Integrated Design & Environmental Assessment Schemes

The UK is a major adopter of the Building Research Establishment’s Environmental Assessment Method (BREEAM), and its application approaches ‘industry standard’ for non-domestic construction. Other schemes for environmental assessment, most notably LEED, do have some uptake, but primarily in London where developments have received funding from US Clients or backers. Passivhaus, as an energy assessment and design technique, has gained in use during the past five years to become well known by the industry, although in most cases its actual application to a project remains comparatively rare. Of the environmental or energy assessment schemes in use in the UK, none provide specific provision or benefits for the use of Integrated Design by name, although to achieve the higher levels of performance many of them outline is likely to indirectly require a collaborative design approach that embodies some of the principles of ID. BREEAM and the Code for Sustainable Homes are discussed in the following two sections.
Integrated Design & BREEAM

Summary
This section discusses Integrated Design and the Building Research Establishment’s Environmental Assessment Method (BREEAM), and highlights that the BREEAM “Innovation Credits” could be achieved by the use of Integrated Design processes on projects, if appropriate supporting evidence is provided. It also notes the potential for ‘full’ credits rewarding Integrated Design to be included in future versions of the BREEAM.

BREEAM & ID
BREEAM (and to a lesser extent other environmental assessments such as LEED) have a number of sympathetic interactions with Integrated Design. Overall, BREEAM sets a voluntary framework for the assessment of the overall environmental performance of a scheme, including its energy performance. Although voluntary, BREEAM is often a client requirement of projects in the UK, and at a level of performance that exceeds the minimum statutory requirements for the building type. In a similar fashion to the indirect driver for Integrated Design that Building Regulations provides (explained in the previous section), by requiring higher levels of energy performance BREEAM indirectly pushes design teams towards a more integrated design approach, and to consider the issues related to this earlier in the process. BREEAM, when required by the Client at a suitably high level, therefore supersedes the driver from Building Regulations but continues to provide a strong indirect driver for ID.

In addition to the indirect driver, BREEAM has provision for the use of an “Accredited Professional” (AP) as part of a development project. BREEAM credits are scored for the involvement of the AP from the early stage of the design development, including for their undertaking of reviews of the design development. Whilst this does not exactly match the Integrated Design process as described in MaTrID, the early engagement of an appropriately capable AP is clearly in-line with the spirit of Integrated Design. The role of BREEAM AP has similarities with the MaTrID ID Facilitator role, potentially combined with the role of the energy modeller, and helps to ensure that the early design decisions are made within a framework of reasoned analysis. BREEAM therefore can be considered to also include strong direct drivers the use of Integrated Design principles through these available credits in the scheme.

Given BRE’s ownership of BREEAM, there remains potential for the AP role to be expanded or adapted to make more specific mention of Integrated Design, or the principles therein, although this would not occur before 2017 (anticipated as the next version of BREEAM after that launched this year).

BREEAM Credits
Following notable discussions with BRE’s sister company that administers BREEAM, the MaTrID project team has been able to secure the following statement:

“BRE Global, the owners of BREEAM, have reviewed the MaTrID project “Integrated Design” process guidance and associated materials. It is considered that any project able to demonstrate that it has applied the Integrated Design approach as defined in this guidance will have gone beyond the levels of collaboration that are currently normal in the industry. Where such a project can demonstrate that the scheme’s “Integrated Design” process has generated a number of concept schemes, and where the final scheme reduces the project’s impact on the environment compared to initial concepts, it is BRE Global's view that the scheme may be eligible for the award of an “Innovation Credit”. The final decision for the awarding of “Innovation Credits” is subject to individual review by BRE Global and will depend on how many other projects have been awarded a similar innovation.
BRE Global have also understood the potential of the MaTrID “Integrated Design” process, and the principles of the scheme will be considered for inclusion in future iterations of the full BRE Environmental Assessment Method (BREEAM).”

As can be seen from the statement, with the appropriate supporting evidence, the use of the Integrated Design process could achieve an Innovation Credit. Innovation Credits under BREEAM 2014 are worth 1% of the total BREEAM score, and they are therefore the single most valuable credits that can be achieved under the assessment method.

Furthermore, as noted in the second paragraph, the use of Integrated Design will be reviewed as a potential topic for inclusion in future iterations of the BREEAM. Whilst this will remove the potential for an Innovation Credit (these are only available for a limited number of occasions anyway, as after this they are no longer seen as innovative), embedding Integrated Design into the BREEAM as a full credit will greatly increase the potential for the ID approach to be widely adopted throughout countries which use the BREEAM for sustainability assessment.
Integrated Design & the Code for Sustainable Homes

Summary
This section discussed the interaction between Integrated Design and the UK’s “Code for Sustainable Homes” method of assessing sustainability. It highlights that the two mechanisms do not conflict, and explains the limited engagement with the Code for Sustainable Homes in the MaTrID project.

Background
The Code for Sustainable Homes was created by the BRE for the UK Government Department of Communities and Local Government (DCLG), who own the scheme. It is administered by BRE and other authorised scheme operators. The scheme was conceived and designed to give a general measure of the overall sustainability of a residential property, including but not limited to the energy performance of the property. The intent was that the CfSH would provide a framework for achieving not just the (then) goal of ‘zero carbon’, but also a wider delivery of sustainable homes with consideration for health & wellbeing, ecology, impact of materials and beyond. The CfSH has six levels (plus ‘unrated’), which at the time of conception were all above the performance of buildings which solely met Building Regulations. As an approximate comparison, Code Level 4 (on a property without any renewable generation installed, which is allowed as an option in the CfSH) would be achieving approximately “PassivHaus” levels of performance. Code Level 5 achieves zero carbon, roughly equivalent to zero energy, but solely considering the regulated (or “hard wired”) energy demand. Code Level 6 achieves “true” zero carbon, equating to all regulated energy plus a reasonable estimate of all unregulated energy demand from the residency being met by energy supplied from within the boundary of the site on average of the course of the year; in Europe, this would be a “PlusEnergy” building with around 50% generation above the regulated energy demands.

The Code for Sustainable Homes, launched in 2007, has therefore provided a residential form of “BREEAM” owned by the UK Government. This was originally in place with the goal of achieving ‘zero carbon’ by 2016 for all new homes. This goal, which was felt ambitious (at best) even at the time of launch, rapidly became seen as impossible with the onset of the economic downturn. For the past few years, the UK Government has been discreetly ‘de-prioritising’ the Code for Sustainable Homes. During 2013, after the formal launch of the MaTrID project, it was then rumoured that the Code for Sustainable Homes would actually be formally ‘wound up’ by the government; a rumour formalised in 2014.

Integrated Design & the Code for Sustainable Homes
With regard to Integrated Design, it is undoubtedly the case that the Code for Sustainable Homes supports the underlying principles when it is being used to deliver Code 5 or 6, (and arguably Code 4) residential properties. Although CfSH does not actively call for the use of ID, the levels of performance required necessitate very considerable design integration across specialisms that, ultimately, are the essence of Integrated Design. As would be true for any building looking to achieve zero regulated energy demands or beyond, the CfSH therefore pushes collaboration through capturing these performance levels in its upper levels.

Despite this strong correlation between the higher levels of the CfSH and the drive for Integrated Design, the announcement of the ‘winding up’ of the CfSH led to the decision to not promote Integrated Design in terms of the Code. This was rooted in the concern that ID would be considered redundant alongside the retirement of CfSH, which would clearly be detrimental to the uptake. Instead, Integrated Design has been promoted in the context of the Energy Performance in Buildings Directive and the UK’s changing Building Regulations, both strong motivational factors which are ongoing and not likely to suffer the ‘fall from fashion’ that the Code for Sustainable Homes has experienced since the original submission of this project’s proposal.