

# *the* **Soft Landings** **Core Principles**

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The *Soft Landings Framework*<sup>1</sup> is an open-source procedure co-authored by BSRIA and the Usable Buildings Trust and published by BSRIA. These *Soft Landings Core Principles* have been developed by BSRIA working with the BSRIA Soft Landings User Group. They are written for construction clients and their professional teams as guidance to inform Soft Landings processes for both new build and refurbishment projects.

A Soft Landings project is defined by following *Core Principles*. The package of principles should be adopted in their entirety in order for a construction project to be deemed a true Soft Landings project. It is important that clients and project teams recognise that the five Stages of Soft Landings are interdependent. In particular, Stage 2: Design Development is predicated on Stage 1: Inception and Briefing, while Stage 3: Pre-handover requires follow-through with Stage 4: Initial Aftercare.

Some clients may wish only to adopt the graduated handover element of Soft Landings, (typically Stage 4: Initial Aftercare, and Stage 5: Extended Aftercare), in which case expectations of the performance benefits will need to be modest. Although late adoption of Soft Landings could bring some benefits, clients and aftercare teams should be prepared to face problems with building performance that could have been anticipated and dealt with had Soft Landings been adopted earlier and in its entirety. Graduated handover can be useful in its own right, but far more can be achieved by applying all *Core Principles* from the start.

Even on projects that adopt Soft Landings from the outset, cherry-picking of the *Core Principles* may introduce risks and fragilities. The risk of underperformance will increase proportionately as *Core Principles* are weakened or abandoned. For this reason, the term Soft Landings should not be applied on projects where any *Core Principles* are missing, as disappointment with the end product may bring the process – and those who were involved on the project – into disrepute.

*Core Principles* could be expressed in a Soft Landings Code of Conduct drawn up for a project, similar to the Considerate Contractors' Scheme, to which all parties would be willing signatories. This would require statements – based on clear and relevant project objectives – to encourage people to aim high and improve product delivery. This would benefit from a simple monitoring and reporting process.

Clients are not advised to make the *Core Principles* a contractual requirement in themselves, rather to use them to inform their requirements in each section of the project documentation. The *Core Principles* can be added as an appendix, but ideally each principle should also be inserted at relevant points in the project tender documentation. The *Core Principles* can then be referenced in the chosen form of appointment for the designers, and in the contract for the builder.

## A SOFT LANDINGS PROJECT IS DEFINED BY THE FOLLOWING CORE PRINCIPLES

### ADOPT THE ENTIRE PROCESS

1. The project should be procured as a Soft Landings project, and project documentation should explicitly state that the project team will adopt the five work stages in the *Soft Landings Framework* to the extent possible

The Soft Landings' process is designed to be integral to conventional design and construction procedures, not an add-on. Most of the briefing, design and construction worksteps can be carried out within conventional design processes and forms of contract with very little additional work. The aftercare worksteps are additional, but nevertheless designed to complement existing post-completion activities such as seasonal and continuous commissioning, energy monitoring and reporting, and post-occupancy evaluation.

Project documentation should include a commitment to use the Soft Landings process in its entirety, but doing so with a light touch rather than by breaking it down into specific contractual deliverables. Soft Landings will work best with people and organisations who are enthusiastic, and willing to collaborate and share risk and rewards.

There needs to be clear agreement within a Soft Landings project team on the purpose of Soft Landings, and an agreed definition that is not merely improved commissioning or facilities support after handover. This could be supported by a clear plan for carrying out the five Soft Landings stages, as defined by the *Soft Landings Framework*.

### PROVIDE LEADERSHIP

2. The client should show leadership, engender an atmosphere of trust and respect, support open and honest collaboration, and procure a design and construction process that can be conducted with equal levels of commitment from all disciplines

The *Core Principles* need to be upheld by the client, and owned by a project's Soft Landings champions.

Ideally there should be a Soft Landings champion on the client side who will be involved all the way through, and a matching champion on the project team side (who may share the role or pass on responsibilities through the contractual chain). The Soft Landings champions should be people with good experience of contract management. They should seek fair play on both sides, and ensure that both clients and contractors adhere to their Soft Landings obligations, as defined in tender documents.

Clients may find benefit in drawing up a voluntary Soft Landings Code of Conduct for their project, (similar to the Considerate Contractors' Scheme) to which all parties would be signatories. This could be wholly or partly based on the BSRIA Soft Landings User Group mission statement:

*"We are committed to ensuring that Soft Landings principles are applied on our new build and refurbishment projects, that operational outcomes will match the design intentions, and that the needs of the building's end users are met."*

## SET ROLES AND RESPONSIBILITIES

- 3. In Soft Landings, the client is an active participant, and leads the process at the outset to develop the roles and responsibilities. This should include client representatives, all key design professionals, and the supply chain. The people involved in this process should be the actual individuals who will work on the project**

The client has an obligation to identify and make key people available for consultation and reporting (an obligation also on the supply chain). To the extent possible, this should include all technical people, and personnel with a stake in the management or subsequent operation of the building, such as facilities managers and caretakers.

The client should ask their construction professionals to ensure continuity of personnel. It is not unusual for bid teams to win a project, only then for a different set of people to work on the job. Realistically this cannot be prevented, but clients can ask organisations for greater continuity as part of their Soft Landings commitment.

Organisations appointed later need to be brought into the Soft Landings team. Outline roles and responsibilities should therefore be included in tender documentation. Greater effort should be made to bring in key specialists to advise on design development earlier than would be the norm, such as the commissioning engineer, and the facilities manager (where appointed). Suppliers and sub-contractors whose input is central to building performance should also be involved in early discussions. These should include the controls designer or engineer, lighting controls supplier, and catering and IT suppliers.

Where these people are not available or yet to be appointed, proxies in the form of industry specialists should be invited to comment in a (non-contractual) advisory capacity. This input, which might be provided for free, will help those with Soft Landings roles and responsibilities to appreciate all the issues and opportunities before options are closed down.

All aftercare activities should be agreed early in the project (no later than tender stage), even if the client opts to issue a separate contract for aftercare services rather than extend the main contract to cover the three years of aftercare. The aftercare roles and responsibilities – along with any specific performance targets – also need to be set early so that the objectives and desired operational outcomes are clear from the outset.

## ENSURE CONTINUITY

- 4. Soft Landings should be continuous throughout the contractual process. It should be made part of all later appointments, and expressed clearly in contracts and sub-contract work packages as appropriate. The client and main contractor should ensure that sub-contractors and specialist contractors take their Soft Landings roles and responsibilities seriously**

The thread of Soft Landings must be maintained throughout the entire project. The roles and responsibilities defined at the project's inception need to bridge any gaps in professional responsibility that tend to occur, particularly in design and build procurement processes. These gaps can be deepened by overly-prescriptive contract clauses. Maintaining continuity will not be easy, but with a little effort the client and Soft Landings champions can prevent the good intentions of Soft Landings from falling through any contractual gaps.

Clients should require a clear gateway process throughout their projects to enable sign-off of Soft Landings activities.

## COMMIT TO AFTERCARE

- 5. There should be a clear and expressed commitment by the client and project team to follow-through with Soft Landings aftercare activities, and to observe, fine-tune and review performance for three years post-completion. The aftercare activities should aim to achieve the Soft Landings performance objectives, and any targets agreed at the design stage**

Soft Landings includes a three-year aftercare period. By the end of year one the building should have settled down. By year two, the building should have entered stable operation, during which time the energy data should be reviewed and adjustments recommended in a quest to improve performance. The second year will also involve fine-tuning, at the end of which a structured post-occupancy evaluation (POE) should be carried out. The third year will be a period where the aftercare team respond to findings from the POE, make any necessary interventions, and maintain their monitoring of the building's performance and energy consumption.

The frequency of site visits should tail off as the building settles down and monitoring becomes routine. The aftercare process should culminate in a final POE to measure and report the building's performance (primarily energy performance and occupant satisfaction) against the agreed performance objectives, and any specific targets required by the client.

In design and build procurement, dialogue will be needed between the main contractor (who may hold the aftercare contract) and the Soft Landings aftercare personnel. Those doing troubleshooting and fine-tuning during Soft Landings aftercare will ideally be from the original design team, but may also be specialists appointed by the client. Independent analysts are recommended for POE.

Clients need to ensure that the feedback loop between building operation and design – central to Soft Landings learning – is not broken. Effort should be made to ensure all relevant feedback is captured and communicated to the original project team, and to those who procured the building.

For aftercare and fine-tuning activities to add value, it is vital that commissioning is done well. Clients must ensure commissioning (including seasonal and continuous commissioning where relevant) has a high status at project inception. Commissioning must be well-defined and planned, adhered to, and protected from time and cost pressures. All commissioning activities must be fully recorded.

## SHARE RISK AND RESPONSIBILITY

- 6. The client and main contractor should create a culture of shared risk and responsibility. Incentives should be used to encourage the project team to deliver a high-performance building that matches the design intentions**

It is vital to Soft Landings that the project operates within a no-blame culture. It will ensure that information is shared, and that problems are discussed openly and not hidden or buried. While defects and poor workmanship must be resolved, all outcomes – good and bad – should be treated as a learning experience. This means that there must be a clear policy of proactive problem resolution, where emerging issues are addressed and resolved collaboratively.

Incentives of various kinds can be helpful, but should be free of heavy legal definition. Any specific performance targets linked to those incentives should be kept realistic, but stretching where appropriate.

## USE FEEDBACK TO INFORM DESIGN

- 7.** The client's requirements, the design brief, and the design response should be informed by performance feedback from earlier projects. The desired operational outcomes need to be expressed clearly and realistically

Feedback from other projects is valuable for informing the client's needs, for understanding the needs and expectations of the building's end-users, and for obtaining insight into the technical performance of systems. Feedback can also be used as design progresses, particularly for reality-checking decisions at key stages in the process, and at points when outline ideas turn into systems, and from systems into specified products.

Feedback should be used to inform the employer's requirements, the brief that emerges from those requirements, and the subsequent design response. An example of useful feedback is the energy profile of a similar building, which would help to identify the likely energy use of specific systems in the new building, such as lighting. It would also enable the designers to get a better grasp of energy loads, such as IT, that are not covered by the *Building Regulations* but which are directly related to ventilation and cooling loads.

The feedback process also requires occupant expectations to be obtained and understood. They also need to be well-managed from project inception through to occupation. The use of occupant surveys can be valuable for understanding expectations, which will be a blend of what people need to perform their tasks, what they would like in terms of comfort levels, and their desired amount of control over environmental systems (also see *Core Principle 10*).

## FOCUS ON OPERATIONAL OUTCOMES

- 8.** The Soft Landings team should focus on the building's performance in-use. Regular reality-checking should be carried out to ensure that the detailed design and its execution continues to match the client's requirements, the design team's ambitions, and any specific project objectives

Reality checking should identify the cause of changes that will affect the client's requirements and the design brief. Subsequent alterations should be agreed and appended to the documentation. Performance targets should be revisited, checked, and altered where necessary.

Designers need to check and refine their energy use targets. This should be done on a regular basis during the project, preferably in line with the client's gateway process. A reality-checking process could make use of existing provisions, for example being linked to team meetings, design reviews, and contract prelims.

Outputs from reality-checking could inform a project's operational risk register. This could be a standing item for all progress meetings. BSRIA's *Pitstopping* approach<sup>2</sup> provides a reality-checking methodology.

## INVOLVE THE BUILDING MANAGERS

- 9.** The organisation that will manage the finished building should have a meaningful input to the client's requirements and the formulation of the brief

It is important to anticipate the operational requirements of running a new or refurbished building. The emphasis of this input should be on designing for ease of use, management and maintenance. Designers familiar with building technologies often struggle to accept that building managers may not understand the purpose of building services systems and how to operate them.

The client may have to show strong leadership to get the project team to solicit the views of the building's managers, or to obtain these insights from

elsewhere if the management organisation doesn't yet exist.

PFI, and design, build, finance and operate procurement can include a consultation process that will meet this *Core Principle*, but firms offering a single point of responsibility can still have organisational boundaries that inhibit inter-departmental communication. In Soft Landings, such barriers need to be overcome for facilities management knowledge to be accessible to the project team.

## INVOLVE THE END USERS

- 10.** Prospective occupants should be actively researched to understand their needs and expectations, which should inform the client's requirements and the design brief. There should be a clear process for managing expectations throughout the construction process and into building operation

Soft Landings requires occupant expectations to be obtained, understood and well-managed from inception through to occupation. Clients need to instruct project teams to research the needs of known occupants (or use published evidence where the occupants are not known), and use that feedback to inform the design.

The use of occupant surveys can be valuable for understanding these expectations, taking account of what they need in order to perform their tasks. This is particularly crucial where a building's systems require significantly more (or less) involvement by the end users in controlling environmental conditions. It's vital that the occupants' expectations are well managed throughout the project, so that nothing in the building comes as a shock to them after handover.

## SET PERFORMANCE OBJECTIVES

- 11.** Performance objectives for the building should be set at the outset. They should be well-researched, appropriate and realistic, capable of being monitored and reality-checked throughout design and construction, and measurable post-completion in line with the client's key performance indicators

The client's objectives should include energy use (including both regulated and unregulated loads and run times), alongside other metrics such as arrangements for operation and maintenance, user training and familiarisation, and building management. Some objectives may not be precise at the start (particularly for energy and water use), so they should be revisited and firmed up as the project progresses.

It's important that the project's performance metrics are outcome-focused, specific, measureable, realistic, and of clear benefit. Targets should be based on prevailing and relevant benchmarks. Soft Landings analysis tools that can be used to inform performance targets include CIBSE's *TM22 Energy Assessment and Reporting Method*<sup>3</sup>, and the Building Use Studies (BUS) occupant questionnaire survey<sup>4</sup>.

## COMMUNICATE AND INFORM

- 12.** Regardless of their legal and contractual obligations to one another, project team members need to be comfortable communicating with the entire team in order to achieve the levels of collaboration necessary to carry out Soft Landings activities

To the extent possible, the client and main contractor should champion a policy of open (and technically intelligible) communication. Ideally, agreement should be reached that allows all parties in the contractual chain to communicate freely with one another without contractual barriers frustrating or preventing it. Partnering-type charters and contracts may provide forms of words and phraseology that clients can use in their project strategy documents.

In design and build, the practice of novation means that design professionals are

often contractually bound from talking directly with the client unless they go through the builder. While this protocol may have to be followed, clients that create a spirit of openness, and who champion a no-blame culture and express it in the employer's requirements, may get better performance from their project teams.

It is also important for communication channels to include the sub-contractors, particularly performance-critical specialist contractors responsible for controls and building management systems.

The obligation to communicate and inform culminates in the structured post-occupancy evaluations, and in the final project appraisal at the end of the third year of aftercare. All involved have a duty to understand and communicate building performance findings – the client for its procurement policy, and the professional and building team members for use on their next projects.

## REFERENCES AND FURTHER READING

<sup>1</sup>The *Soft Landings Framework*, BSRIA BG 4/2009

<sup>2</sup>*Pitstopping – BSRIA's reality checking process for Soft Landings*, BSRIA BG 27/2011

<sup>3</sup>*Energy Assessment and Reporting Methodology*, CIBSE TM22 (due late 2012).

<sup>4</sup>Details on the Building Use Studies occupant survey method can be found at [www.usablebuildings.co.uk](http://www.usablebuildings.co.uk)

The Usable Buildings Trust can be contacted via [www.usablebuildings.co.uk](http://www.usablebuildings.co.uk)

More details on Soft Landings can be downloaded from [www.softlandings.org.uk](http://www.softlandings.org.uk)

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