

UCL ENERGY INSTITUTE

Investigating the Installation and Appropriation of Domestic Central Heating

Faye Wade

faye.wade.10@ucl.ac.uk



Introduction

Aim: To highlight the need to view domestic central heating from a sociotechnical perspective and that investigation of this sociotechnical system is best achieved using ethnography.

Content

- Context: 'The Problem'
- Application of theory: Central heating from a sociotechnical perspective
- Methodology: Why ethnography?
- Application of method: Preliminary fieldwork
- Conclusion

Context: Why Domestic Central Heating?

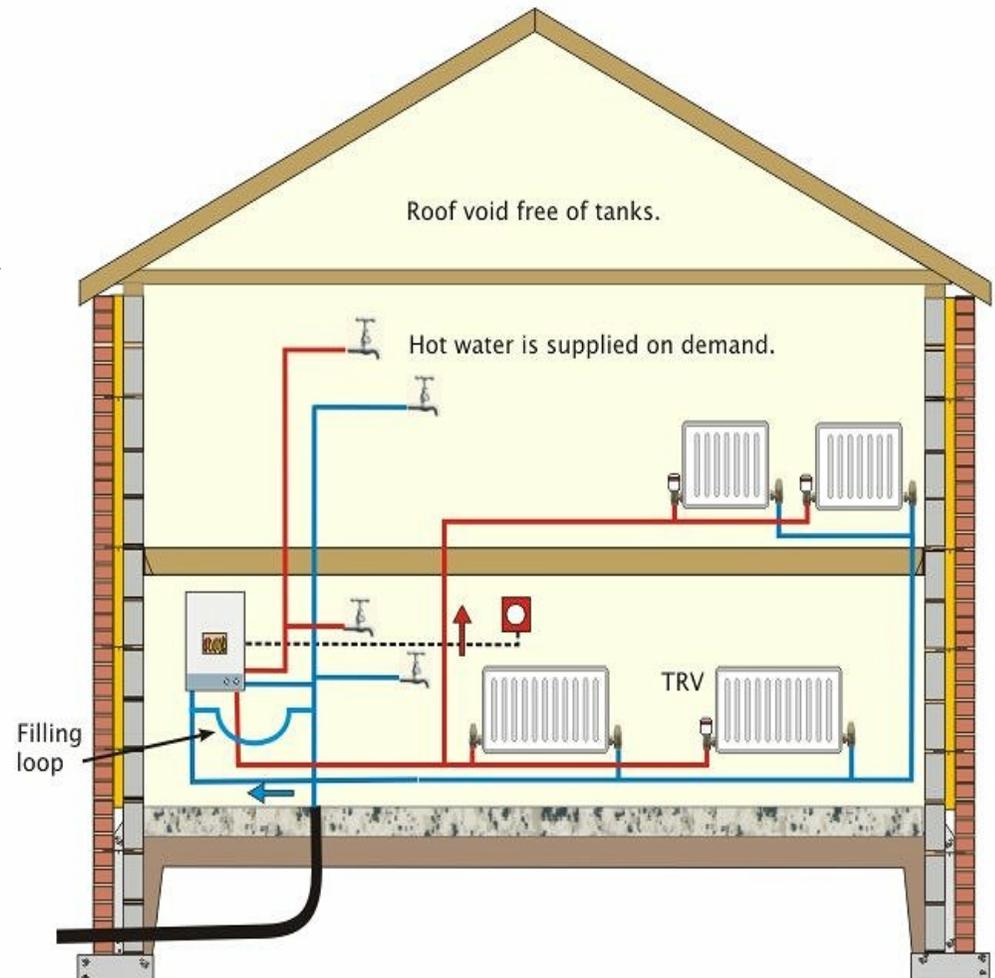
60 % of domestic energy consumption is through space heating

93 % of all households have some form of central heating

and... **85 %** of central heating systems are gas

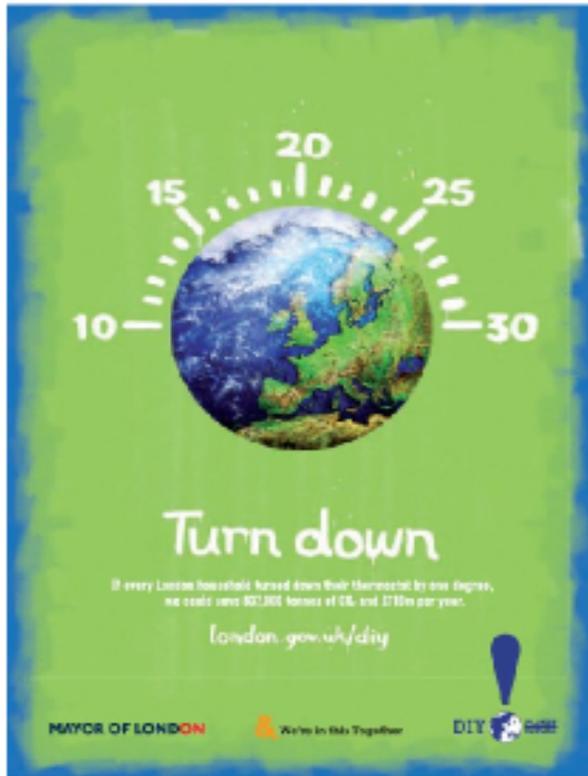
Context: What is Gas Central Heating?

- Boiler
- Radiators
- Electronics – Programmer and boiler controls
- Room Thermostat
- Thermostatic Radiator Valves
- Pipework, pumps, valves, vents, flue pipes, a feed and expansion cistern....



Context: How to Reduce Heating Energy Consumption?

“The Social”



“All I know is you turn the thermostat round and it’ll come on when you want to. You just click it round and then it fires up.” (Rathouse and Young, 2004, p. 16)

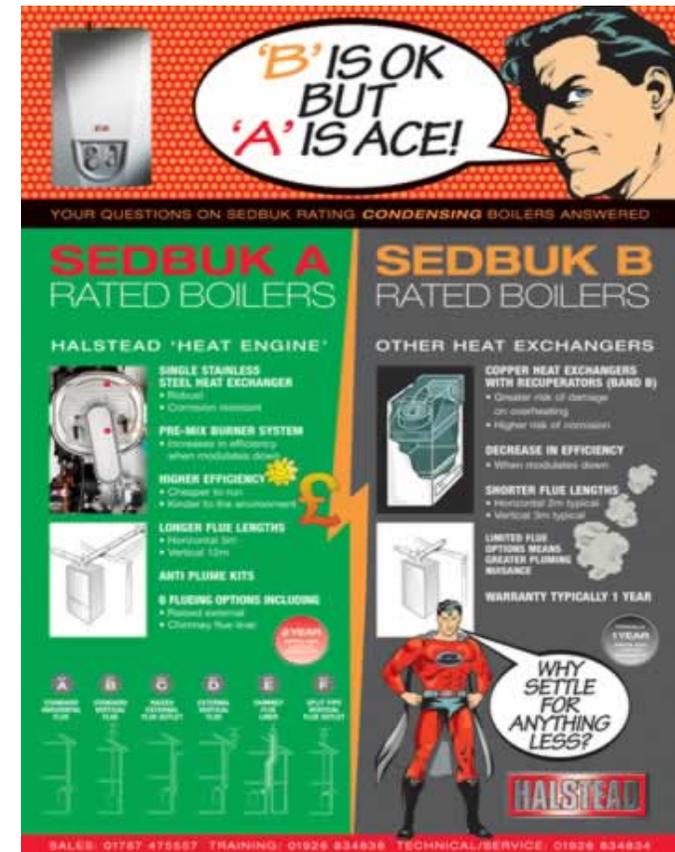
“Not using as much gas to keep it warm, just **simmering so to speak.**” (Rathouse and Young, 2004, p. 17)

Context: How to Reduce Heating Energy Consumption?

“The Technical”

- Full programmer
- Room thermostats in all zones
- Thermostatic Radiator Valves on all radiators

“The installation of a minimum standard of controls in a wet system (which previously had no controls) can reduce fuel consumption and CO₂ emissions by 17%.” (EST, 2001 p.5)



'B' IS OK BUT 'A' IS ACE!

YOUR QUESTIONS ON SEDBUK RATING **CONDENSING** BOILERS ANSWERED

SEDBUK A RATED BOILERS	SEDBUK B RATED BOILERS
HALSTEAD 'HEAT ENGINE' <ul style="list-style-type: none"> SINGLE STAINLESS STEEL HEAT EXCHANGER <ul style="list-style-type: none"> • No leaks • Corrosion resistant PRE-MIX BURNER SYSTEM <ul style="list-style-type: none"> • Increased in efficiency when modulates down HIGHER EFFICIENCY <ul style="list-style-type: none"> • Cheaper to run • Kinder to the environment LONGER FLUE LENGTHS <ul style="list-style-type: none"> • Horizontal 3m • Vertical 15m ANTI PLUME KITS 6 FLUING OPTIONS INCLUDING <ul style="list-style-type: none"> • Flued central • Chimney flue line 	OTHER HEAT EXCHANGERS <ul style="list-style-type: none"> COPPER HEAT EXCHANGERS WITH RECUPERATORS (BAND B) <ul style="list-style-type: none"> • Greater risk of damage on overfiring • Higher risk of corrosion DECREASE IN EFFICIENCY <ul style="list-style-type: none"> • When modulates down SHORTER FLUE LENGTHS <ul style="list-style-type: none"> • Horizontal 2m typical • Vertical 3m typical LIMITED FLUE OPTIONS MEANS GREATER PLUMBING NOISANCE WARRANTY TYPICALLY 1 YEAR

WHY SETTLE FOR ANYTHING LESS?

HALSTEAD

SALES: 01787 475557 TRAINING: 01926 634826 TECHNICAL/SERVICE: 01926 634834

Central Heating: A Multi-Level Perspective

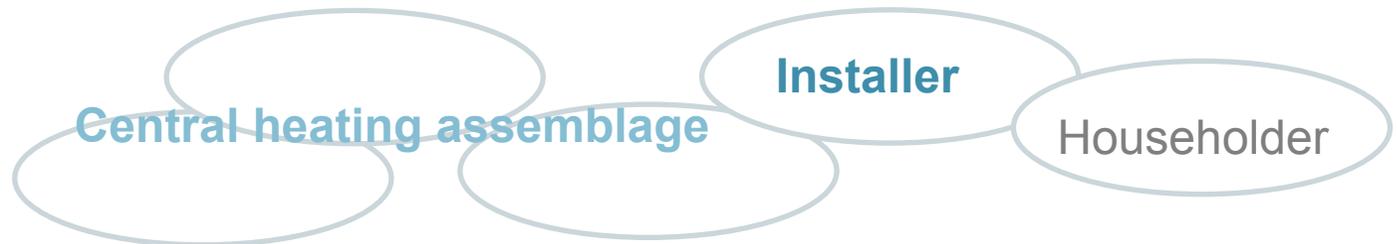
MACRO



MESO



MICRO



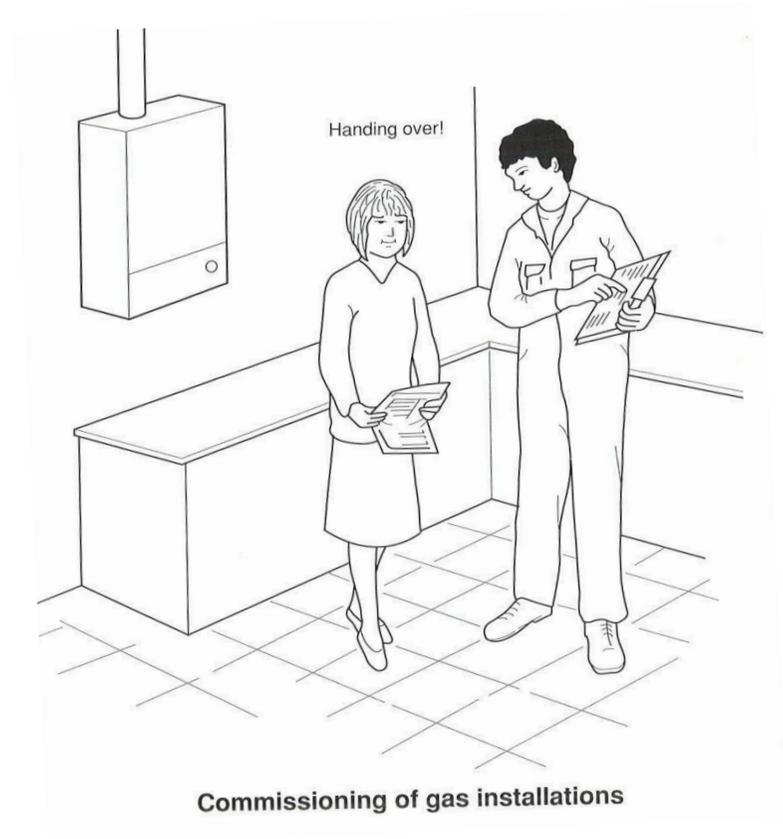
STS: Installer as Intermediary

“People reported asking installers, plumbers and engineers to show them how to use their controls and sometimes to set their programmers.”

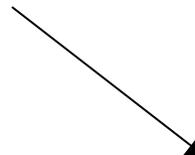
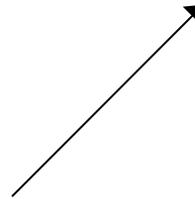
(Rathouse and Young, 2004 p.24)

“Intermediaries do not occupy a neutral position in dealing with other actors. They may well mediate or facilitate, but are by no means benign in the work they perform.”

(Guy et al. 2011 p. 6)



SCOT: Relevant Social Groups



The 'proficient' user



The 'confused' user



The 'non' user



Ethnography: Selection of method to address theoretical questions

“Ethnography is the production of highly detailed accounts of how people in a social setting lead their lives, based on systematic and long-term observation of, and conversations with, informants.” (Payne and Payne, 2004, p. 71)

“What is required to provide a richness of description that makes interpretable and grounds in actual behaviour the relationships found between social structural categories, system design, and user acceptance and satisfaction is a research strategy that includes extensive on-site field observations and a means of documenting the behaviours observed.” (Blomberg, 1987, p. 198)

Ethnography: Approach

- Shadow installer on multiple heating installations.
- Interaction with householder during and post installation.

Observation

Unstructured Interviews

Document Analysis

Photographs

Scoping Studies:

- Approach different types of installer
 - Large corporations vs. one man band
- Target different house types
 - Tenure: rental vs. owner-occupied
 - Type: flat vs. semi-detached house?

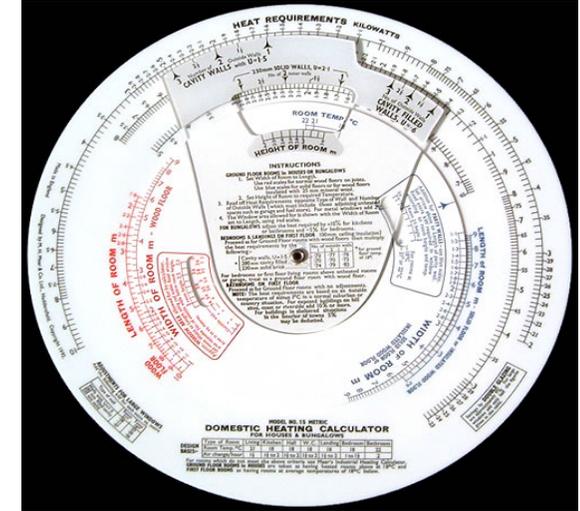
Scoping Study 1: Mario

How is the radiator location decided?

Mario: “The owner specifies the location of the radiators, they usually want them in dead space – so they are usually put under windows”

Owner: “He is the plumber!”

Radiator sizing method: Mears calculator



Assumed temperature requirements for each room:

Bedroom: 19

Living Room: 19

Kitchen: 18

Bathroom: 21



Scoping Study 2: Luigi



Assumed temperature requirements for each room:

Bedroom: 16

Living Room: 18 - 20

Kitchen: 16

Bathroom: 21

Radiator sizing method: Manual calculation



Conclusion

- In order to reduce emissions we need to view central heating from a sociotechnical perspective.
- The Installer acts as an intermediary who may influence the householder's domestication process and everyday consumption practices.
- The most appropriate way to understand this is through ethnographic investigation of central heating installations.

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Thank you

