

Phase 5B, Caerphilly Business Park

Energy Cost Savings and Consumption Comparisons



About the complex

- Exceeds BREEAM Excellent rating
- EPC A rated
- Exceeds Part L of building regulations
- One of the most energy efficient offices in Wales
- Highly sustainable new build
- Minimal Carbon Footprint
- Improved staff productivity with Passive Design drawing fresh air through the building

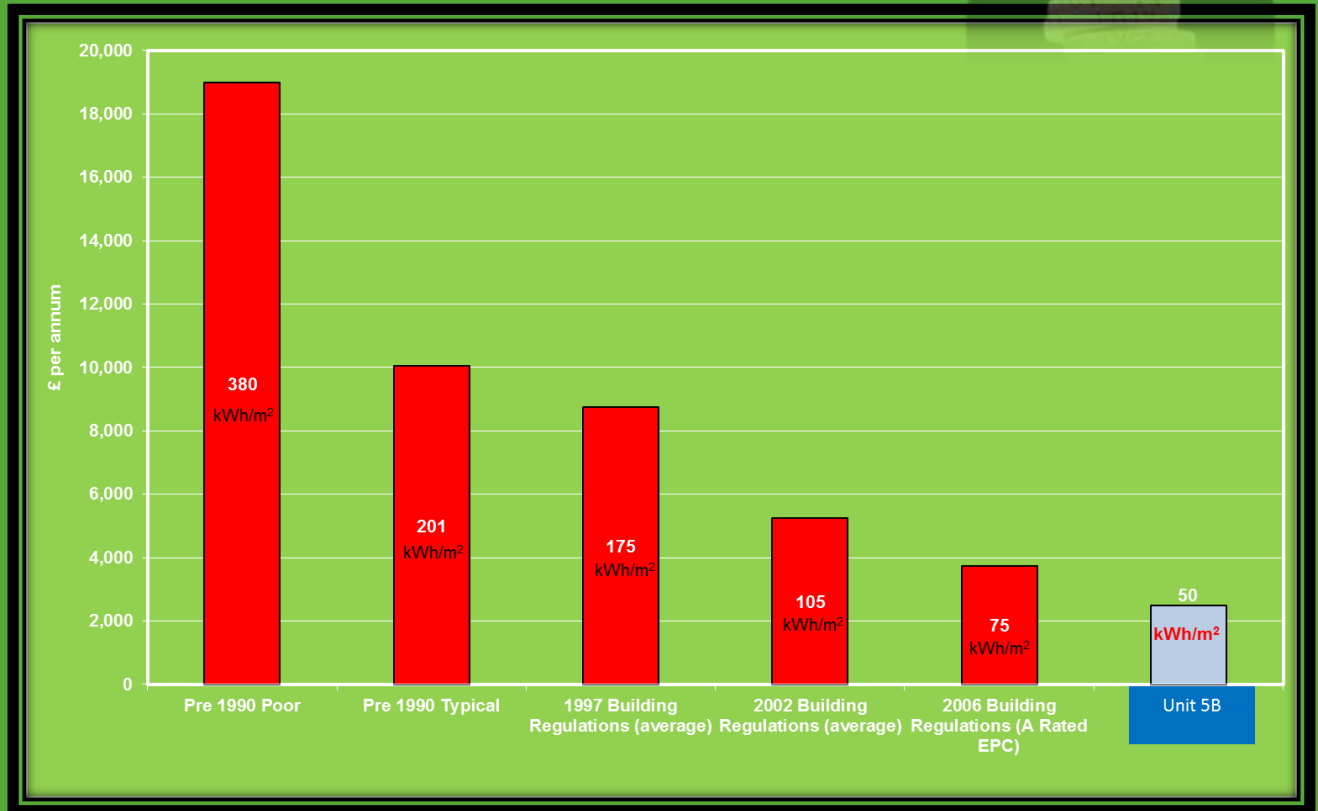
Key Solutions

- Passive design concepts including full natural ventilation
- 5 m² solar thermal array for hot water provision
- Intelligent high efficiency LED lighting systems with presence detection and light level sensors
- The UK's 1st Single Phase Low Energy Lift
- Integrated building energy monitoring system
- Rain water harvesting system
- Exposed thermal mass 'energy store' ensures cooler air inside in the summer and warmer air in the winter

Comparison of Unit 5B office energy costs with conventional buildings



Thermal Energy Costs



% saving against building types

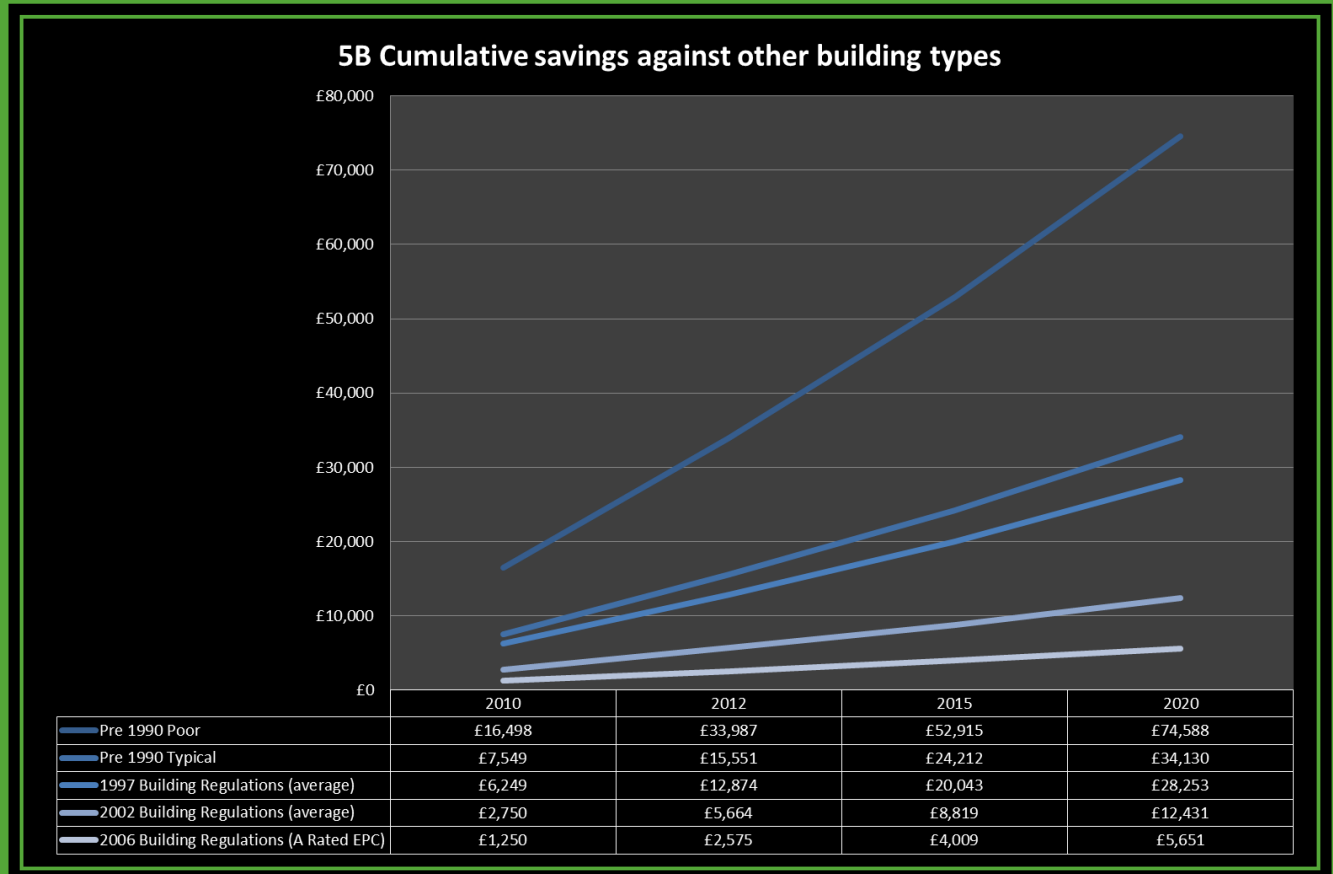


It would cost for the same floor area

- £10,000 to 19,000 a year to heat a 1990s office
- £8,750 to heat an office built in 1997
- £5,250 to heat an office built in 2002
- £3,750 to heat an office built after 2006

Annual estimated heating costs of Unit 5B
£2,500 per year

Forward thermal energy costs savings



Passive office concept minimises impact of energy price rises - virtually a flat line over the next ten years!



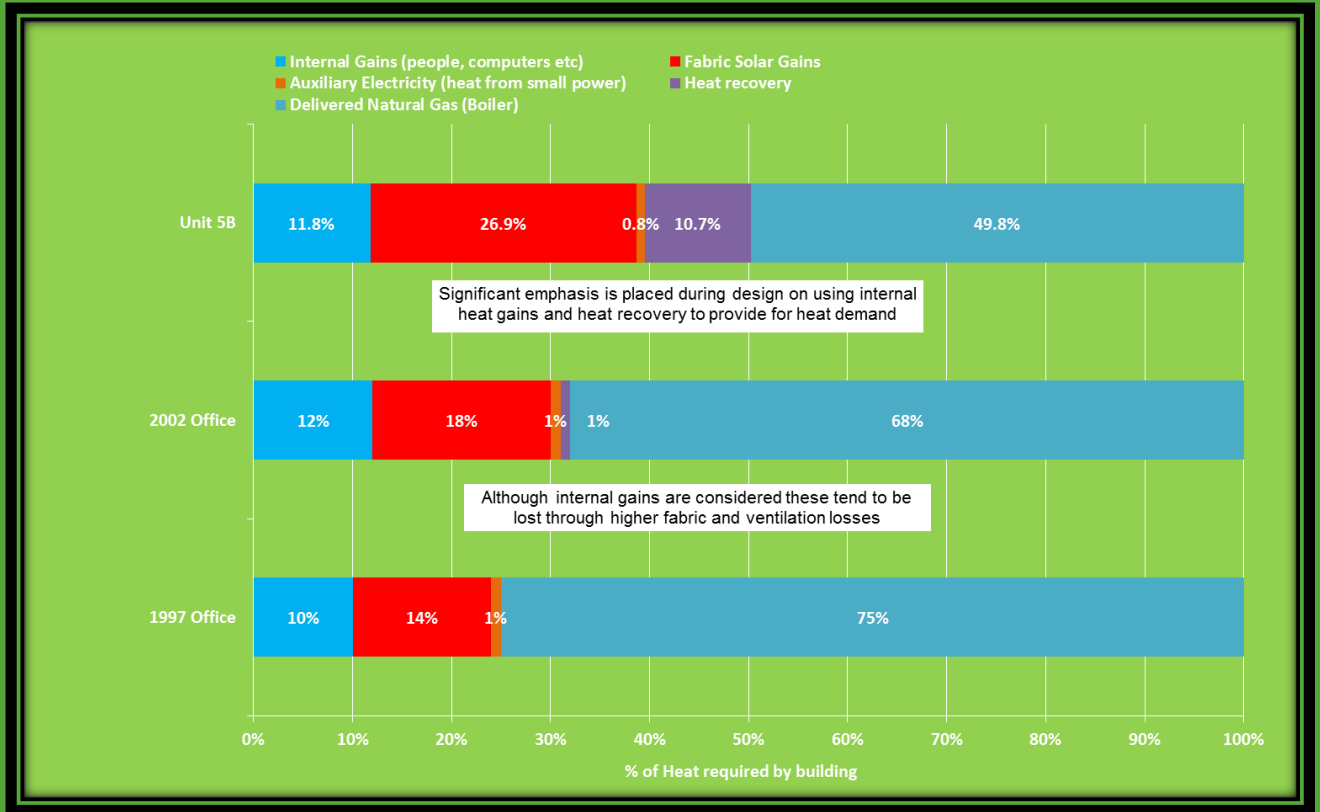
Over 5 years

- £34,680 saved against a 1997 Building
- £15,260 saved against a 2002 Building

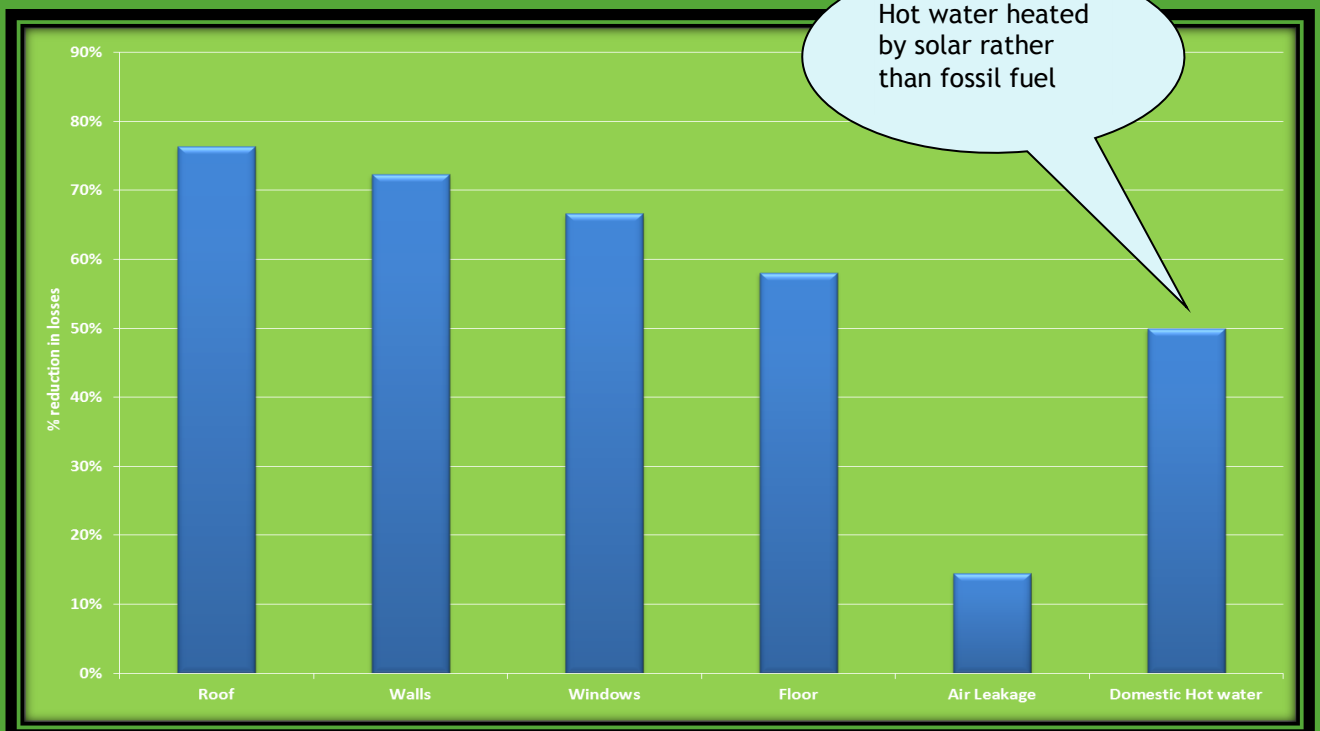
How are these savings achieved?

- Two fold approach: Using available heat and reducing losses
- Conventional: Heat is generated and absorbed by building but then lost through ventilation systems and fabric
- Passive office approach is 33% more thermally efficient: Heat generated and absorbed by the building is retained and recovered during winter
- Summer cooling achieved by building absorbing gains and venting during night - no need for expensive air conditioning

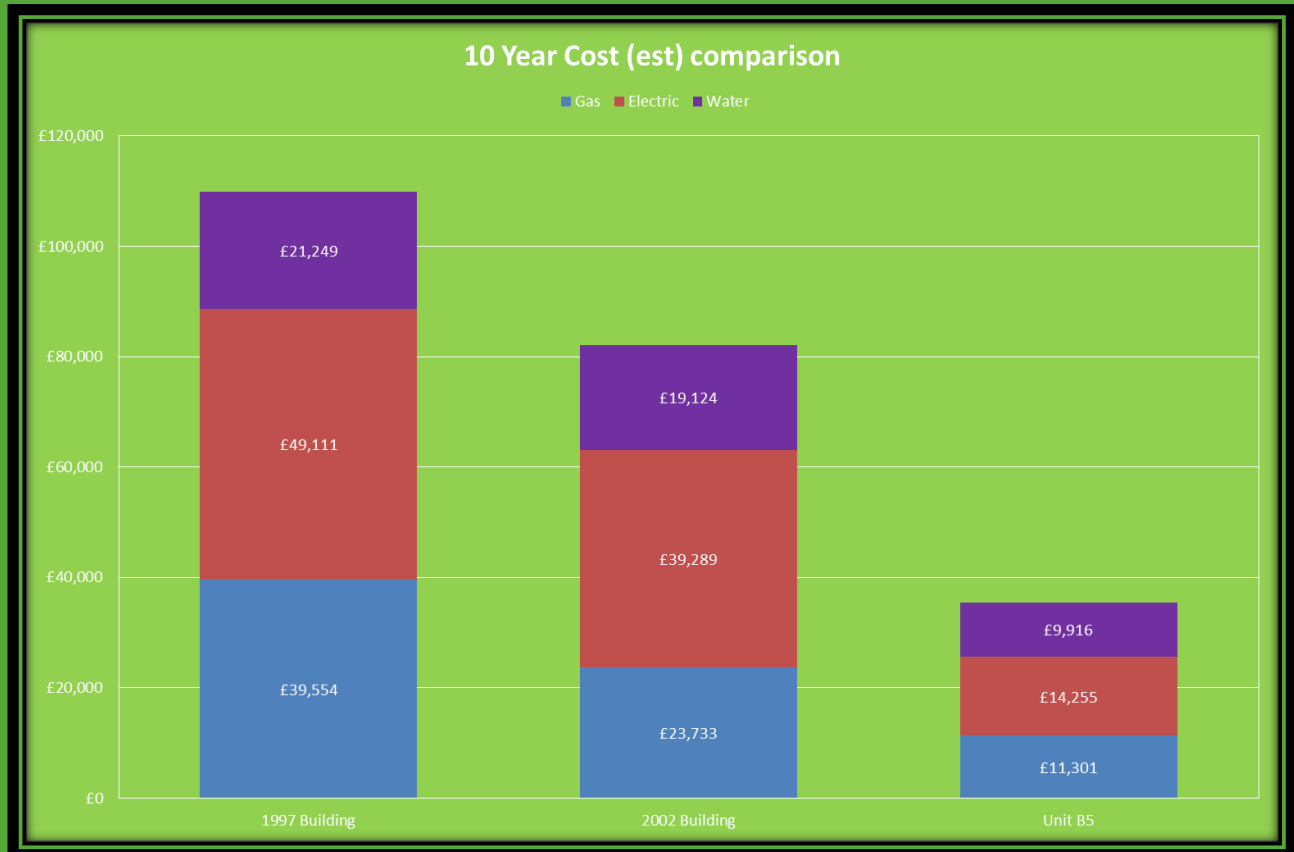
Using Available Heat (Passive Heating)



Reduction of Losses with a Passive Office



Phase 5B will save occupiers more than half their Utility Bills (c.£45,000) over 10 years, if relocating from a 2002 built office, and a massive 68% saving (almost £100,000) if relocating from a 1997 built office



References and basis of savings

The basis heating costs is natural gas at a price of 4.5p/kWh (Including Climate change levy) for 2010. This is based on an increase of 5% on Department for Energy and Climate Change (DECC) average UK price for very small (<278 MWh) for quarter ending Year Ending 2009.

Forward projections on energy cost increases are taken from DECC UK LOW CARBON TRANSITION PLAN EMISSIONS PROJECTIONS October 2010.

Energy performance figures for Typical Pre 1990 are based on Energy Consumption Guide 19 from The Carbon Trust for a prestige type office.

Energy Performance figure for Poor Pre 1990 are based on an SBEM (Simplified Building Energy Model) calculation for a similar sized office constructed in the mid-80s and with construction as defined to minimum building regulations at that time.

The performance of Unit 5B is based on an energy analysis of installed loads for the building, thermal properties of building material and modelling of environmental conditions and occupancy patterns.