

Integrated Design

A Tenant's Guide



Co-funded by the Intelligent Energy Europe
Programme of the European Union



MaTriID

Market Transformation Towards Nearly Zero
Energy Buildings Through Widespread Use of
Integrated Energy Design

Integrated Design (ID), previously referred to as Integrated Energy Design, is an evolution of current best practice for the development of a building design in UK construction.

Working in tandem with the Client and their brief, the core design team is incorporated into the earliest stages of the design process to refine and interrogate the brief. However, quite often the Client is not the End-User of the building; thus, integrating the Tenant into the design process becomes paramount. With ID, the core design team and the Client regularly engage with the Tenant to explore iterative concept designs that satisfy the brief as well as the end-user's requirements. In this way, ID has the capacity to deliver a better building operation and low energy design solution than traditional design routes.

Background

An inherent disconnect exists between a future Tenant's requirements and a developer's (Client's) motivations; the Tenant generally will be chasing low maintenance and low operational costs, whereas Clients will be after low capital construction costs and flexible, standard design solutions to cater to a wide variety of future Tenants. This is due to the general framework of current construction projects: projects are commonly formed based on anticipated future space requirements identified by future Tenants; such Tenants then enter in to Agreements to Lease (pre-lets) with developers who, as experienced construction Clients, then design and construct buildings to accommodate the Tenant's requirements. Upon completion of the building, the Tenant then occupies the new space at previously determined rental rates. Typically, the Client would then (if it hasn't occurred already during the construction process) transfer the building asset into an investment portfolio.

The usual approach to tackle this disconnect is through the contractual specifications and requirements embedded or appended in the Agreement to Lease. Larger schemes, through a team retained directly by the Tenant, will also typically instill a degree of ongoing monitoring through the design development. Many of these contractual specifications will include the principles of collaboration, but typically such references to "collaborative engagement" or "open book" approaches are weakly defined.

The ID process previously outlined provides a clearer framework for ensuring the Tenant's requirements remain prioritised throughout the design process; it follows that specifying the use of ID by Clients as part of pre-let agreements can lead to an improved outcome for the Tenant which is more in line with their needs and requirements.

Tenant Benefits – operational cost reduction

The incorporation of the ID approach within the design team is focussed fundamentally on delivering a building with the lowest possible energy demand through an informed, iterative design process. To assist in the refinement of various early-stage design concepts, energy analysis tools are used to gauge the potential environmental performance of each design proposal. By engaging the Tenant within these early processes, the Tenant is empowered to steer the Client and the retained design team toward a lower operation cost building.

Whilst it is acknowledged that the nature of the ID approach will incur the Client with marginally increased design costs – which in turn will ultimately be passed on through future rental to the Tenant – this slight increase in core design team costs is typically more than offset in the construction process through savings made in construction choices, coordination and efficiency. Therefore, the addition of ID to the design process can – at worst – be considered 'cost neutral' for a Client. Tenants should therefore resist any Clients' attempts to add cost for the use of the ID approach.

Tenant Benefits – building suitability risk reduction

The ID approach provides a collaborative design method which commences with RIBA Stage 1, including a detailed analysis and refinement of the Client's Brief, incorporating the Tenant either directly or indirectly via the intended specifications in the pre-let agreement.

This initial opportunity to refine the original briefing document allows the Tenant to gain the benefit of the design teams' construction experience to review, and challenge, their requirements. Leading into RIBA Stage 2, this complementary process benefits the Tenant by allowing design team the opportunity (but not the obligation) to improve the original specification based on Tenant's engagement, as well as ensuring the design team have a deeper understanding of the Tenant's needs in a more comprehensive fashion than can be achieved through a written document.

The use of the ID approach ensures the resulting scheme is thus better tailored to the Tenant's needs through the combination of the Tenant's needs being more deeply considered by, and becoming more tangible to, the design team.

The ID process

Although there are no obligatory requirements around the ID process, the Tenant should ensure they place caveats on the contract with the Client to approach the aims of ID in a fashion that best promotes the Tenant's priorities. This will likely incorporate the steps set out in the typical framework below:

STEP 1.1 – Design Basis

Integral to ID is the appointment of a core design team from the start of the project that are instructed to work collaboratively and openly to satisfy the Client's objectives and low operational energy building aims. Tenants should therefore ensure that the Client is obliged to appoint the core team at the outset of the project, and where possible on partnering contacts.

STEP 1.2 – Analyse Site

In line with Stage 1 of the RIBA Plan of Work, the design team has the responsibility to gather all possible information about the site's environmental factors and present the information in a clear format to all parties. Tenants should therefore ensure that the Client is required to undertake appropriate surveys, data collection and studies as early within the design process as possible with copies made available for the Tenant.

STEP 1.3 – Refine Brief & Targets

Inevitably, there will already be expectations for the site (especially if the Client/ land/ building has already been agreed). This step formalises the brief and gives the design team the opportunity to review elements that may be restricting the optimum design or cost outcome. In practice, and within the scope of RIBA Stage 2, this is often best approached as an open forum meeting or workshop with the original Client Brief circulated in advance with an invitation to feedback at the meeting. Tenants should ensure that they have the legal capacity to adjust their original Tenant requirements, subject to any agreement on cost variations, but not the obligation to do so.

The second part of this step is to translate the agreed Brief into clear targets for the design team to deliver through the design stage, construction and with the completed project. These form key waymarkers for the success of the scheme, and provide a means to hold the design team to account. Where possible, these clear targets should be contractually embedded.

Secondary to the review of the Brief is the definition and identification of specific targets to serve as waymarkers from the design and construction stages through to project completion. These targets will serve as a measure against which the success of the project can be measured, as well as securing the responsibility of the design team to deliver the project within a rigid framework.

STEP 2.1-2.3 – Multiple Concept Designs

RIBA Plan of Works Stage 2 revolves around the concept design discussion and preparation. ID proposes that, within this stage, the selection of a chosen concept design is informed through the instigation of collaborative workshops and early-stage building energy modelling. This integration of ID within the concept design stage requires the design team present several alternative designs, which aims to reduce the risk of any one design becoming too 'precious' and ensure different approaches are explored.

ID, therefore, empowers the Tenant to request access to these design discussions between the Client and the design team. The Tenant most certainly should have access to the resulting designs and have a voice in the selection as to which scheme moves forward into Stage 3 of the Plan of Works.

In terms of energy modelling, existing Plans of Work look to perform thermal and sustainability modelling during Stage 3, after the final design has been defined and established. ID brings this process forward into Stage 2, with modelling performed 'live' during design workshops or prior to them, with results presented clearly and alongside each developed design concept. The concept developments and the energy modelling results are encouraged to be combined as concept 'packages', the advantages and disadvantages of which are discussed concurrently and collaboratively in a series of workshops. These workshops which assess designs both creatively and analytically, along with simultaneous design-stage energy modelling and Tenant inclusion, are the tangible differences of the ID approach.

STEP 2.4 – Design Finalisation

The final workshop session for the design team and Client should select the optimum design for the Client Brief. Tenants should ensure they are present at this decisive stage and that they have the capacity to either make the final choice, or to have significant influence on the final choice made by the Client.

STEP 3.1-3.3 – On Track Monitoring

Moving into RIBA Stage 3 of work, it is important the Client's Brief and targets are updated to define what is intended on being delivered; Tenants should also ensure the Agreement-to-Lease contract is similarly updated. In this way, contractual obligations, incentive payments, and delivery metrics can be defined against both the design team and the contractor. The Tenant and Client brief should directly feed into the development outline and detailed specifications, and the specific targets reflected in these documents.

STEP 4.1-4.3 – Delivery

As with all truly successful construction projects, ID is reliant on communicating the important messages, notably the Client Brief and targets, through the whole construction team delivering the building work. This should include embedding the ID goals into the tender and contract documentation, but also plans for communicating these to those on site. Where necessary, consideration for site training in relevant skills should be considered.

ID is also reliant on communicating the presumptions and optimum usage methods to the end users of the project as well. Already encouraged through sustainable frameworks such as BREEAM, Building User Manuals as well as "Soft Landing" contracts and early engagement with the building management personnel are critical to the safeguarding of the delivery of a low energy building as devised in the Concept Stage.

For more information, please see:

<http://www.bsria.co.uk/services/design/soft-landings>

BRE
Bucknalls Lane
Watford
WD25 9XX

T +44 (0)333 321 8811
E enquiries@bre.co.uk
www.bre.co.uk

BRE Trust

The BRE Trust uses profits made by BRE Group to fund new research and education programmes, that will help it meet its goal of 'building a better world together'.

The BRE Trust is a registered charity in England & Wales:
No. 1092193, and Scotland: No. SC039320.