



Challenging some Sustainable Building Myths

Or how I built
a house that
didn't cost
the Earth!

- Bought bungalow - Should we have renewed - recycled? - No, building in too poor a condition.
- Eventually got permission to replace with 3 dwellings - greater density - build and sell 2 to pay for third
- Pair of semis intended to be more sustainable but local agent put me off so built low energy conventional construction (still better than current regs.)
- Did course at Centre for Alternative Technology. Determined to be as sustainable as possible within fixed budget of third house



- And this is the result
- Post and beam timber frame with straw bale infill
- Sustainable houses don't have to be ugly!
- Primary concern was the conservation of energy, both the embodied energy of the build, and the energy use of the building when completed



- Avoid cement throughout the process
- First problem to find more sustainable retaining walls
- Talked to different engineers, was told no alternative to reinforced concrete
- Final engineer suggested 'Cribblock' thought best alternative
- Could have been Gabions



- Support for frame which will be completely suspended off ground
- Could have been stone, but this is minimal use of concrete
- Simple Damp Proof Course!



- Traditional post and beam
- Frame and wood local
- Douglas fir not Oak
- Oak not really sustainable because of lack of mature trees in this country
- Takes 100 years to mature
- Last commercial planting done by Coal Board for pit props last century.





- Would like to use all natural insulation
- In certain situations compromised in use of reused expanded Polystyrene
- Not as bad as polyisocyanurate (Celotex)
- Building within a budget meant that this house could be 90% sustainable



- Straw great building material.
- Local
- Byproduct of agriculture - otherwise sometimes burnt on site.
- Combines both insulant and structure in one
- Cheap for level of insulation (U value of finished wall 0.16)
- Small bales harder to source



- Ladder lintel in wall - keeps straw straight and provides fixing point.
- FSC Timber Jewson - Bradfords



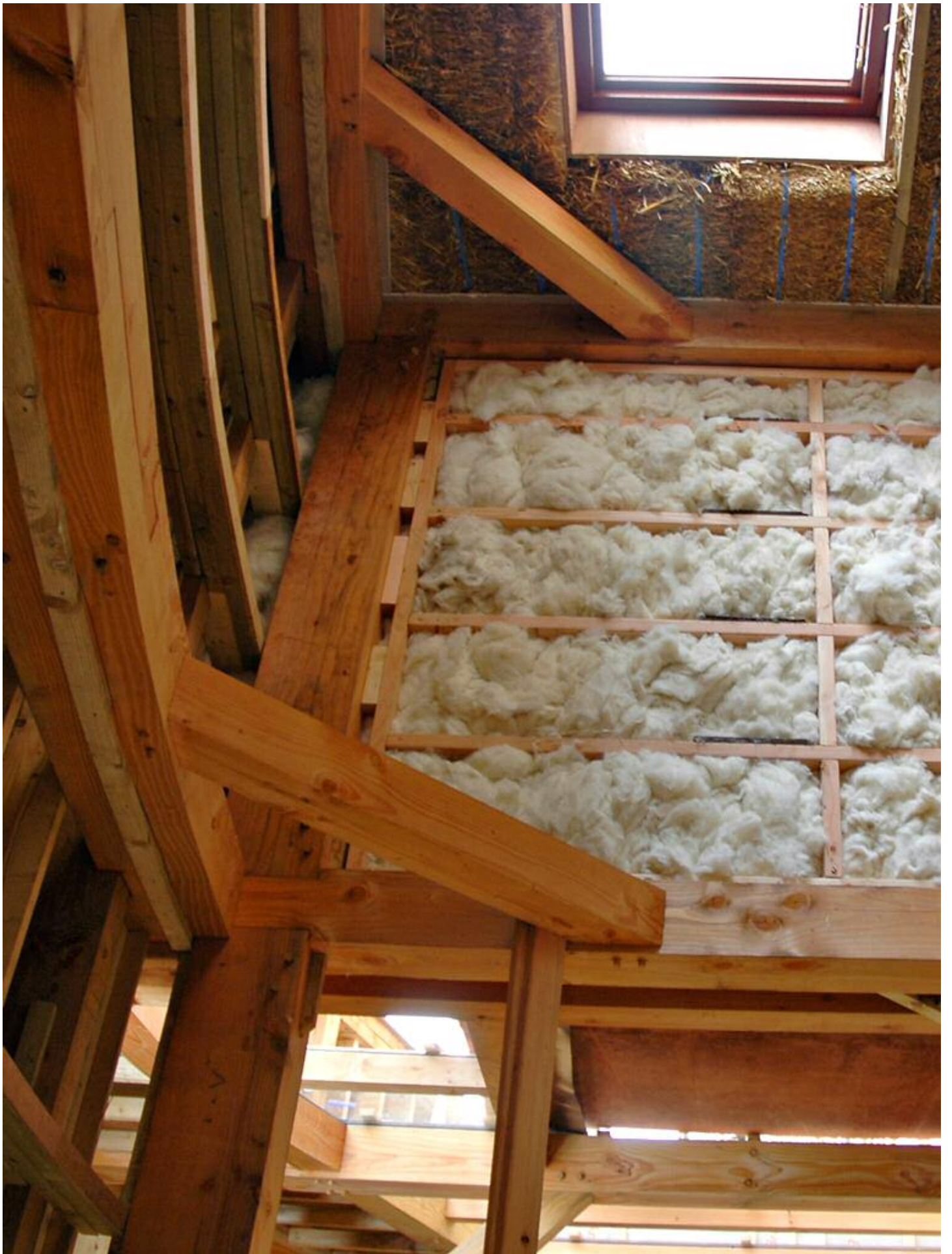
- Nylon strapping used to hold bales no metal in breathing wall (interstitial condensation)
- Myth Breathing wall lets air through - allows passage of water vapour
- Plaster board between frame and straw allows continuous plaster as vapour check.



- Traditional Builder at work
- Initial distrust - quickly converted -
looking for plot to build own straw
building



- Loose wool insulation
- Again by-product of existing industry -
local sheepskin tannery



- Windows made by local joiner
- But went against policy of sourcing materials locally for the wood
- Used hardwood from Africa
- Aid given for sustainable managed forests, so by importing supporting developing nations policy



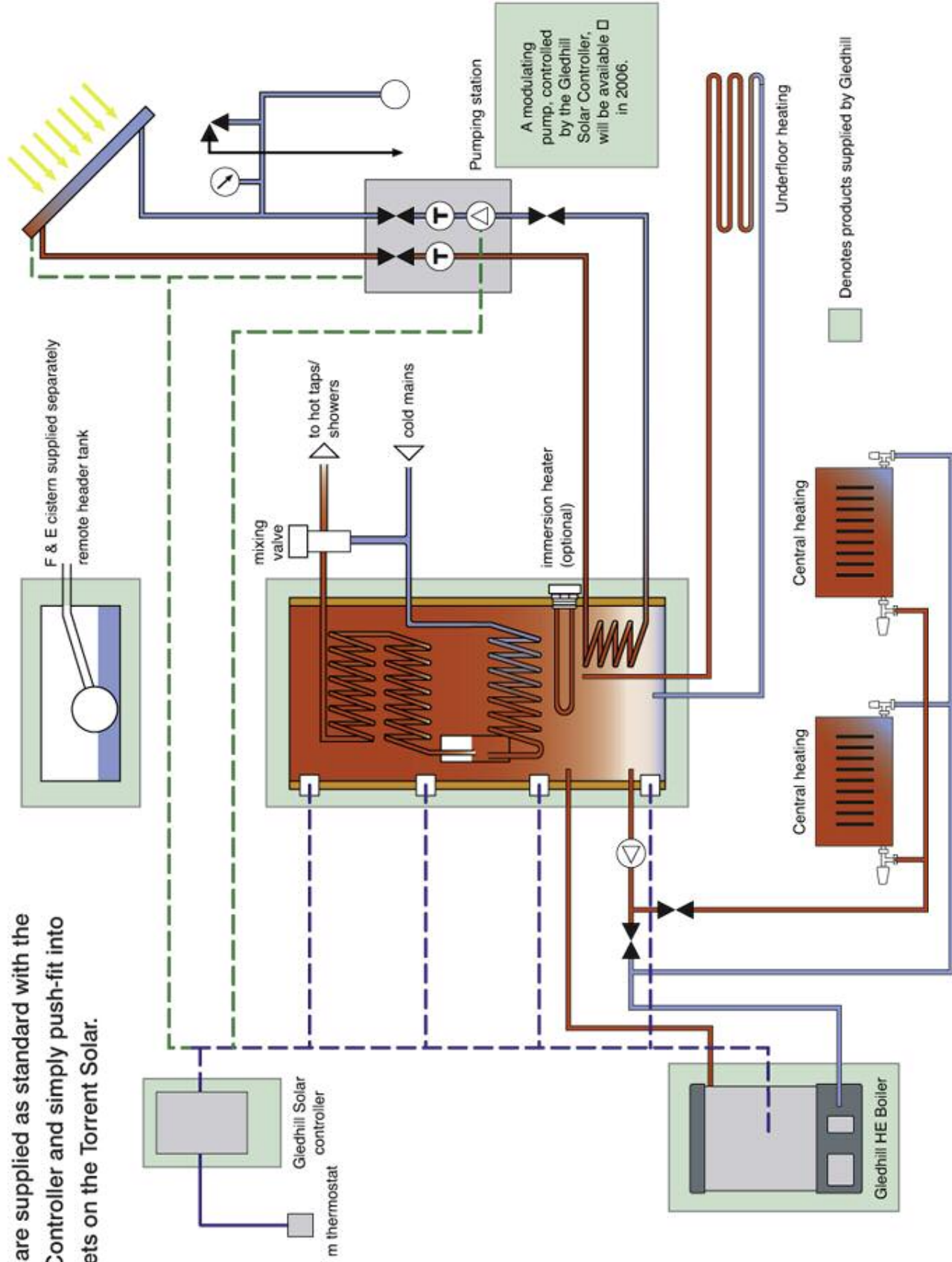
- Local cedar
- Appropriate material
- Weather resistant
- Rough sawn
- No additional finishes



- Passive solar gain from south facing buffer zone
- Bricks act as diurnal heat store
- All fresh air for house ventilation comes pre-heated through this space



----- The dotted lines indicate sensor circuits.
 These sensors are supplied as standard with the
 Gledhill Solar Controller and simply push-fit into
 pockets on the Torrent Solar.



- No hair shirt existence
- Even comfortable temperatures all year round
- Wood fired space heating in thermally massive structure
- Natural finishes make for healthy environment. Clay paint absorbs odours!
- All coverings wool or leather

