

Thermal Imaging

A Brief Introduction To Surveying A Home

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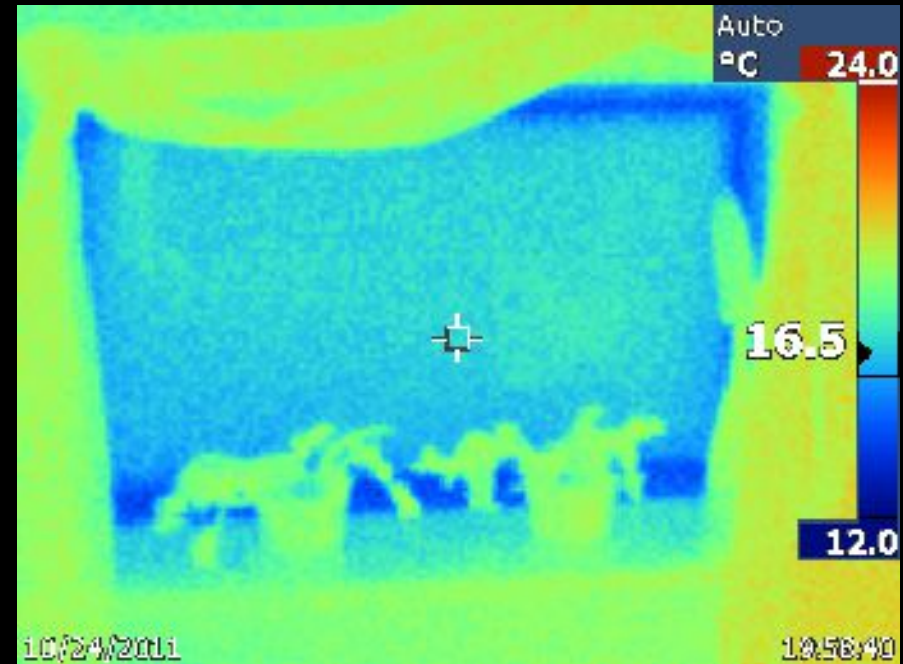
Theory

- Everything radiates infra-red or thermal energy
- The temperature of an object gives you radiation of a specific frequency
- A thermal imaging camera converts these frequencies back into temperatures
- The temperatures are displayed as different false colours on the display

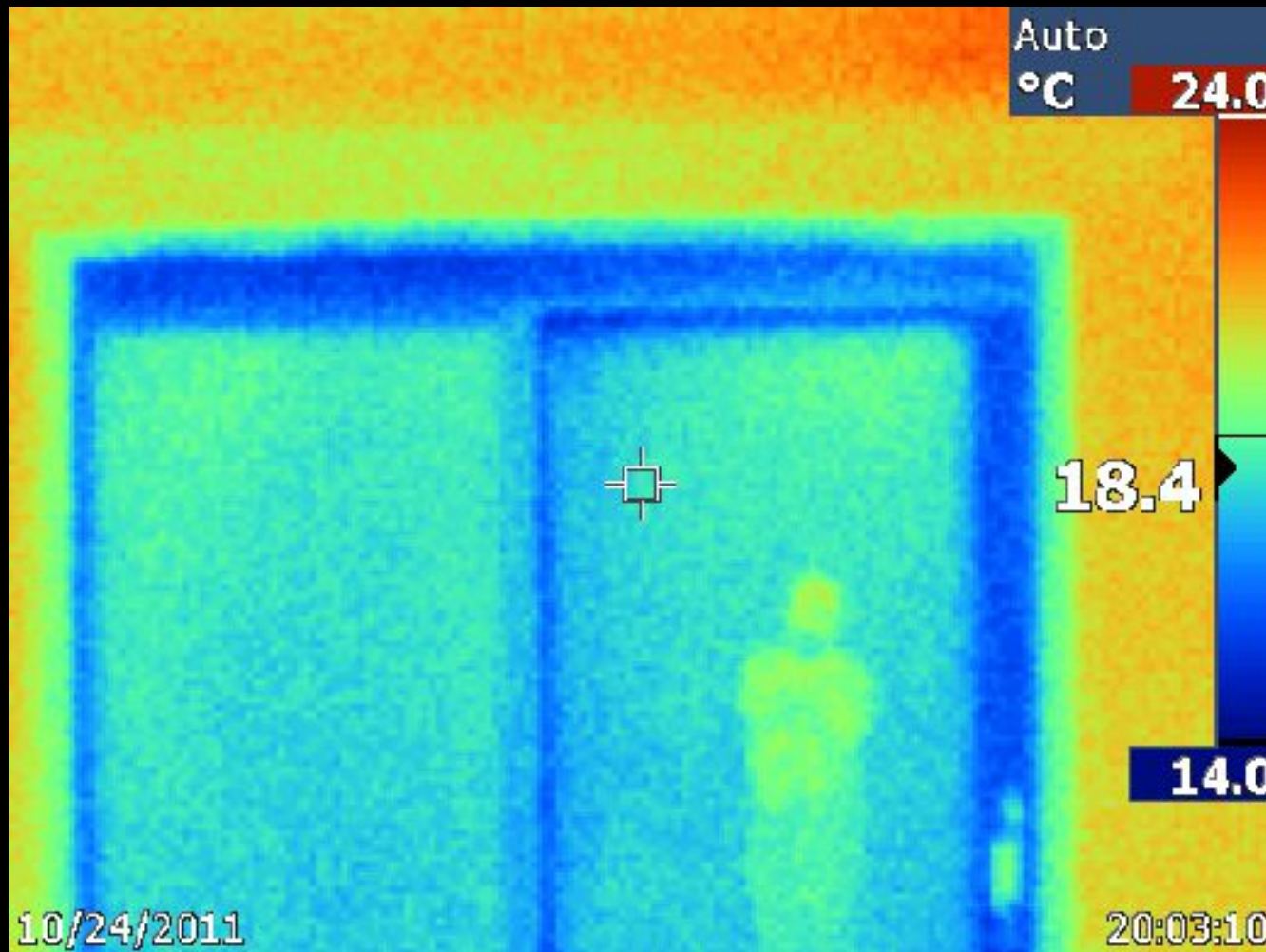


Inside of a House

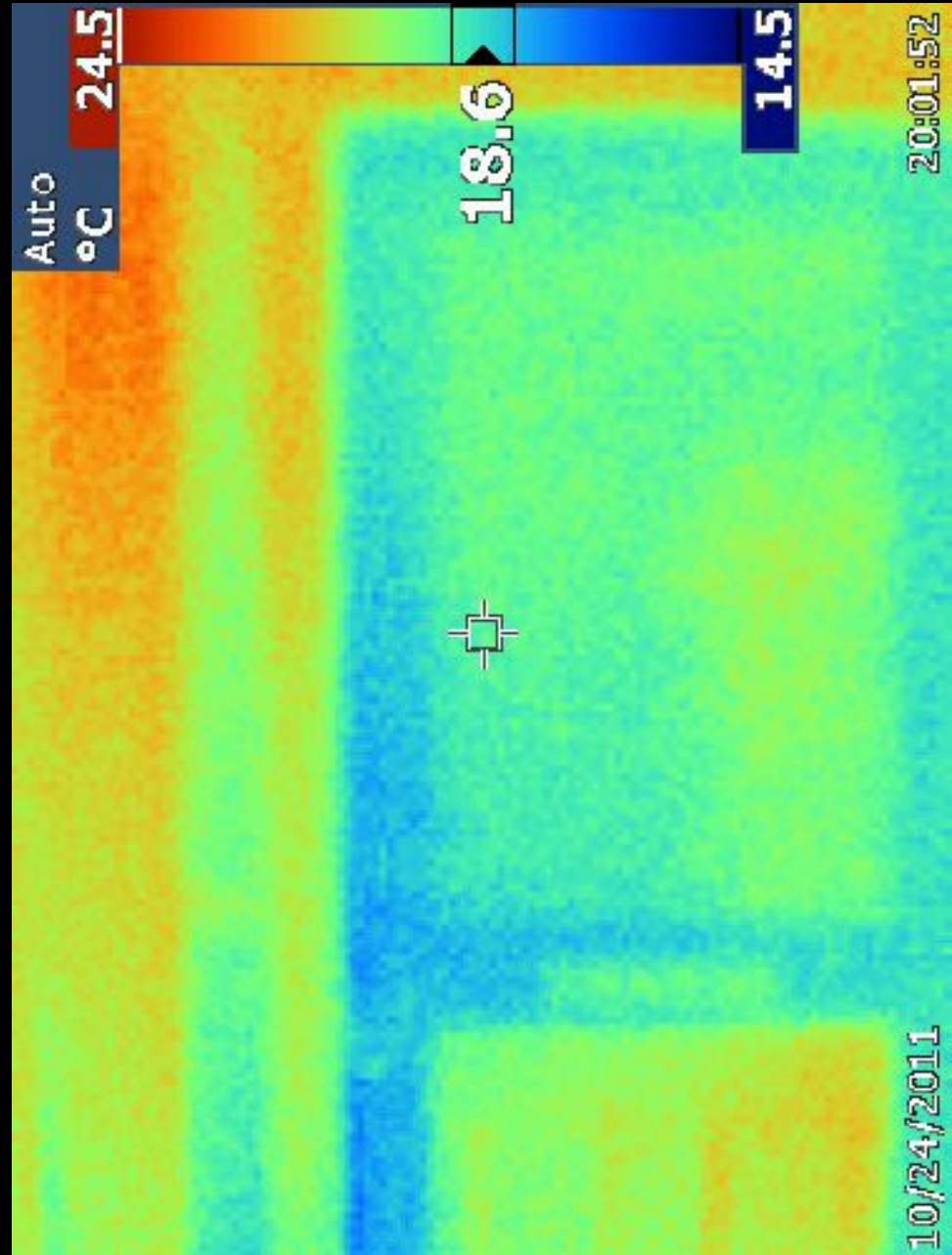
- Walls and windows should show up **warm**
- Cold spots means you have leaking heat



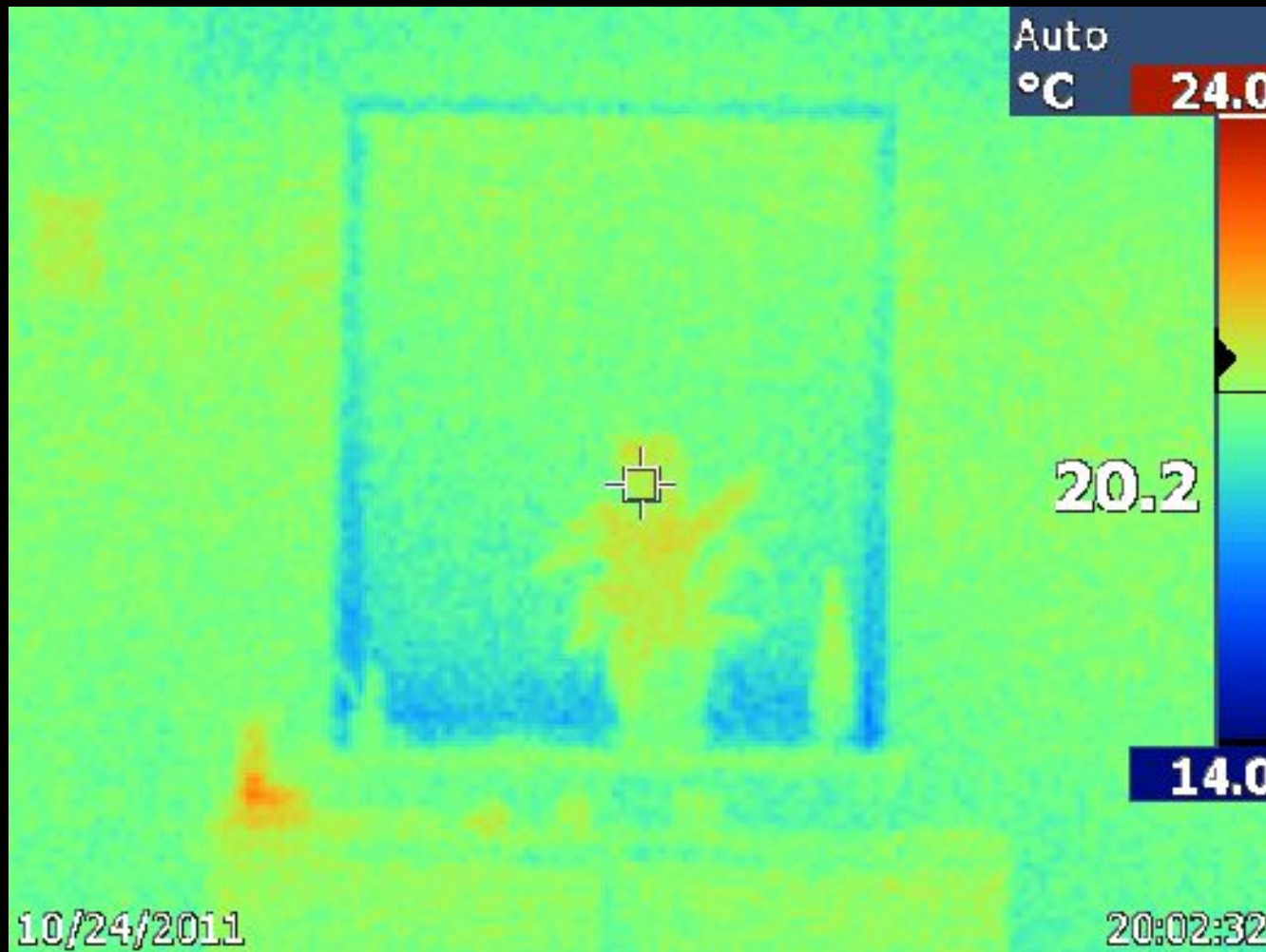
Just a Window



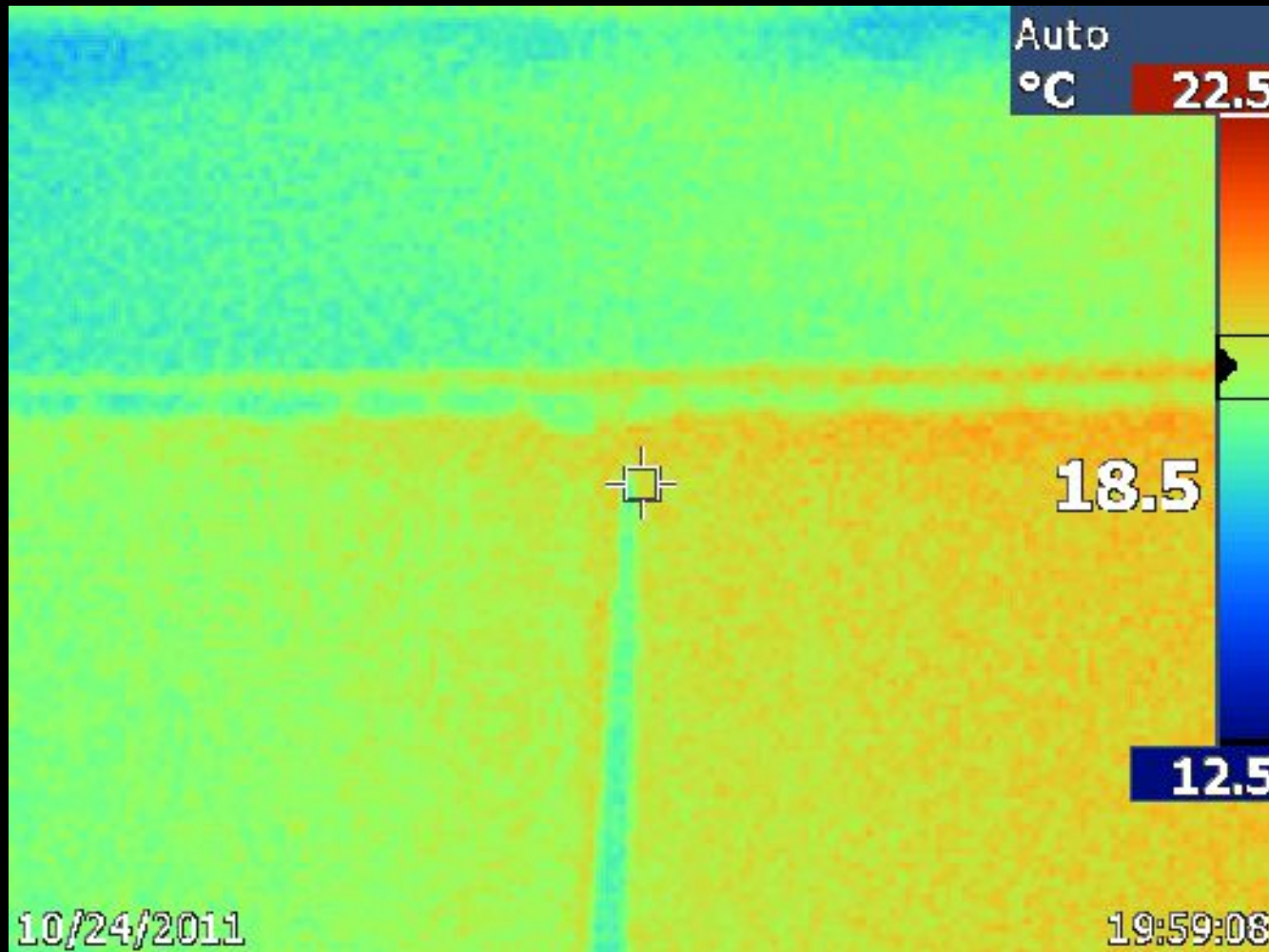
Front Door



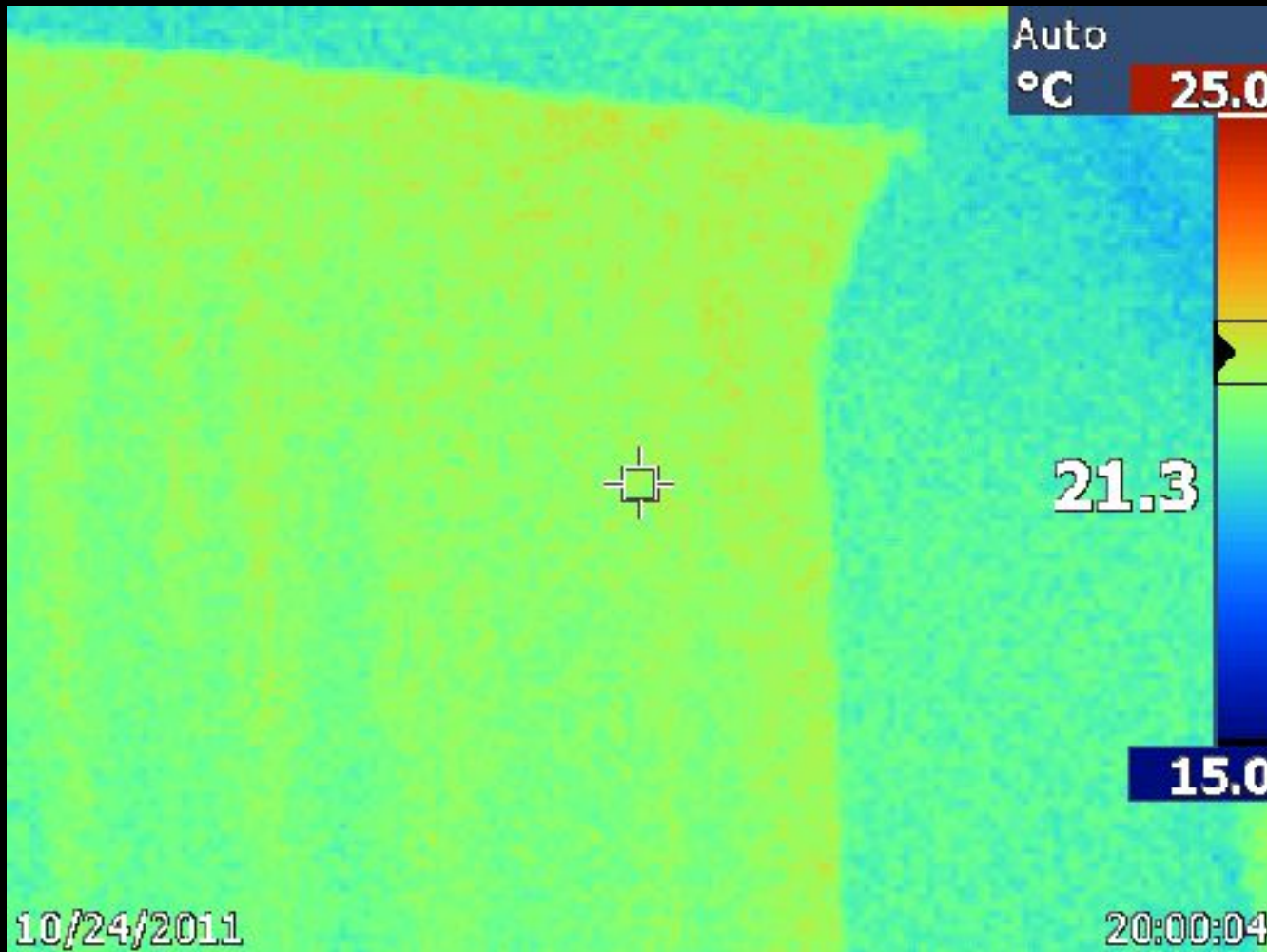
Just a Blind



Gap in Curtains

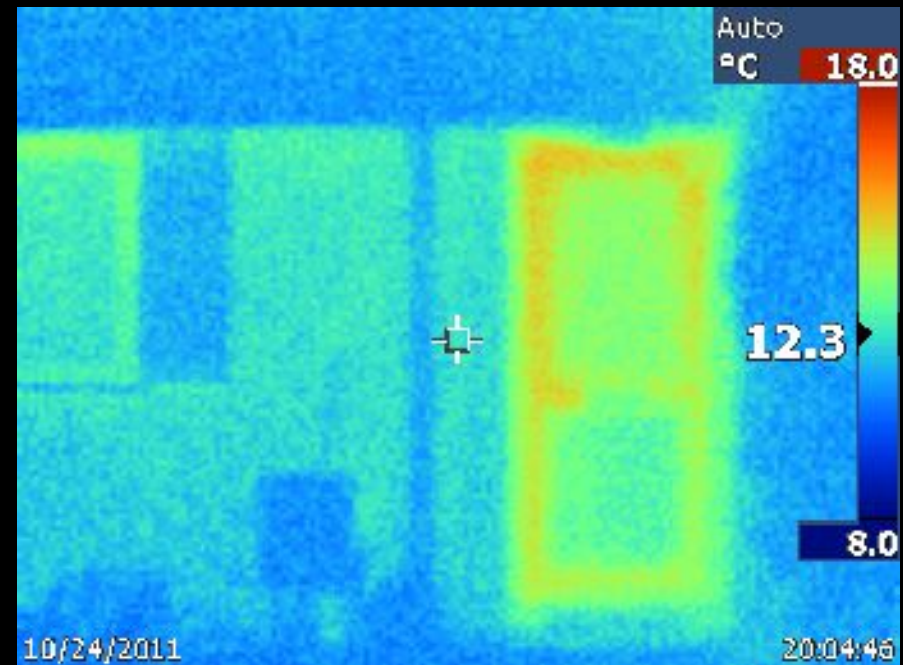


Curtains and Blind

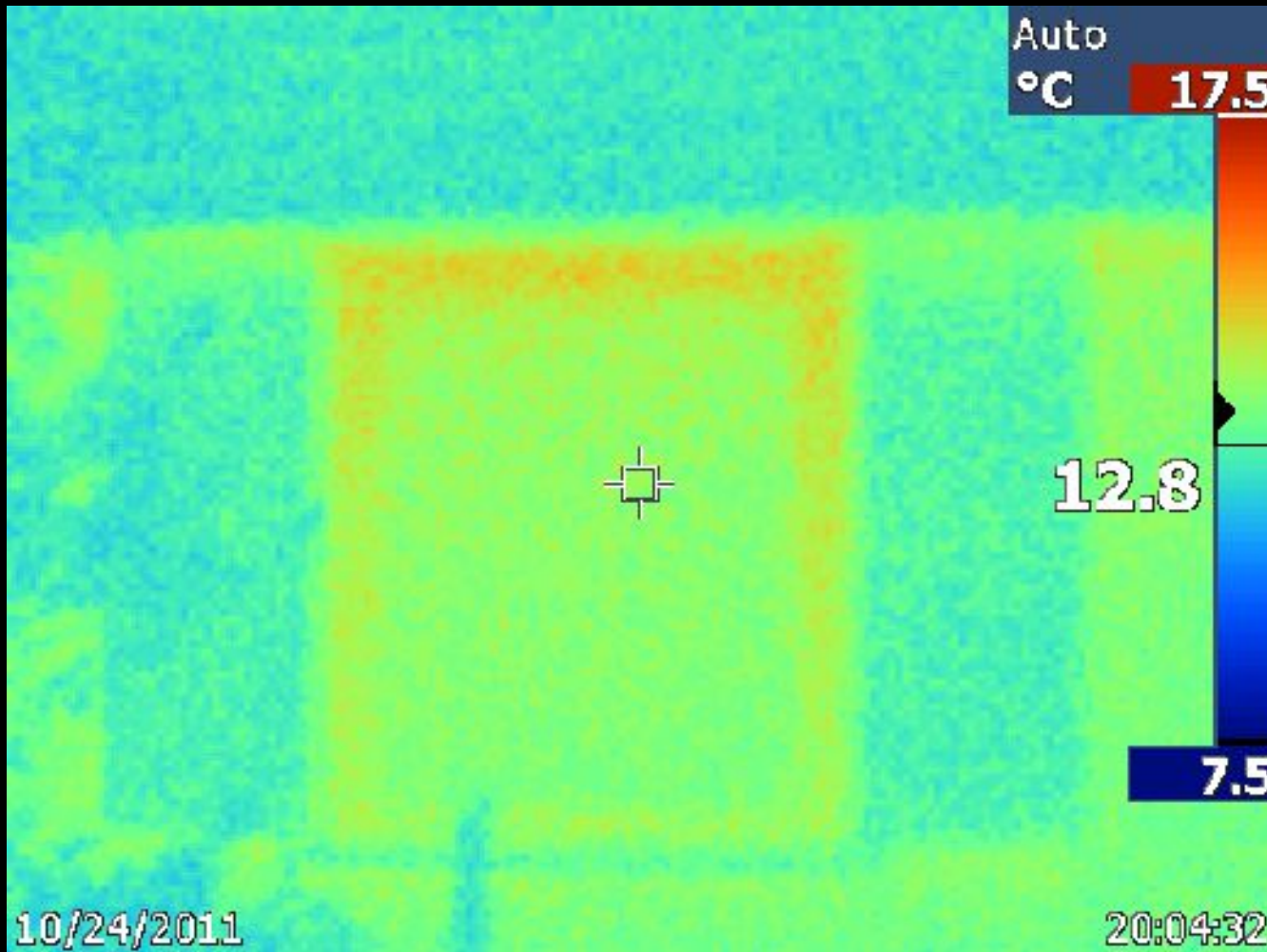


Outside of a House

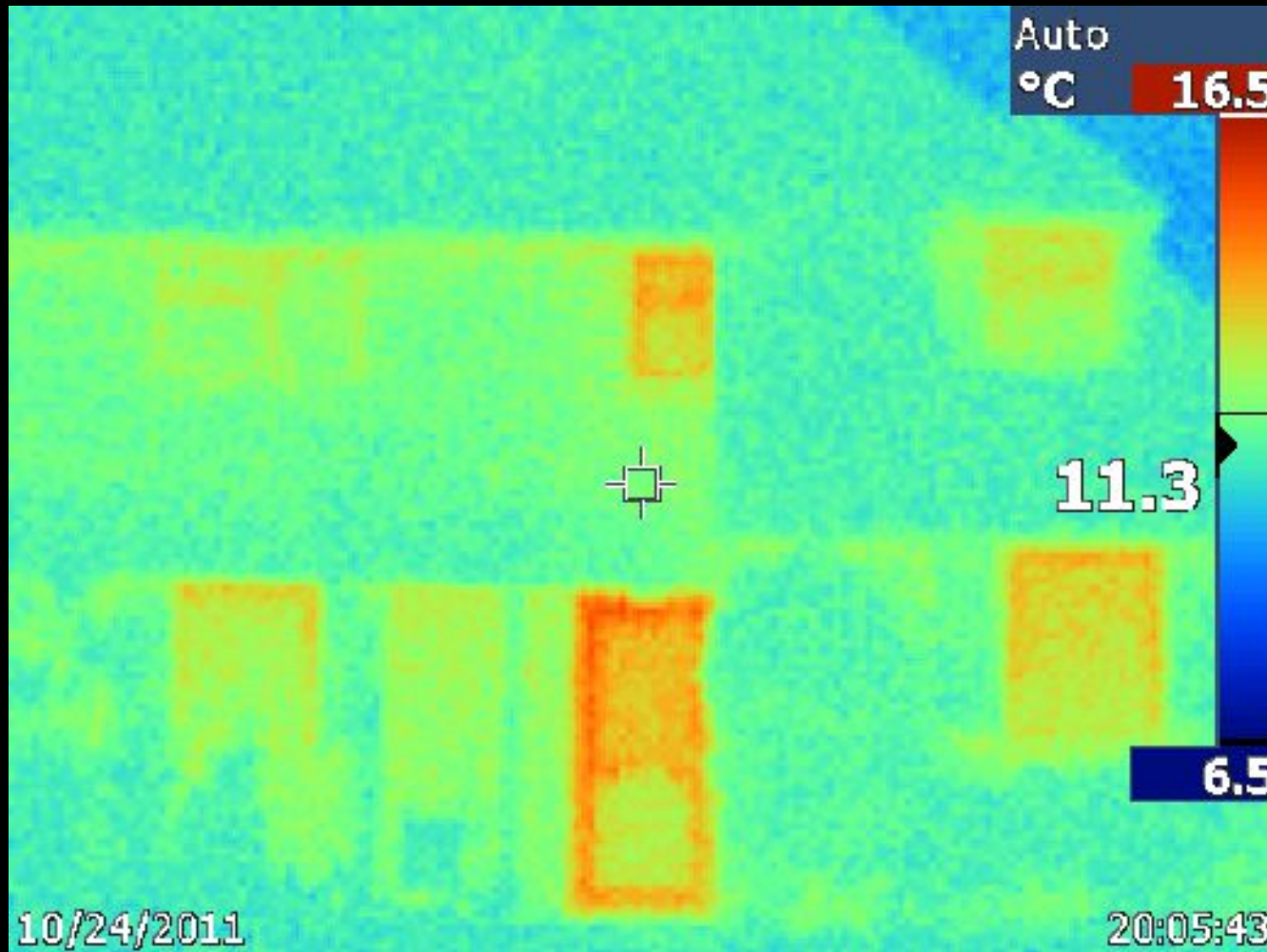
- The house should show up like its surrounding: **cold**
- Hot spots mean you have leaking heat



Window and Blind



Front of House



What use is it?

- Should tell you nothing new,
but often reveals things you didn't know
- May spur people into action
- Useful to find where you need to target first
- Can help identify gunked up radiators



What We Did

- Phase 1
 - Held a “Home Energy Evening”
 - Asked people to sign up for a survey
 - Spent a fortnight surveying homes in the evening
- Phase 2
 - Advert in Parish newsletter
 - Spent three weeks surveying more homes



What We Found

**The survey samples were
not a representative
cross section of Overton
households.**



Roof and Wall

- Every roof was insulated and was visibly cooler on the outside than the walls
- Every top floor ceiling was warmer than the walls
- Filled cavity walls insulate better than unfilled cavity walls
- Cavity walls insulate better than solid walls

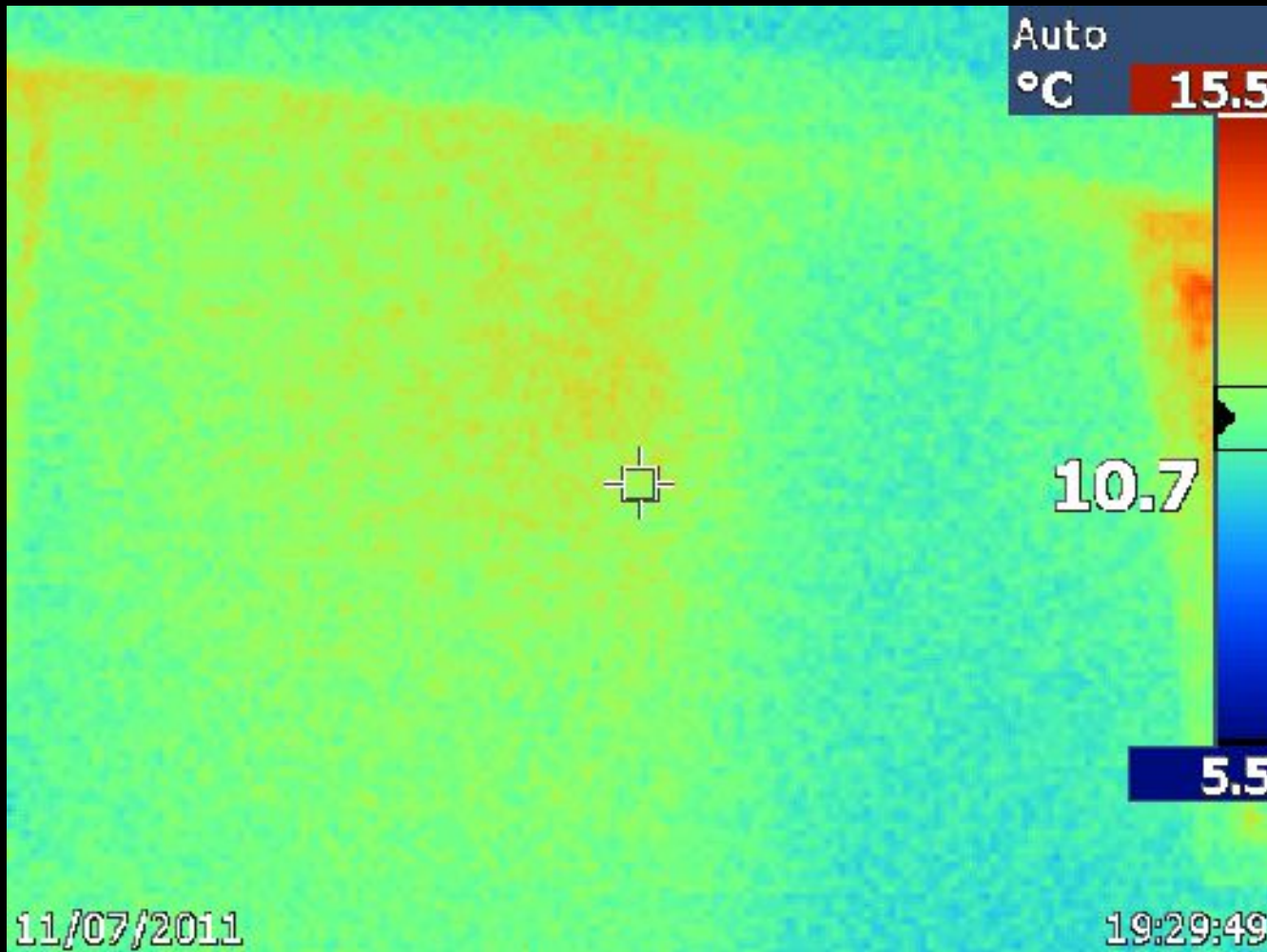


Roof and Wall

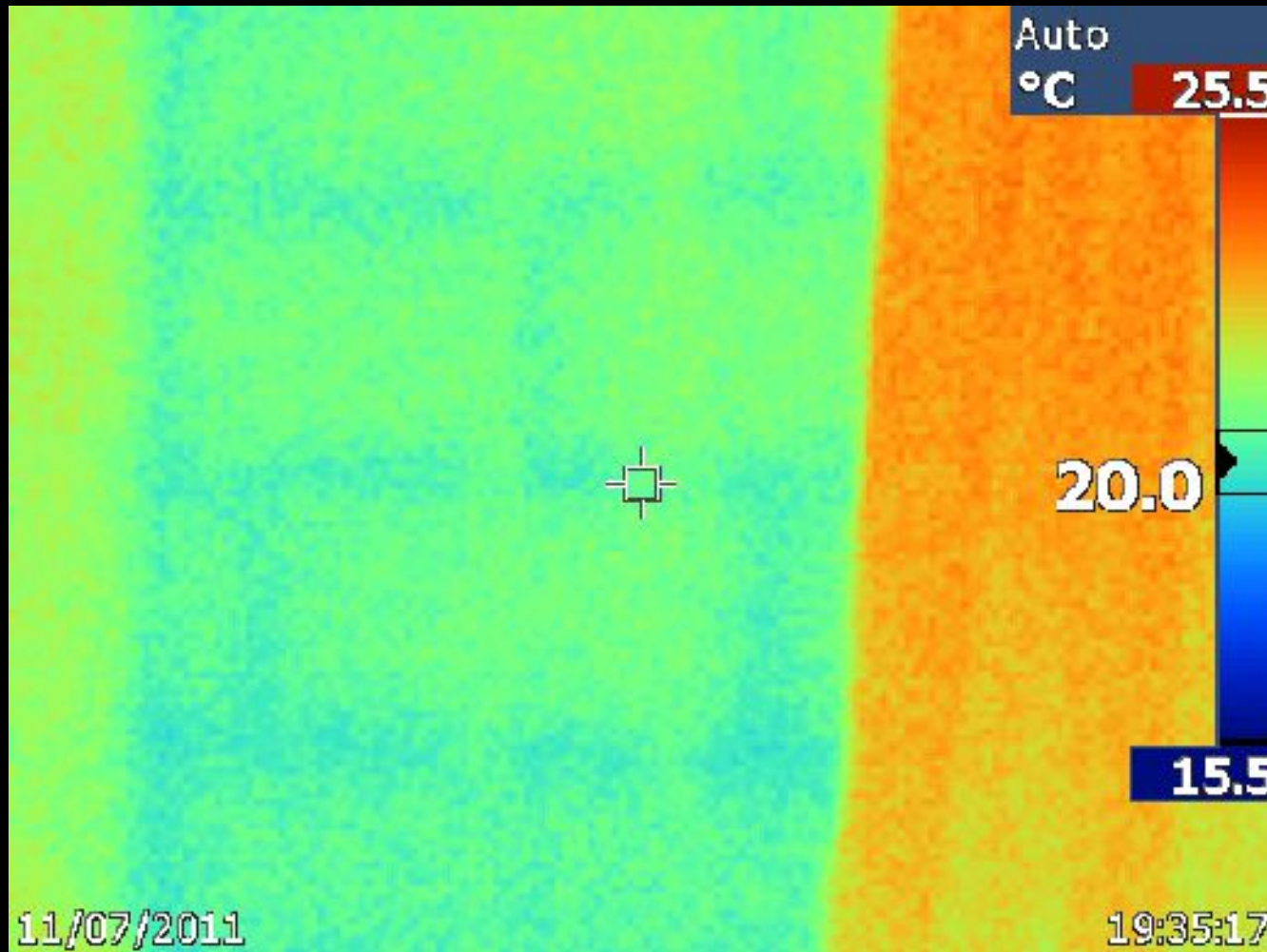
- Corners of rooms are noticeable cooler and prone to damp
- Modern houses may have unfilled cavities
- Modern houses may have less loft insulation than people expect
- People have boarded lofts or keep junk in them, even though they know it's inefficient



Cavity Walls



Interior Block Work



Loft Hatches

- Most loft hatches were uninsulated or only partially insulated
- They are usually at the highest point in the house and often at the top of the staircase
- Some loft hatches were very large and very cold



Doors

- Leaking doors were common
 - Thin wood or plastic because of panelling
 - Poor fit between the frame and door
 - Draughty letter boxes were the norm
- Modern doors were not consistently good – the metal frame conducts heat very well
- Older period doors often lit up like Christmas Trees

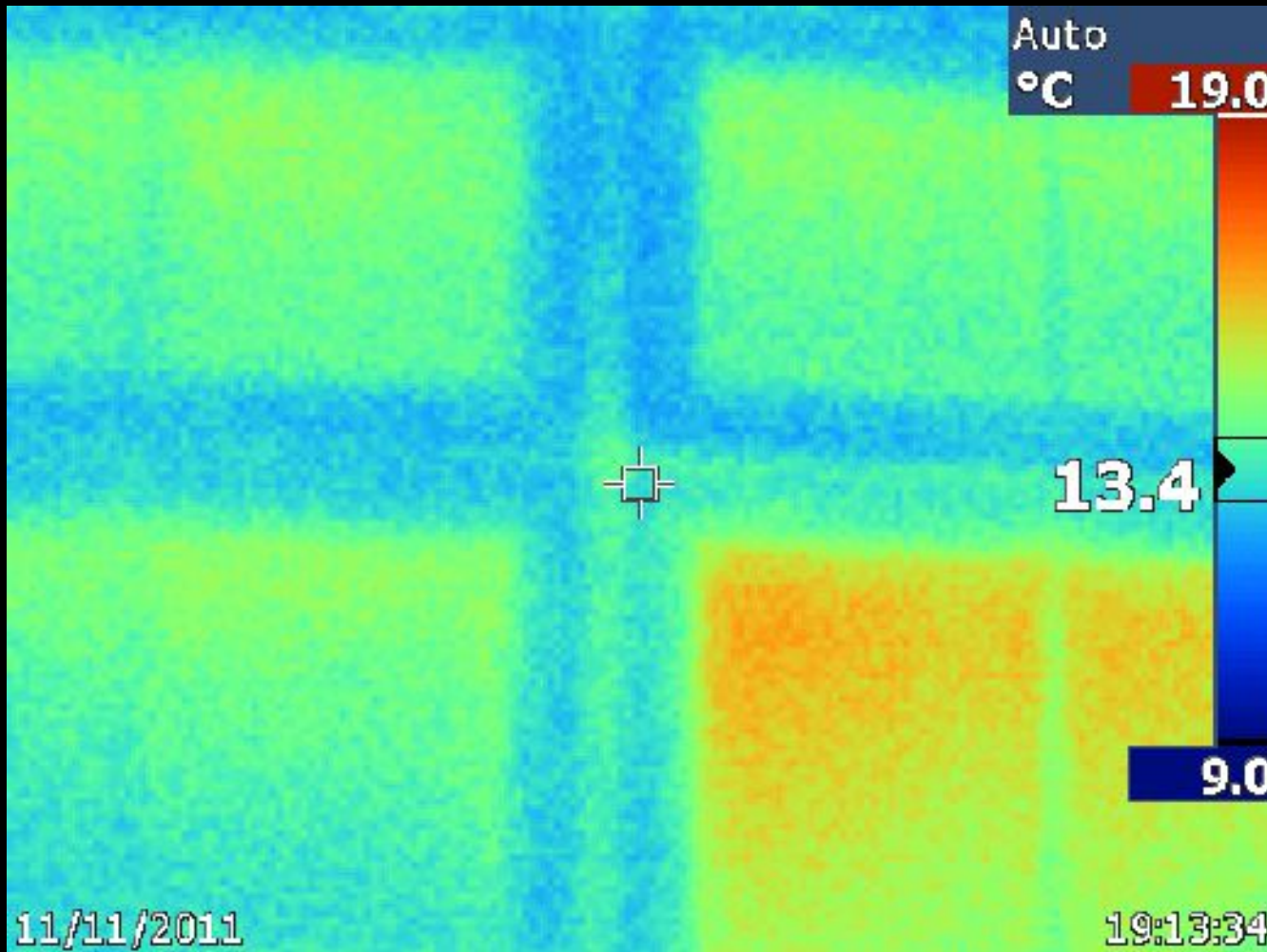


Windows

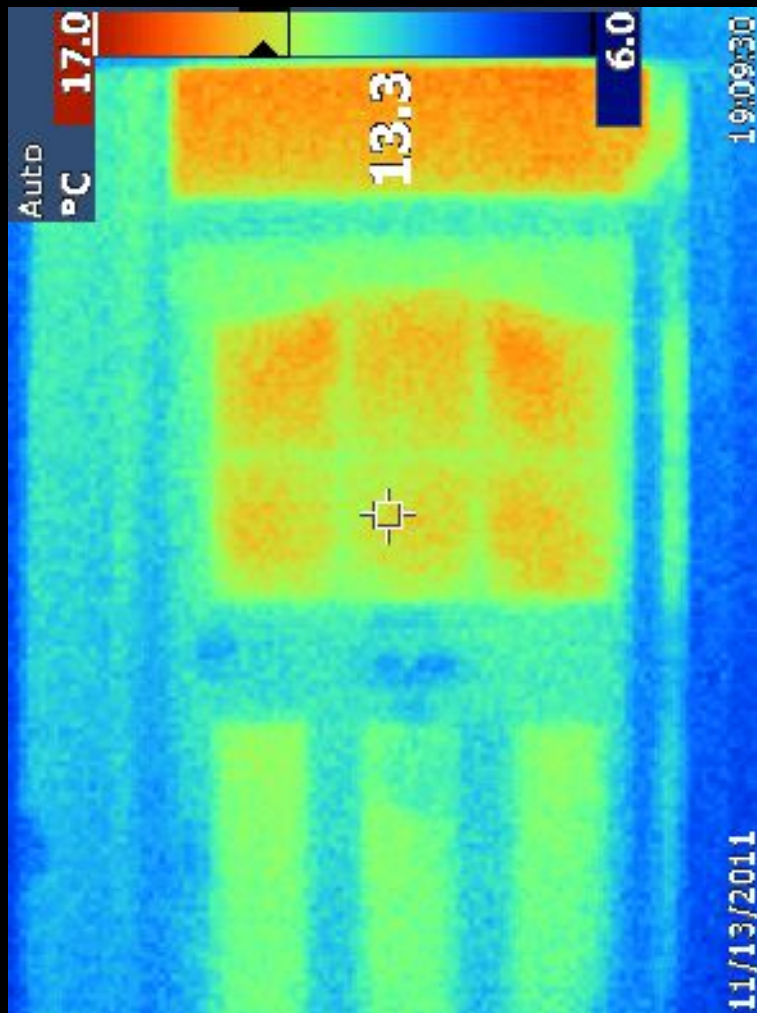
- Double glazing, even secondary works better than single glazing
- Blinds and curtains make a drastic difference unless you have top of the range double glazing
- Even double glazing leaks some heat and older metal framed double glazing performs poorly



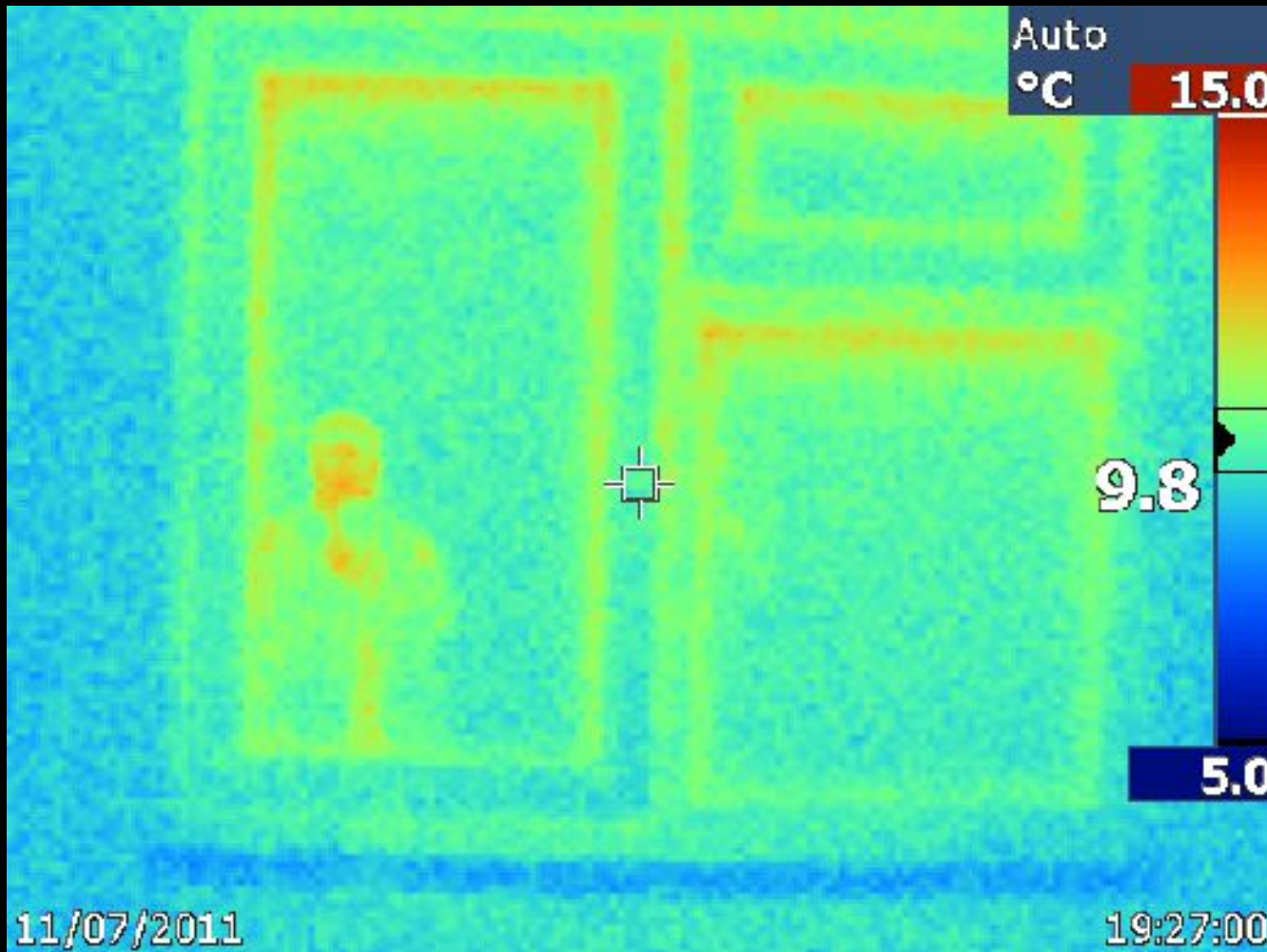
Single and Double



Typical Doors



“Boxing”



Phase 1 v Phase 2

- More uptake the second time
- More complex to arrange without the evening
- Phase 2 houses expand the sample but still a lot of “done all the right thing houses”.



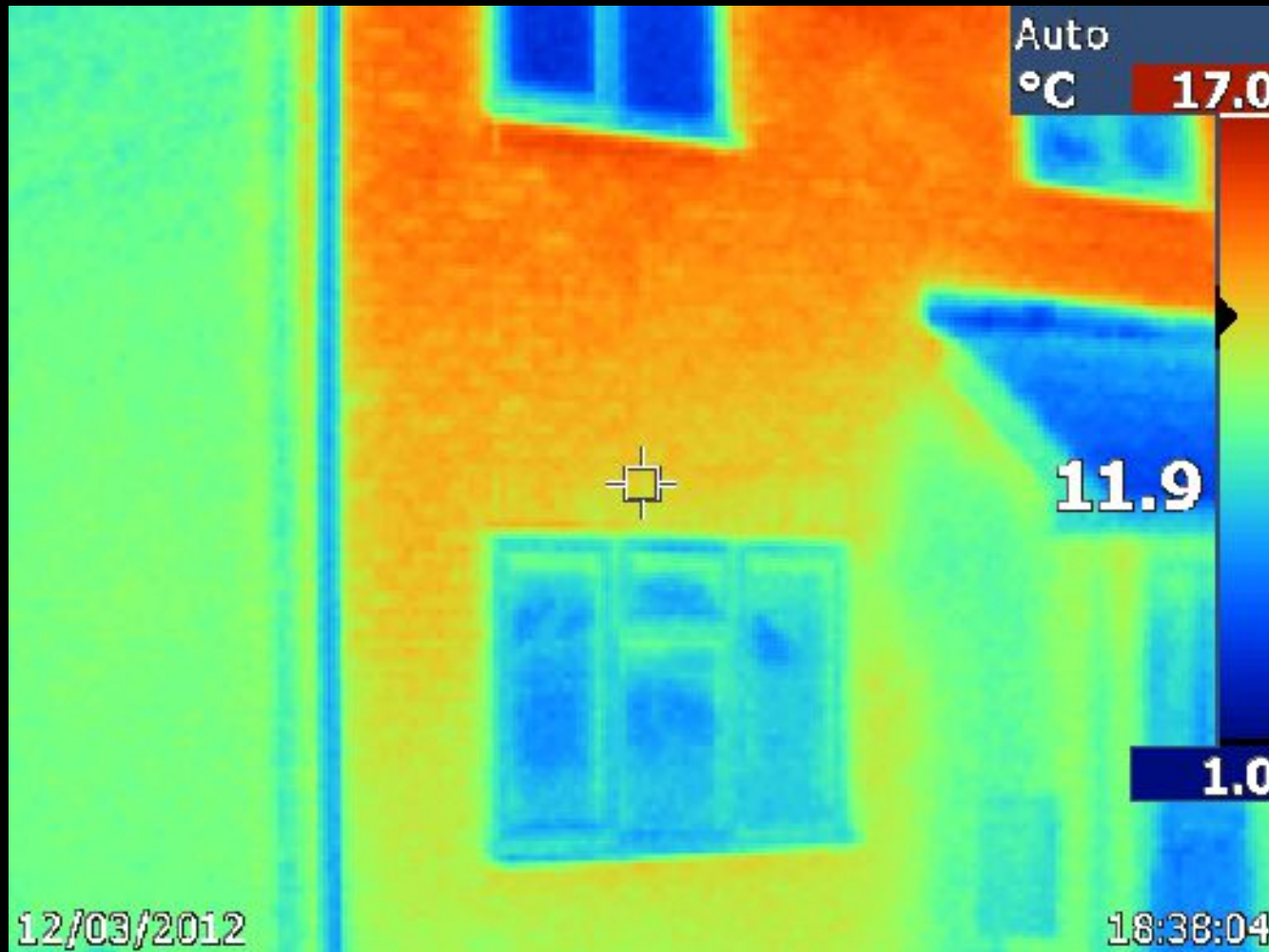
Thank You

**Any
Questions?**

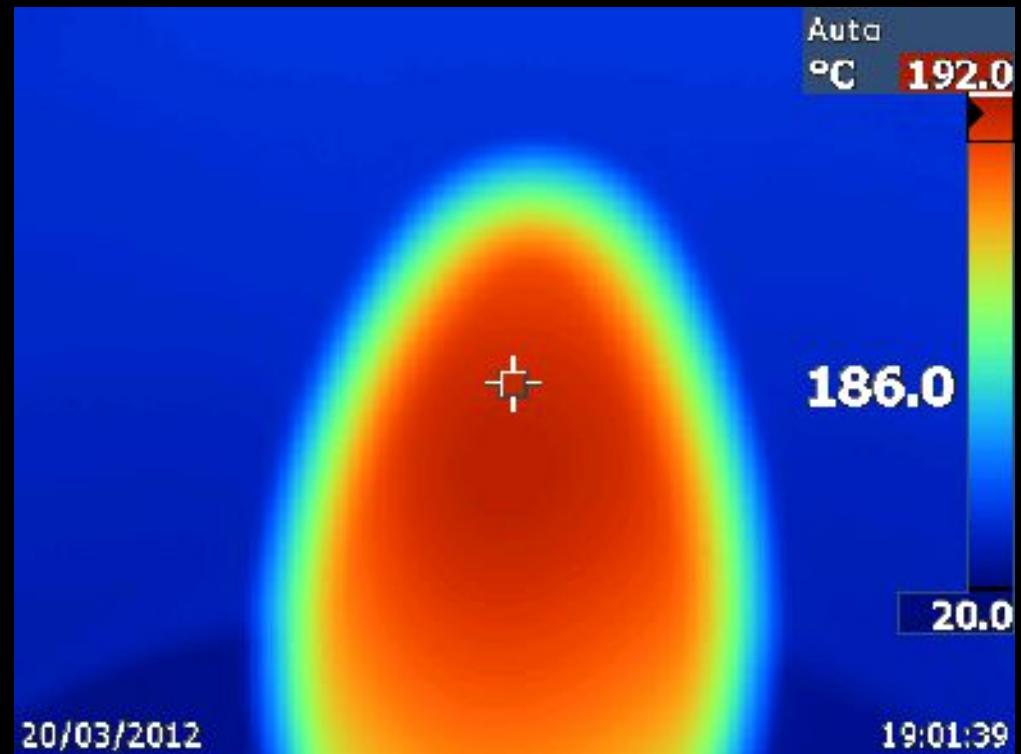
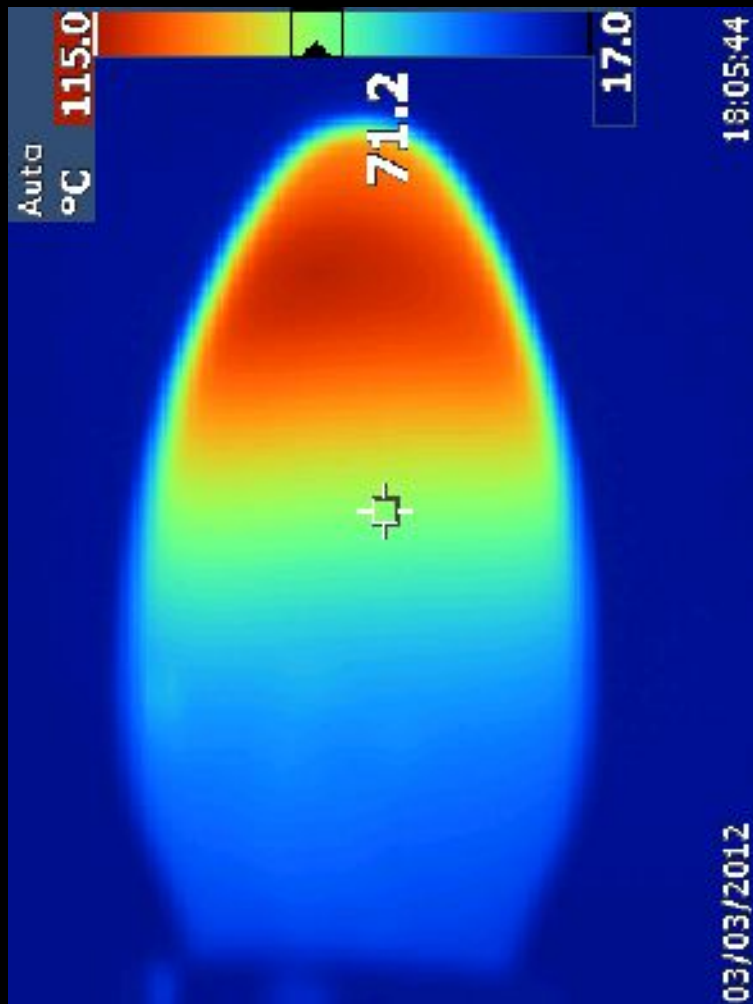




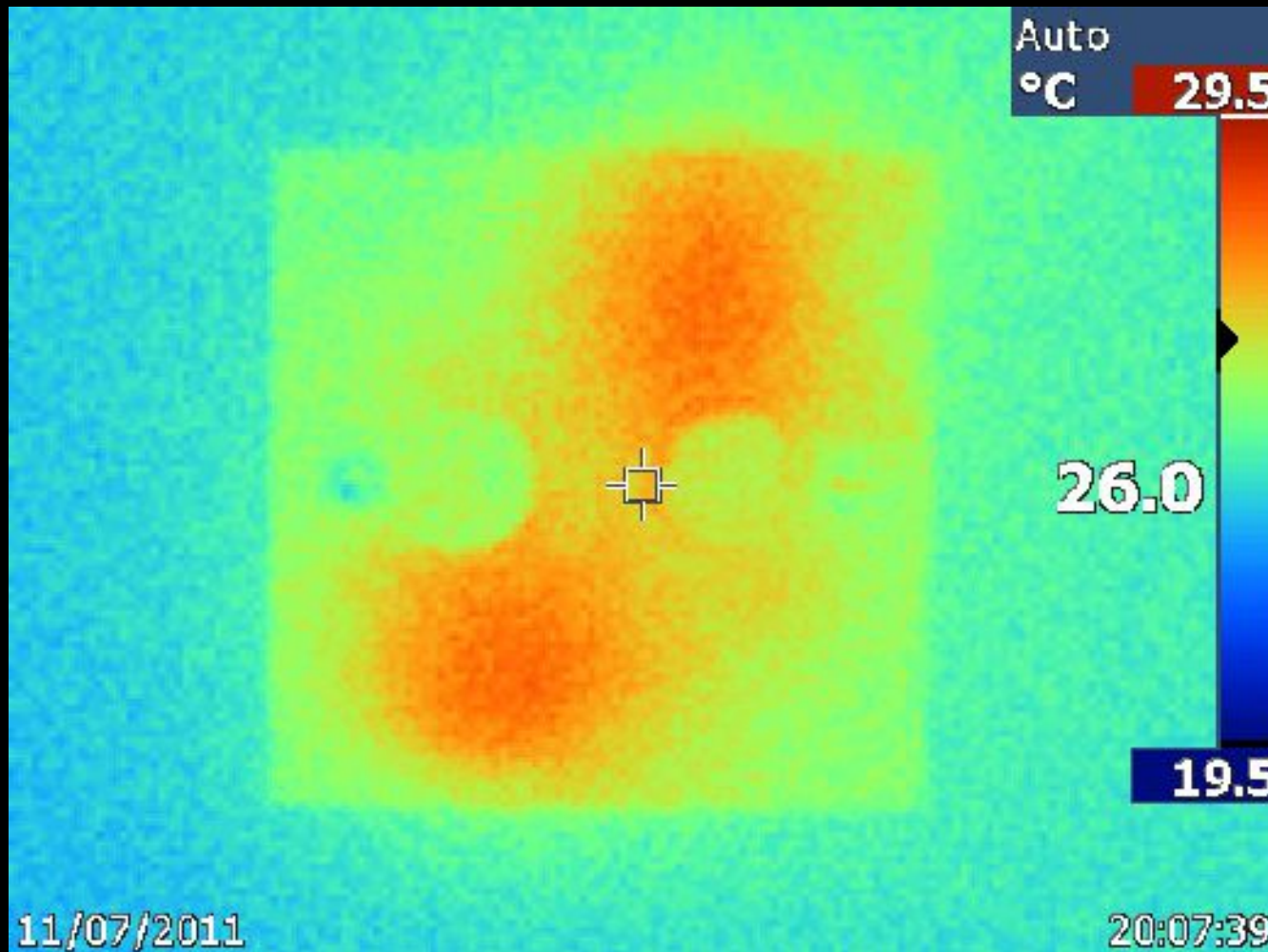
Solar Gain



Halogen v Incandescent



Dimmer Switch



Solid Walls

