The Challenges of Retrofitting my Home

Lisa Mead

Post-Graduate Diploma in Advanced Environmental & Energy Studies, CAT/UEL
What is an “Eco-renovation”…?

• Choice of materials: relative importance?

• Reducing home’s carbon footprint:
  – Insulation
  – Ventilation -v- Infiltration
  – Low or no carbon heating system
  – Low energy appliances & Lighting
  – Buffer zones?

• Minimising waste during renovation (repair, reuse, recycle)
Insulation - Roof (1)

• The FIRST thing to do!
• Biggest bang for your buck
• Roof insulation: how thick?
Insulation - Roof (2)

• Tackling the eves and dormers
Insulation - Roof (3)

• Novel solution: -
  “Spacetherm” insulation

• 19mm thick and very high insulation performance
Insulation - Walls (1)

Existing 1971 walls are 12.5” thick
Insulation - Walls (2)

“Sunspace” an icebox in winter!
Insulation - Walls (3)

- House was very cold in winter
- Electric night storage heaters inadequate
- Thermal image would have helped to diagnose problem areas, but…
Insulation - Walls (4)

Walls of new extension are 15.5” thick with sheep wool insulation
Insulation - Walls (5)

Think about using “buffer zones”
Insulation - Floors

- Insulate under or over floors
- Check for air gaps behind skirting!
Ventilation -v- Infiltration

• How leaky is your home?
• Thermal image or pressure testing will tell you
• Uncontrolled ingress of air - stop it!
• Trickle vents & double (or triple) glazing
• Buffer zones (but DON’T heat them!)
Spot the Trickle Vent..
Heating system (1)

• No gas supply in Findhorn
• Most people have oil or LPG
• Wanted non-fossil fuel solution
• Wood is plentiful in Moray
Heating System (2)

We chose…
A wood pellet & log boiler, with solar thermal panels and a thermal store
Heating System (3)

• It’s quite something…
Heating System (4)

• Inside the house…

  – the electric night storage heaters had to go… Instead, we chose “Thermaskirt” in most rooms rather than radiators
Thermaskirt

• This is a radiator… The heat is very well distributed around the room
Appliances & Lighting

• “A” rated appliances

• “Eco-bulbs” - compact fluorescents & LEDs
Other Challenges

• Time & Money
• Planning permission
• Writing it down: building specification
• Project managing: Too many cooks…
• Communication, communication, communication
• See www.building-contract.co.uk