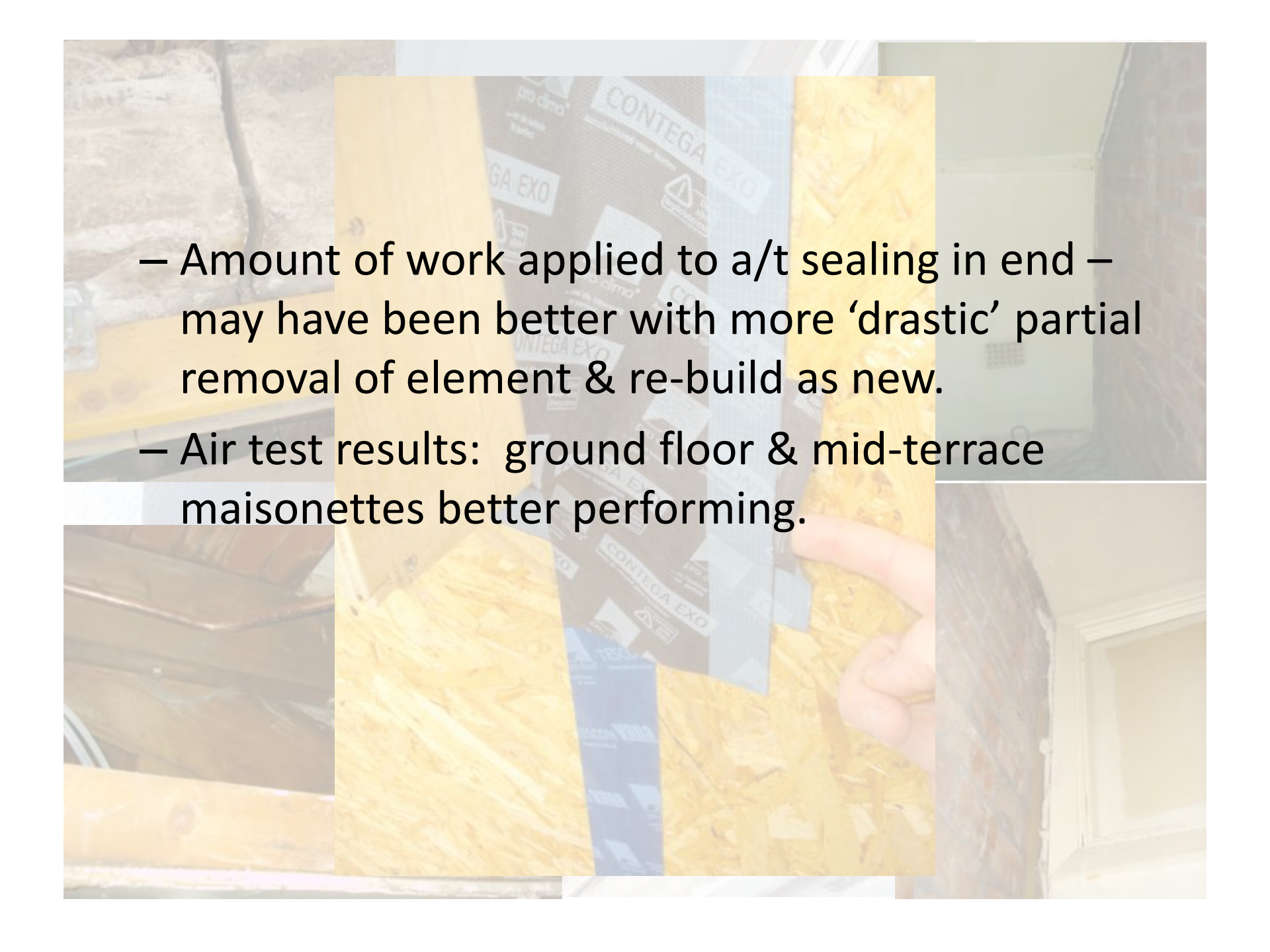
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- Some elements were in poor state & required rebuilding prior to treatment.
 - Despite comprehensive coverage of gables – still one of the leakier elements.

17/12/2013

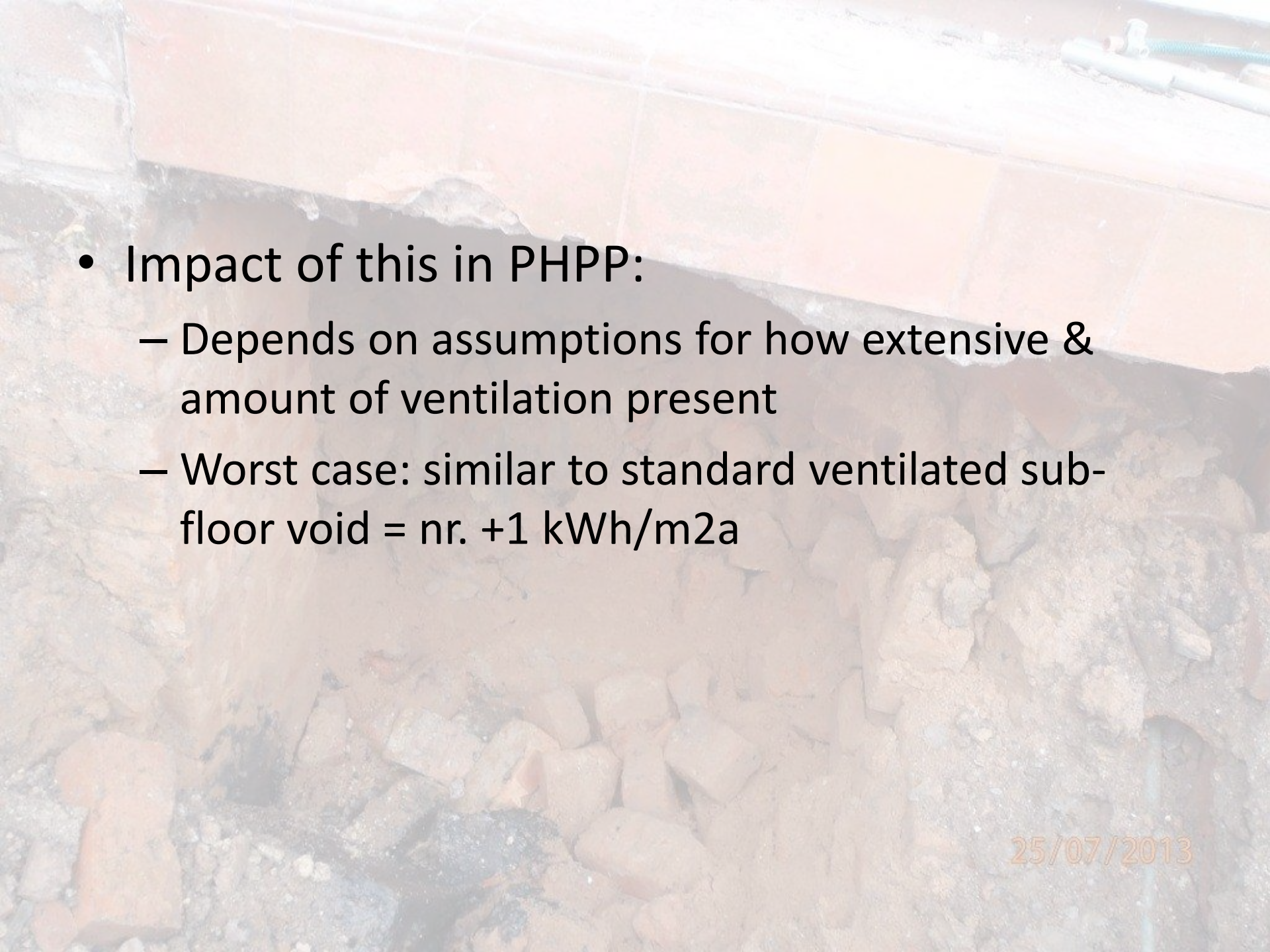


06/05/2014

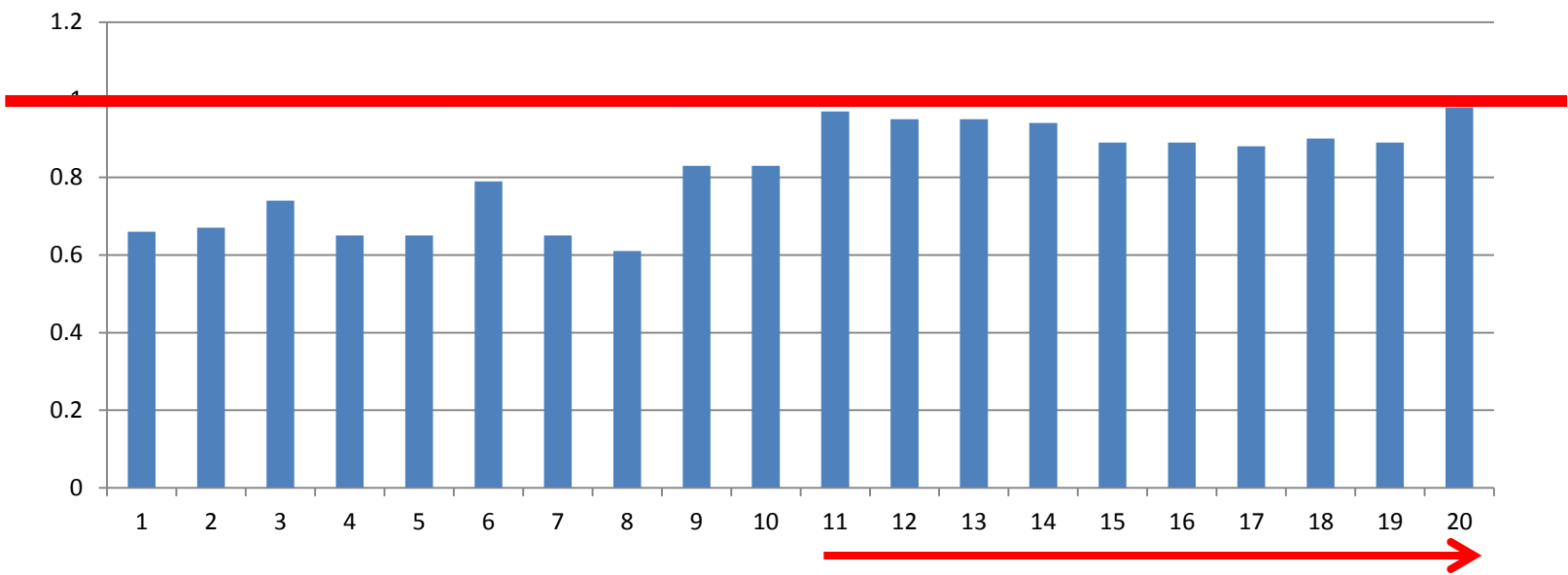
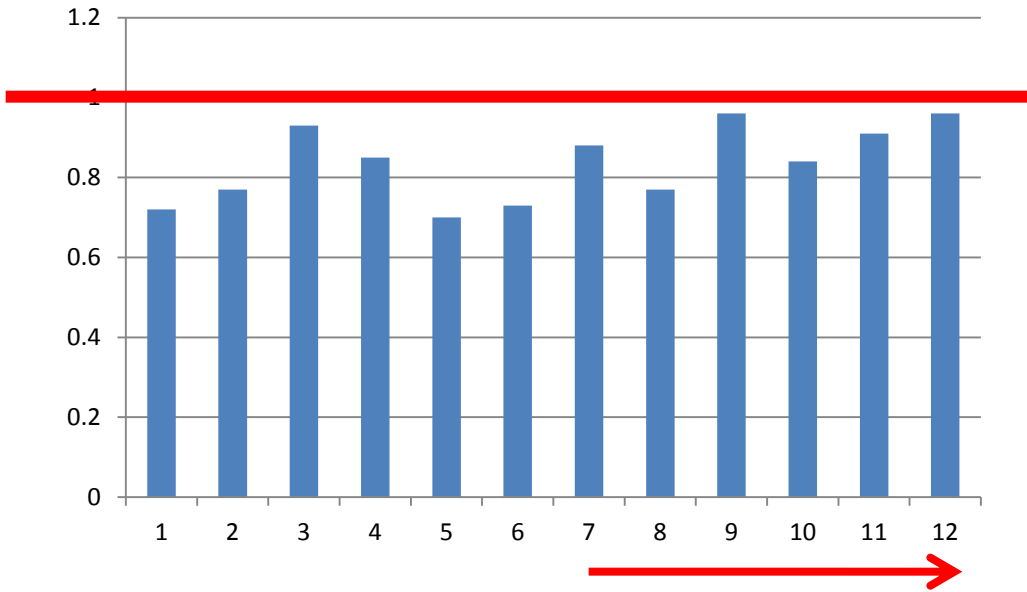


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- Amount of work applied to a/t sealing in end – may have been better with more ‘drastic’ partial removal of element & re-build as new.
 - Air test results: ground floor & mid-terrace maisonettes better performing.



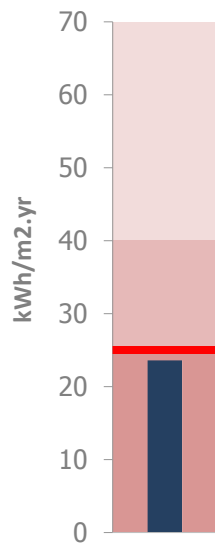
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- Impact of this in PHPP:
 - Depends on assumptions for how extensive & amount of ventilation present
 - Worst case: similar to standard ventilated sub-floor void = nr. +1 kWh/m²a

25/07/2013

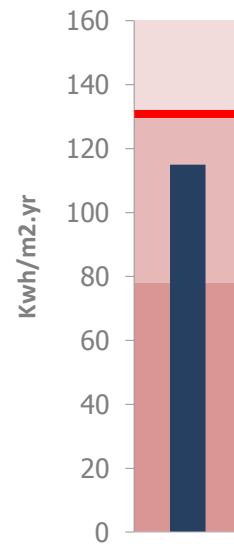


Current Performance For 12 Maisonettes

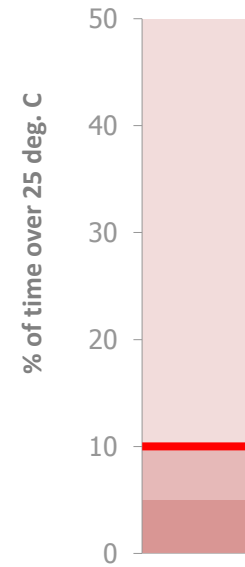
Space Heat Demand



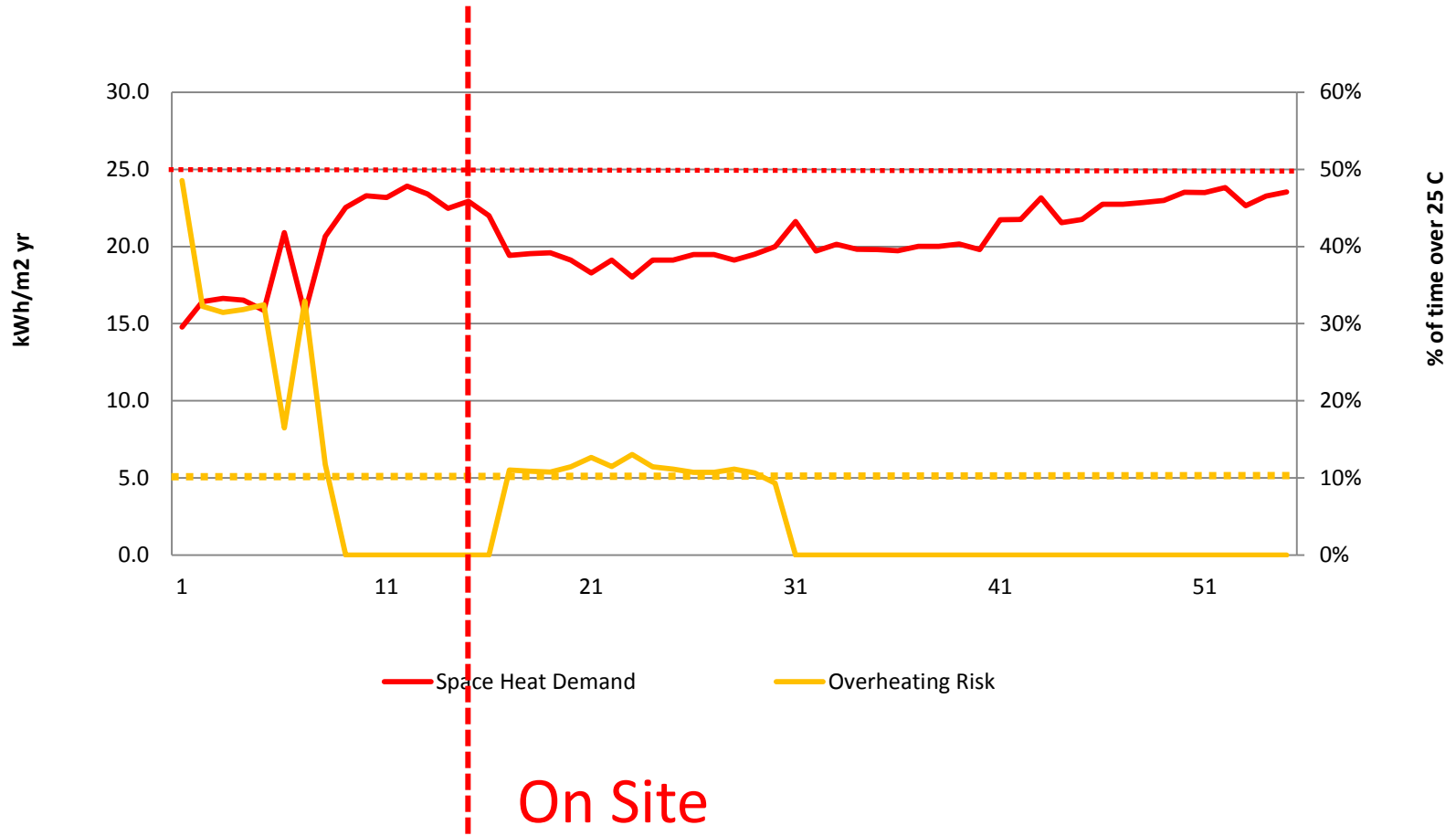
Primary Energy Demand



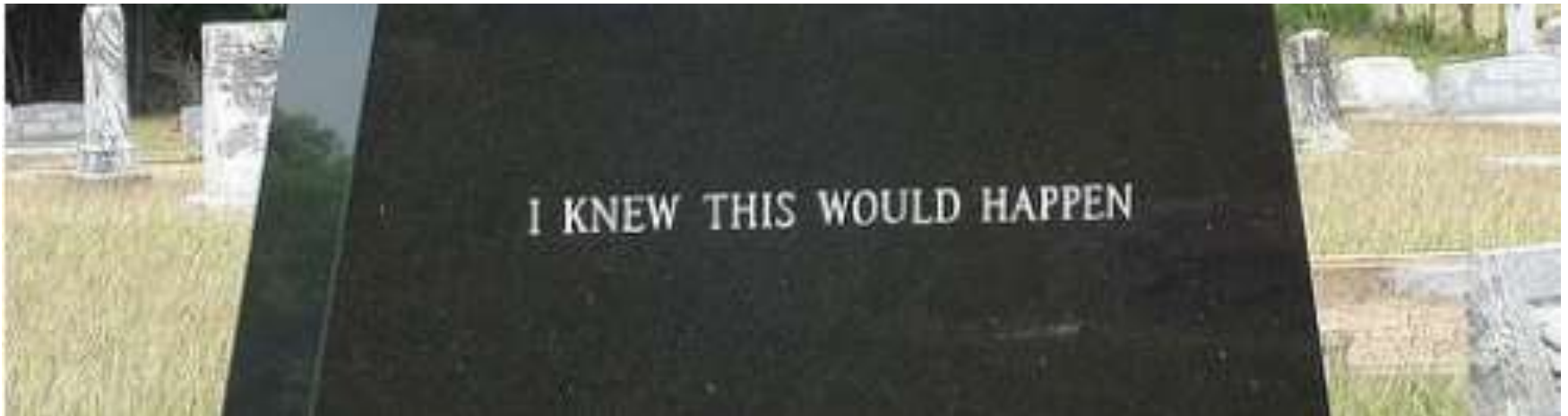
Overheating Risk



Project PHPP Outputs for 20 Maisonettes



- Passivhaus, EnePHit & PHPP
- Unavoidable – plan for it.
 - (At least 3+ kWh/m²a below limit)
- Death, taxes & ... design creep



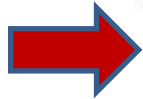
- Are the “worst” worth EnerPHit?
 - If comfort & fabric are not compromised why not ease up on energy? AECB Silver?
 - Certification vs. common sense.
 - EnerPHit is a great approach, yet worth remembering that one size does not fit all.
 - However, we need to continue to be ambitious and find solutions that work across the UK building stock.





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Thank you.



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CONSULTING ENGINEERS

Eric Parks



● WARM: Low Energy Building Practice