

Soft Landings: Closing the loop



Gary Clark



Soft Landings for Sustainable Buildings

Soft Landings is a process for a graduated handover of a new or refurbished building, where a period of professional aftercare by the project team is a client requirement, and planned for and carried out from project inception onwards and for up to three years post-completion.

Rod Bunn, BSRIA, February 2012



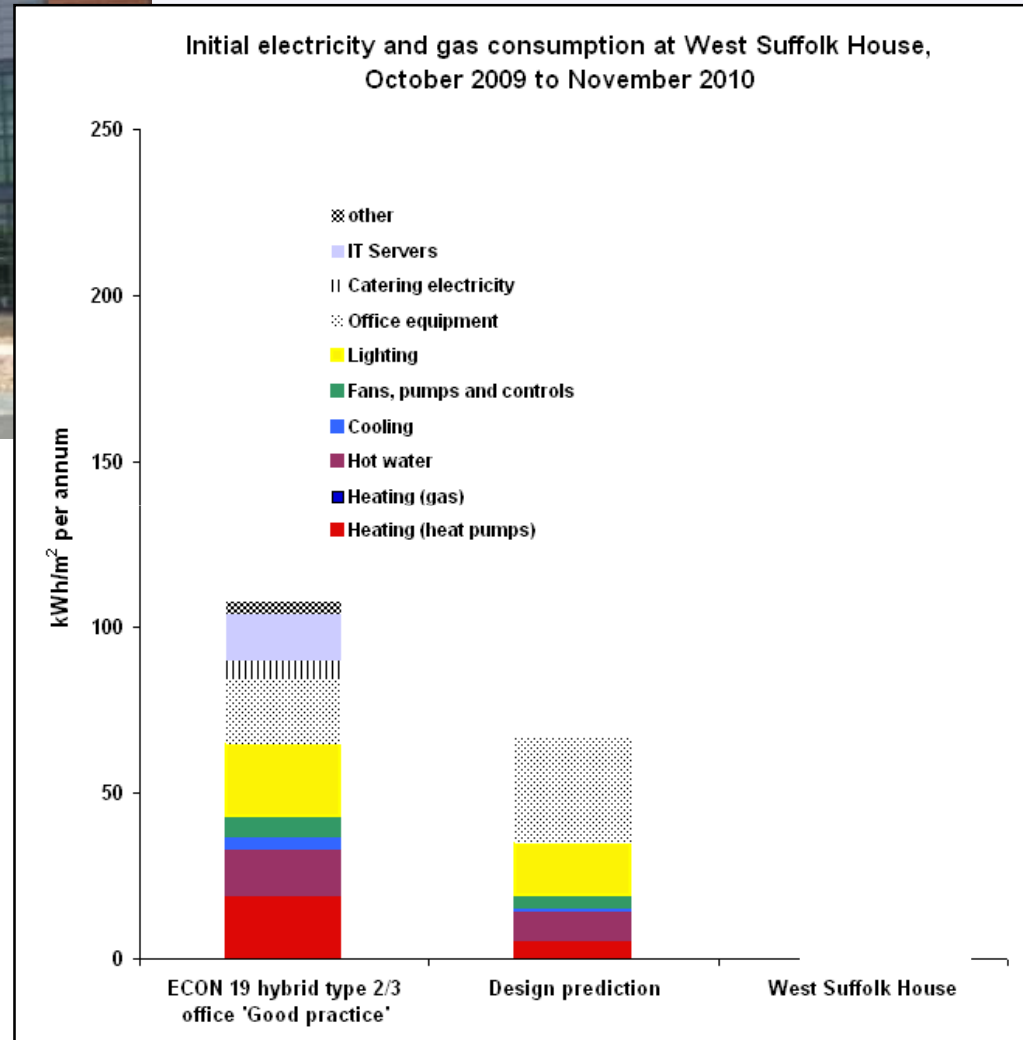
West Suffolk House

- **New 4-storey, open-plan offices in Bury St Edmunds for St Edmundsbury Borough Council and West Suffolk Council**
- **Tight build programme to meet a target occupation date**
- **The designers had difficulties keeping up to date with design information. The process was cost-driven**
- **A compressed build programme led to other problems, notably the lack of a commissioning plan**
- **A year after completion, the m&e systems had not been accepted. Thankfully the Framework team has been very attentive**



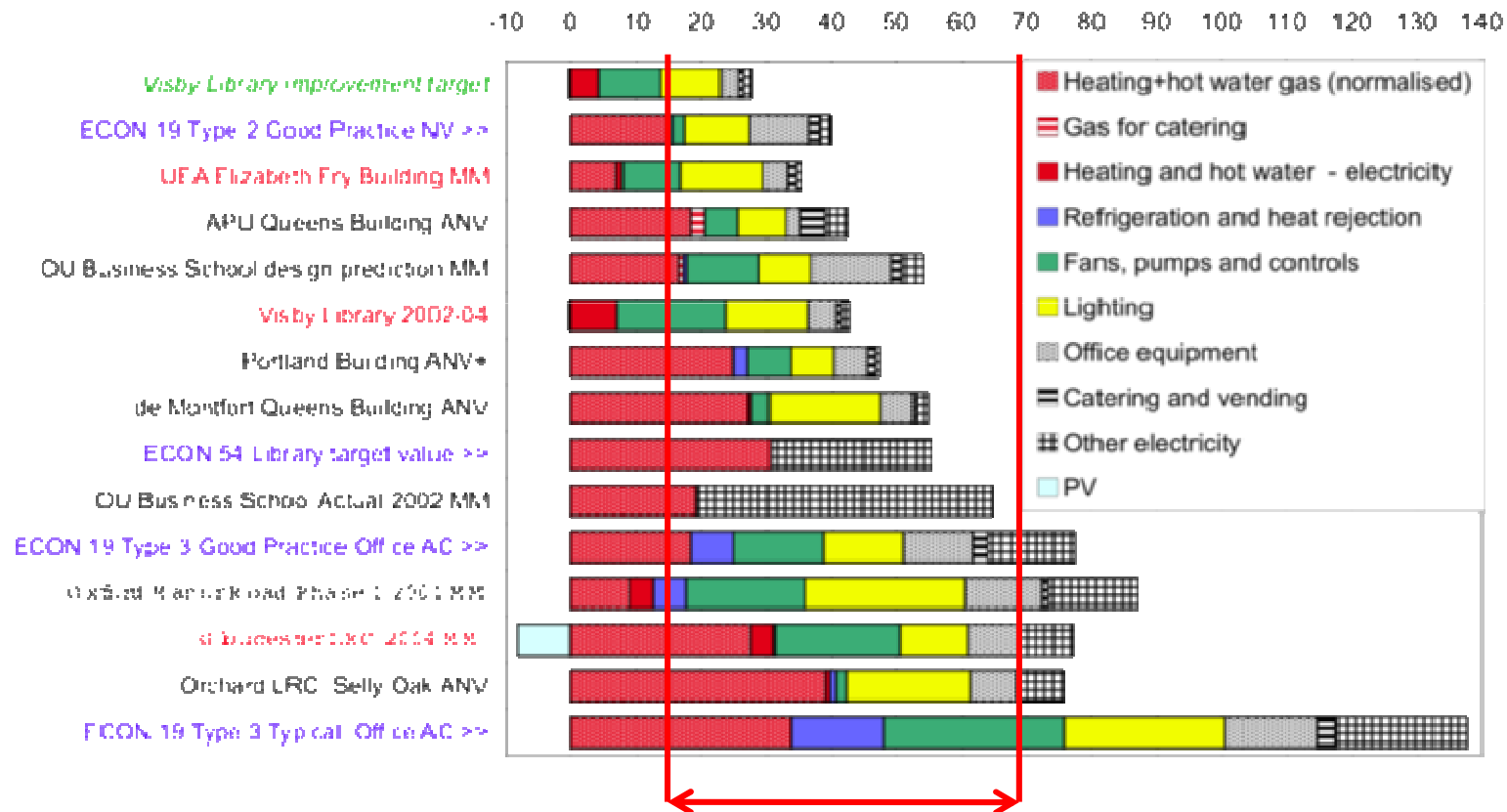
West Suffolk House

The energy consumption of West Suffolk House equates to actual emissions of $97 \text{ kgCO}_2/\text{m}^2$ per annum, three times the design estimate of $31.4 \text{ kgCO}_2/\text{m}^2$ per annum



University Buildings Benchmarks

Annual CO₂ emissions from university buildings (kg/m² Treated Floor Area)
at UK CO₂ factors of 0.19 for gas and 0.46 for electricity



100% Regulated reduction by 2019

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Recurring Issues

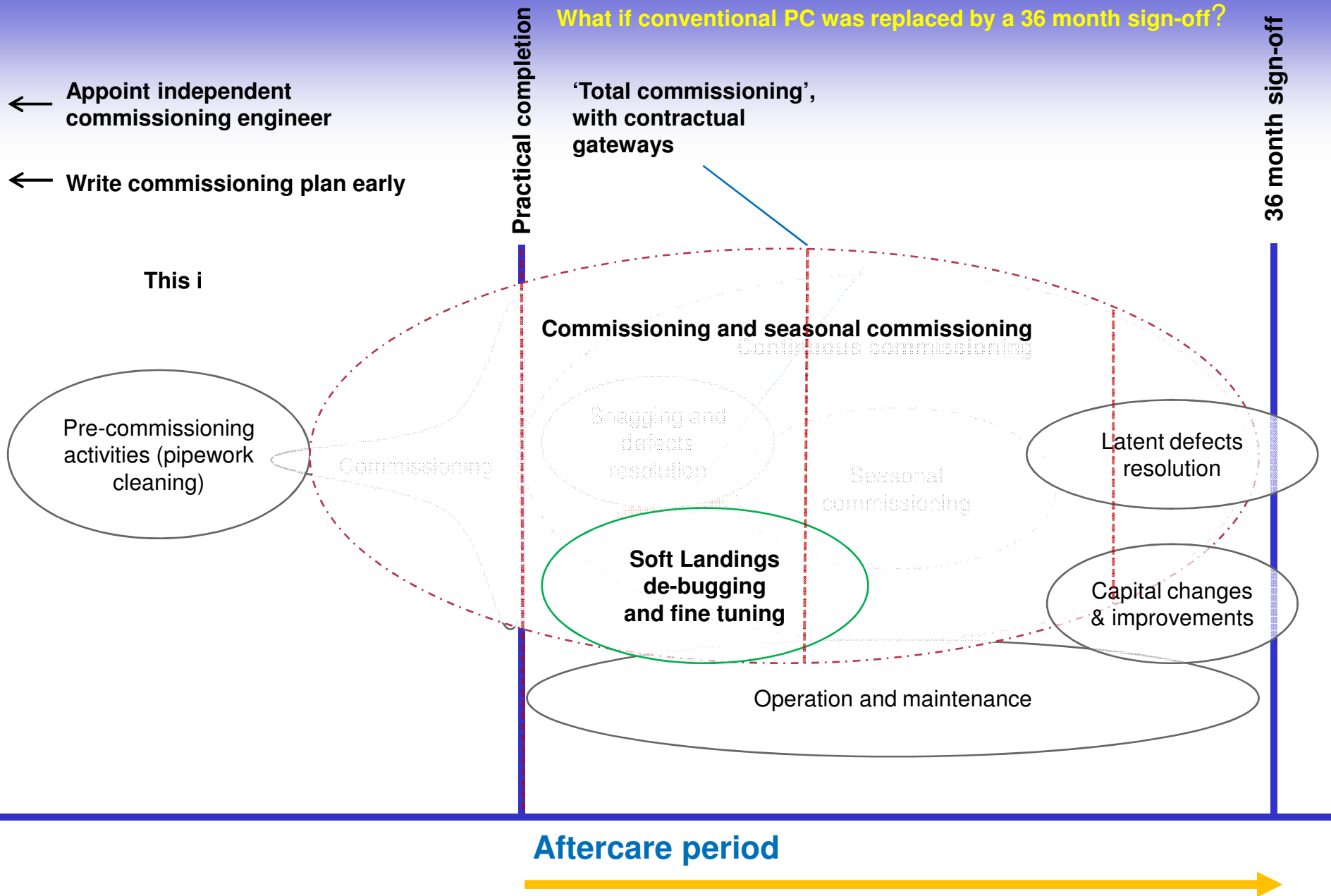


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What if conventional PC was replaced by a 36 month sign-off?

- ← Appoint independent commissioning engineer
- ← Write commissioning plan early



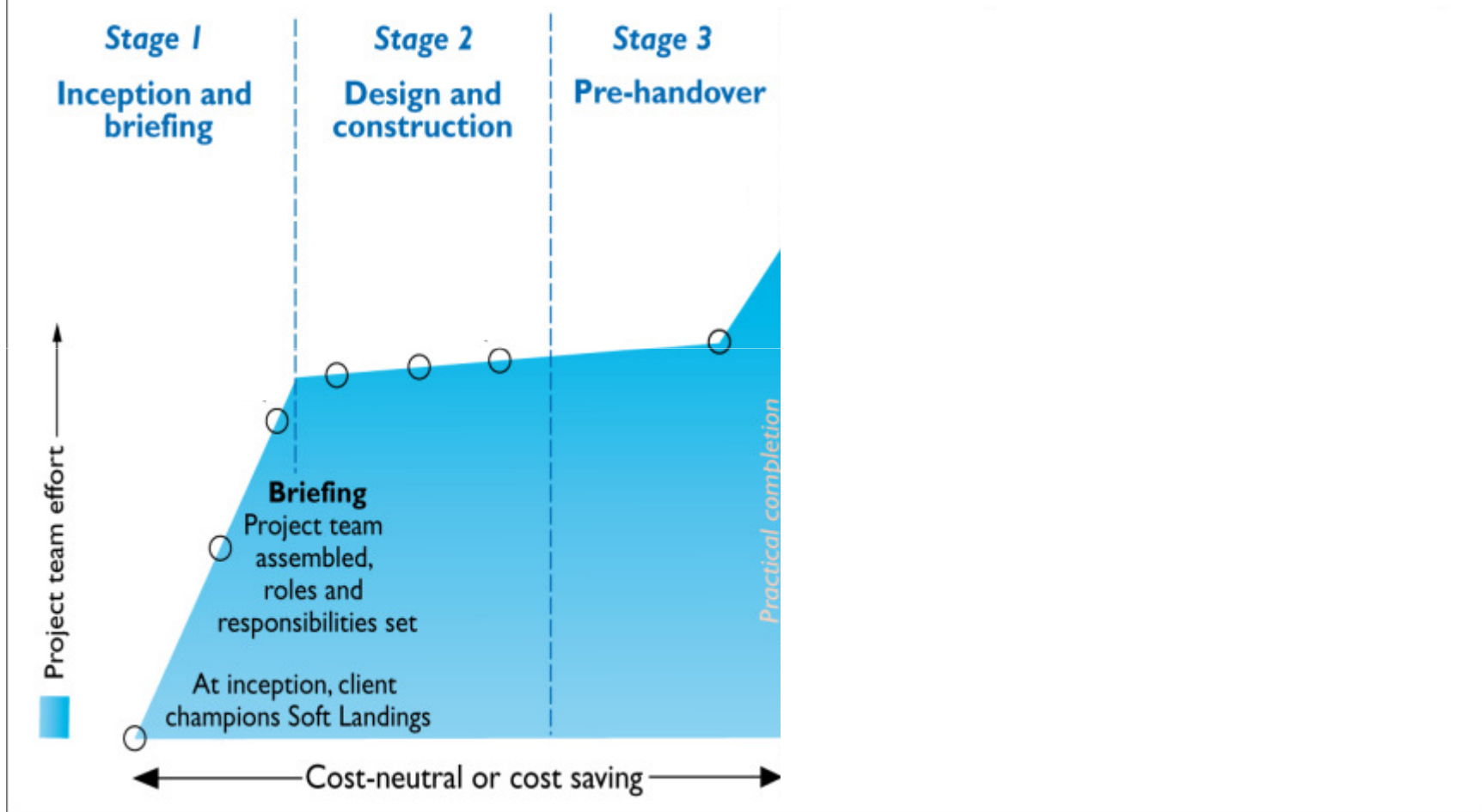
- **Late 1990s:** devised as 'Sea Trials' for new buildings, by architect Mark Way
- **2004** scope of service documentation developed with construction sponsorship
- **2008** Open-source documentation developed into a Framework by industry task group led by BSRIA
- **2009** The *Soft Landings Framework* authored by BSRIA and the Usable Buildings Trust.
- **2010** The BSRIA Soft Landings User Group active in applying Soft Landings
- **2011** Soft Landings covered in *BREEAM New Construction*, the IGT report, and Government strategy



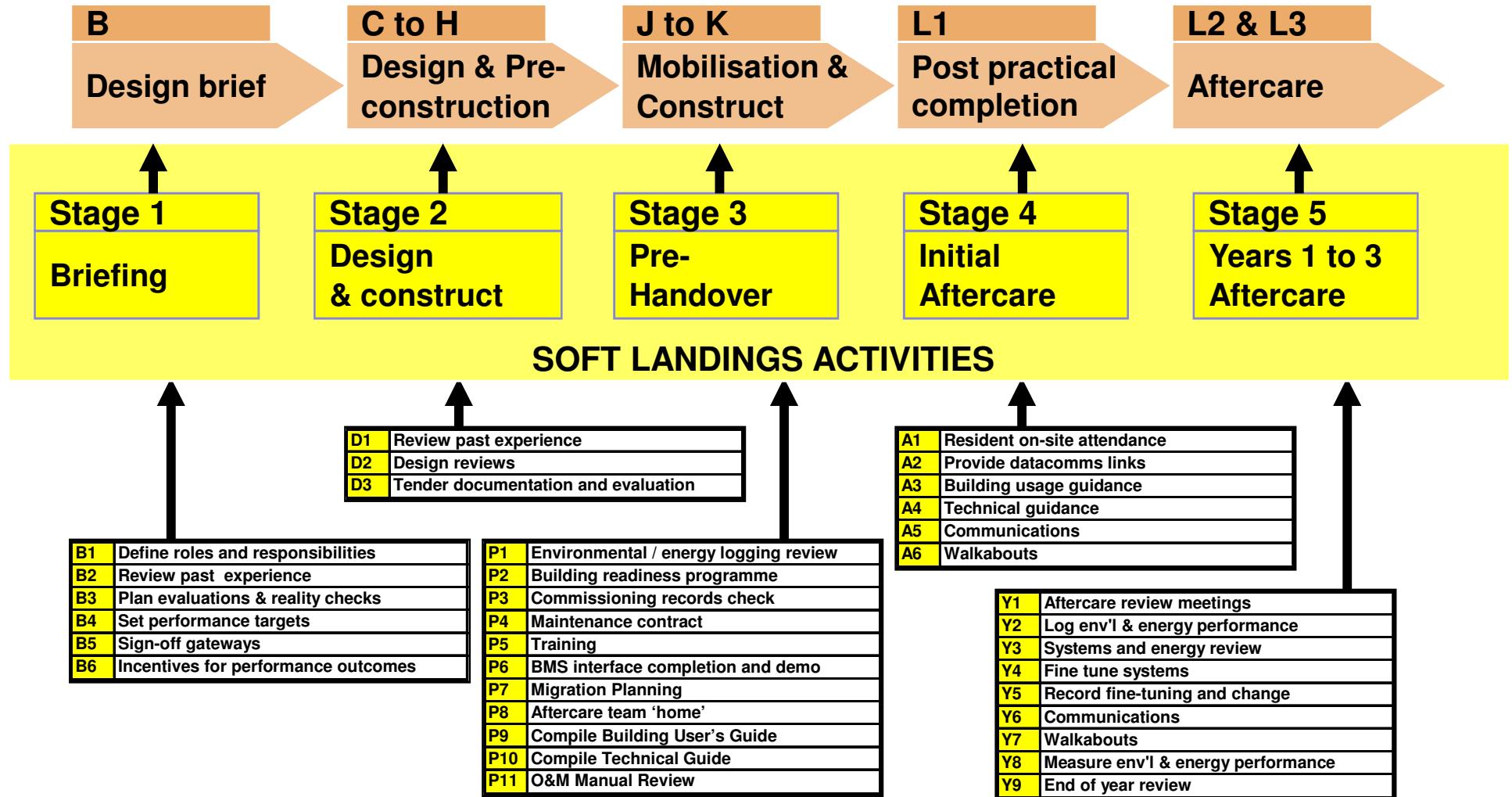
Soft Landings philosophy

- It's a way of working, a new professionalism that says we have to change the way we do things to deliver better buildings
- It's designed to foster greater mutual understanding between clients, project managers, designers, builders and occupiers about project objectives
- It is designed to reduce tensions and frustrations that occur during initial occupancy, and to ensure clients and occupiers get the best out of their new asset
- It involves greater investment in problem diagnosis and treatment, and in monitoring, review and post-occupancy evaluation

Diagrammatic representation of Soft Landings activities



RIBA Plan of Work



Soft Landings Procurement

Stage	Activity	Additional Cost
Stage 1	Briefing and Targets	nil
Stage 2	Appoint Independent SL Consultant: Reality Checking (4 workshops) Peer Review (2 days)	£2000 £1000
Stage 3	Peer Review (2 days) Testing	£1000 Inc in contract
Stage 4 (month 1-3)	Aftercare office Team attendance on site (8 days) Peer Review (1 day)	Inc in contract nil £500
Stage 4 (month 4-9)	Team attendance on site (9 days) Peer Review (1day)	nil £500
Stage 5	POE (TM22 and BUS minimum) 6 Meetings of Core Project Team (Contractor, Architect, Service Eng, Specialist Contractor) Lessons Learnt Report	£8-15k £12k Inc in POE
	Total Additional Costs	£32,000

**MORGAN
SINDALL**

Balfour Beatty

LandSecurities

Interserve

castleoak



**WILLMOTT DIXON
GROUP**



DAVIS LANGDON



MJN COLSTON

Aedas
Aedas Architects

maxfordham
ENGINEERING DESIGN ENVIRONMENT

AECOM



NG Bailey



BDP.



**Hampshire
County Council**

BAS
Building Automation Solutions

KIER

ZBP
Zisman Bowyer & Partners LLP
Consulting Engineers

wates
retail

**Sir Robert
McALPINE**

SKELLY&COUCH

**HOARE
LEA**

millers construction

**BIRMINGHAM
City University**

Essex County Council

SOFT LANDINGS



Soft Landings primer

A four-page document that provides a basic understanding of Soft Landings, and how the process runs through from project inception to design, and through to building operation and aftercare

The Landings Framework

Includes all the procedures for applying Soft Landings, plus checklists and generic workplans

Soft Landings for schools

This case study publication reports on how Soft Landings processes have been carried out on the UK schools rebuilding programme

The case for Soft Landings 1: Energy cost variations

This document explains how the cost of Soft Landings is small compared to the cost variation in a building's estimated energy consumption. This variation is greater than the nominal cost of the Soft Landings aftercare

Download free from www.bsria.co.uk/services/design/soft-landings/

Recent developments

March 2011 The Innovation and Growth Team called for UK Government to promote Soft Landings

May 2011 Adopted within the Government Construction Strategy

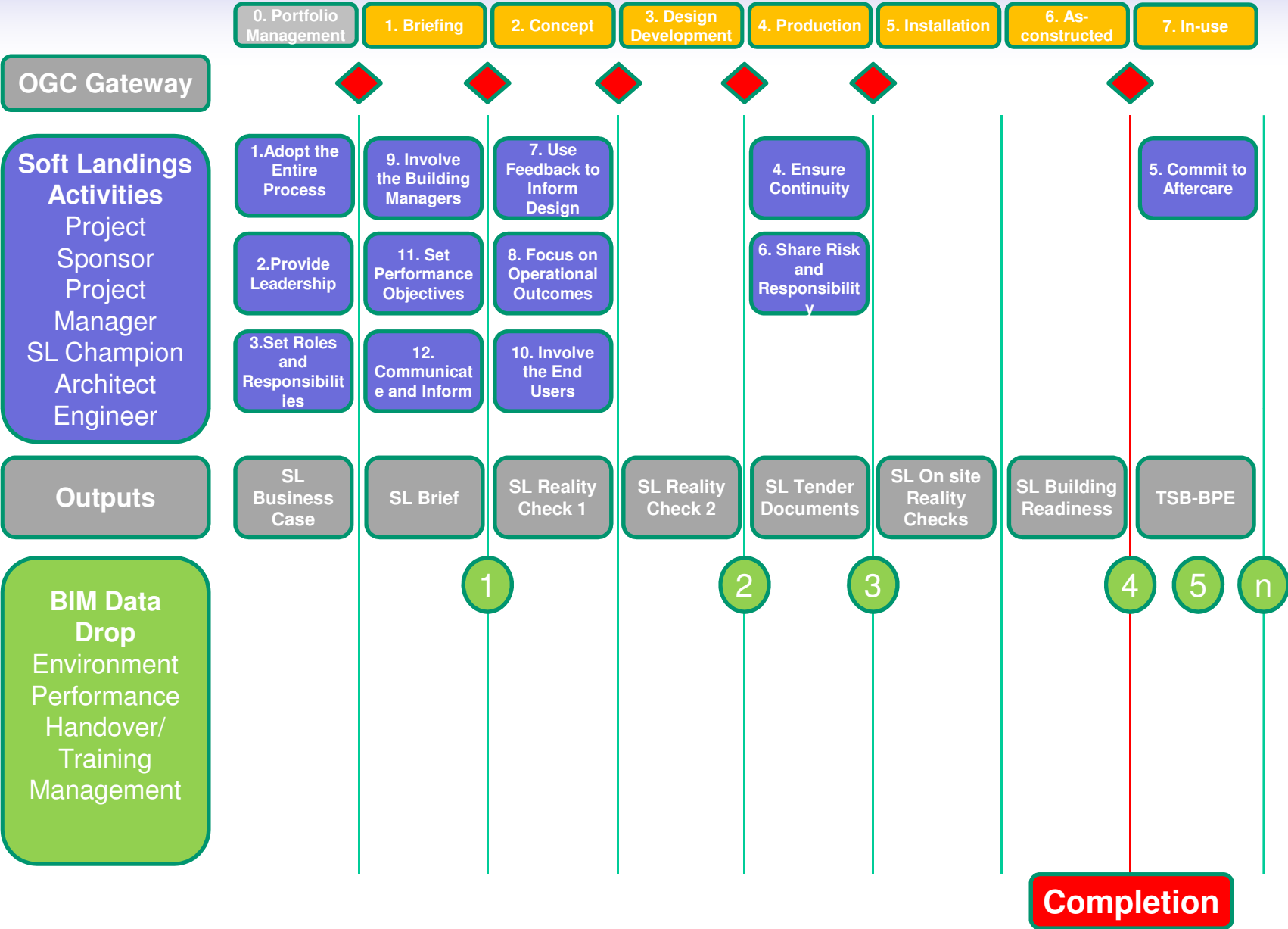
October 17th 2011 Cabinet Office-led Soft Landings working group established

Aim for Sept 2012 To create Soft Landings for UK Government Procurement

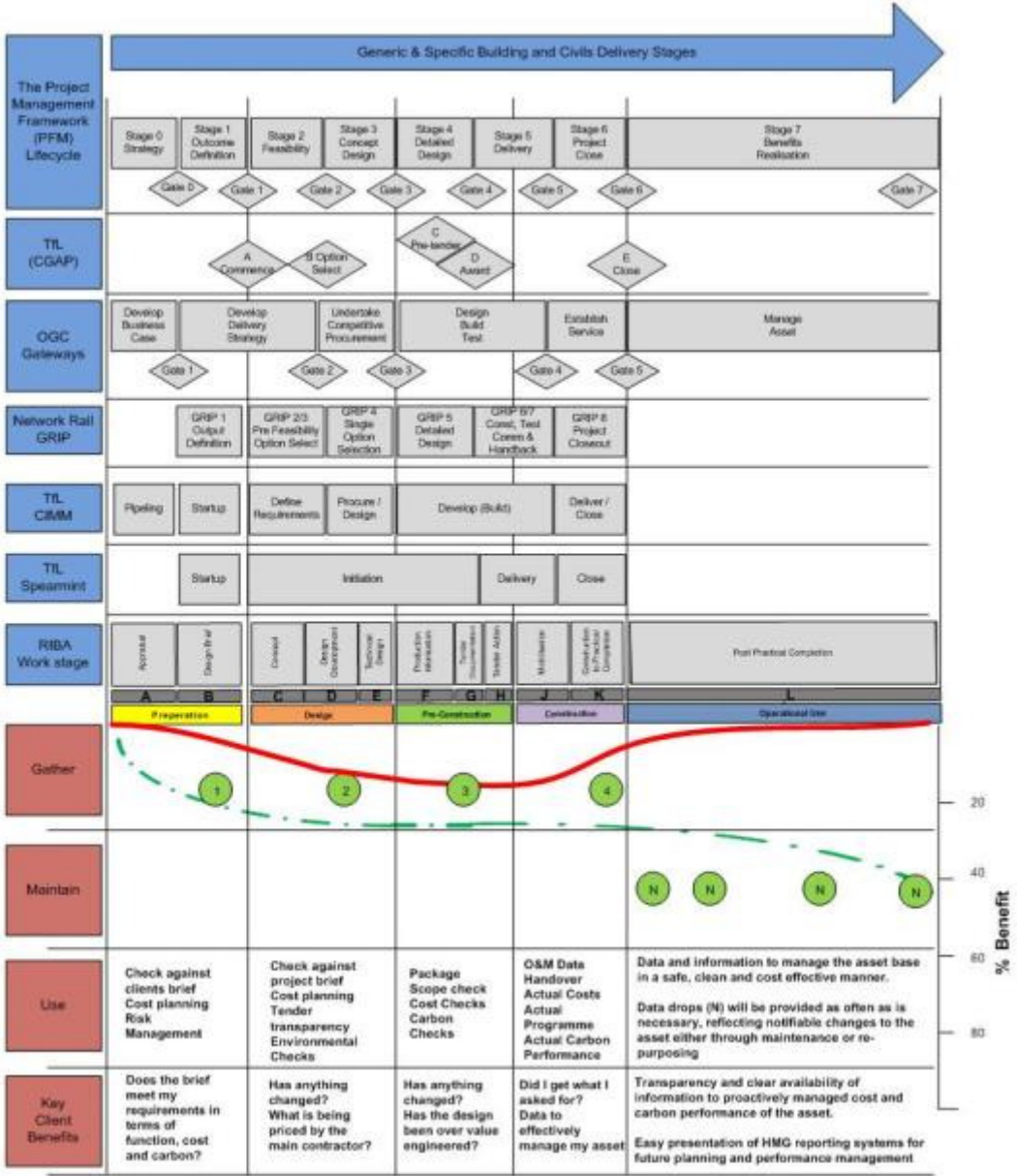
(Also likely to be referenced in *Building Regulations*)



Government Soft Landings: Core Principles Overlay



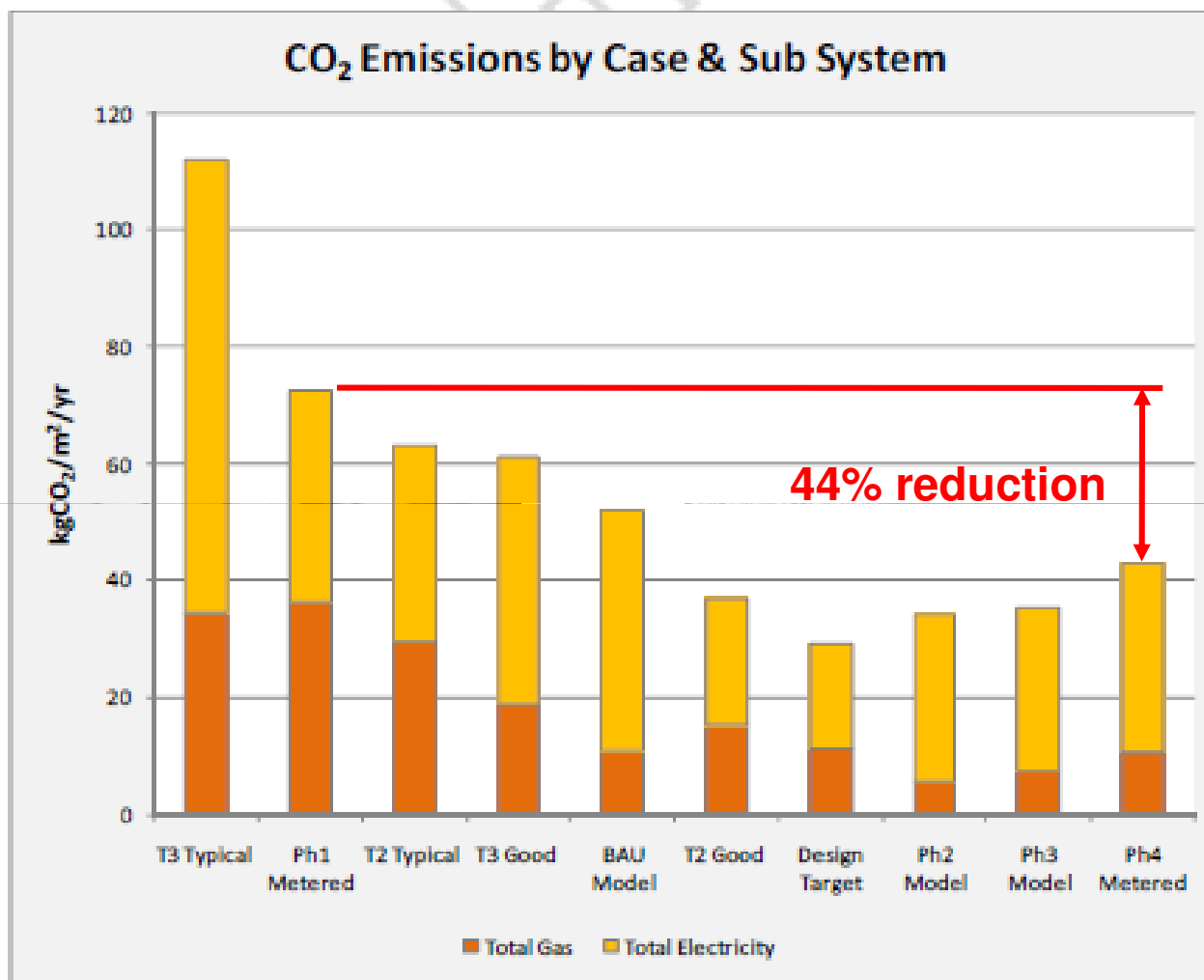
Government Soft Landings: BIM Process Map



Case Study: Ashburton Court, HCCC

Over 6
60's &

Ashbu
Civic C
Refurb

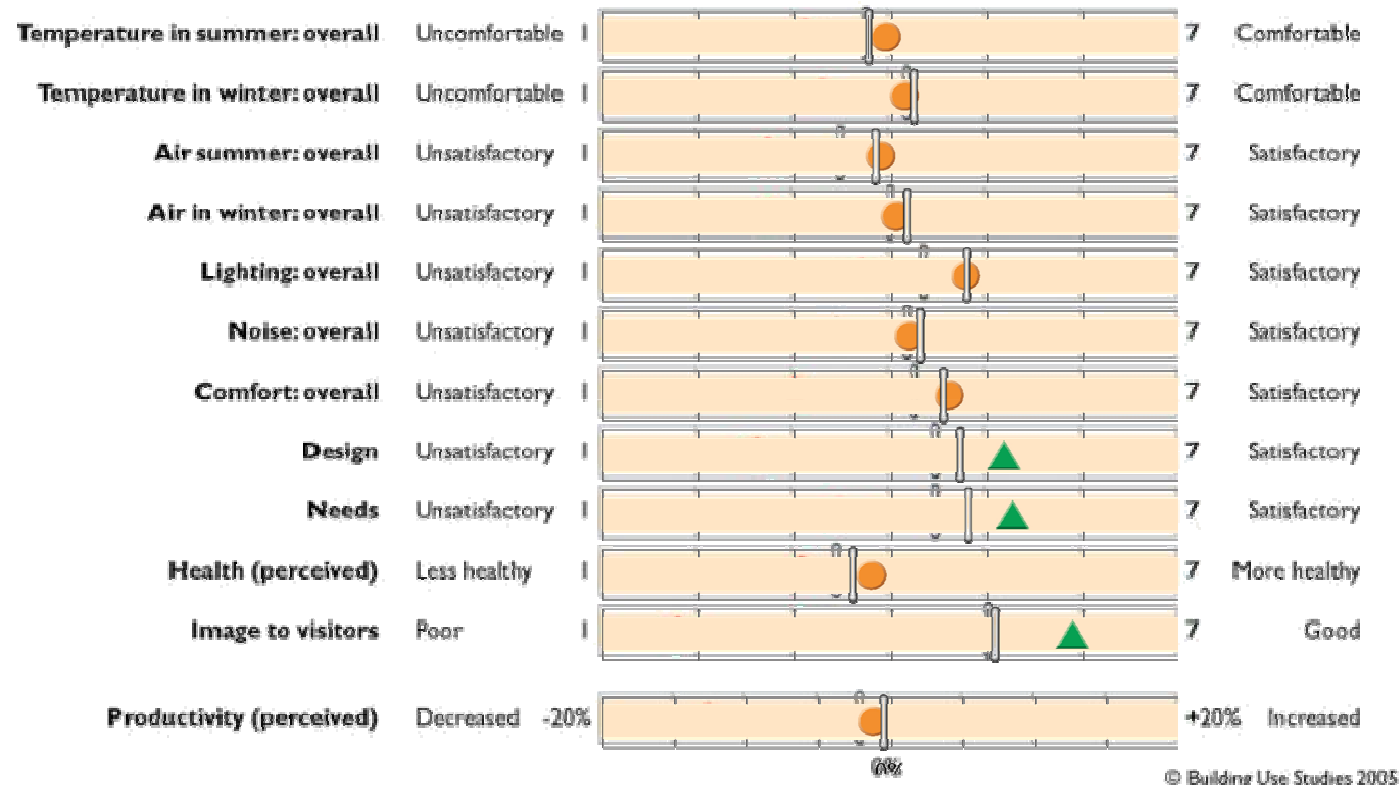


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Elizabeth II Court: BUS survey results

2008 survey



Green triangles represent mean values significantly better or higher than both the benchmark and scale midpoint. Amber circles are mean values no different from benchmark. Red diamonds are mean values worse or lower than benchmark and scale midpoint. The UK benchmarks are represented by the white line through each variable.

Case Study: Estover College, Plymouth



- The architect and Kier Western developed checklists for each soft Landings stage and ran these alongside standard handover processes
- It was found that ICT needed much more thought. Late attempts at integration could cause difficulties with servicing, energy use, comfort conditioning and daylighting
- **Key outcome: Involve the providers of furniture, fixtures and equipment (including ICT) in good time, and alongside the main contract**

KEY PROJECT DETAILS

Client **Plymouth City Council** Location **Plymouth, Devon** Architect **Feilden Clegg Bradley Studios** Consulting engineer **AECOM** Builder **Kier Western** Cost consultant **EC Harris** M&E contractor **Mitie** Gross floor area **15 500 m²** Student numbers **1206**

Case Study: Birmingham City University

Institute of Architecture and Design

- £61 million, 18,310sqm GIA, 7000 students

- BREEAM 'Excellent' objective

- Soft Landings 'built in' to project development, tender, D&B contractor's proposals

- Soft Landing Champions

- Wilmott Dixon-operational review, pre and post handover, 2-3 year aftercare

- Occupation in September 2013.



AssociatedArchitects



**WILMOTT DIXON
RE-THINKING**

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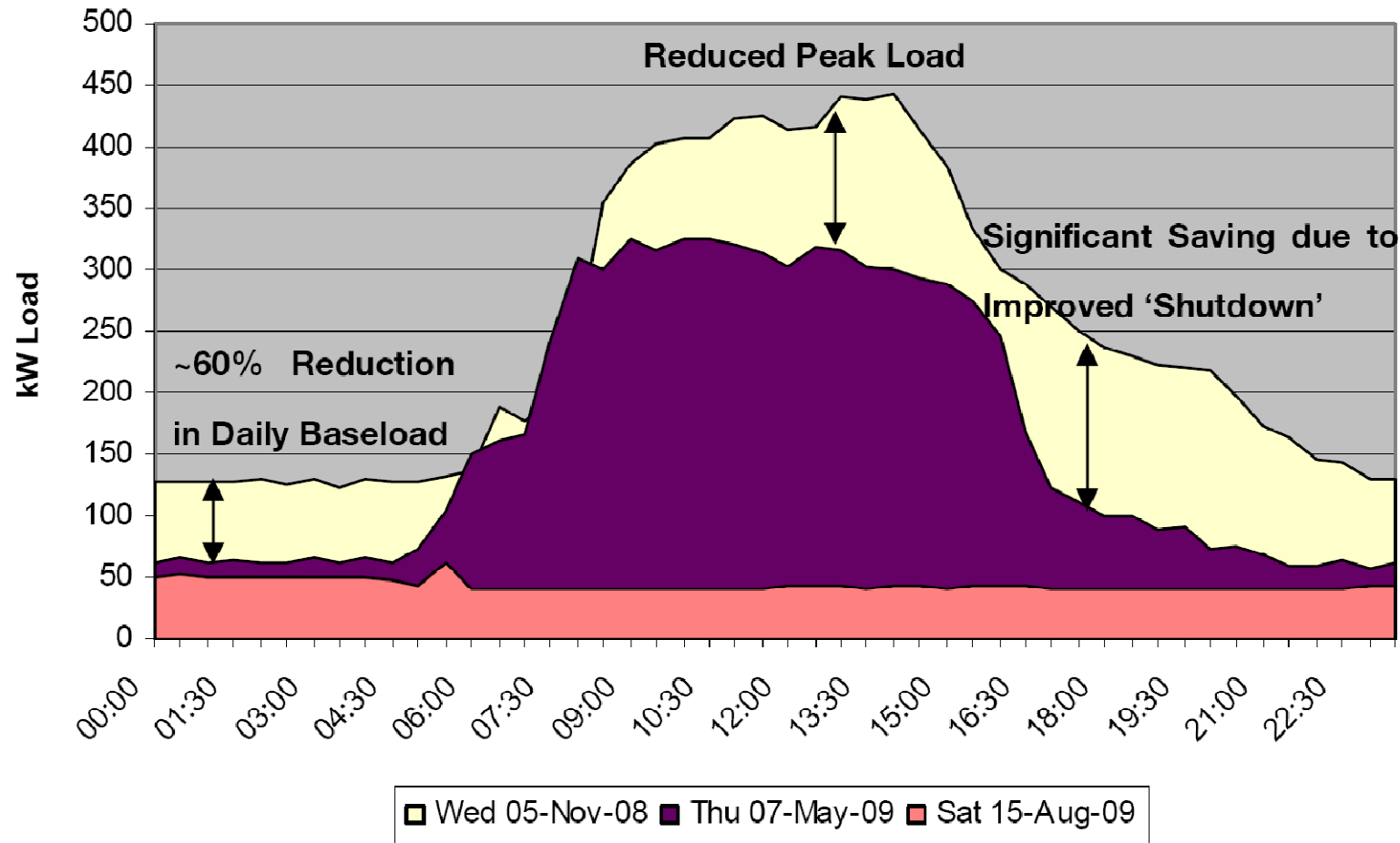
Case Study: Heriot Watt Eco-village

A WORLD LEADING STANDARD TEST FACILITY FOR LOW CARBON RESEARCH

- Government Policy to deliver *Affordable* housing that meets 2016 Carbon Emission targets
- HWU will deliver first class science in support of this policy
- By investigating the system performance of **construction**, **technology** and **human behaviour**
- **Domestic Soft Landings Case Study**



Case Study: Soft Landings After Care



2000 kWh/day, or £ 200 per day at 10 p/kWh, or £40,000 a year saving

Design for buildability, usability and manageability



Soft Landings Business Case

Assets designed to meet operational outcomes and user needs

Smoother handover between Contractor and Operational Teams

Extended Aftercare service to optimise asset performance

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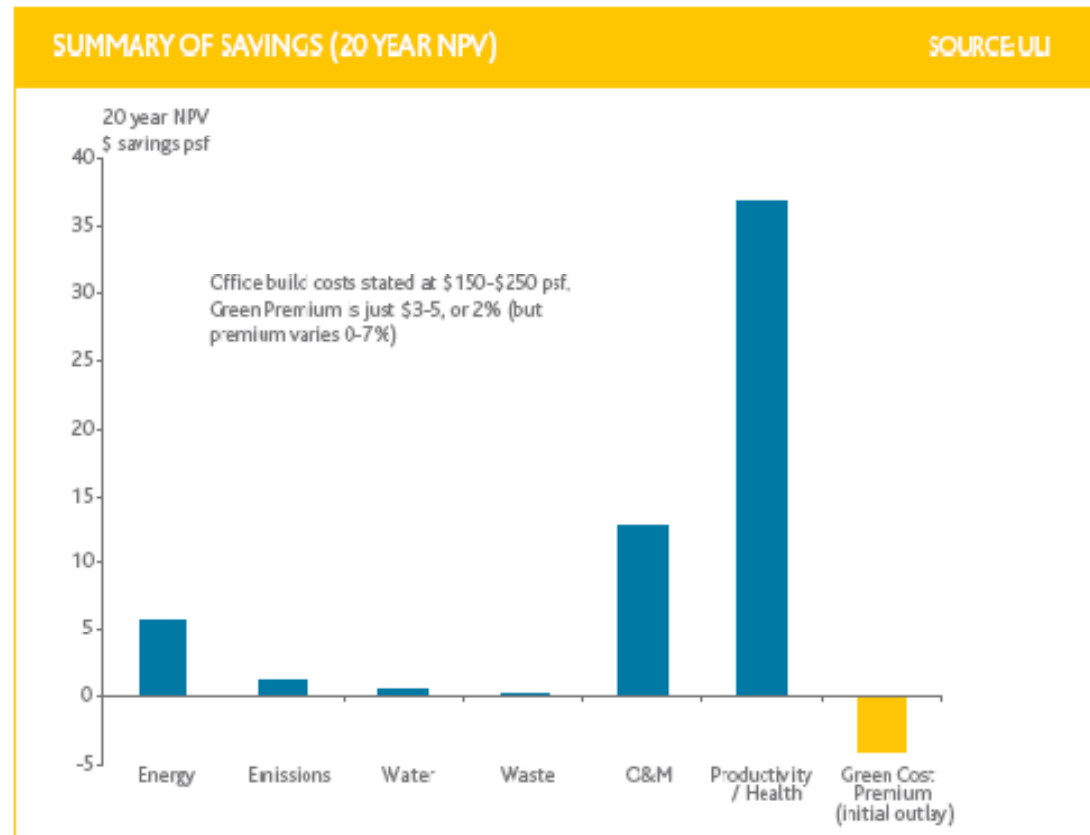
Lower Energy Use and Costs

Lower Carbon Emissions

Lower Maintenance Requirements

Higher occupant satisfaction

Better perceived occupant productivity and health





Soft Landings

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