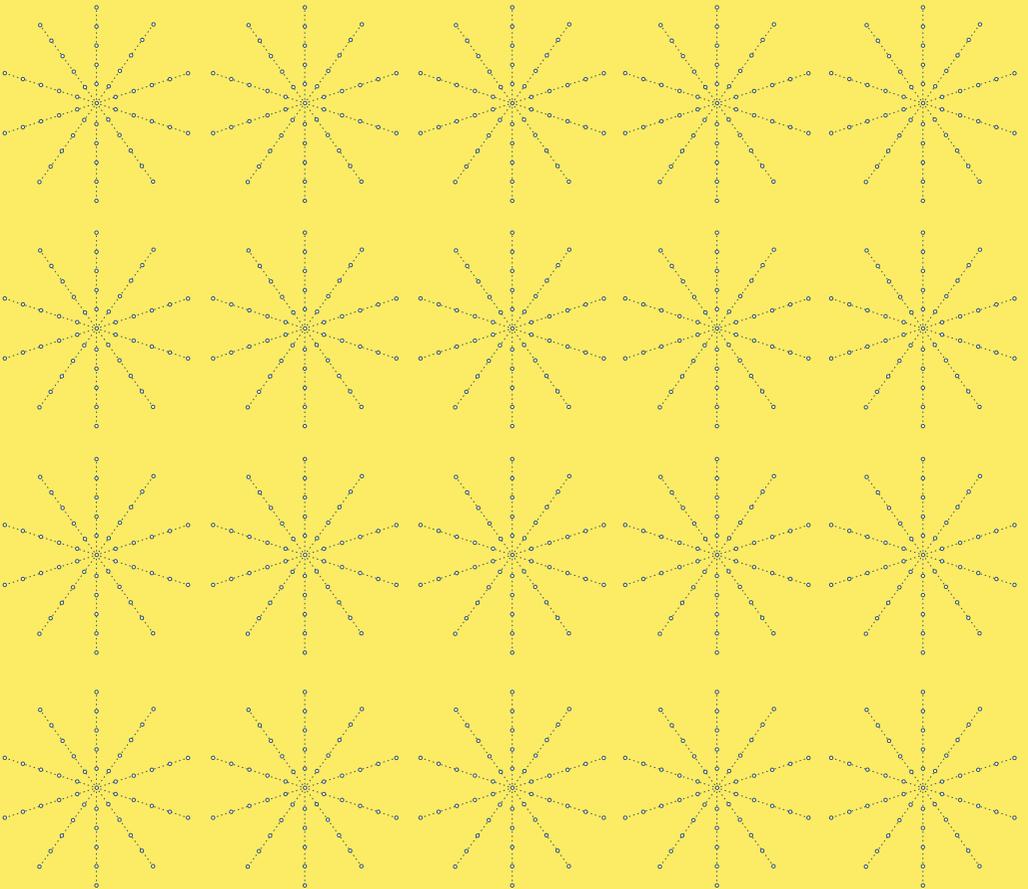


CIC DESIGNQUALITYINDICATOR ONLINE



Foreword



Every time we commission a building project we are developing a prototype. One or all of the key elements of the project are being used for the first time; we have a new site, new team and/or new client. The question is how do we monitor this unique process to ensure that we get a consistently good product?

Traditionally the end user has become a guinea pig in the process. We don't know until the building is occupied if it really meets the needs of the end user. This means that we frequently end up with unhappy customers and waste time and resources trying to accommodate design issues that we didn't anticipate.

The DQI is a welcome innovation as it takes the guess work out of the whole design process. It focuses the team on the needs of the end user, involves all the stakeholders throughout the process and helps develop a more sustainable building. The overall result is an improved product and importantly we can learn from the process because the DQI allows us to measure how the improvements are made.

Peter Rogers

Chairman of Strategic Forum for Construction
and Chairman of Constructing Excellence



Introduction

The Design Quality Indicator is the pioneering process to evaluate the design quality of buildings. The development of the DQI has been led by CIC with sponsorship from the DTI, CABE, Constructing Excellence and the Strategic Forum for Construction and with support from OGC. The DQI has been developed into an easy to use web tool, **DQI Online**, for everyone involved in the procurement and use of buildings.

Sir John Egan's Strategic Forum for Construction report 'Accelerating Change' (published in September 2002) highlighted the key importance of design quality. The Strategic Forum for Construction, under the Chairmanship of Peter Rogers has declared that use of the DQI should be one of five major headline targets by which the industry's ongoing performance should be judged between 2004 and 2007:

"By the end of 2004, 500 projects will have used the Design Quality Indicators and by the end of 2007, 60% of all publicly funded or PFI projects (having a value in excess of £1 million) and 20% of ALL projects (having a value in excess of £1 million) to utilise the DQIs."

The purpose of the DQI

What is it for?

It has been developed to help all built environment stakeholders gain more value from the design of buildings, and to assist in improving the quality of buildings.

Who is it for?

A non technical device, the DQI can be used by all stakeholders involved in the production and use of buildings, including public and private clients, developers, financiers, design firms, contractors, building managers and occupants.

When can it be used?

The DQI questionnaire encompasses questions which are relevant at any stage in the development of a building and the tool can be revisited and re-used throughout the life of the project.

Ideally the DQI is used at every key stage of the development; it can also be used repeatedly at a particular stage.

There are four versions of the tool and DQI Online automatically adjusts the questions displayed so they are relevant to the particular phase of the project that is being assessed.

The brief version allows the project aspirations to be clearly set, addressing the opinions of the stakeholders, and can be used through strategic briefing stages to detailed brief to set priorities and answer questions such as: What do we want? Where do we want to spend the money?

Mid-design version allows the client and design teams to check whether early aspirations have been met and allows adjustments in focus and quality to be made accordingly. It can be used throughout the design phase when the project can still respond to change.

Ready for occupation version is used immediately before occupation to check whether the brief/original intent has been achieved.

In-use version is used in order to receive feedback from the project team and the building users to help make improvements for the next project, and can lead on to more thorough post-occupancy studies.

How has the DQI been used so far?

The DQI Trailblazing Scheme was launched in July 2002 and was the first opportunity for the construction industry and client organisations to use the DQI tool on projects.

By the end of the Trailblazing Scheme just over 1,000 people had completed the DQI, of which 330 were end users of projects. Case studies highlighting the experiences of four Trailblazers can be found on page 13.

Other design measurement tools

The DQI is the major construction industry design evaluation tool, but it sits alongside other sector specific toolkits to measure the value of design. The DQI has been involved with these other projects, to help create a consensus on design evaluation and produce synergy in approach.

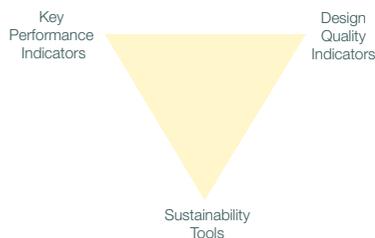
The NHS Estate's Achieving Excellence Design Evaluation Toolkit was produced to assist hospitals developing design specifications and shares a common strategy with the DQI.

Defence Estates' design evaluation method, DEEP, is a focused design study of users of military housing to help users address the quality of their housing.

The DQI was used by MORI for the Audit Commission to survey 95 end users in 18 PFI and non-PFI schools, this led to the publication of 'PFI in Schools; The Quality and Cost of Buildings and Services Provided by Early Private Finance Initiative Schemes'.

Other evaluation tools

The DQI as a product measure has been developed to work with the existing performance measures from Constructing Excellence, in particular the Headline KPIs which assess the process – the delivery of the building. It also complements sustainability tools such as SPeAR, BREEAM and EPIs.



What is the DQI tool?

The DQI tool assists a building's procurement team to define and check the evolution of design quality at key stages in the development process.

There are three parts to the DQI tool:

1. The DQI questionnaire

The DQI questionnaire is a short, simple, non-technical set of statements that collect the views from all stakeholders by looking at the *functionality*, *build quality* and *impact* of buildings:

Functionality is concerned with the way in which the building is designed to be useful and is split into *use*, *access* and *space*

Build quality relates to the performance of a building fabric and is split into *performance*, *engineering* and *construction*

Impact refers to the building's ability to create a sense of place, and to have a positive effect on the local community and environment. It is split into *character and innovation*, *form and materials*, *internal environment* and *urban and social integration*

All projects exist within a context of *finance*, *time*, and *environmental* resources and these are high on the agenda of all building commissioners, financiers and developers. Good design quality enables the better deployment of these resources. The DQI addresses this by advising professional input, and it has been found that the use of a DQI facilitator has proved particularly important at briefing stage.

2. The DQI weightings

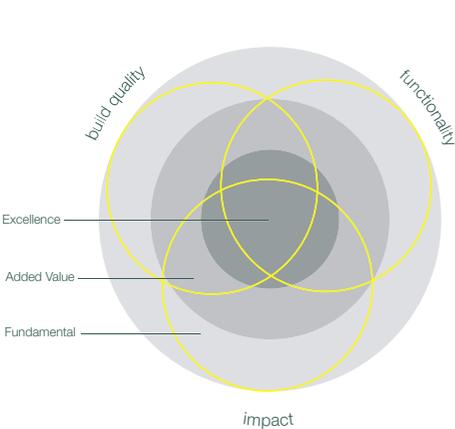
The DQI has two types of weighting, the first allow results to be distorted depending how the respondents judge the success of various aspects of the building.

A separate type of weighting can be applied indicating whether aspects are:

Fundamental relating to factors which the building must achieve in order to fulfil its purpose

Added value relating to factors that will enhance the building's usefulness and pleasure value

Excellence relating to factors that make the design sparkle as a whole and help create a building of distinction

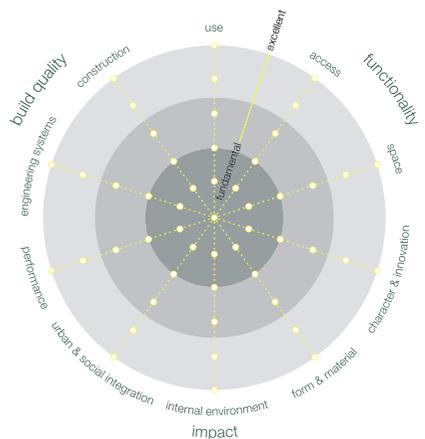


Overlapping quality fields

3. The DQI visualisation

The DQI is graphically presented in a number of ways, which help by highlighting comparisons between:

- Groups of respondents, comparing the views of the buildings eventual users with those of the delivery team
- Stages of a project, from the opinions established at the inception stages of a project, and how these are being achieved by the design
- Schemes within a portfolio of projects



DQI Online

DQI Online is the web based version of the tool. It is straightforward to initiate and easy for respondents to use. The results are obtained instantly and are visualised graphically to help facilitate discussion about project aspirations, and the extent to which they have been met.

The process

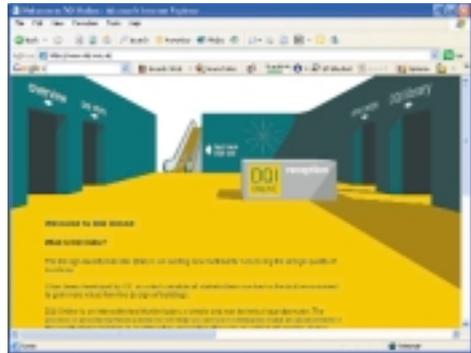
Anyone can initiate use of the DQI, but its use will need to be organised by somebody from the project delivery team. After a project team decides to use the DQI they appoint a DQI leader who registers the assessment and distributes the relevant information to the respondents.

Depending upon the number of stakeholders in a project, the DQI should be completed by 5 to 25 DQI respondents, but there is no limit placed on this number.

We also recommend the use of a DQI facilitator who has been trained to assist in the use of the DQI. There is more about the role of the facilitator on page 10.

Using DQI Online

The tool operates on a pay-as-you-go basis, so it can be used as often as needed, it is also possible to buy a carnet.



Use of the DQI is accessed by project keys. Every assessment will have two 8-digit keys, one for the DQI leader, which registers the project, and one for all the DQI respondents which ensures the data goes to the right project.

The keys can be used to link DQI assessments together to construct the whole DQI project and see how opinions have progressed through the life of the project.

How can I use DQI Online?

DQI Online is designed to be self explanatory with the all guidance available to download. Access may be bought online making the payment using a credit card, or direct from CIC.



Completing DQI Online

There are several ways to complete the DQI. Users so far have indicated that the most beneficial approach is when all respondents complete the tool in a facilitated face-to-face workshop. However, with DQI Online the DQI can also be completed remotely – an approach particularly suitable when using the DQI in the later stages of a project.

Face-to-face

Respondents attend a meeting and are given a presentation by a facilitator on the DQI.

Using internet enabled computers respondents complete the questionnaire online.

The DQI leader obtains the results of the process instantly for discussion in a later part of the meeting.

After the DQI is complete, the facilitator initiates discussion about the results.

Remote use

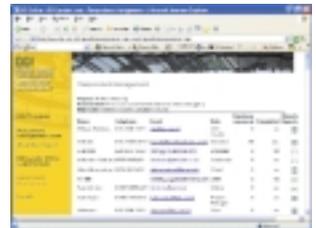
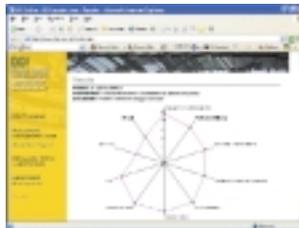
The DQI leader briefs respondents – by telephone, or through a ‘virtual classroom’ on the internet.

The DQI leader emails the key to all respondents.

A DQI facilitator can be used to take respondents through the process over the telephone.

As respondents complete the DQI, the leader receives the results and feeds them back. The team should be able to discuss the results with the facilitator in a telephone conference, a ‘virtual classroom’, or at the next team meeting.

DQI Online is at
www.dqi.org.uk



DQI facilitators

Many construction professionals now realise that good facilitation is essential at the early stages of a project to help develop ideas of stakeholders into workable briefs.

In the early stages of a project use of an independent facilitator is strongly recommended for DQI assessment. CIC is developing a register of fully competent facilitators. Later in the project the DQI leader could act as facilitator if they have undertaken the basic training.

Any user of the DQI can contact CIC for the nomination of a facilitator.

How to become a registered facilitator

Registered facilitators must meet a standard set of skills and competencies.

The first stage of training is to attend an introduction workshop to learn more about the tool and its use. Individuals can then put themselves forward for assessment against the standard and full registration.

Details of introduction workshops around the country can be found on the events page of the DQI website, www.dqi.org.uk.

The future of the DQI

The DQI tool has been developed by multi-disciplinary working group convened by CIC and including representatives from Buro Happold, Colander Consulting, Edward Cullinan Architects, Hoare Lee and Partners, Penoyre and Prasad Architects, and Imperial College London. This working group utilised input from a wide variety of sources to gather the best intelligence on the issue of design quality and how to assess inherent design quality. Since the Trailblazing launch the DQI has been continually improved with input from the users of the tool.

Short-term aims include refining the output to help further enlighten building procurement teams about the design quality of their buildings through use of DQI Online and the rapid feedback that is possible.

Medium-term aims include harvesting data from the accumulated returns so that we can begin to correlate quality with factors in the procurement process. We should also be able to see patterns by examining the data longitudinally – for instance by comparing sets of post-occupancy evaluations with briefing and with design stage evaluations.

The aim for the DQI over the next four years is to become a self-funding tool, used on most projects to help with the delivery of better quality buildings for clients and users and the public.

DQI in use

During the Trailblazer period the DQI has been used by 86 organisations consisting of design firms, public and private clients and contractors, including Buro Happold, The Foreign and Commonwealth Office, Edward Cullinan Architects, Penoyre and Prasad Architects, Skanska, Hoare Lea and Partners, Bennetts Associates Architects, and 17 local authorities.

The DQI has been used on a diverse range of projects; the most popular being education (40% of DQI use) private offices (20%) and social housing (10%).

Complementing work by the Audit Commission who use the DQI to compare PFI and non-PFI schools, local authorities such as Devon CC and Barnsley MBC are using the DQI in bundled PFI projects to help individual schools articulate their needs to design teams and assess the tender outputs.

Case study 1: Strategic briefing stage

The British Library Centre for Conservation

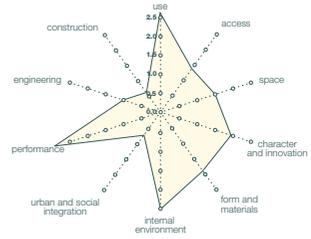
The Centre of Conservation is the capital project that the British Library has undertaken since it moved to St Pancras in the early 1990's.

The decision to use the DQI on this project was initiated by Drivas Jonas, the project managers, and hosted by Davis Langdon & Everest, the cost consultants for the project who were already Trailblazers.

"We followed advice from CABE to use the DQI on this project as the British Library specifically wants to commission a quality building, and we had used the tool before on other projects. The Centre of Conservation is to be a centre of excellence reinforcing the reputation of the British Library as the world's leading institution for restoring and conserving books, manuscripts and sound recordings. The client wants it to be an acclaimed design, but also create a functional environment for the specialist working conditions required for conservation and sound, and also to establish a balanced relationship with the existing flagship building and its surroundings.

We undertook the DQI workshop in a collective way prior to stage A of the two stage design and build contract. The stakeholders who attended were the project sponsor, head of conservation, head of sound, library project architect, project manager, architectural advisor, services and structural engineer with DLE acting as DQI facilitator. We felt that the workshop format was essential to ensure the collation of data and the generation of conversation, and it worked well.

The DQI provides a framework to determine the aspirations and needs for each participant distinguishing individual interpretations of 'design quality'. The different perceptions under the three headings of build quality, functionality and impact worked very well, and at this stage the functionality of the building was identified as important. In addition issues such as the necessity for natural daylight, the level of control users will have on their personal environment, and the aesthetic integration with the British Library were highlighted as key to the stakeholders. The DQI allowed for a language to be initiated between the professional and lay stakeholders.

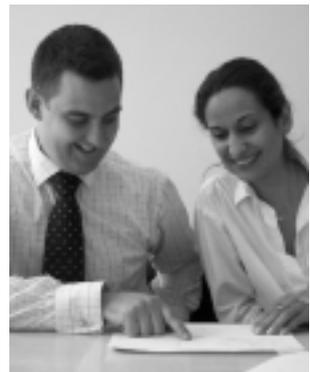


The DQI will be revisited once a designer has been appointed. It will be incorporated as a checklist against the client's original aspirations and will be used as a benchmark throughout the construction process.

DLE and Drivas Jonas both intend to continue the use of the DQI, and hope to incorporate it, when appropriate, in value and risk management studies at project briefing stage."

Maria Kliniotou
Davis Langdon & Everest

Jonathan Gibson
Drivers Jonas



Case study 2: Design briefing stage

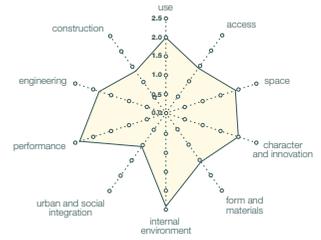
Parliament Hill School

Haverstock Associates are a medium sized architectural firm based in Camden, London. They are committed to design quality and ensuring that their buildings improve the lives of the people who use them. John Jenkins, a founding partner of the practice, initiated Haverstock's signing up as a Trailblazer through his involvement as a CABE Commissioner.

Parliament Hill secondary school is situated in a conservation area near Hampstead Heath, London.

"We won the contract through a competitive tender process with Camden Borough Council. A condition of the project set out by the Local Education Authority (LEA) was that Design Quality Indicators would need to be applied. The LEA brief commissioned the design and supervision of new school accommodation, the scope and brief to be decided after completion of a feasibility study, accessibility audit and curriculum analysis, subject to planning and budgetary constraints.

The workshop took place during the early design stage (RIBA stages A–B) of the project. The participants consisted of the LEA senior technical officer engineer, our mechanical engineer, two LEA project managers and an LEA educational inspector; school facilities manager, planner, governors, teachers, senior school management and students. It proved invaluable in bringing together a range of influential individuals at such an early stage of the project. It made everybody aware of the initial design development that had been undertaken and opened up lines of communication by introducing all the different individuals who would have an involvement with the building at some point in its life time. It also enabled us to carry out further consultation to find out what types of modern buildings people liked and disliked, so we could get an idea of what type of building/s and materials people really felt they wanted to see in the end product. The information gained from this process was a vital part of our brief.



The DQI questionnaire provided a well structured framework for the discussions, and raised issues which could otherwise have been overlooked. It also added value for the client as the DQI enlightened them to the thought process behind our design.

Our next step will be to revisit the DQI results through a further workshop to see if our design solutions match the aspirations and perceptions brought about by the original process. We intend to revisit the DQI process regularly throughout the construction process and will continue to use it on future education projects."

**John Jenkins
Claire Barton**
Haverstock Associates



Case study 3: Mid-design stage

Doha and Chennai Embassies

The Foreign and Commonwealth Office's overseas estate consists of over 4,300 properties ranging from substantial office blocks to garages for vehicles, and includes offices, residential accommodation for staff and amenity facilities. Its global network of Posts play a vital role in promoting the United Kingdom's interests abroad.

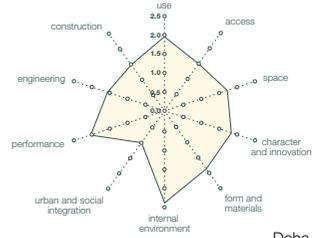
The FCO is fully committed to improving design standards recognising that good design also achieves value for money. This commitment led to the FCO registering as a DQI Trailblazer.

"We have performed the DQI process on two of our newly planned Missions in Doha and Chennai and are committed to using it on our new British Embassy, Warsaw. The process evoked debate and conversation between the many stakeholders as to the buildings' design specifications. Not only do designs need to be fit-for-purpose and take into account the local environment, they also need to fulfil the requirements of other Government Departments represented at the Post. This process ensures effective delivery of 'joined-up' Government. As well as individual FCO Departments, stakeholders may include other Government Departments, such

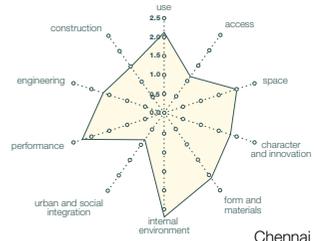
as DFID and the MOD, and also proposed users and local architects engaged on the project.

At Chennai we performed the DQI at the pre-contract design development stage; we held a facilitated workshop in the UK consisting of all relevant stakeholders, the UK project management team, the architect and the structural engineer. Additionally, local users completed the DQI questionnaire.

The workshop generated wide-ranging debate that allowed us to ensure all views and requirements of the stakeholders were incorporated into the design process. It was useful as it allowed opinions to be collated in a generic language and evoked debate about design priorities. We found it identified certain requirements, which ordinarily may not have been considered. A typical example were questionnaires received from users who asked the simple question of where could staff store their bicycles and scooters? In Chennai these are essential forms of transport and the value added to the users by incorporating space is unparalleled! We plan to revisit the DQI results throughout the design and construction process to benchmark the



Doha



Chennai



original design aspirations and to re-evaluate their importance.

From our use of the DQI on the Doha Embassy, which initially became a redundant design due to a change of allocated site, we are now able to use the results from the original scheme as a secondary brief for the new site, and as a checklist to see that the different stakeholder views have not changed.

The FCO is committed to using the DQI. The DQI rating process has recently been included into the key stage review process for individual projects."

Peter Finch
Mike Kelly
FCO

Case study 4: In-use

Peckham Pulse Healthy Living Centre

Southwark Building Design Service is an urban local authority renowned for its approach to the design quality of the environment. This commitment led them to be awarded the 2002 RIBA Local Authority Award.

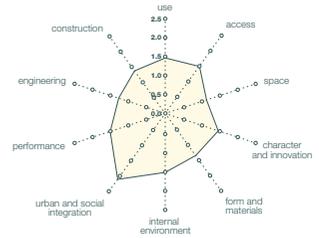
Peckham Pulse Healthy Living Centre was built to encourage local people to get fit and stay healthy. Inspired by the Peckham Pioneer Health Centre of the 1930s, it explores the link between social and physical well being and preventing disease.

“We performed the DQI on Peckham Pulse four years after completion. We thought it would be interesting to see how the building, which is esteemed for design quality, would rate using the tool. It was also an excellent opportunity to get everyone involved in the construction process back together.

The DQI was performed as a facilitated workshop. Through all of our DQI experiences we have found facilitation essential to gain the maximum benefit from the DQI process. I have trained as a facilitator which was cost effective and helped increase the clarity of the DQI to the participants.

The stakeholders who participated were two project managers, an architect, contractor, client, three facilities managers and a user of the centre. Due to the lapse of time since completion it proved difficult reconvening everyone, but despite the initial organisational problems the workshop was thought by everyone to have been a success. The construction team really enjoyed talking to the users as to how the building was working, and they were very enthusiastic to be involved in a DQI process again.

The participants found the DQI process very interesting. They all felt that it was a necessity to identify the delights in a project. The overall design of Peckham Pulse scored highly in the DQI. We did, however manage to identify certain aspects which didn't score well regarding the layout, which came as a surprise, and mechanical services, which may reflect the ensuing maintenance regime rather than the original design. We found the 'weighting' element of the DQI very important in prioritising what were the most important issues. Without this dimension budgetary and planning restraints could not be taken into account.



Using the DQI at the post-occupancy stage on Peckham Pulse has provided us with valuable benchmarking criteria, which we are using on future projects.”

Patricia O'Reilly
Southwark Building
Design Service



Glossary

AEDET National Health Service, Achieving Excellence Design Evaluation Toolkit
BREEAM Building Research Establishment Environmental Assessment Method
CABE Commission for Architecture and the Built Environment – www.cabe.org.uk
CE Constructing Excellence – www.constructingexcellence.org.uk
CIC Construction Industry Council – www.cic.org.uk
DEEP Defence Estates, Design Excellence Evaluation Process
DQI Design Quality Indicator – www.dqi.org.uk
DTI Department for Trade and Industry – www.dti.gov.uk
EPI Environmental Performance Indicators
KPI Key Performance Indicators – www.kpizone.com
OGC Office of Government Commerce – www.ogc.gov.uk
PFI Public Finance Initiative
RIBA Royal Institute of British Architects – www.architecture.com
SPeAR Arup's Sustainable Project Appraisal Routine

For a full list of DQI links please see www.dqi.org.uk



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Construction Industry Council (CIC) is the largest umbrella organisation in construction, bringing together over 50 separate bodies which are professional institutions, trade associations and research organisations. These organisations collectively represent over 500,000 individual professionals and 25,000 businesses engaged in the commissioning, planning, design, production, management and maintenance of the built environment.