Technology Strategy Board
Non-domestic Building Performance Evaluation Workshop
Coventry, 29 January 2013

Can you trust the fabric?

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www.usablebuildings.co.uk

Can you trust the fabric?

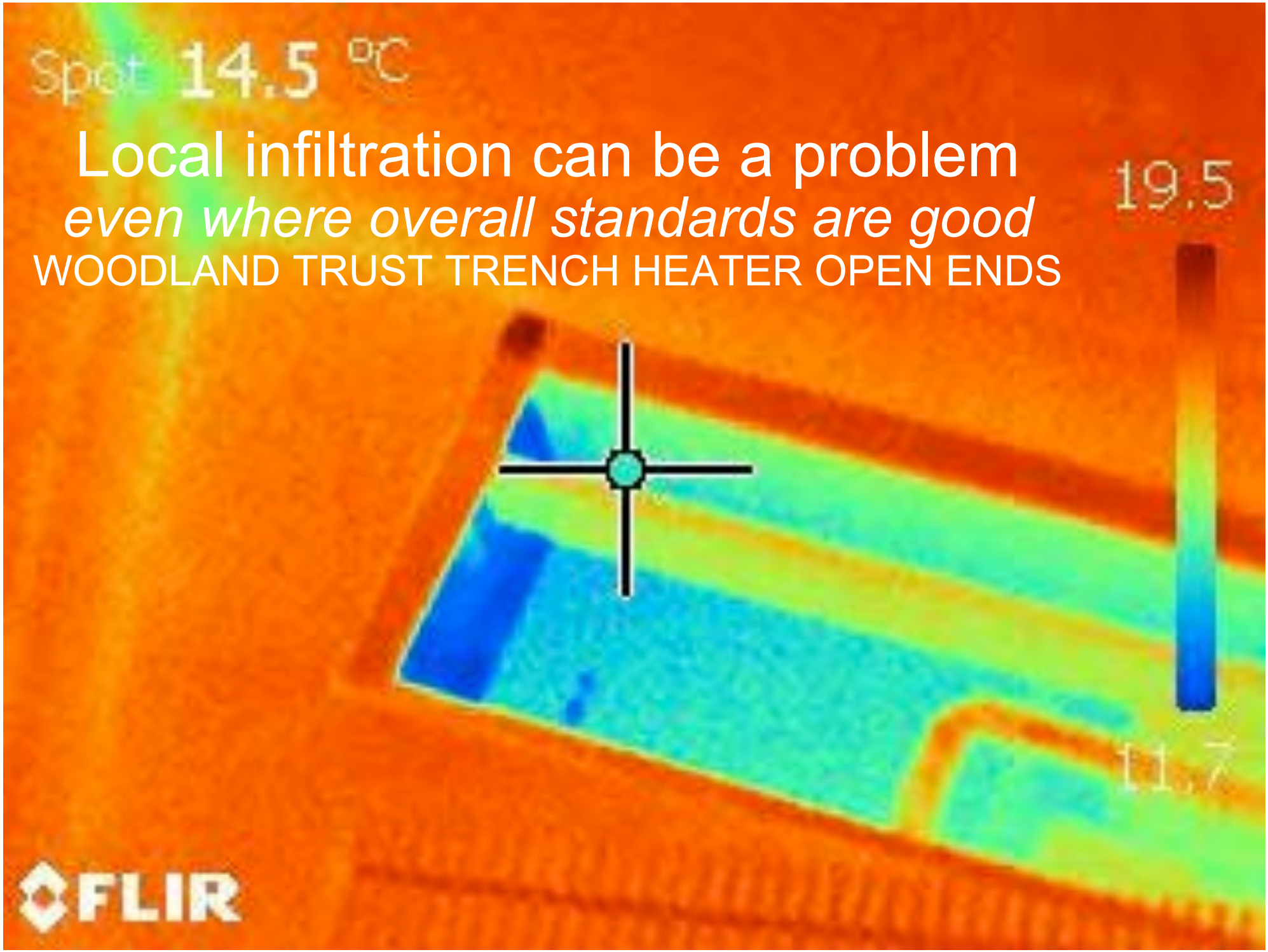
1. Can you trust the infiltration?
2. Can you trust the insulation?
3. Can you trust the doors?
4. Can you trust the windows?

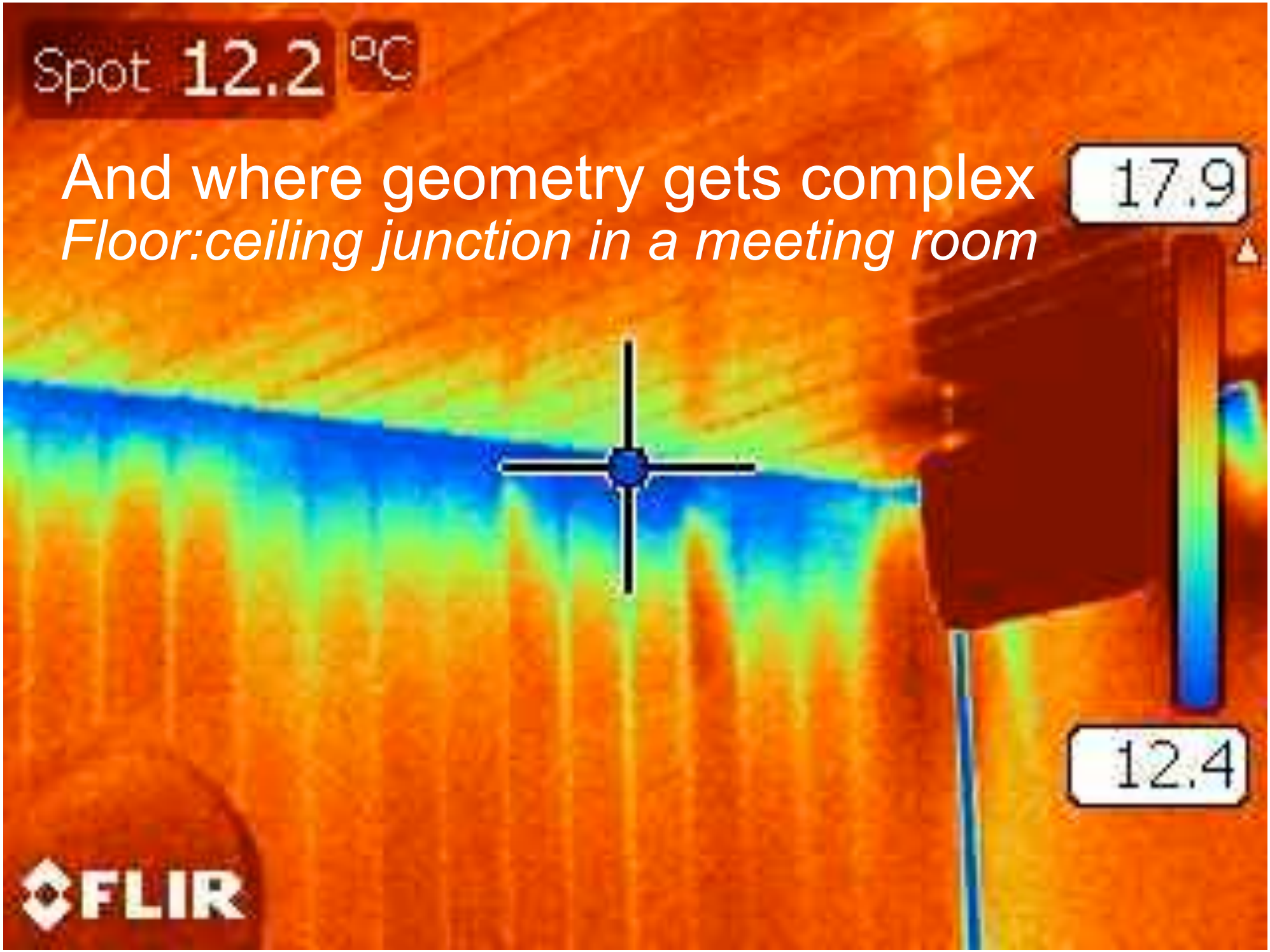

Fabric First:
Efficient services need to be able to rely on it
Otherwise services will need to be oversized, supplemented, and/or operated at higher power for longer hours

Elizabeth Fry, UEA, *repeat tests by BSRIA*

We can do much better now

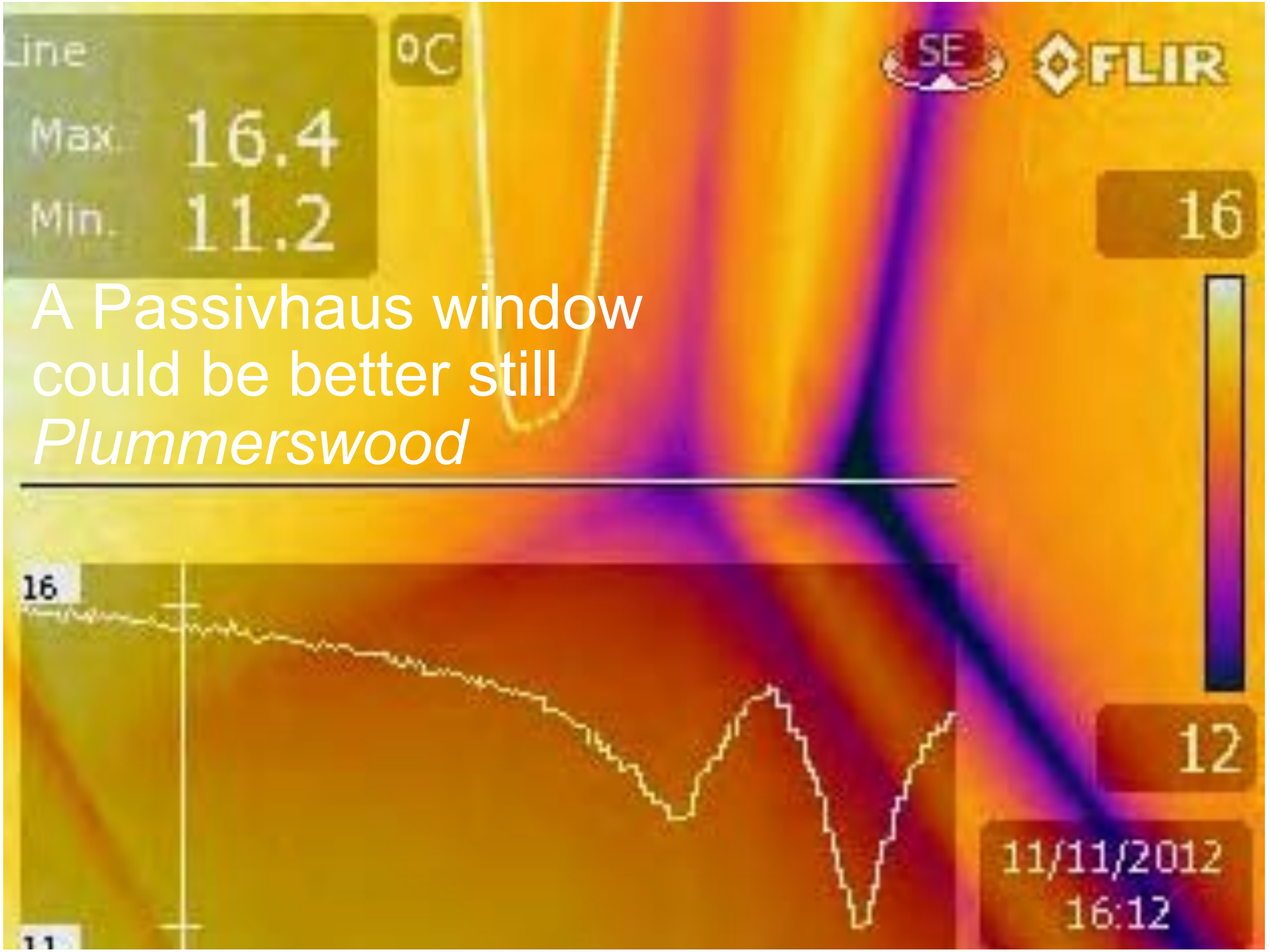
… *but will it last?*


Spot 14.5 °C
Local infiltration can be a problem
even where overall standards are good
WOODLAND TRUST TRENCH HEATER OPEN ENDS
19.5
11.7
FLIR


Spot 12.2 °C
And where geometry gets complex
Floor:ceiling junction in a meeting room
17.9
12.4
FLIR


A supposedly-pressurised floor void.
Please, how do you make several km of this airtight after the event?

Cross-laminated timber construction *does well at the Woodland Trust*

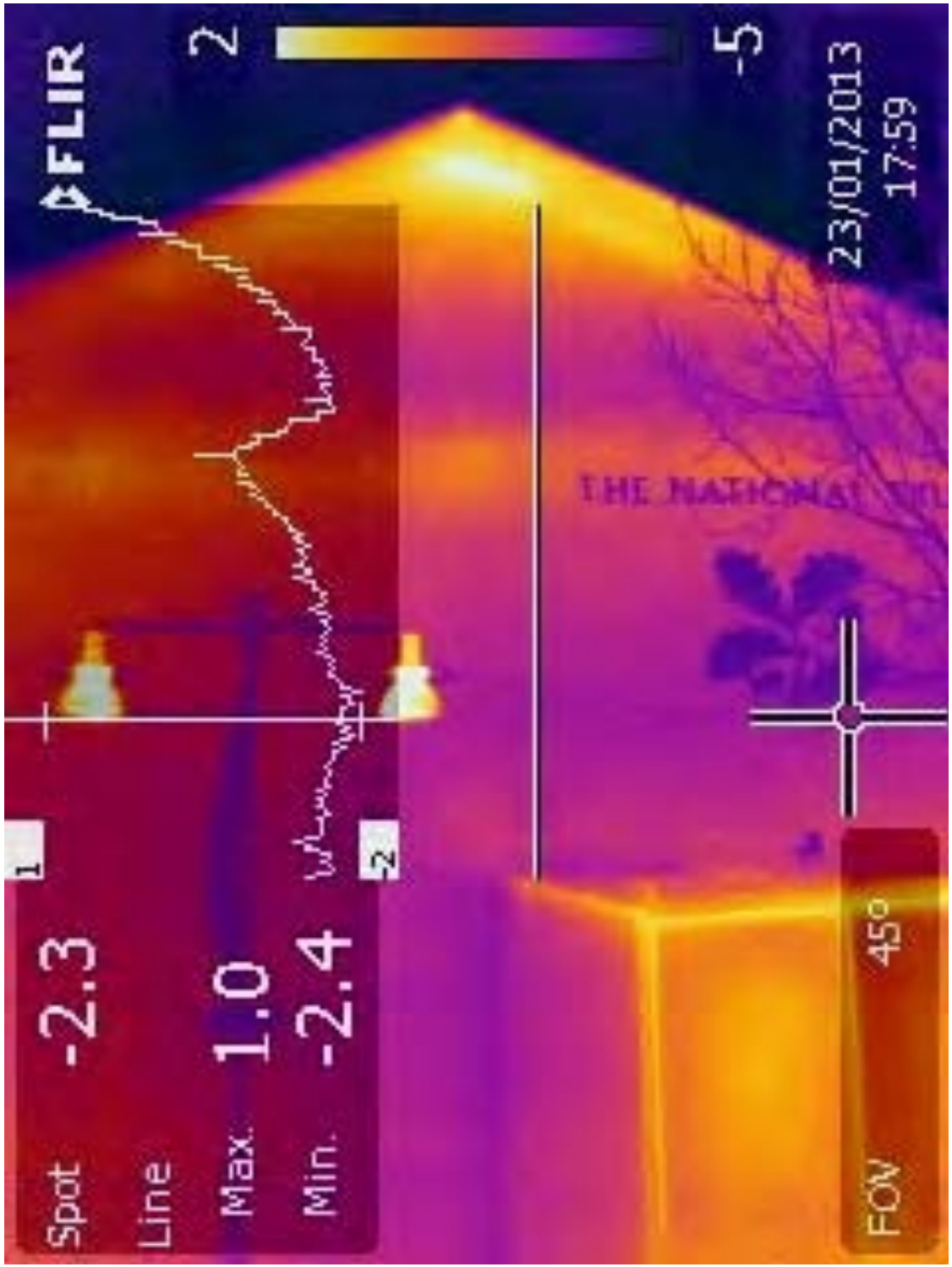


A Passivhaus window could be better still

Plummerswood

Thermal bridging and possible convective by-pass

at the National Trust



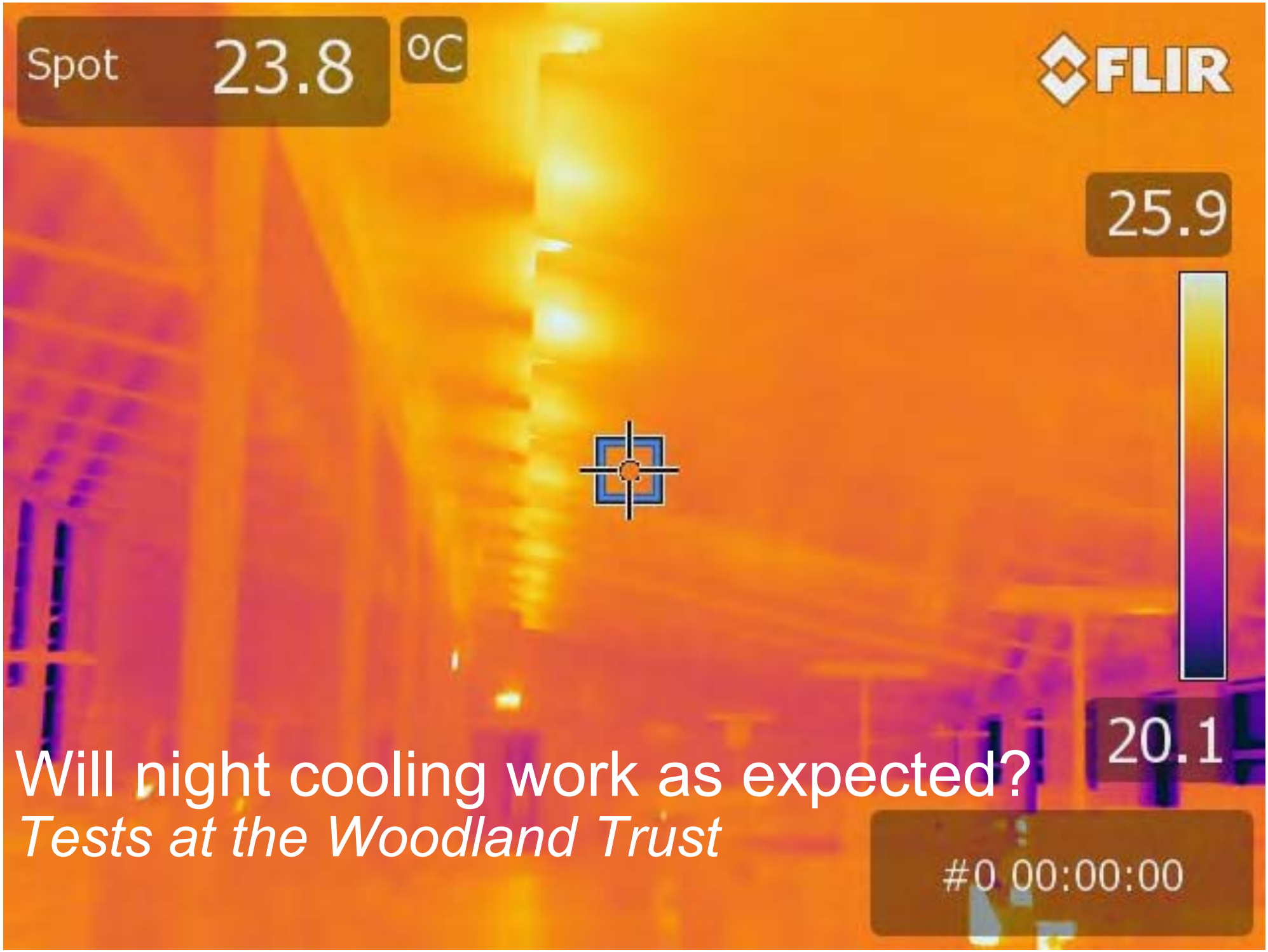

PLEASE DO NOT
USE THIS DOOR
IT'S BROKEN
THANKS


PRESS
TO OPEN


Will windows provide the calculated ventilation area … *or will they barely clear their frames and reveals?*

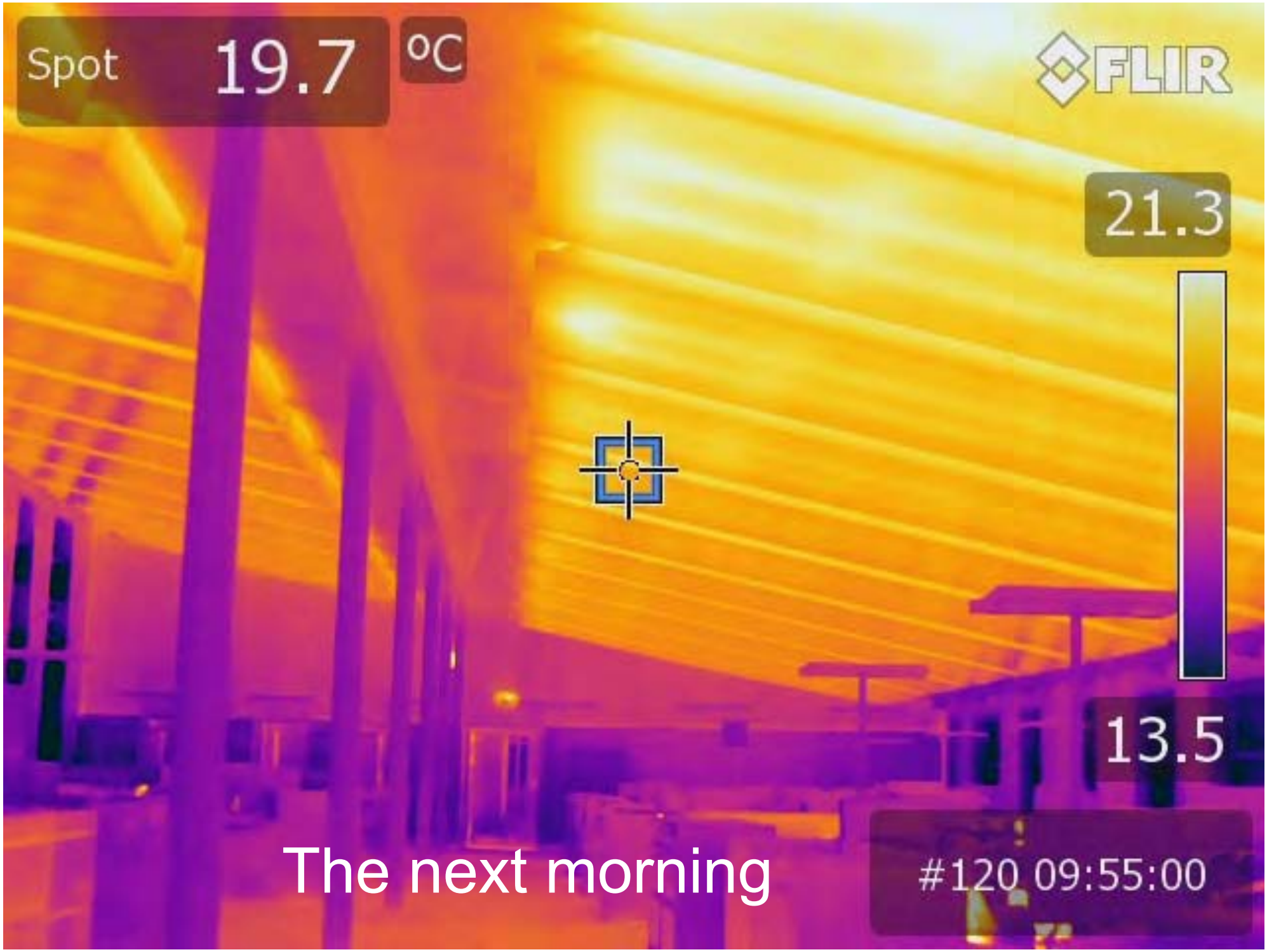

Glare can come from funny places
from cars to the North at the Woodland Trust


Can you naturally-ventilate open plan in Winter? *Some difficulties at Woodland Trust*



Will night cooling work as expected?

Tests at the Woodland Trust



The next morning


Spot 20.1 °C
FLIR
21.2
16.5
#145 12:00:00
Two hours later

We’re hoping to optimise this in the follow-on project this summer, *with heat flux sensing and time lapse IR*