RIBA

CPD Birmingham

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UBT
Usable Buildings Trust

PART 2

Closing the performance gaps:

Doing things better:

The role of the building professional

Bill Bordass and Adrian Leaman

the Usable Buildings Trust

www.usablebuildings.co.uk

Part 2

1. **Doing things better**
2. **Making in-use performance clearly visible**
3. **The role of the building professional**
4. **Improving procurement, with Soft Landings**

And if time … PART 3 Case Study:
POE feeding forward: National Trust to Woodland Trust

1

DOING THINGS BETTER

Proposed strategic interventions:
seeding things with potential to snowball over time

Cultural adaptations, not just technical "solutions".
To create virtuous circles of continuous improvement.

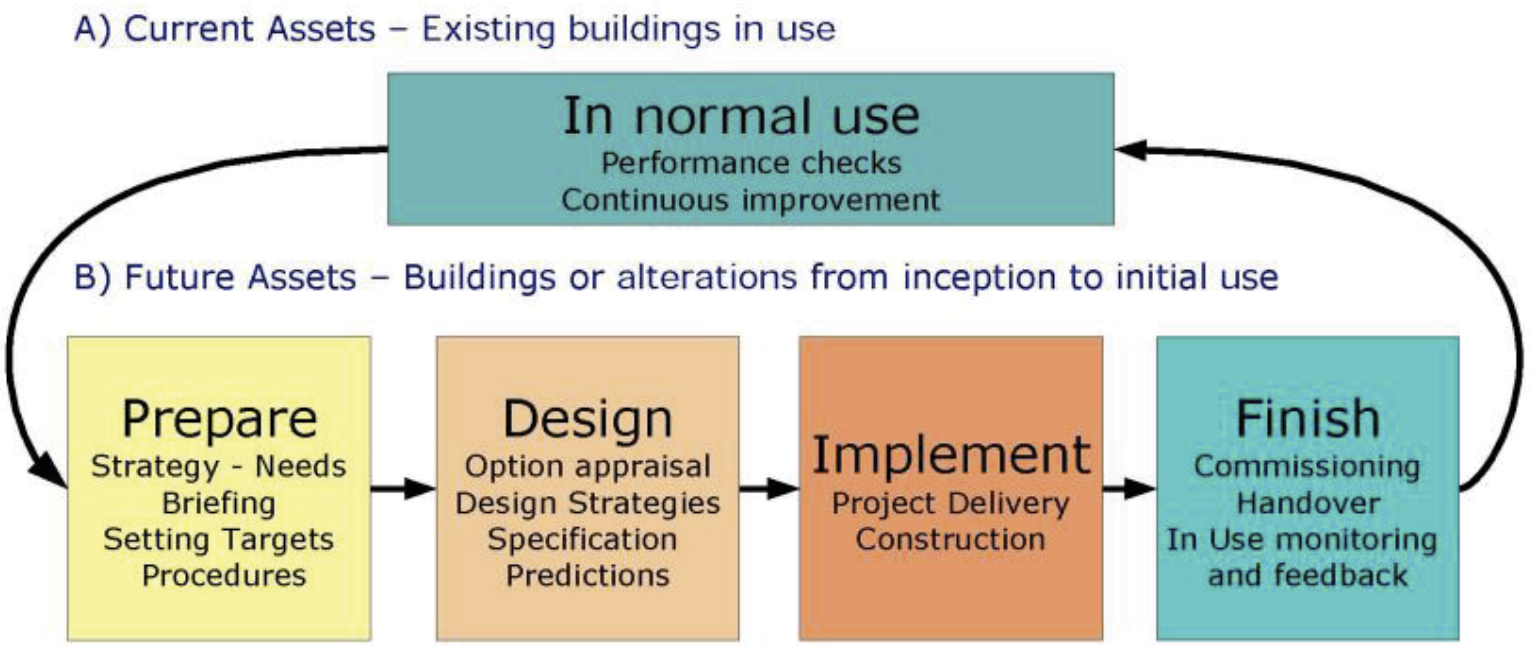
1. CONSOLIDATE THE KNOWLEDGE DOMAIN
Develop building performance as an independent knowledge domain, with the authority to inform practice and policymaking.

2. MAKE IN-USE PERFORMANCE CLEARLY VISIBLE
In a way that motivates people to strive to improve it. *This needs a well-informed technical infrastructure that can help the plethora of different systems to converge, particularly for energy and carbon.*

3. REVIEW PROFESSIONAL ETHICS AND PRACTICES
Appeal to individual building-related professionals to work in the public interest and engage properly with outcomes: *NEW PROFESSIONALISM*

4. IT'S A SYSTEMIC PROBLEM
Widen the perspective beyond buildings and construction.

Closing the loop, making follow-through, feedback and learning routine



You can review in-use performance at all stages in the life cycle

FORESIGHT: Before you do something new *(existing situation and analogues)*
INSIGHT: At any time *(reality checking, managing expectations)*
HINDSIGHT: After you've completed a project *(learning and fine tuning)*

SOURCE of hindsight-foresight-insight classification: D Bartholomew, *Building on Knowledge,* Wiley-Blackwell (2008).

Technology - management interactions:
Strategic conclusions from the Probe studies of public and commercial buildings in use

		Technological complexity	
		More	**Less**
Building management input	**More**	*Type A* Effective, but often costly	*Type D* Rare, not replicable?
	Less	Risky with performance penalties *Type C*	Effective, but often small-scale *Type B*

Diagram first appeared in: *Probe 19: Designer Feedback,* Building Services, the CIBSE Journal, page E21 (March 1999).

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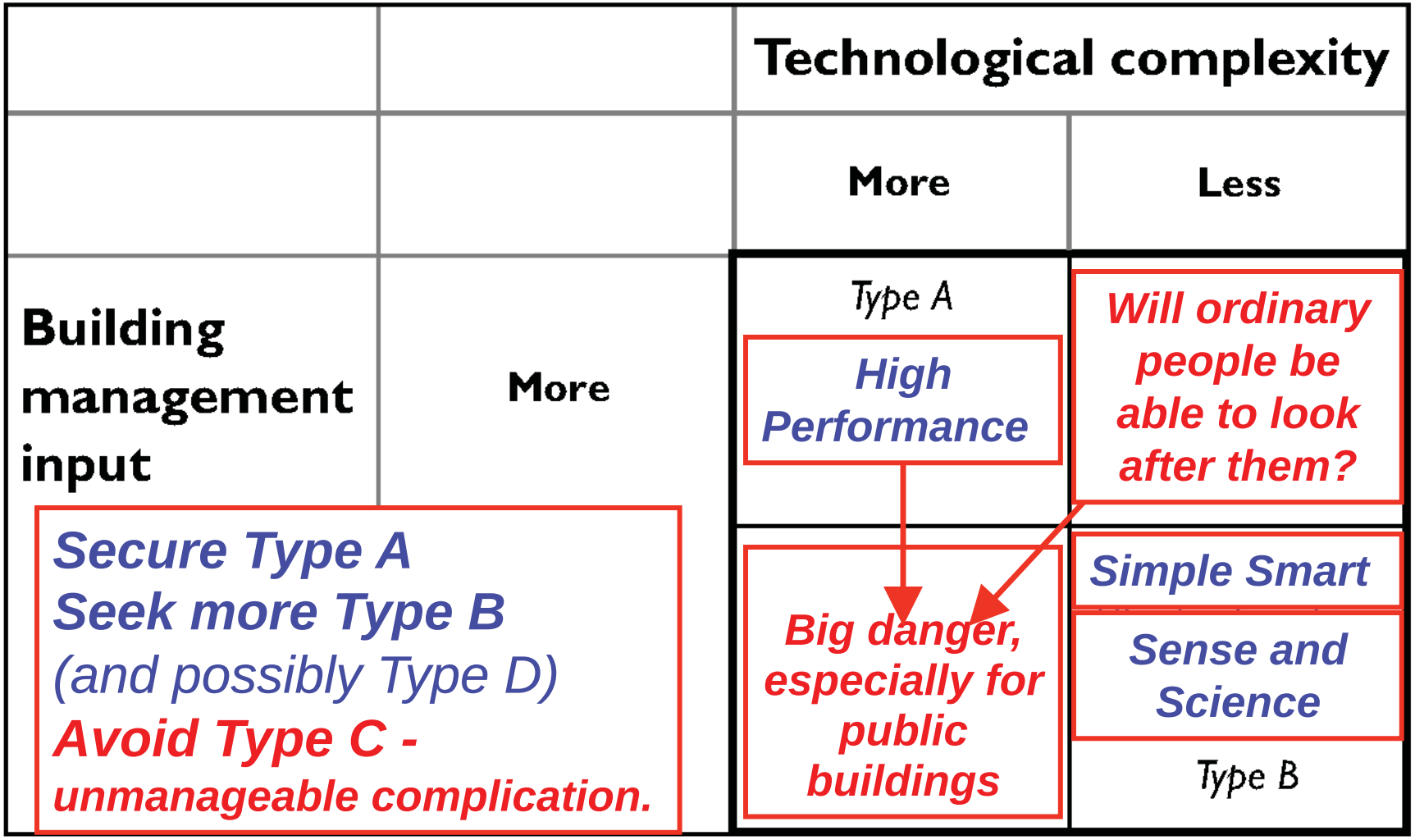

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Innovation is usually not novelty, *but purposeful improvement*

- Know what really needs improving *by understanding how buildings actually work in the hands of their occupiers.*
- Understand the context and the constraints.
  Try not to impose additional constraints. *However, there is a fine line between a constraint and a helpful discipline.*

- Beware the false promises of technologies:
  How much support are they likely to need?
  Will this be affordable in relation to the benefits?
  Will they be usable and manageable?

- Is the solution likely to be robust?
  Might there be unintended consequences?

2

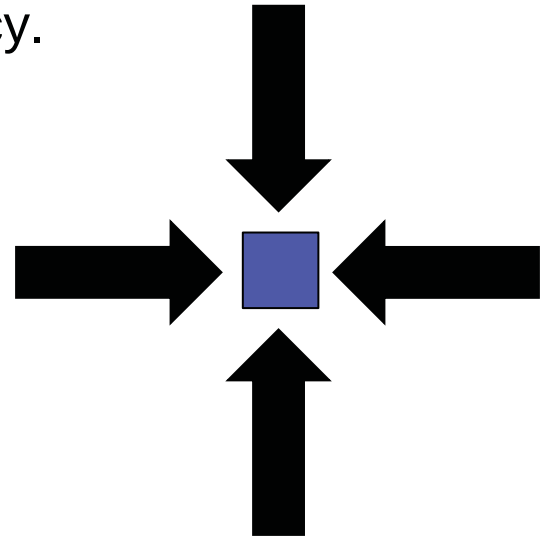
MAKE IN-USE PERFORMANCE CLEARLY VISIBLE

A vision for energy performance:
Where good performance becomes normal

Make actual performance in use the objective function:

- Everyone must own their bit of the problem and concentrate their efforts.
- Count everything. Benchmark its elements where practical.
- Develop effective methods of communicating the results clearly, transparent between design, operation and policy.

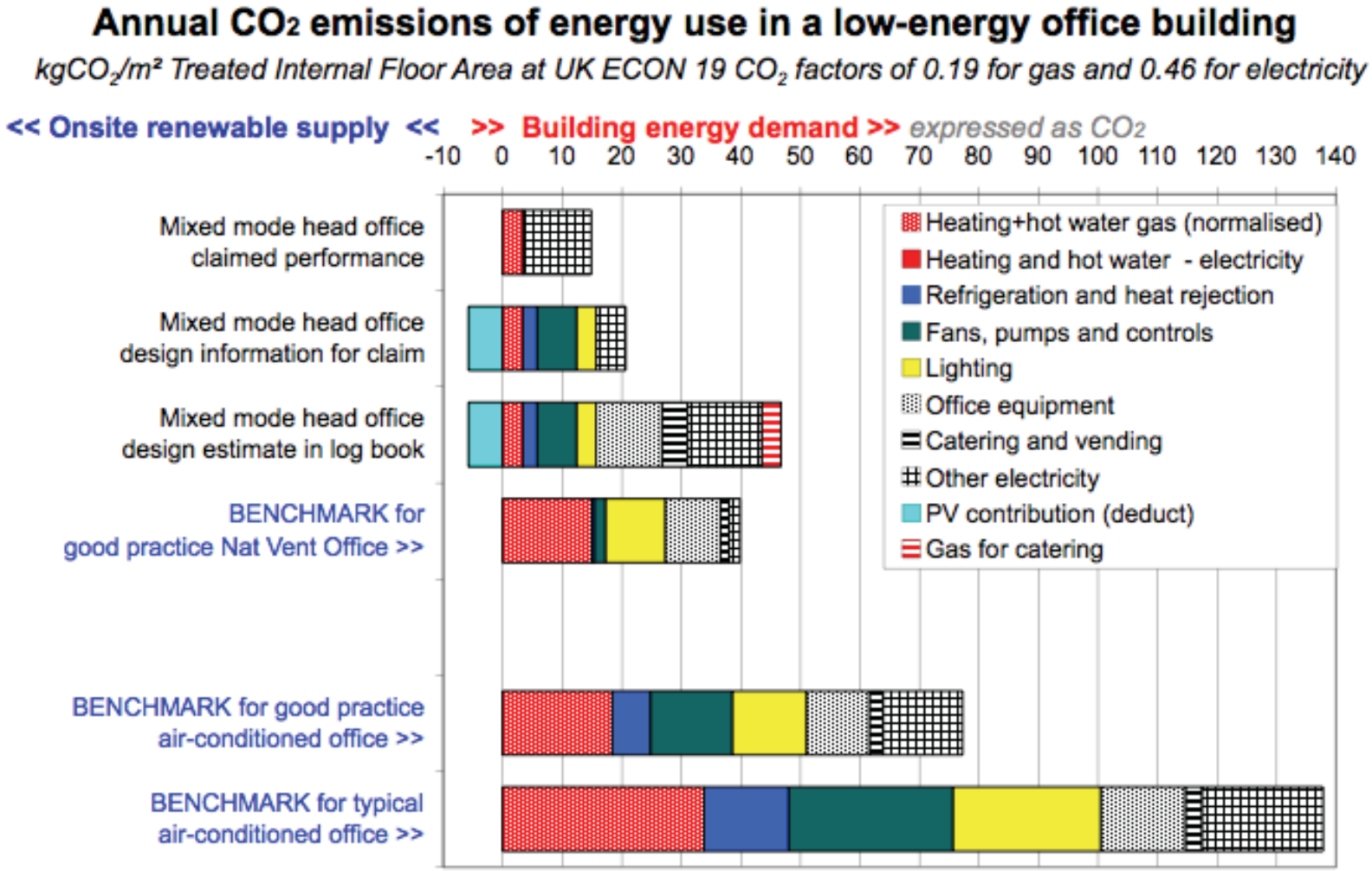
With collective understanding that performance in use is the goal, systems used in producing, owning, occupying, using, managing, equipping, maintaining and altering buildings can measure their contribution towards it, based on what actually works; and identify what needs attention.



- DECs could then drive better energy performance … **BUT**
- **They need sound technical support & authoritative benchmarking.**

SOURCE: W Bordass & R Cohen, Technical Platform Scoping Study Stage 1 report, Usable Buildings Trust (Dec 2011), unpublished

How energy performance gaps mount up:
Design claim to logbook estimate at handover



How energy performance gaps mount up:
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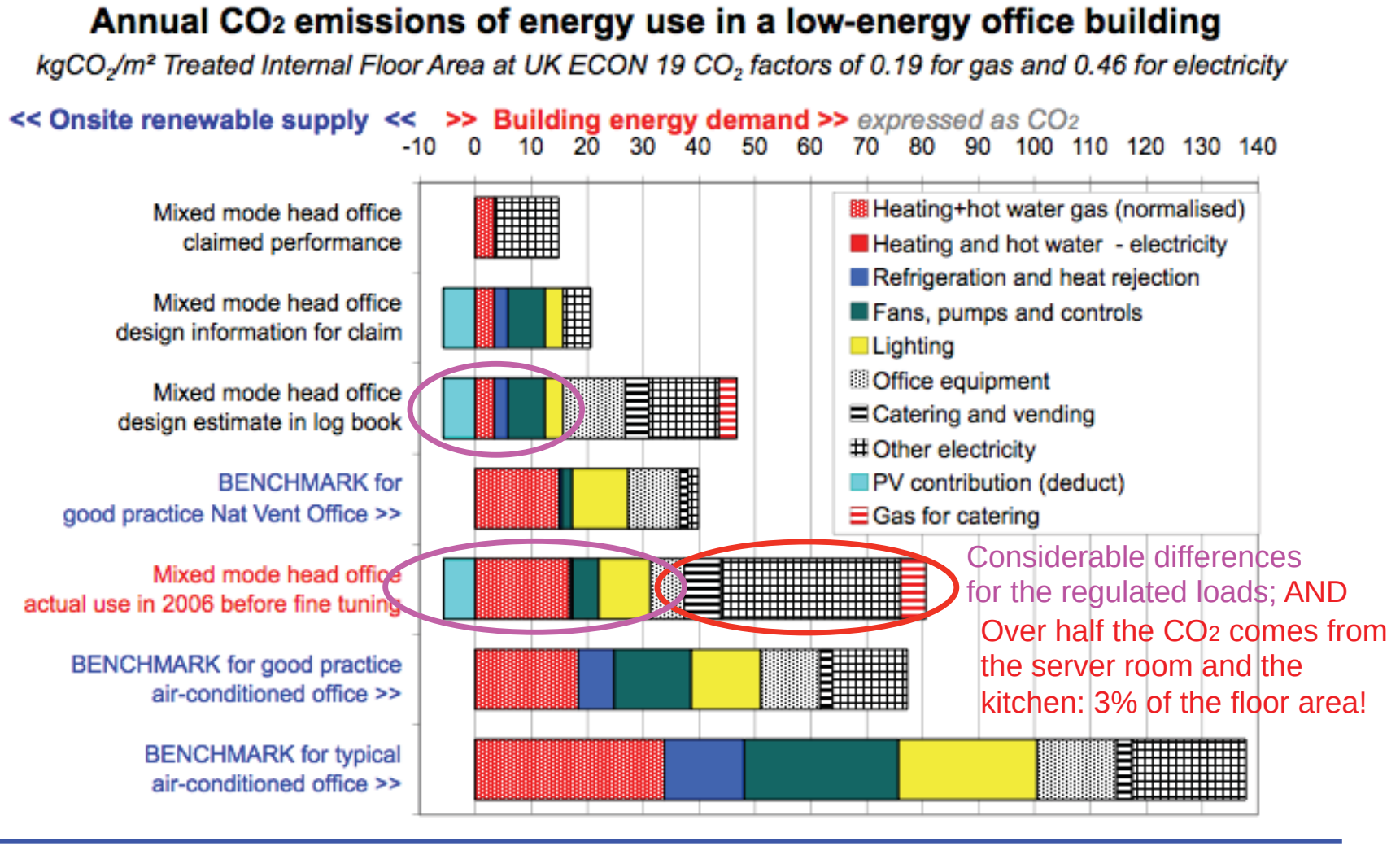

CIBSE TM54
can help estimates to be more realistic

Evaluating operational energy performance of buildings at the design stage

CIBSE

You can share your data on Carbon Buzz

CarbonBuzz an RIBA CIBSE platform

Collaborative
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Real

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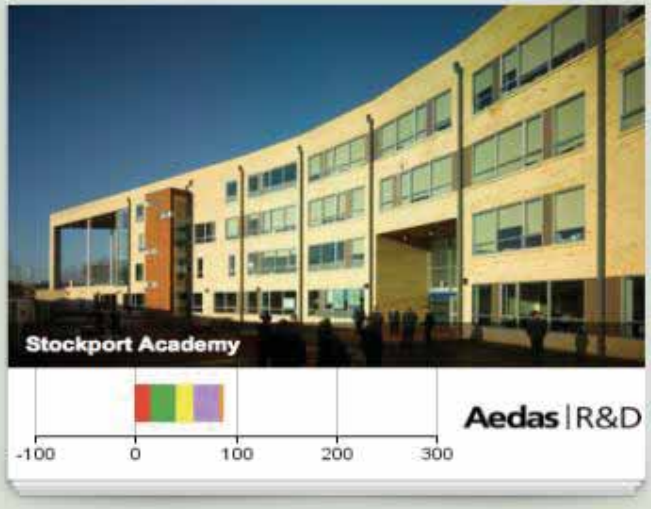

Get REAL about building energy consumption

Our figures show that on average, buildings consume between 1.5 and 2.5 times predicted values

CarbonBuzz will help you close the gap between calculations and actual building performance

Get Started > or Find out more

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Download template to gather data

Register to add new project

Share

Add users to your account

Specify their access rights

Compare

Compare your design estimate against operational energy use

3

CHANGING THE ROLE OF THE BUILDING PROFESSIONAL

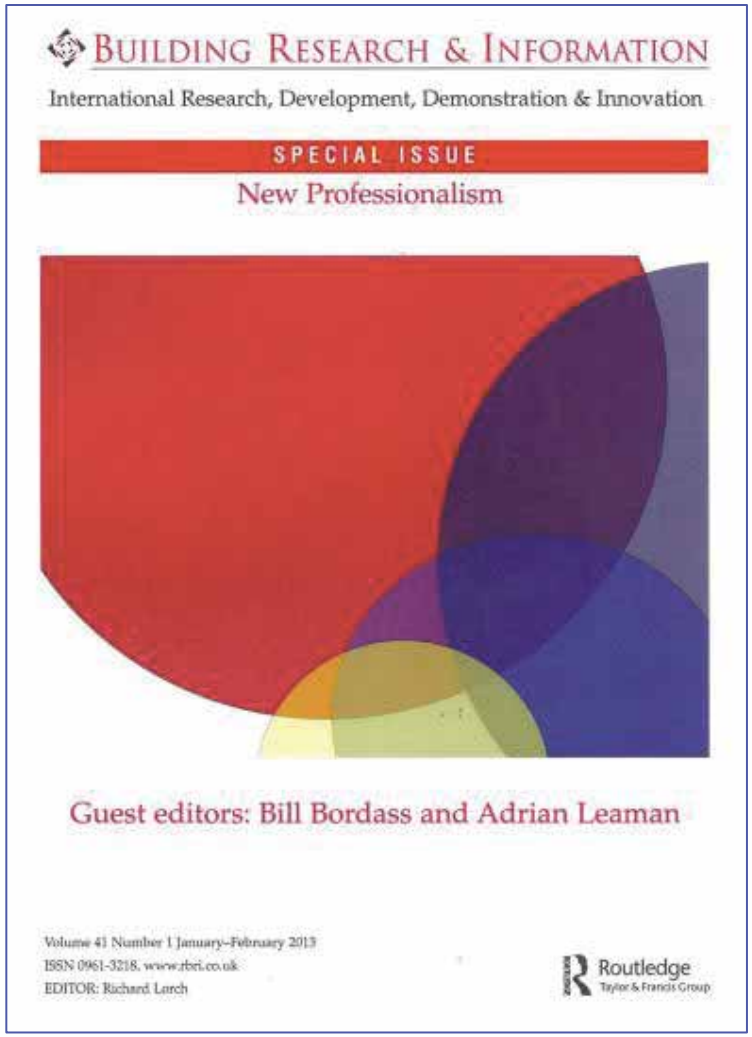
Changing the way we do things

- Construction-related institutions require their members to understand and practice sustainable development.
- How can members do this unless they understand the consequences of their actions? *The real outcomes.*
- If they don't, they are working outside their region of competence …
- **or in other words, not acting in a fit manner for a professional !**

SO WHY NOT?

- Change attitudes to the nature of the job.
- Re-define perceptions of the professional's role, to follow-through properly and to engage with outcomes.
- Close the feedback loop – rapidly and efficiently.
- Make much more immediate, direct and effective links between research, practice and policymaking.

New Professionalism: getting started
Principles anyone can adopt tomorrow



PROVISIONAL LIST DEVELOPED WITH THE EDGE

ETHICS AND CONDUCT:

1. Be a steward of the community, its resources, and the planet. Take a broad view.
2. Do the right thing, beyond your obligation to whoever pays your fee.
3. Develop trusting relationships, with open and honest collaboration.

ENGAGEMENT WITH OUTCOMES:

4. Bridge between design, project implementation, and use. Concentrate on the outcomes.
5. Don't walk away.
   Provide follow-through and aftercare.
6. Evaluate and reflect upon the performance in use of your work. Feed back the findings.
7. Learn from your actions and admit your mistakes. Share your understanding openly.

THE WIDER CONTEXT:

8. Seek to bring together practice, industry, education, research and policymaking.
9. Challenge assumptions and standards. Be honest about what you don't know.
10. Understand contexts and constraints. Create lasting value. Keep options open for the future.

SOURCE: The Editorial of BR&I **41**(1), Jan-Feb 2013 can be downloaded at www.tandfonline.com/toc/rbri20/41/1

4

IMPROVING PROCUREMENT with Soft Landings

Soft Landings *can help to maintain the "golden thread" from design intent to reality*

It augments the duties of the project team and client representatives), especially:

1. During the critical briefing stage.
2. Closer forecasting & reality-checking of predicted performance during design and construction.
3. Greater involvement of users and operators, *or their proxies*, with special attention to pre-handover.
4. Aftercare, with an on-site presence during settling-in.
5. Monitoring and review for the first three years in use.

EACH STAGE HAS A CUSTOMISABLE WORKPLAN

It can run alongside ANY procurement process; and

- Create a fast track to improving performance in use.
- Provide more customer focus.
- Improve client relationships and user satisfaction.
- Build recognition that some debugging is necessary.

BSRIA is hosting a UK industry group.

SOURCE: downloadable from www.usablebuildings.co.uk and www.softlandings.org.uk

Soft Landings **Stage 1**:
Inception and briefing

The most important stage, because it binds the team and sets the whole style of engagement with outcomes.

- However, clients have been reluctant to pay, thinking that the industry ought to be doing it anyway.
- Modern procurement methods have often salami-sliced things, making it difficult to maintain *the golden thread* of maintaining and refining design intent throughout a project and on into use.
- *Some clients are writing it into their briefs.*
- *Some PFI teams are starting to put it into their bids.*
- *Some designers want it to be in their standard service.*
- *May become mandatory for Central Government projects from 2016.*

FEEDBACK:
Client buy-in and follow-through is more difficult than might be hoped.
The project team should select a **Soft Landings Champion** or Champions, who can provide the leadership to help things along …
these are in effect the new professionals.

Four aspects of briefing: *if poorly managed, don't be surprised if there are large performance gaps*

THEORY

BEFORE

ASSUMPTIONS *What is being taken for granted?*	**EXPECTATIONS** *Will predictions prove robust?*
Will what is proposed meet them properly? **NEEDS**	*How will these be evaluated?* **OUTCOMES**

AFTER

PRACTICE

Soft Landings **Stage 2:** *Managing expectations during design and construction*

- Set stretching but realistic expectations, *not pie-in-the-sky.*
- Manage them through the process.
- Undertake regular reviews and reality checks.
- Leave elbow room: *this is systemic improvement, not exact science.*

FEEDBACK:

- Any costs up to handover can usually be met by efficiency gains, *though there may be a learning curve to pay for.*
- Soft Landings Champion(s) can provide leadership, maintain the emphasis on outcomes, and remind project managers that it is not enough just to keep to time and budget.
- This must all be done in the sprit of learning, not blaming.

Soft Landings research team members Feilden Clegg Bradley and Max Fordham use an expectations management process, e.g. on Heelis, the National Trust's award-winning headquarters in Swindon, completed 1985.

SEE: R Bunn: *Pitstopping: BSRIA's reality-checking process for Soft Landings,* BSRIA Guide BG 27 /11 (2011).

Soft Landings **Stage 2** components:
The sustainability matrix at Heelis

Team members from Feilden Clegg Bradley and Max Fordham were also involved in the original Soft Landings research

1. **Key attributes were rated on a scale**

- ***Pioneering***
- ***Innovative***
- ***Best practice***
- ***Good practice***

2. **Attributes calibrated and used in progress reviews**

- Client/design team discussion of appropriate qualitative standard.
- Appropriate targets identified.
- Data, techniques and costs reviewed, and targets confirmed.
- Matrix used for management review and cost checks.

REF: W Gething & W Bordass, *A rapid assessment checklist for sustainable buildings,* BR&I **34**(4), 416-426 (2006).

Soft Landings **Stage 3:** *Preparation for handover*

- **A change in concept:** Handover becomes an event within an extended *Finish* stage, not the point at which the design and building team sign off and walk away.
- **Preparation for operational readiness** includes not just the static and dynamic commissioning of the fabric and building services, but much closer engagement with the occupier's move-in and their management and maintenance team, *if they have one.*
- **Preparation for aftercare,** with representatives of the design and building team on site after handover. *The time allocation depends on the size and complexity of the project - it might be one person for half a day a week or less, or much more.*
- **If there is unfinished business,** e.g. owing to a forced early handover, then the *golden thread* is easily carried through into STAGE 4: initial aftercare and fine tuning.

FEEDBACK: Early appointment of a facilities management team is not enough, they also need to be brought into the process deliberately.

Soft Landings **Stage 4:** *Initial aftercare*

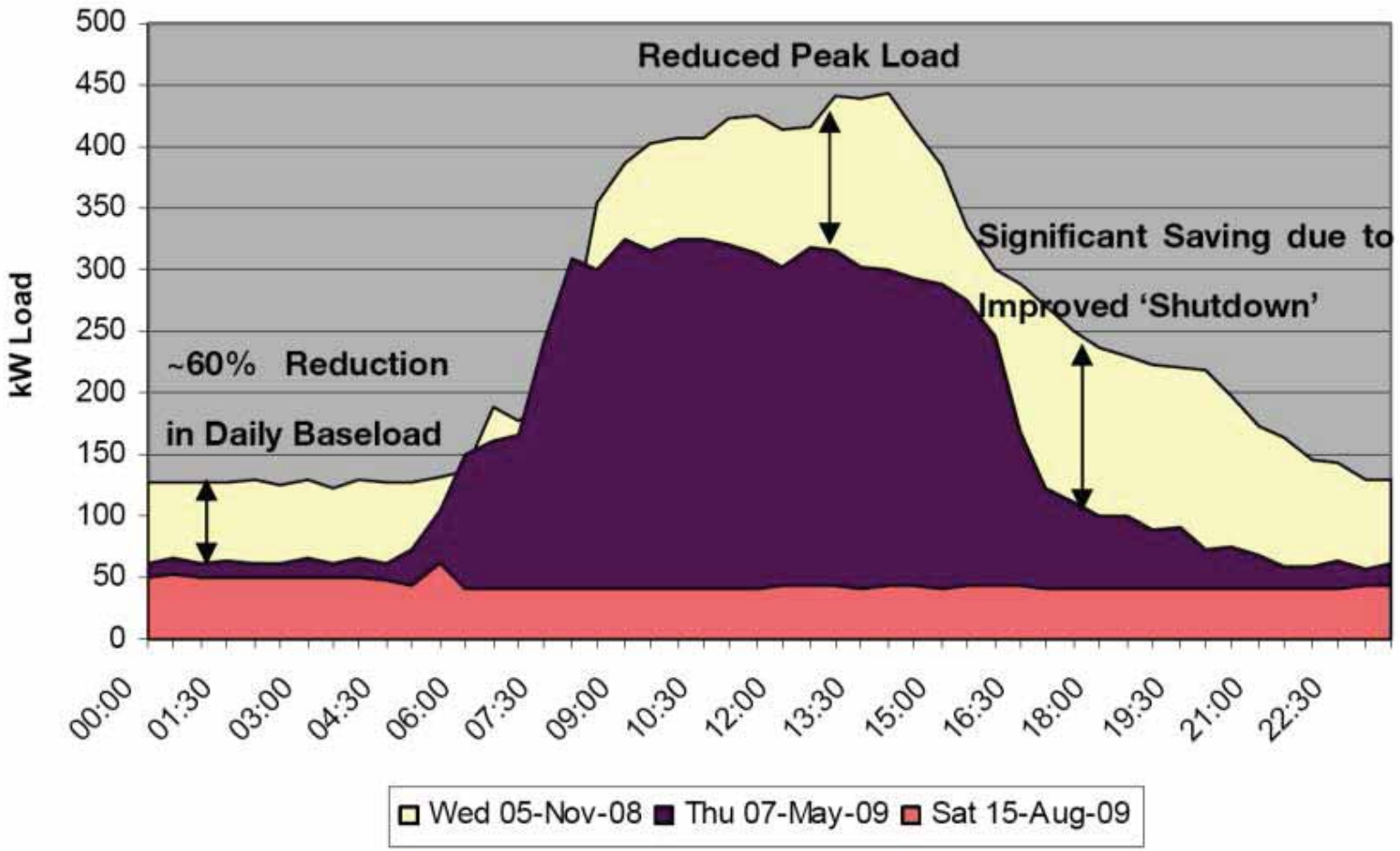
- **Design and building team members visit regularly:** *who and how many visits will depend on project.*
- **They need a home in the building where they are visible to occupants,** *not be hiding in the site hut.*
- **They explain the building to the users,** *in simple guides and in one or two introductory events.*
- **They help the management to take ownership,** *the occupier must take the initiative, not stand back.*
- **They keep people informed,** *e.g. via a newsletter on the organisation's website, e.g. alerting to any problems.*
- **Troubleshooting and fine tuning can be undertaken,** *the best insights have been where the soft landings team does some of its own work in the building and experiences its facilities.*

FEEDBACK: Will contractors engage properly? *Soft Landings priorities are very different from dealing with snags and defects.*

Without aftercare, you may never learn from unintended consequences

Stage 4 aftercare may also pay for itself:

Intervention in a new secondary school



Saving over £ 50,000 p.a. in electricity bills: avoiding default to ON … and occupant satisfaction will often improve too!

SOURCE: Buro Happold Engineers, Soft Landings Trials (2009).

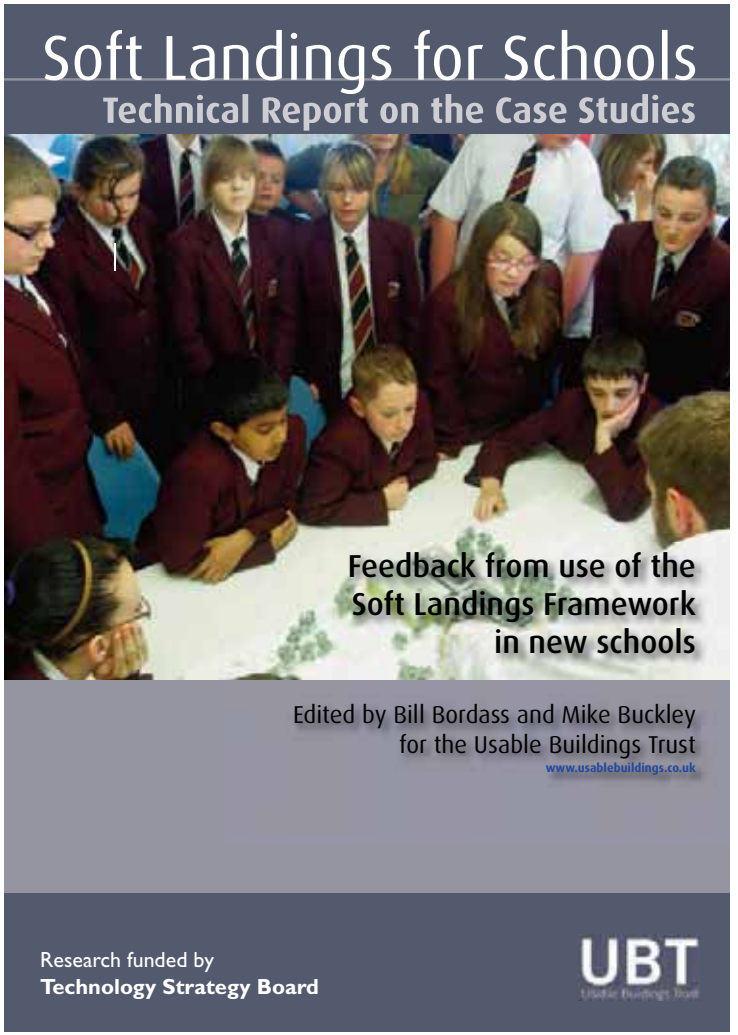
Soft Landings **Stage 5:**
Monitoring, evaluation and feedback

- **Extended aftercare period,** typically two or three years.
- **Occupiers must take ownership** and do most of the monitoring themselves. *They may need motivating.*
- **Independent post-occupancy evaluation (POE) can be included,** e.g. for occupant surveys, energy analysis & structured discussions. *Independent review & benchmarking can be helpful and reassuring.*
- **The findings can be fed through rapidly,** *e.g. to fine tune the systems, refine use and operation of the building and plan upgrades.*
- **The learning can also be spread much more widely,** via the people and organisations involved, and beyond.

FEEDBACK: Often this has needed external funding.
How can we make it routine? The value that can be added is enormous.

We can't afford not to do it; and it can be done with a light touch.

We also worked with school clients, designers and builders on studies of individual stages



Summary report and full technical report downloadable from www.usablebuildings.co.uk

Soft Landings:
Everybody can win

- Better communication, proper expectations management, *fewer nasty surprises.*
- More effective building readiness. *Less rework.*
- Teams can develop reputations for customer service and performance delivery, *building relationships, retaining customers, commercial advantage.*
- Vital for rapid progress towards more sustainable, low-energy, low-carbon, well-liked buildings and refurbishments, *closing the performance gaps.*
- Will save capital costs, *leaving the bling out and focusing on what really matters.*

SO WHAT IS STOPPING US?

- *ATTITUDES: Everybody needs to be committed, starting with the client - perhaps the biggest obstacle. The "golden thread" needs to be put in place.*
- *PROCESSES: There is a learning curve to pay for (probably best from marketing budgets), and the feedback has to be managed.*
- *TECHNIQUES: Independent POE surveys cost money (but not much).*
- *CAPACITY: We need facilitators, investigators, troubleshooters and fixers.*
- *MONEY: Particularly allocation for tune-up etc. after practical completion.*
- ***IMAGINATION: Often constrained by burgeoning bureaucracy!***

www.usablebuildings.co.uk

CONCLUSION: *How new professionals can follow design intent through to reality*

- Understand what is needed — *strategic briefing*
- Be clear what is wanted, and communicate it plainly — *strategic design, leadership*
- Be ambitious, but realistic — *question all assumptions, understand users*
- Follow things right through — *e.g. using **Soft Landings** procedures*

- Review what they are doing — *manage expectations, undertake reality checks*
- Make others aware of what they are after — *specify: what, why and how*
- Check that things will work — *technical feasibility, usability and manageability*

- Get things done well, with attention to detail — *communicate, train, inspect*
- Finish them off — *commission, operational readiness, handover, dialogue*
- Help users to understand and take ownership — *provide aftercare support*

- Review performance in use — *including **post-occupancy evaluation***
- Work with occupiers to make things better — *monitoring, review and fine tuning*
- Anticipate and spot unintended consequences — *revenge effects*
- Learn from it all — *reflective practice, sharing of experiences*

KEEP THINGS AS SIMPLE AS PRACTICABLE AND DO THEM BETTER

Only make things complicated where it is really necessary.