The Challenges of Retrofitting my Home

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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