

Chifley Passive House

Two Years of Performance Data

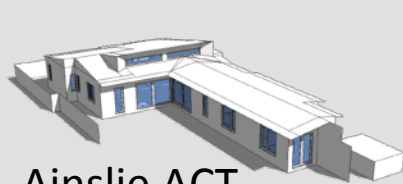


Harley Truong

Andrew Garvie



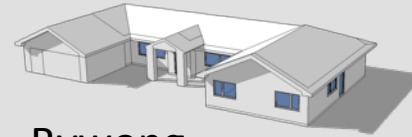
Passive Houses and Low Energy Houses



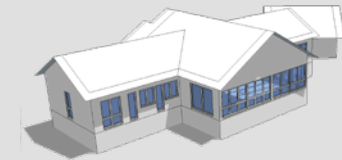
Ainslie ACT



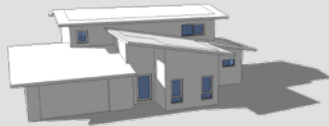
Redesdale VIC



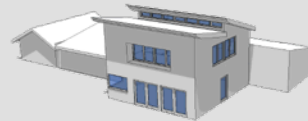
Bywong
ACT



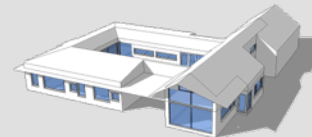
Glen Huon TAS



Denman
Prospect ACT



Yarralumla ACT



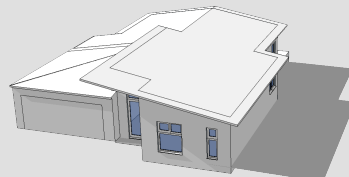
Jindabyne NSW



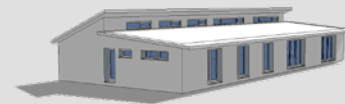
Baw Baw NSW



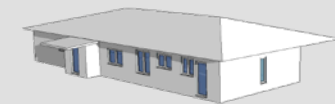
Chifley ACT



Weston ACT



Wallaroo NSW



Mt Hallen QLD

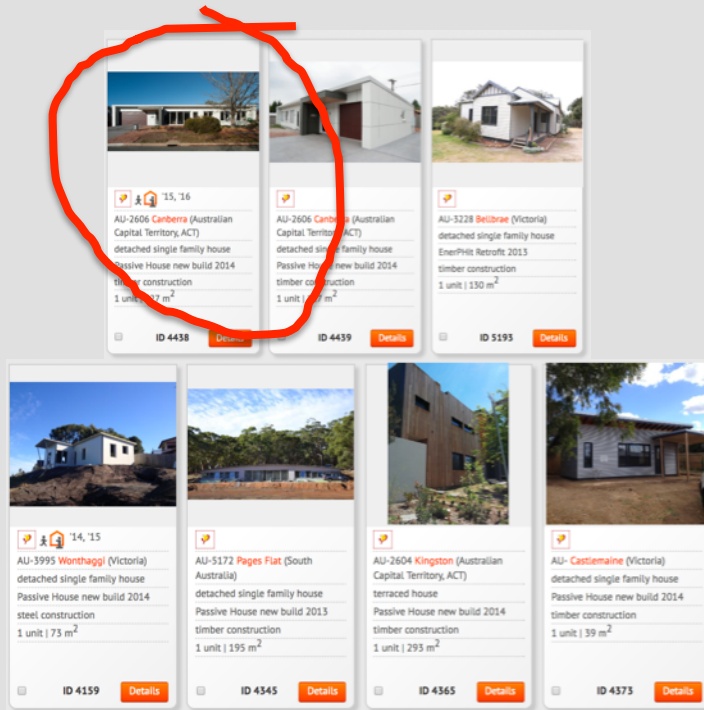
International Passive Houses



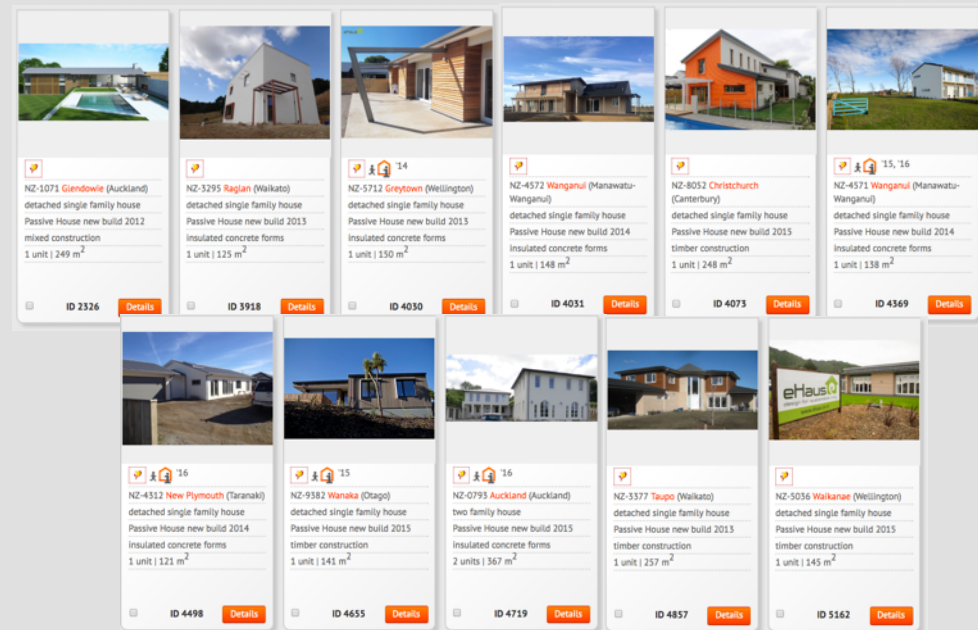
Source: database.passivehouse.com/buildings/map/

South Pacific Passive Houses

Australia 7

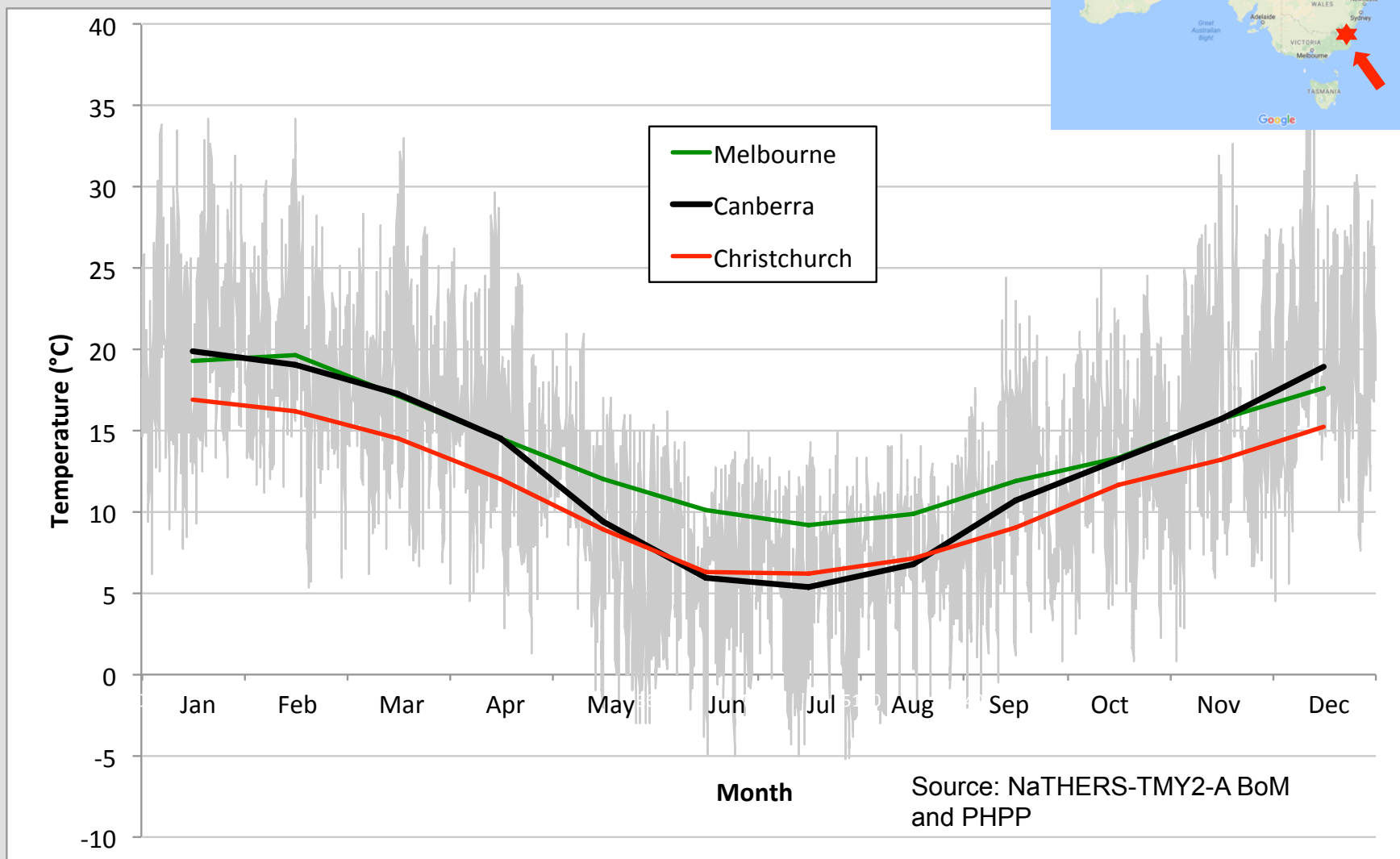


New Zealand 11



Source: www.passivhausprojekte.de

Canberra Climate



Overview



Source: ACImapi creative commons
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Overview

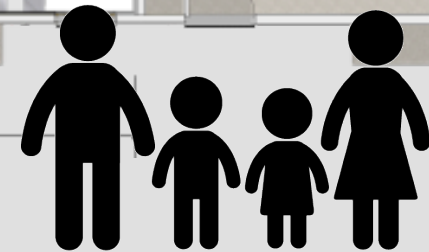
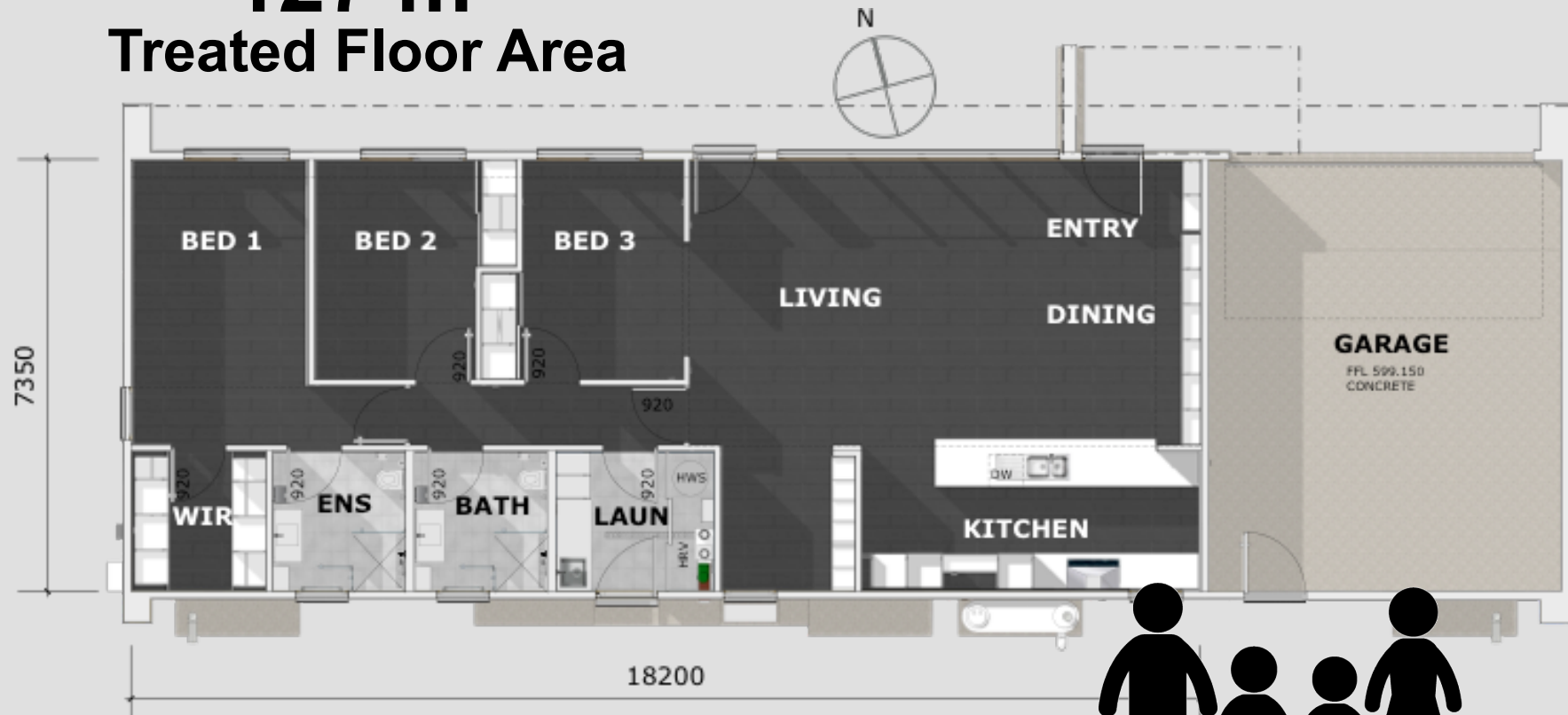


Overview



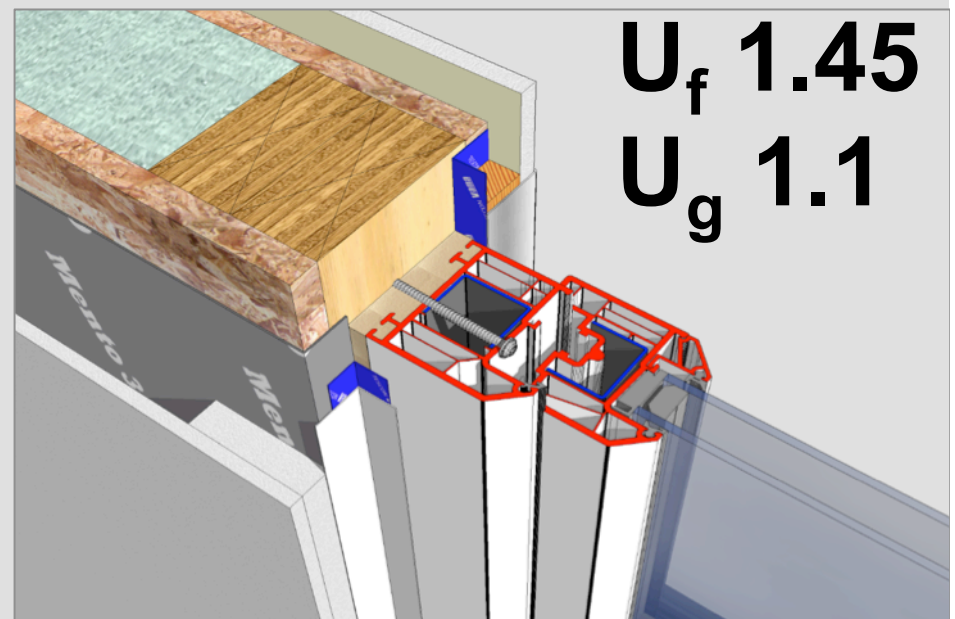
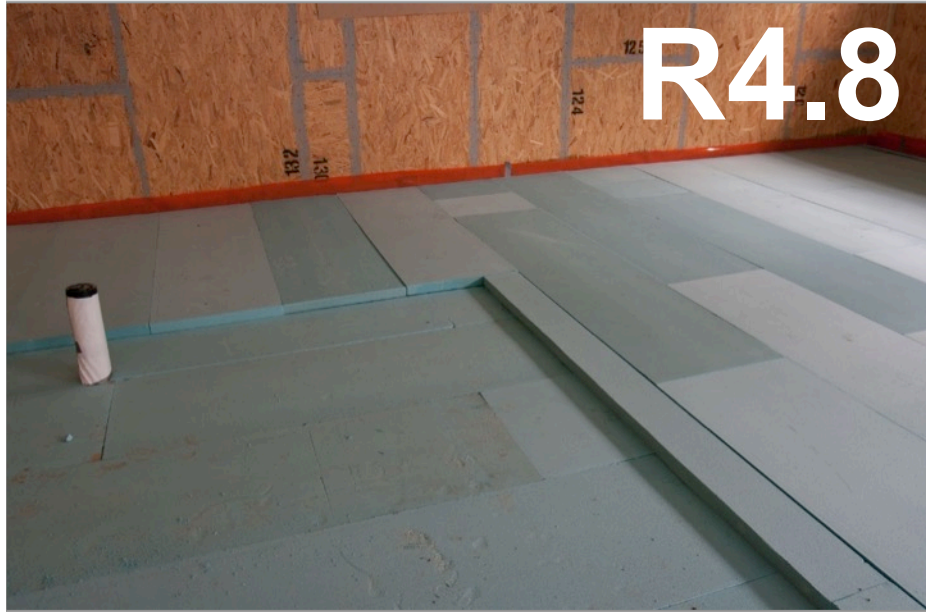
Floor plan

127 m²
Treated Floor Area



Family of 4

Insulation



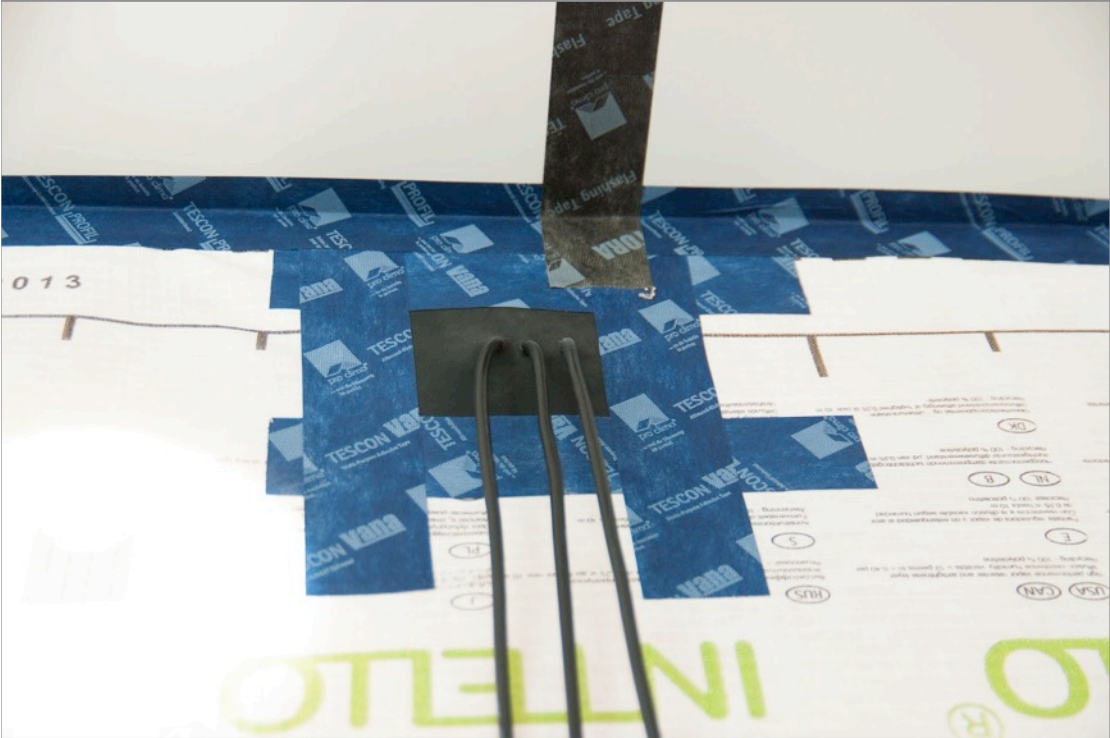
Shading

**Motorised external
roller blinds**

71% blackout



Airtightness



Airtightness testing

0.1 ACH @50Pa



Mechanical Ventilation

Zehnder HRV



Semi rigid ducting



Heating and Cooling

**Sanden Heat Pump
Domestic Hot water**



**1.2 kW
Electric Duct Heater**

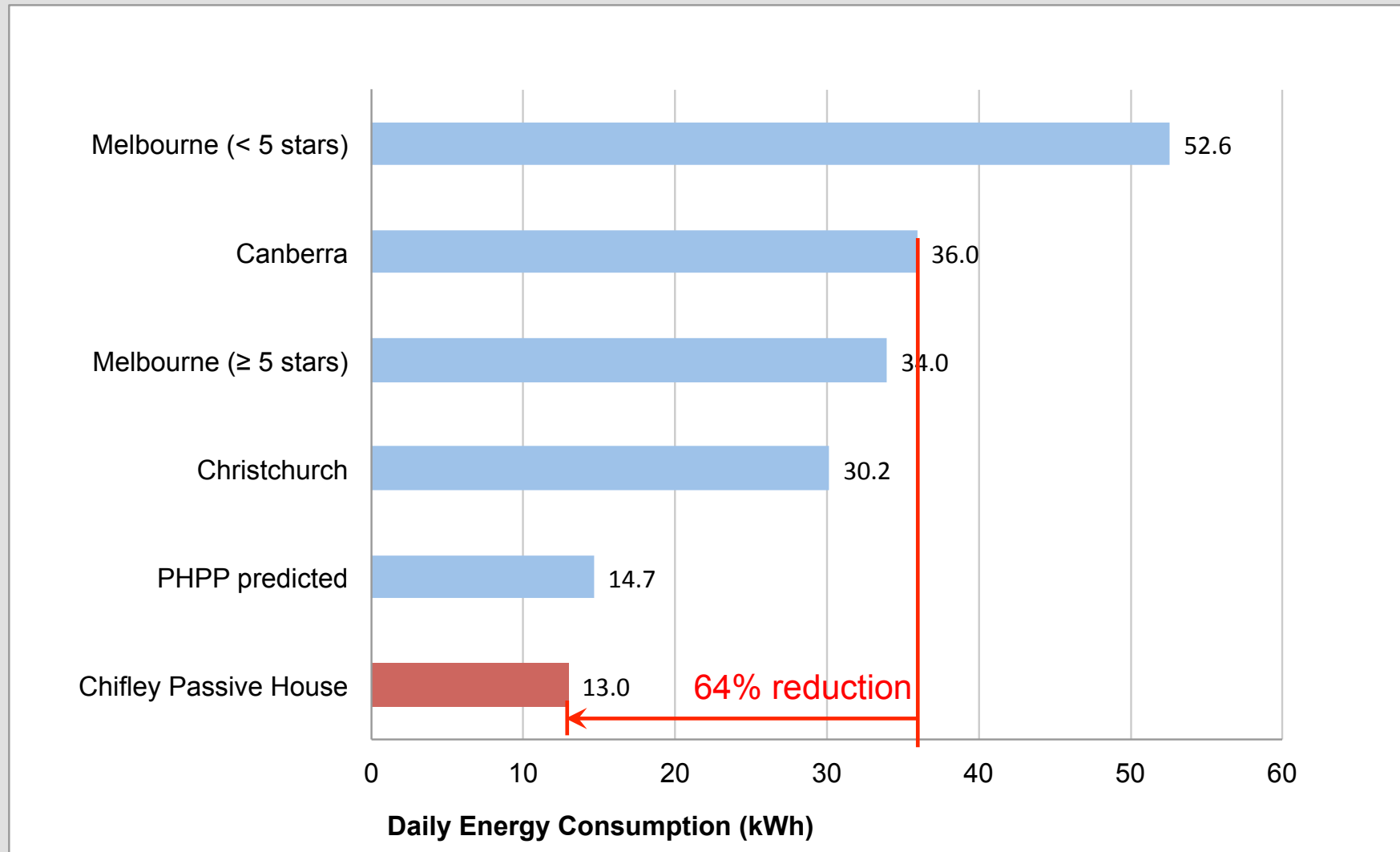


**100 W
Towel heater**



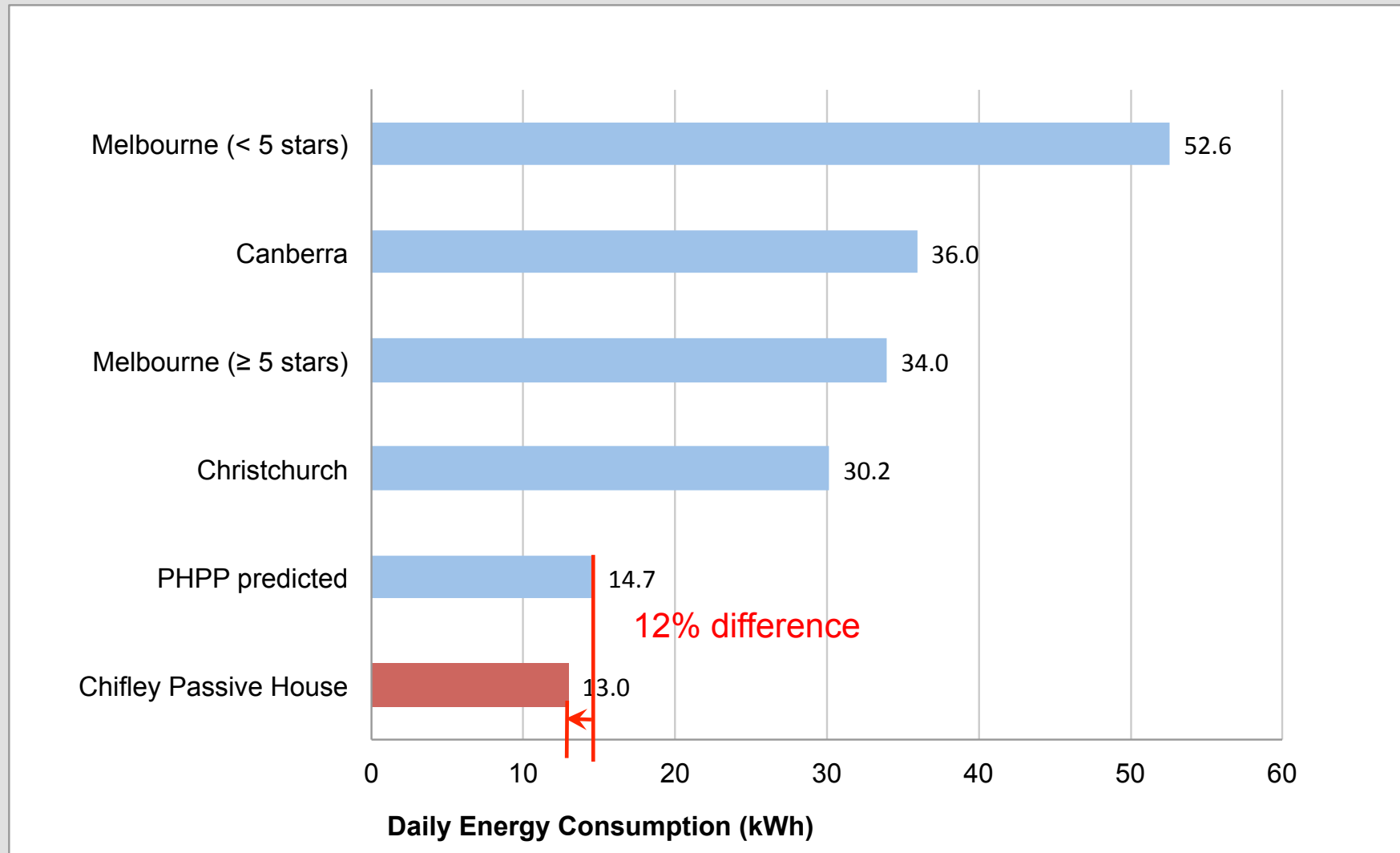
**No
Active Cooling**

Energy Consumption



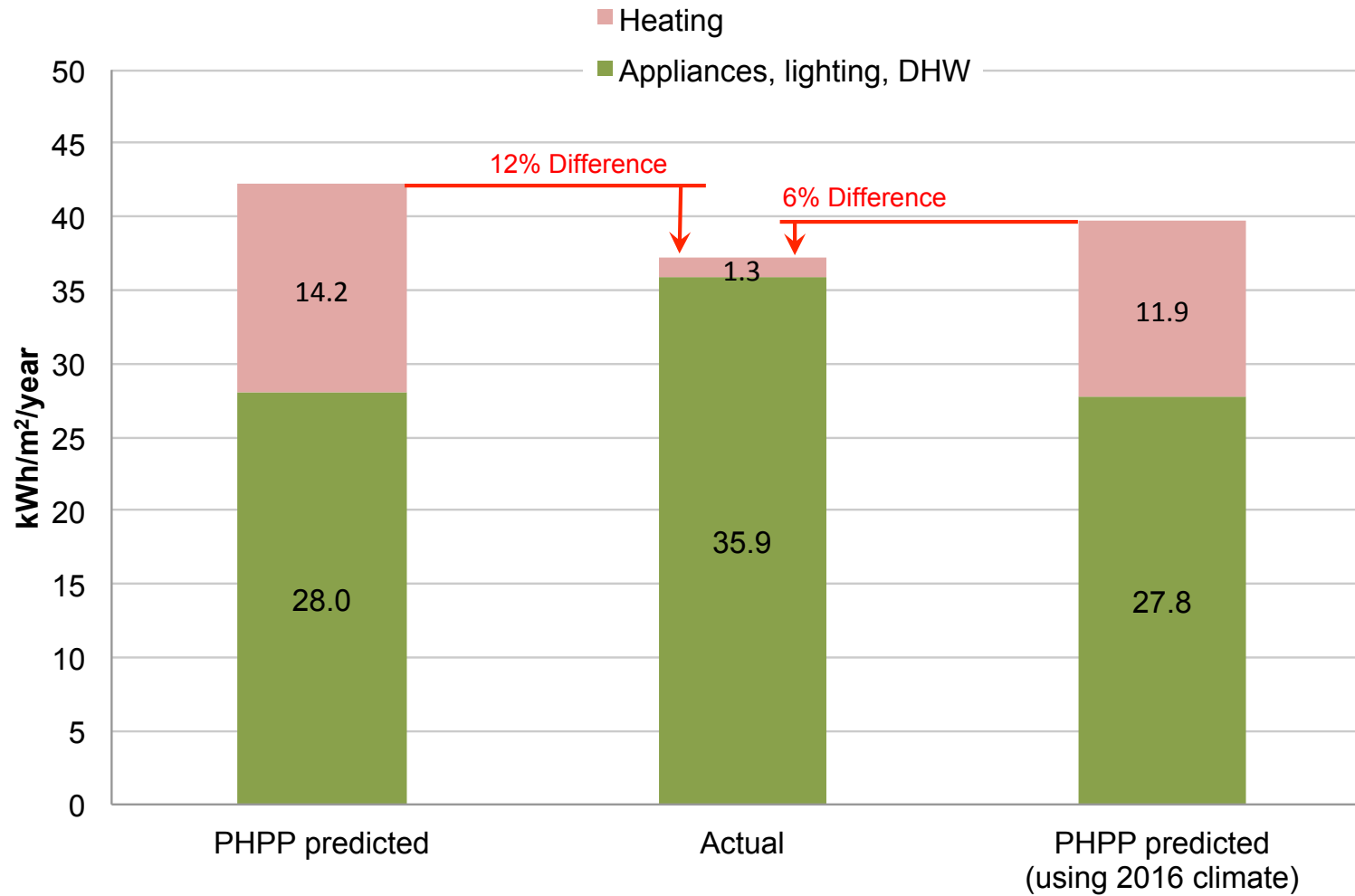
Sources: ACIL Allen Consulting,
Ambrose et al, HEEP project

Energy Consumption



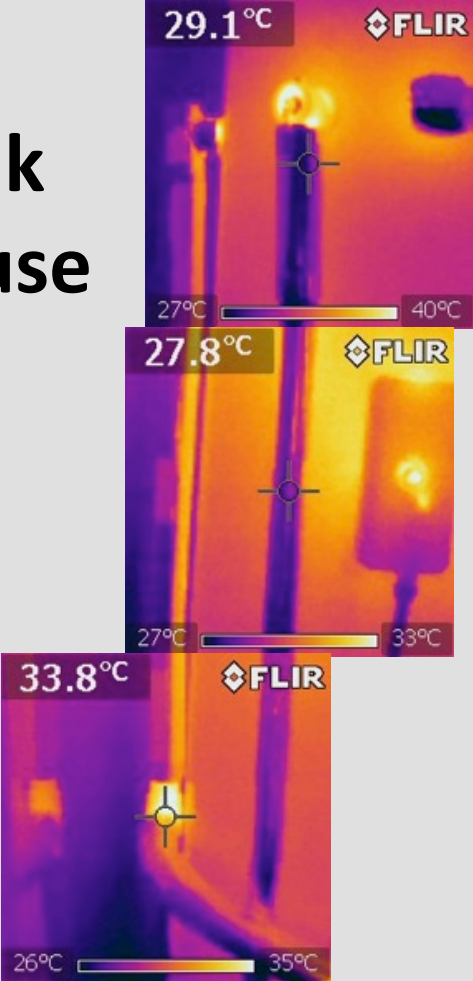
Sources: ACIL Allen Consulting,
Ambrose et al, HEEP project

Energy Consumption



Free heating

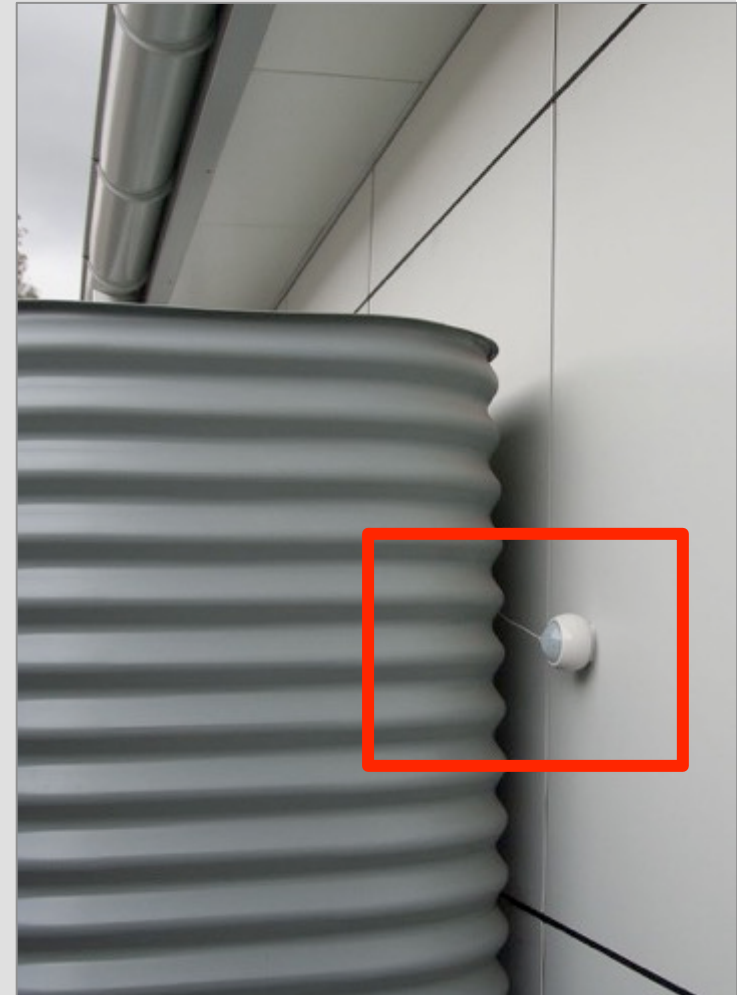
Hot water tank
inside the house



Temperature monitoring

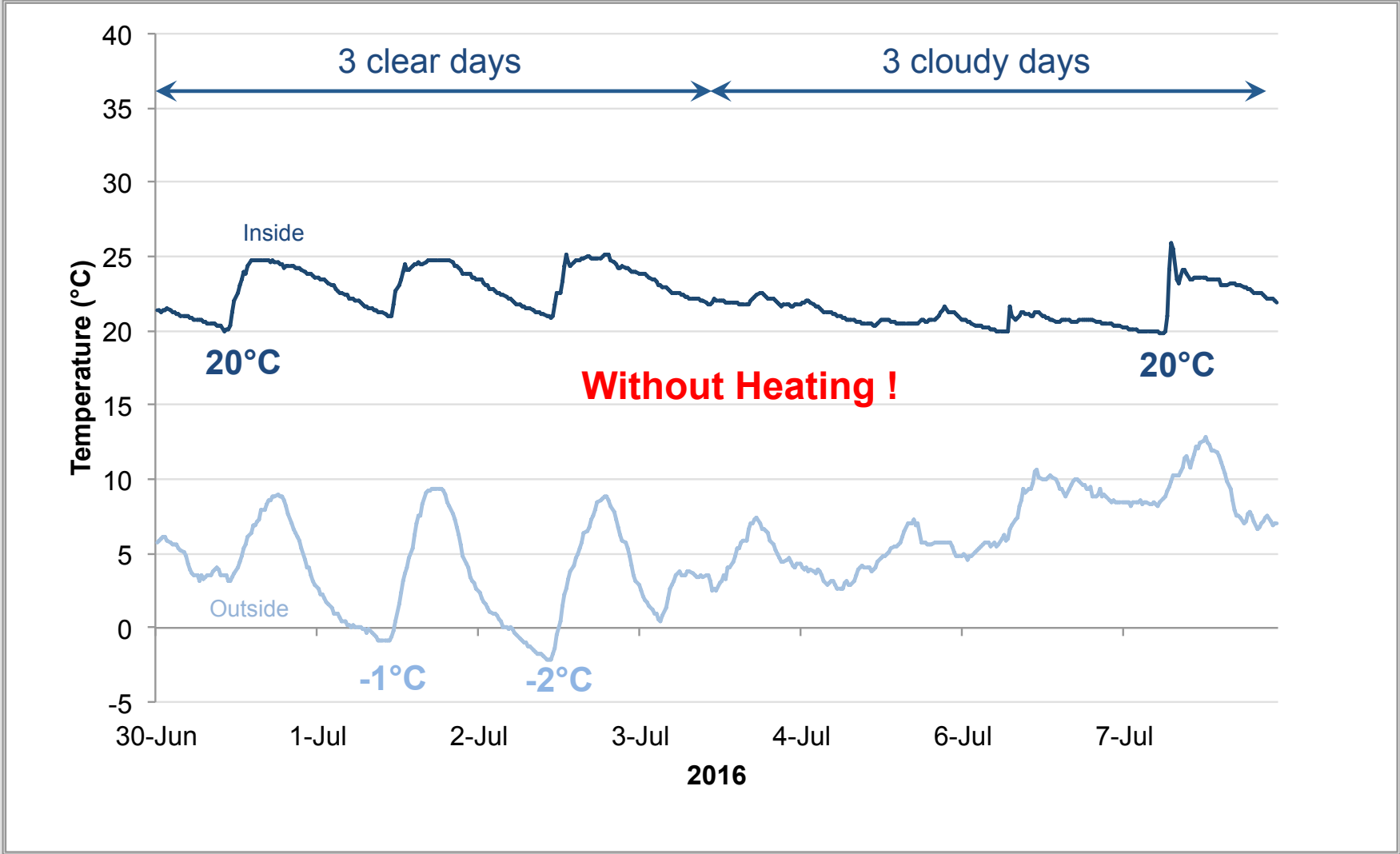


Aeotec temperature sensor

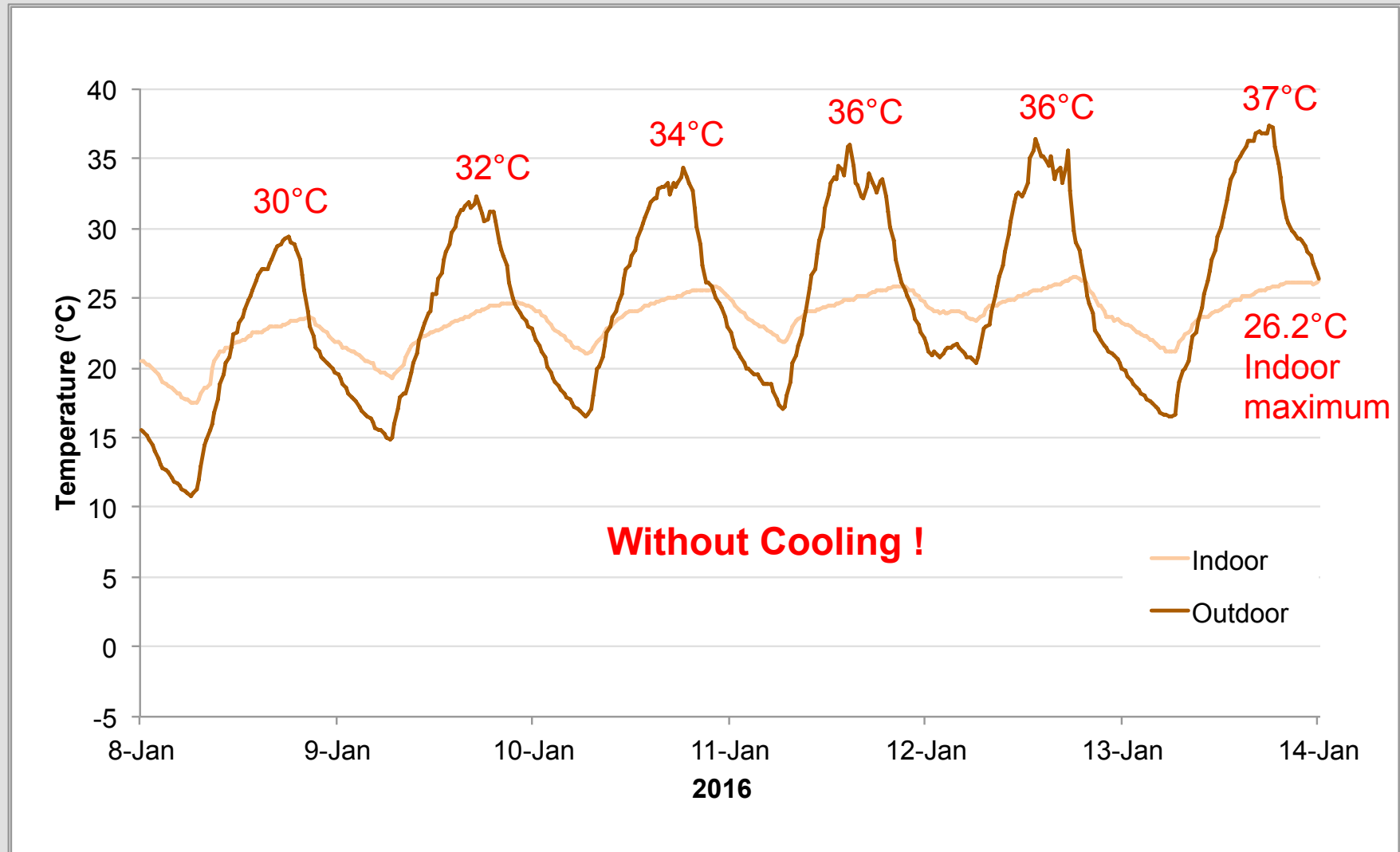


Outdoor sensor

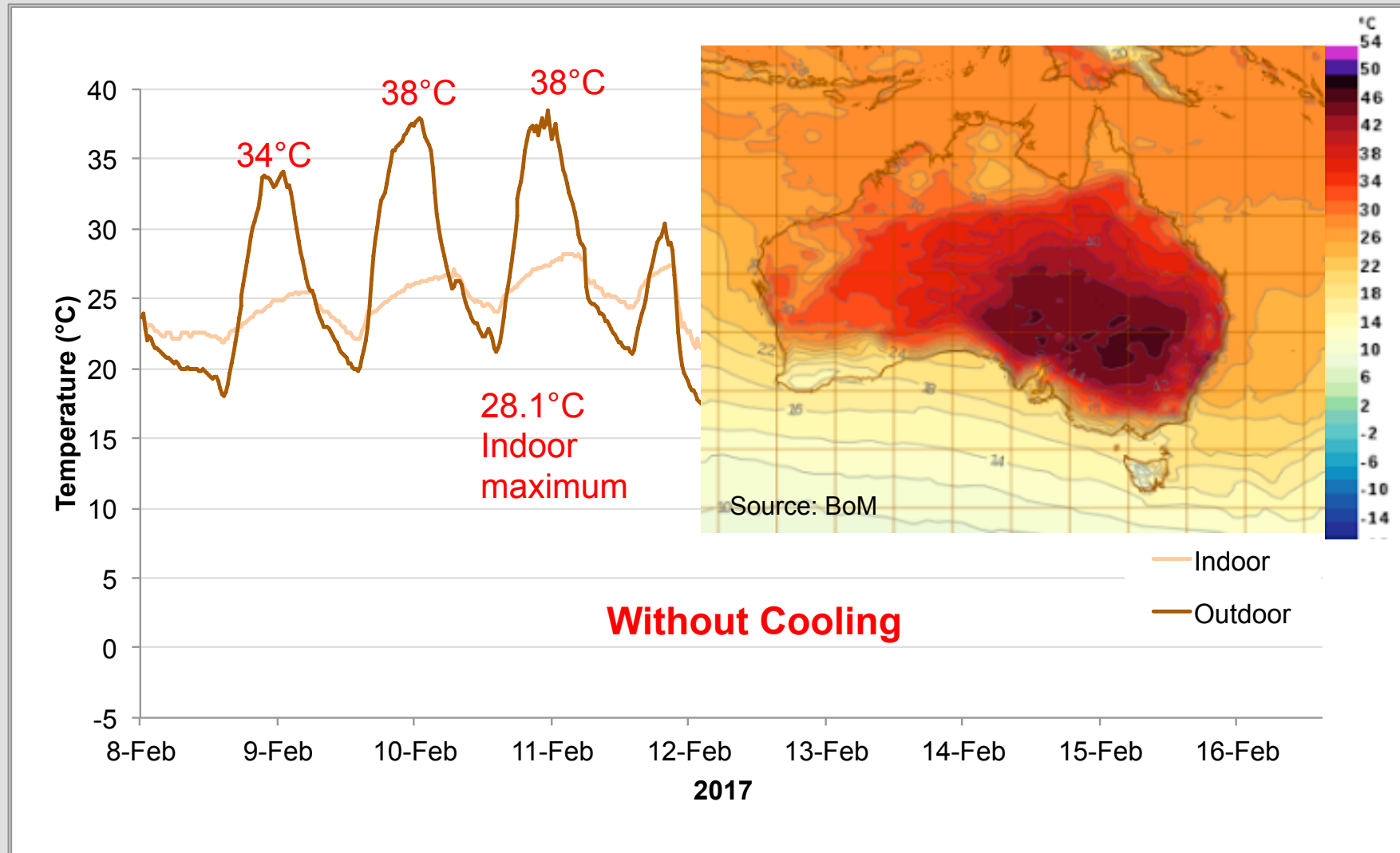
Winter Comfort



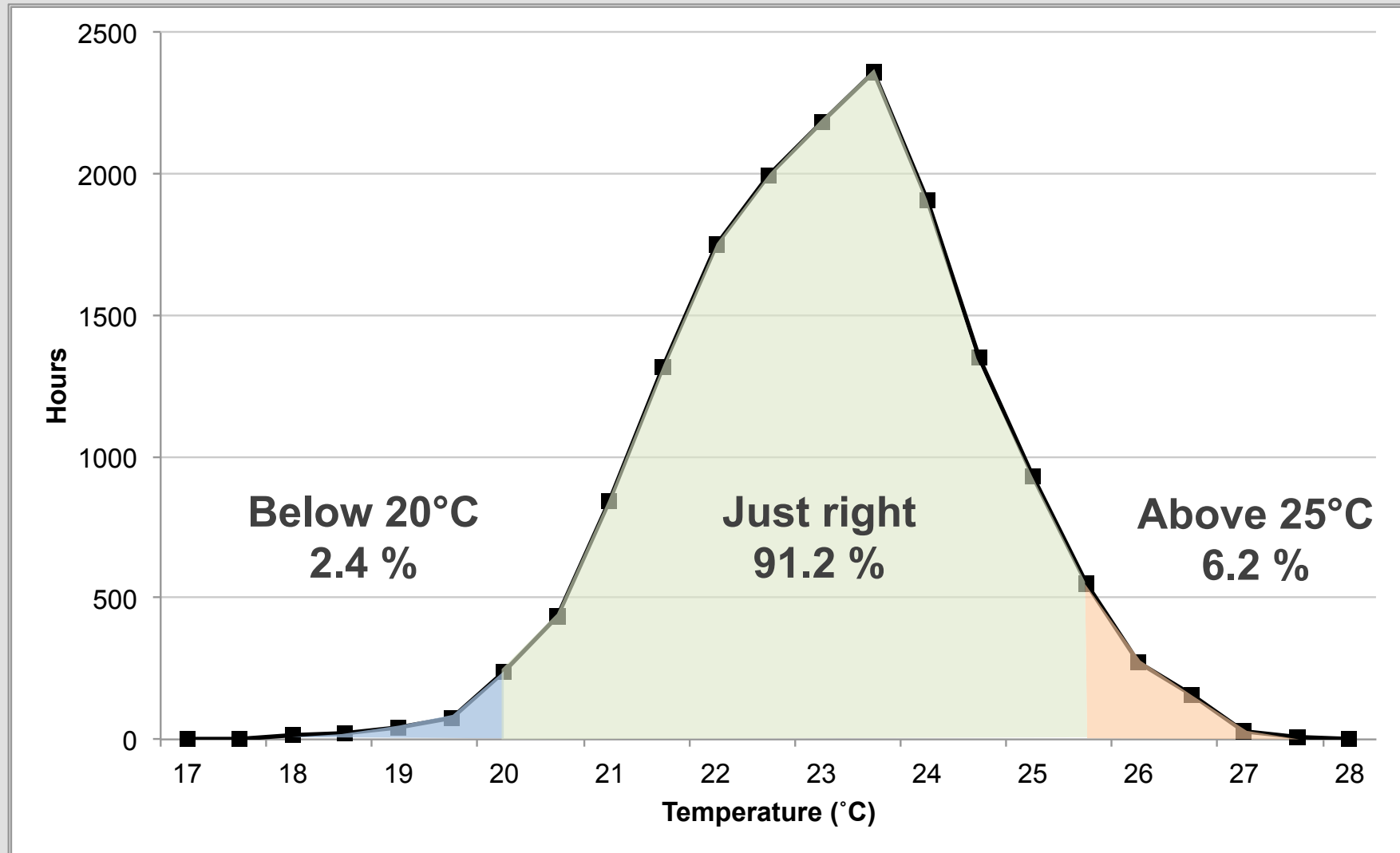
Summer Comfort



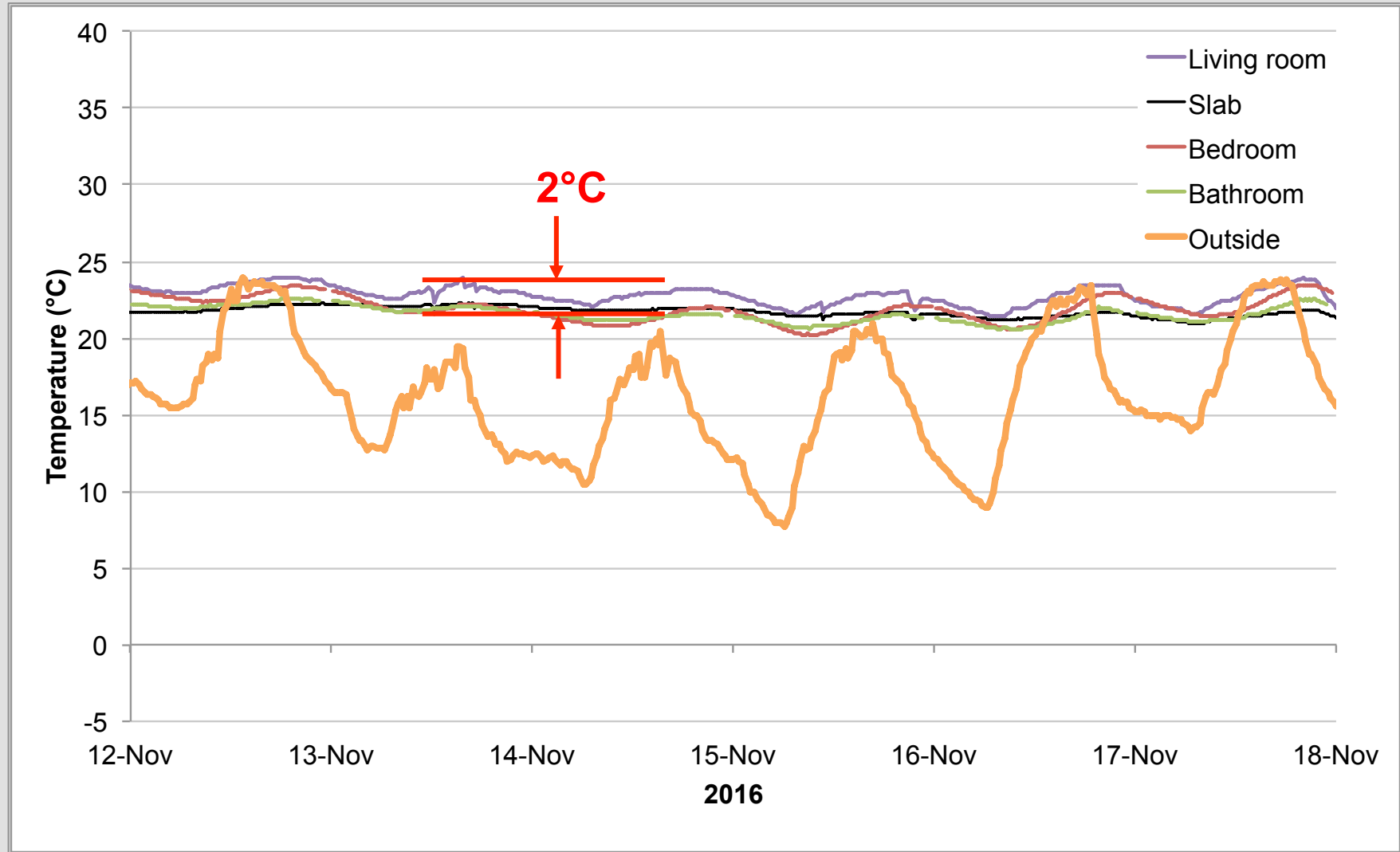
Summer Comfort



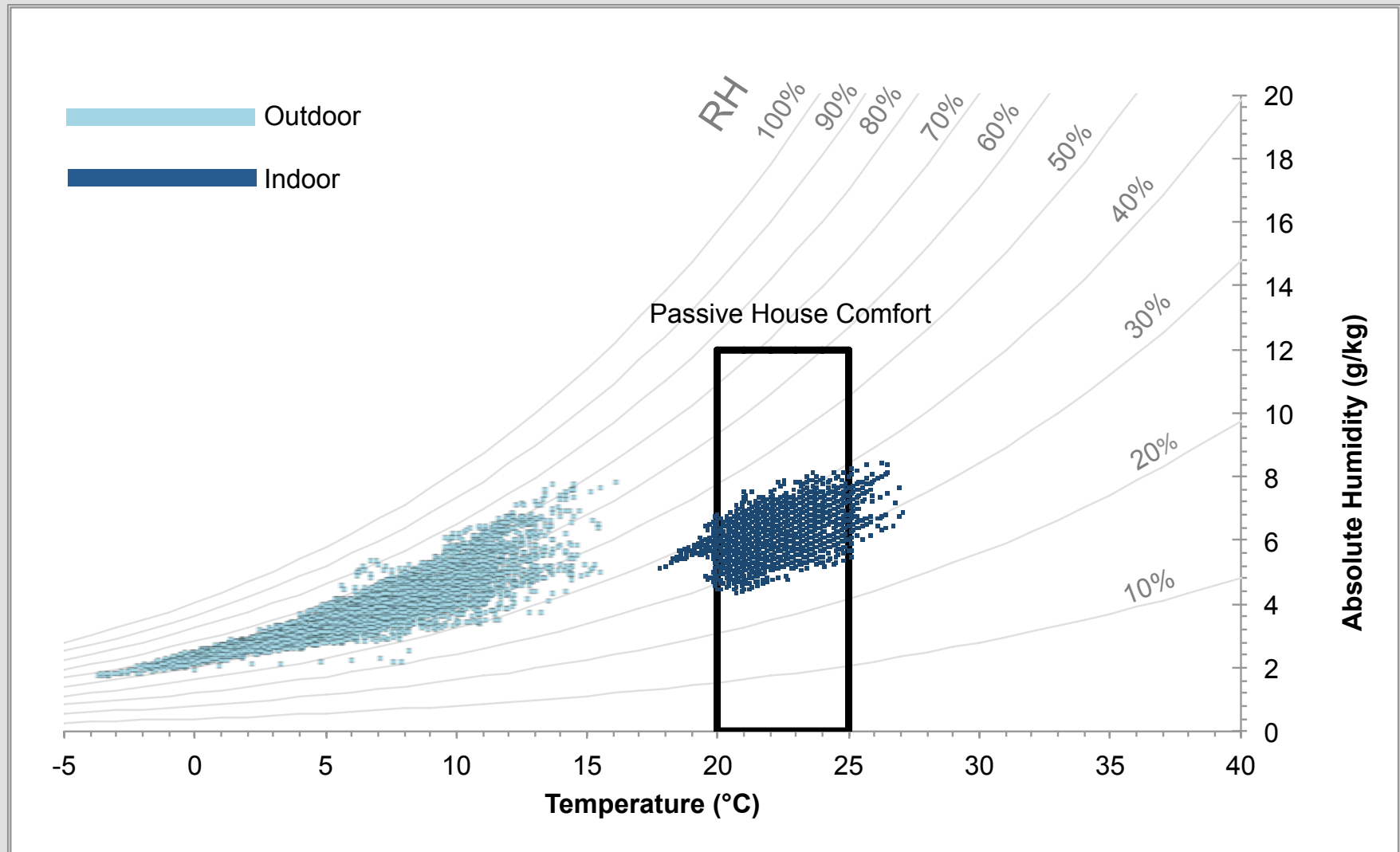
2015-2016 Temperatures



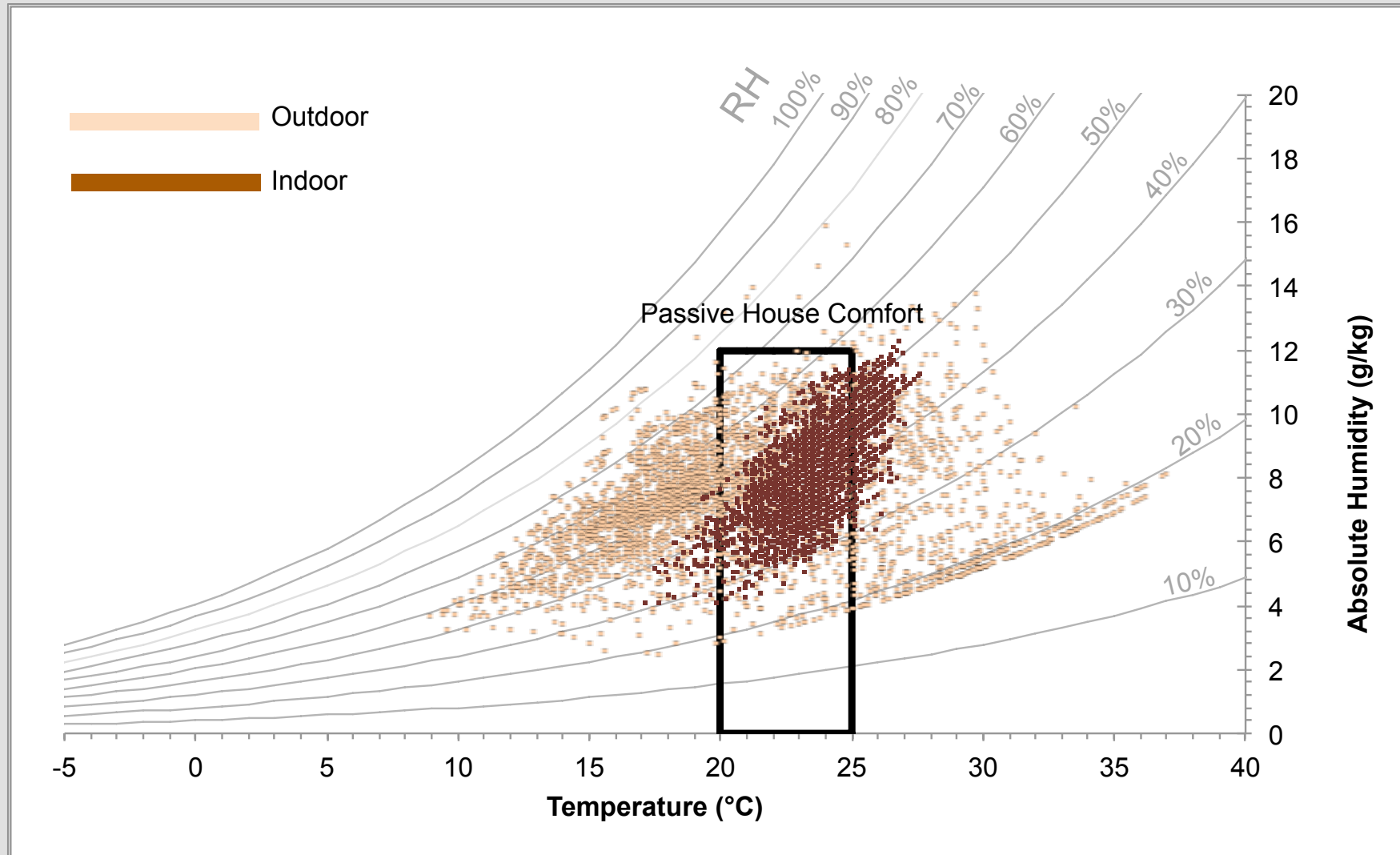
Temperature Variations



Winter Humidity



Summer Humidity

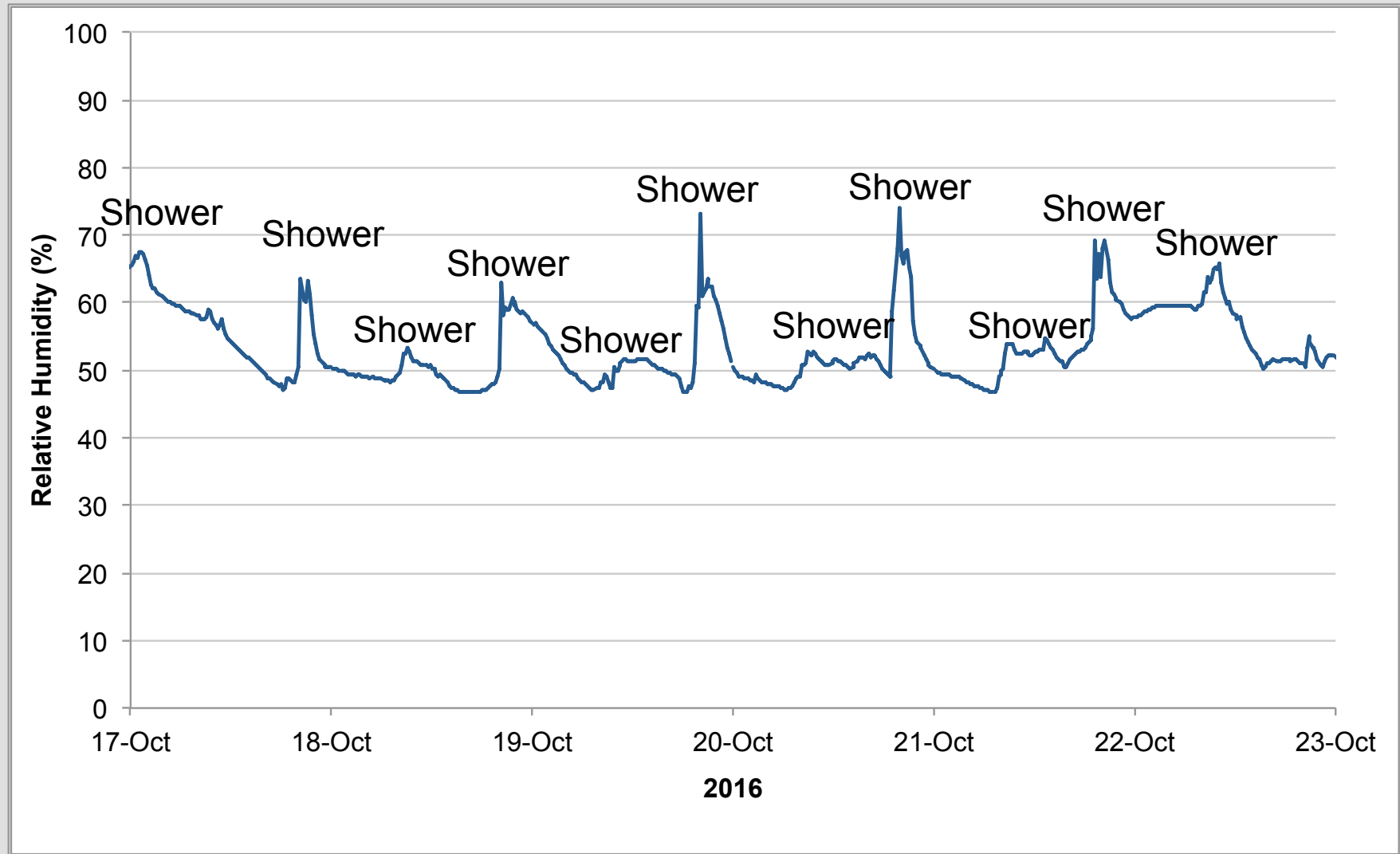


Bathroom Humidity

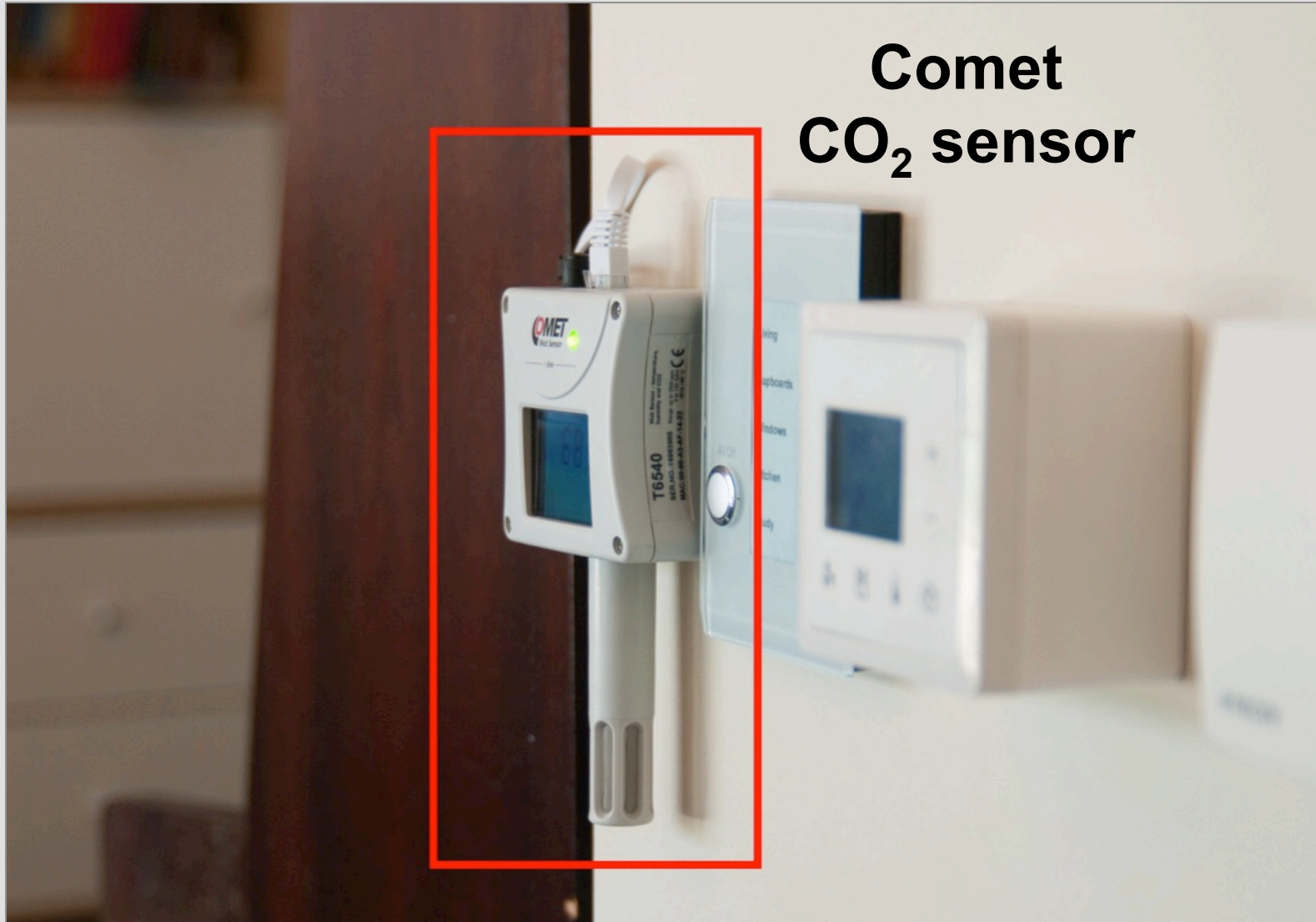
**Wireless tag
humidity sensor**



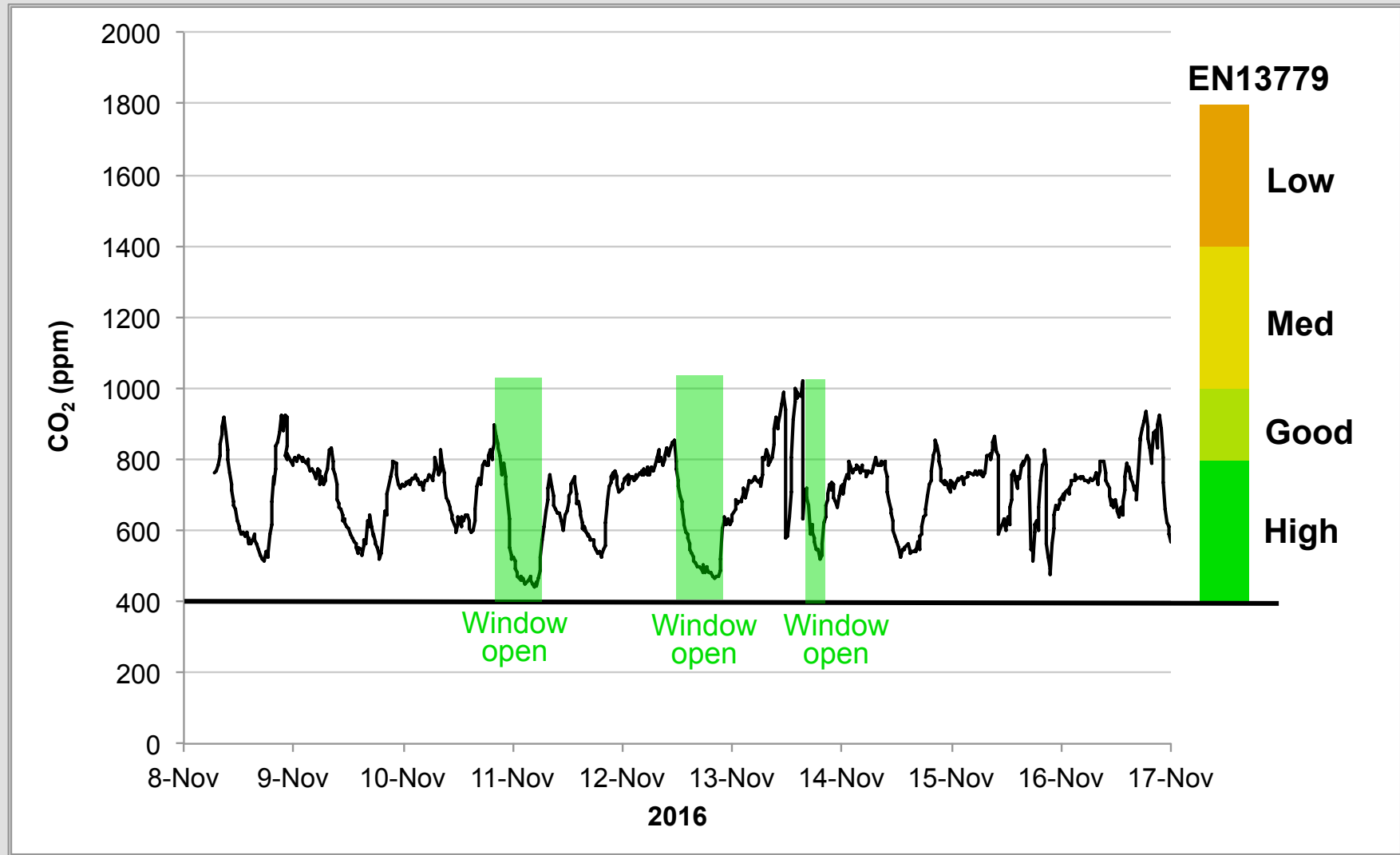
Bathroom Humidity



Indoor Air Quality



Indoor Air Quality



Conclusion

- ✓ Comfortable 20 - 25°C
- ✓ Low Energy 64% less
- ✓ High Air Quality CO₂ < 1000ppm
- ✓ Predictable 12% better