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Beyond Fabric: Incorporating heating practices into domestic energy modelling

WHAT?

Exploring how domestic heating practices can be incorporated into building models

> Developing ways to identify best energy efficiency options for households

WHY?

Building modelling being used for greater variety of applications

These need to better incorporate recognition that people perform practices

HOW?

- I) Identifying viable options for energy efficiency measures for households
- 2) Identifying how practices can be translated into building model



Identify energy efficiency measures which would align with a given person/household's set of practices

Practices

(Method of heating control) (Choice of internal temperature) (Time for which home heated)

Materials

Level of insulation Type of heating controls Thermostat with display

Skills

Using heating controls Co-ordinating professional work

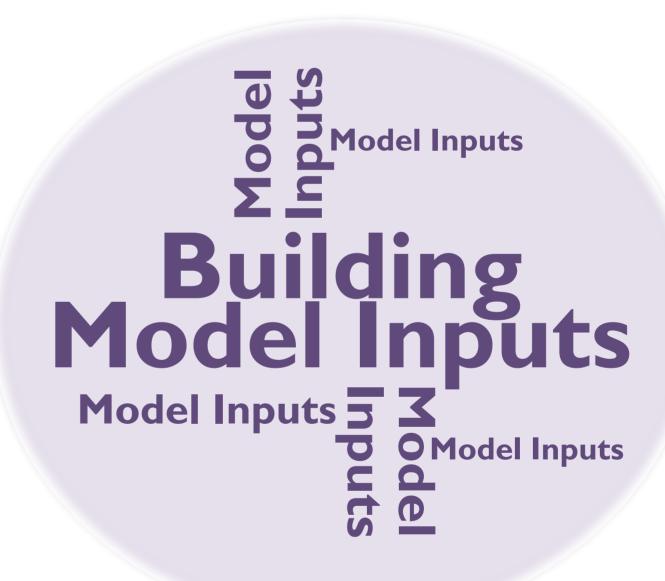
Meanings

Saving energy – money/ CO_2 Optimising thermal comfort



Link up practices and building model inputs







Compare how different energy efficiency measures / practices perform: Types of Results Analysis

improved

insulation

25,000 Heating Energy Demand (kWh/yr) 20,000 15,000 10,000 5,000 Manual On-off Manual On-off Thermostat Thermostat Advanced Advanced Zonal Heating Zonal Heating control only Heating Heating control. Control, Control, improved Control Control

improved

insulation

insulation

Change in energy consumption

22 Livingroom desired temperature profile 21 Thermostat control only Temperature (°C) Thermostat control, improved insulation ·····Manual On-off Heating Control ····· Manual On-off Heating Control, improved insulation -Advanced Zonal Heating Control Advanced Zonal Heating 18 20

16

Control, improved insulation

14

Hour of day

Delivered Temperature Profiles

Further work

Possibilities for scaling up – beyond single houses to regions Developing model capabilities to include these aspects of practices Simplification of approach for potential to feed into wider modelling work