

Human Factors Considerations in Retrofits

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... supporting www.usablebuildings.co.uk

This is ... ?

- A context-setter for a workshop which will explore the human factors aspects of the *Responsible Retrofit Guidance Tool*.
- In the absence of readily accessible published case-study material for traditional housing, this draws on the author's experiences.

Building users like ...

- Situations where they need to intervene to change things only occasionally.
- Opportunities to act quickly to make adjustments if conditions alter.
- Creating conditions which are 'good enough' rather than 'just right'.

... and they don't like ...

- Being *prevented from intervening* to change physical settings from an undesirable existing state to a better one.
- Being subjected to *arbitrary changes* in conditions which they are affected by, but cannot then intervene.
- *Unfamiliar* settings.
- *Stressful emergencies*.
- *Lack of speedy* or effective response from other people who control settings which may affect them.
- Being prevented from making *trade-offs of their own choosing between lesser evils*, e.g. too much noise or too hot?.

Improvement may come from ...

- Better physical (designed) device interfaces.
- More appropriate locations for devices and switches.
- Installers' actions supervised.
- Better user familiarity with
 - operating context and
 - design intent.
- Conflict resolution between different users.
- Altered habits and perceptions, perhaps based on clear and timely cost and consumption information .

In retrofits ... #1 Examples from Glen Cottage

- Many aspects may appear trivial or low-priority. *A tyranny of small decisions.*
- Physical interfaces may be inherited with constraints which are expensive to change.
 - E.g. Positions of meters.
- Installers' actions usually suit their convenience at the time not the users'.
 - E.g. Time switch size and location.
- Users may not understand how things are supposed to work or where things are located.
 - E.g. Septic tank

In general ... Examples from Glen Cottage

- Different users will almost always see things differently.
 - E.g. allergy sufferers want windows closed in summer
- Habits and perceptions may be inherited and applied willy nilly whatever the circumstances.
 - E.g. windows open in bedrooms during night.

Brief for Glen Cottage priority points

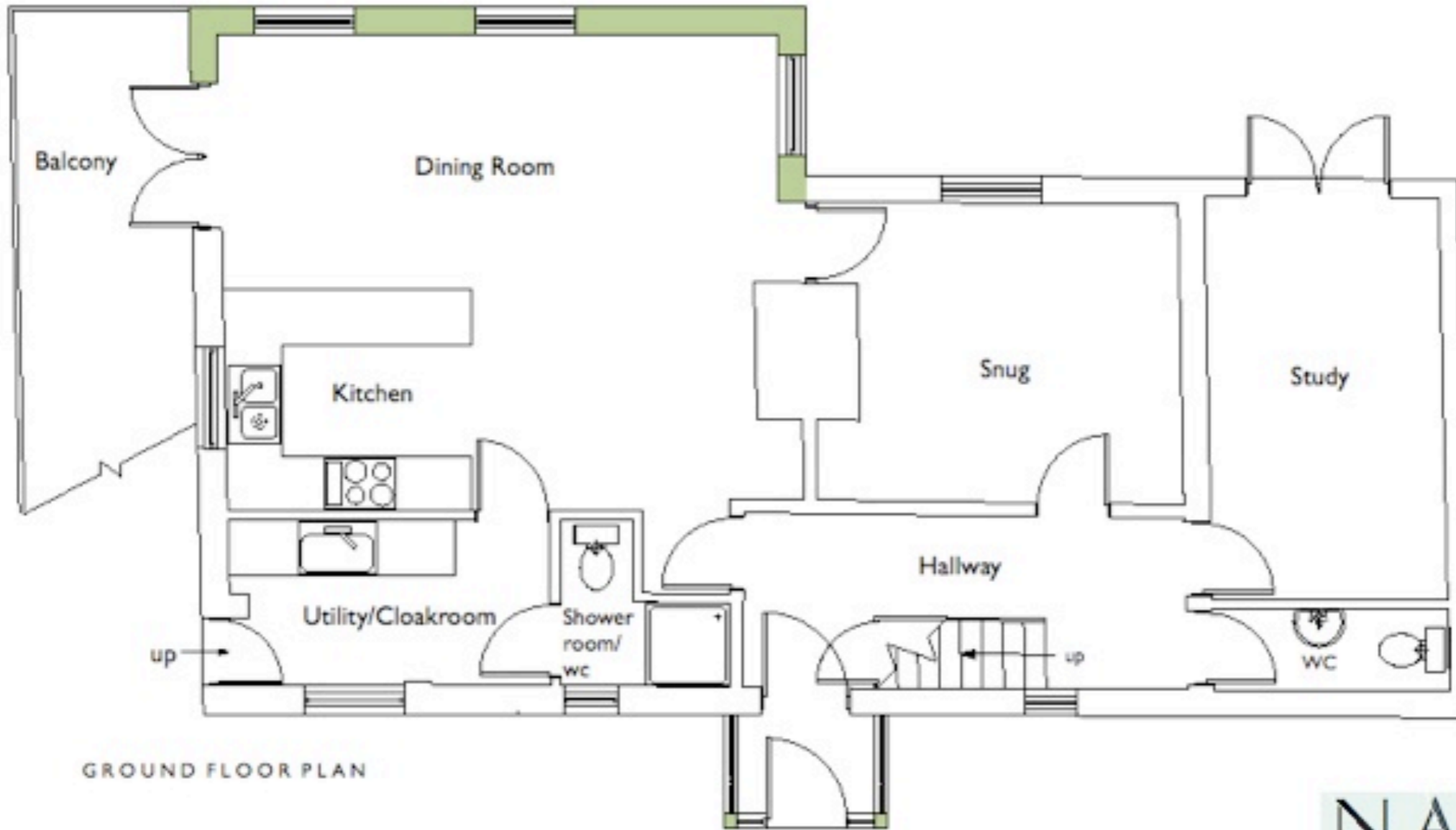
- Technology introduced to be appropriate for the age and style of building. *This eventually meant solar water heating, wood burner, and condensing boiler only.*
- Simple to maintain, given the North Yorkshire location. Rules out e.g. *MVHR, heat pumps.*
- Usability / manageability *given equal emphasis to energy efficiency.*
- Access, *because of challenging steep location.*
- Materials to be re-cycled and retained as much as possible.
- Refit should not be noticeable to casual passer-by.



SOUTH EAST ELEVATION



NORTH EAST ELEVATION



GROUND FLOOR PLAN

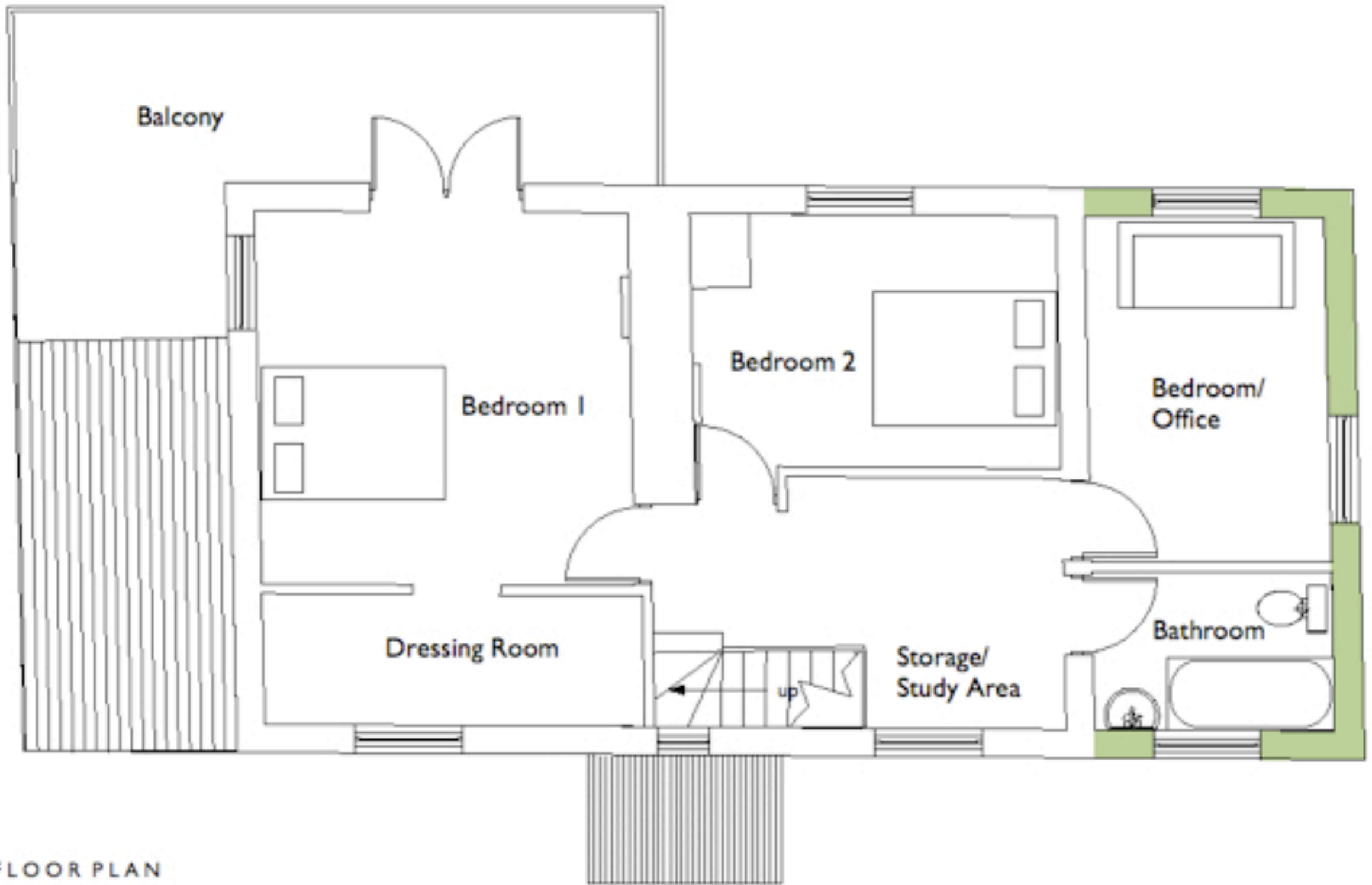
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CLIENT

Mr and Mrs A. Lesman



FIRST FLOOR PLAN



Monday, 8 July 2013



Monday, 8 July 2013



Monday, 8 July 2013



Monday, 8 July 2013



Monday, 8 July 2013







Monday, 8 July 2013





Monday, 8 July 2013

1 = UPSTAIRS
2 = DOWNSTAIRS
3 = WATER



SOLAR HOT
WATER PANEL

TEMPERATURE
OF CYLINDER →

Vaillant
54.5
03:50 35

← TEMPERATURE
OF SOLAR
PANEL

i F P



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