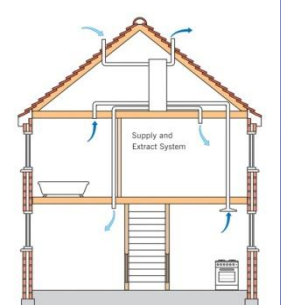


# MVHR -

Practical experience of managing  
ventilation and air quality for  
resident well being

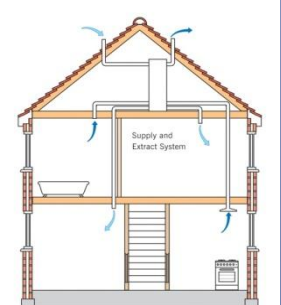
Paul White, Design & Quality Manager,  
TCHG

The TCHG Experience

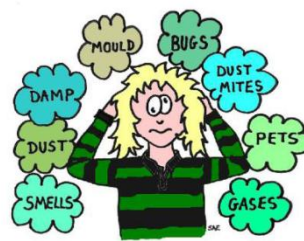


# Issues to consider

- Operation & Controls – ease of use (Demand control)
- Installation quality/ diffusers correct & located right /PassivH vs SAP / actual air tightness?
- Social housing needs - high occupancy/robust/ IAQ/bills
- Maintenance & regimes – large numbers of units
- Perceptions, lifestyles and cultures – people like open windows – information techniques key – move in fraught
- Noise levels – should be much better for MVHR
- Size of units – need cupboard locations but storage reqs
- Aesthetics / desirability
- Fabric good / Wet?
- Climate / dryness
- Comfort
- Heating HAs like gas
- Procurement



## YOUR HOME AND YOUR HEALTH



What am I supposed to do?

A booklet of tips about keeping  
your home healthy

## Produce less moisture.

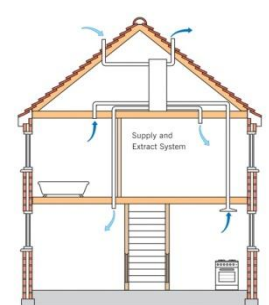
Cover pans when cooking and do not leave kettles boiling.

Do not dry clothes on radiators or on clothes dryers.

If you install a tumble drier ensure that it is either a condenser type or is directly ventilated to the outside air via a flexible hose or duct.



# Commissioning??! - Can it be trusted?



New Building Regs 2010  
guidance needs adequate  
enforcement



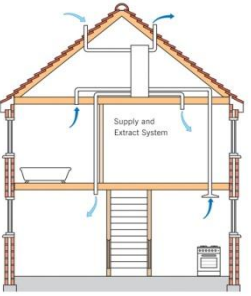
Good snagging &  
checks needed



Use of rigid  
ducting max'd  
and flexi  
ducting used  
just for bends  
Insulated??

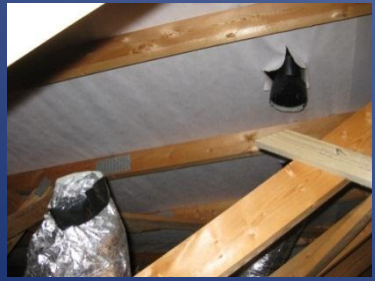
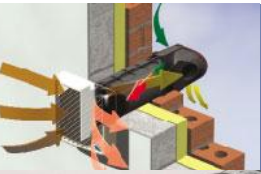


# More gratuitous photos



Worse!

Better!



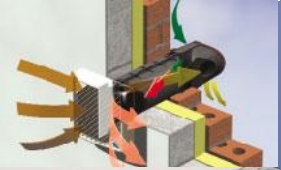
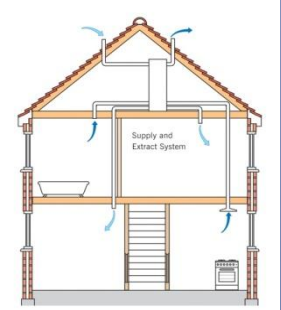


'Avante', Coxheath - £60K House project –  
TCHG Section 106  
Completed 2007 / 08  
First project with MVHR for TCHG

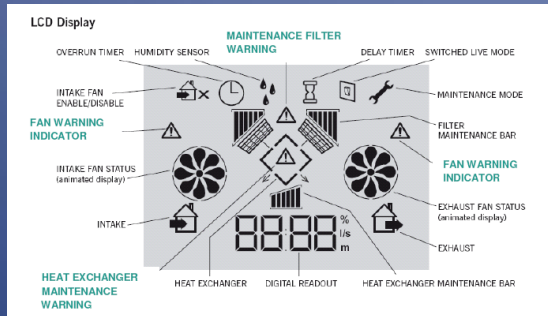
Results showed residents needed more &  
better information on MVHR but also site staff!



# Avante – Lessons learned



Complex controls! (but can bypass)



## Demos & info letters

Most residents managing well

### Using your ventilation system.

Your home is very well draft proofed to reduce heat loss and save on bills. To compensate for this a modern energy efficient ventilation system has been fitted which will not only clean the air but also recovers heat which would otherwise be lost thus saving on your heating bills. It runs on very low energy demand and will save on gas bills.

The general rules to maximise energy savings are as follows:

#### Don'ts

Please do not switch the system off and rely only on opening windows – otherwise there is a risk that condensation may build up especially in winter – and heat will be lost through the windows if left open too long

Please do not touch, obstruct or adjust the circular inlets and outlets at ceiling level

#### Do's

Please remember that the system will save energy and money if used correctly – (please read the instructions)

Please remember that air quality will be increased by using the system correctly

Please remember that in hot weather you can switch to summer bypass (instructions attached)

Please remember to check the filters are not blocked (see instructions)

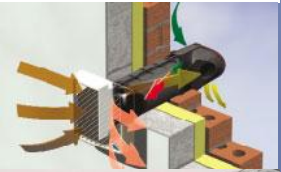
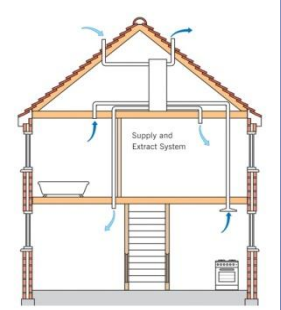
Please notify the association if the system becomes noisy or you need further advice about the system

Please note: The housing association cannot accept responsibility for damp problems if the units are switched off

Simple tips!

# In use & Maintenance of MVHR Systems

- Accessibility of unit
- Duct cleaning in future?
- Robustness of motors / frost & moisture protection / condensate position? BPEC training for this?
- Guarantees and design responsibility
- Isolators and controls / auto summer bypass?
- Dispersal / nos of units / tenancy changes
- Frequency of filter changes – fair costs ? 1 hr's work?
- Maint contractor competence / contract
- Call centre / staff training
- Life cycle costing ?? Heat exchangers costed?
- Electronic fault and use check facility?

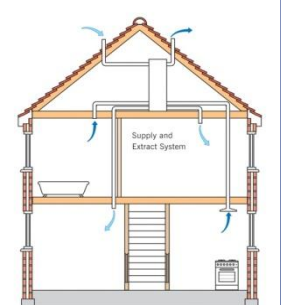


# Not one but two tellies and the rest!

Lofts - Sometimes no access and ducts/condensate get crushed

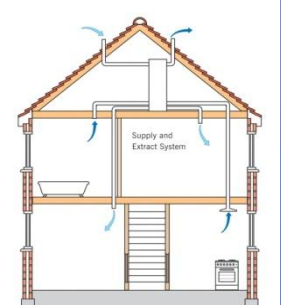
Heat loss of main units in cold lofts much more despite insulation claims – heat recovery compromised.

Cupboard locations preferred in thermal envelope (Passivhaus req).





# MVHR – maintenance regime?



OR



## Resident access or not?

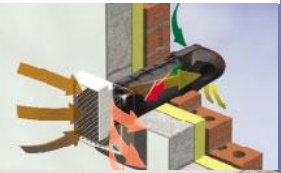
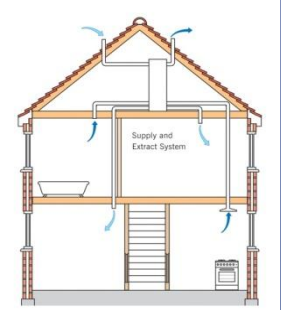
Easily accessible external filters Vs internal less accessible filters  
- Airtightness of unit affected by external draws??

## Also normal programme heating contractor or specialist?



# Conclusions

- Complex equipment/ better industry culture ??? Passivhaus low adoption – overwhelming programmes to tight funding timescales & budgets
- Desirability? Only for the few so far
- MVHR installation more critical, needs informed procurement & commissioning needs to be reliable (3<sup>rd</sup> party checks?) QCI & consultants snagging
- Small amount of field research focused on intense monitoring
  - Town Court – crude survey 20 units – only 10 switched on only 2 use boost
- Demand Controls – more intuitive/ auto boost – fair cost? Accurate – humidistat controls are very inaccurate
- Sound is a significant issue - attenuation in supply ducts?
- No technology immune from poor installation, sabotage & misuse – many MVHR checked switched off anyway – use of key switch isolation?
- No overwhelming condensation issues reported – leaky hses? / open windows – much time wasted when complaints/ problems happen though!!!
- Methods to ensure ‘drying out’ of wet structure max’d before handover
- Ongoing maintenance & life cycle costs ? Evidence of heat recovery ? Will units be replaced in the end?



# Passivent *i*Hybrid

- Combines natural (passive stack) ventilation with heat recovery – senses max heat recovery benefit (below 9oc ext sensor)
- Helped as part of overall strategy reduce energy consumption from 69kg CO<sub>2</sub>/m<sup>2</sup> pa to 19kg
- Reduces lifetime costs against conventional heat recovery by 39%
- Auto Summer bypass



# Rankine Road, Passivent *i*Hybrid

