Design Quality Indicator

March 2018

DQI for Education: Guidance

Contents

1. What is the Design Quality Indicator

What is the Design Quality Indicator?
The Design Quality Indicator (DQI) is a process for evaluating and improving the design and construction of new buildings and the refurbishment of existing buildings.

DQI focuses on actively involving a wider group of stakeholders in the design of buildings than is usually the case. It involves not only the design and construction teams but all those who will use, finance and be affected by the building.

DQI is designed to set and track design quality at all key stages of a building's development and incorporates post-occupancy feedback. It plays a fundamental role in contributing to the improved design, long term functionality and sustainability of building projects

Why improve 'design quality'?
Evidence shows that children score higher in quality designed schools, patients recover faster in better designed hospitals and well designed neighbourhoods result in lower crime. In short, investing in high quality buildings can improve the welfare of business and society.

DQI in numbers
- In use for 12 years
- Used on over 1,400 projects
- Engaged over 7,000 stakeholders

- Used on 55% new build, 10% refurbishment, 35% mixed.
- Has 3 questions sets to date DQI Generic, DQI for Schools and DQI for Health.

DQI, Recommended by others
'*The Green Book Appraisal and Evaluation in Central Government*' **HM Treasury (2013).**

- DQI improves benchmarking quality
- Identifying opportunities in design.
- Reduce whole life costs
- Increase value of investment
- Capture post occupancy feedback

'*Creating Excellent Buildings: A guide for Clients*' **Commission for Architecture and the Built Environment (2011)**
DQI. 'Highlights strengths and weaknesses' (in design).

'*Achieving Excellence in Construction Procurement Guide: Design Quality*' **Office of Government Commerce (2009)**
DQI 'Increase value of investment' and 'Engage all stakeholders'

DQI for Education
DQI for Education was commission by the Department for Education and launched in 2005. It was used extensively though the Building Schools of the Future programme.

It has been utilised on over 800 educational facilities across the UK to date. The DQI for Schools shares around 90% of indicators with the original DQI but has allowed emphasis to be put on the spaces found in schools, such as teaching spaces, halls, staff areas, school grounds and dining areas, and the relationship between the school and the community.

Creating a common language
The DQI process is an inclusive process that establishes a Briefing Record as a firm platform from which stakeholders can agree common goals, interrogate designs and demand excellence from suppliers.

Representatives from both the supply and the demand side of a project take part and it is in this way that DQI can really help people work together to achieve the best building possible.

The Design Quality Indicator empowers the building's stakeholder community by providing a structured way to talk about their new building. By encouraging effective communication between suppliers and the eventual users of the building, the process helps suppliers deliver excellent buildings attuned more to users' needs

2. What is Design Quality?

The 10 aspects of the design quality framework that DQI established and has become the foundation for the industry is set out below.

Functionality

Functionality is concerned with the arrangement, quantity and inter-relationship of spaces, and how the building is designed to be useful.

1. **Access** is concerned with how easy it is for all people to get to, and around the building
2. **Space** is about the size and interrelationship of the building's rooms or component spaces
3. **Uses** is concerned with how well the building caters for the functions it may accommodate originally and in the future.

Build Quality

Build Quality stems from how well the building is constructed: its structure, fabric, finishes and fittings, its engineering systems, the co-ordination of all these and how well they perform.

4. **Performance** is concerned with the building's mechanical, environmental and safety systems.
5. **Engineering** looks at the quality of the building's components.
6. **Construction** is concerned with how well the building is put together.

Impact

Impact includes a building's ability to delight, to intrigue, to create a sense of place, and uplift the local community and environment. Also the design's contribution to the arts and science of building and architecture.

7. **Urban and Social Integration** is concerned with the relationship of the building with its surroundings
8. **Internal Environment** is concerned with the quality inside the building's envelope. The quantitative aspects of some of these elements are dealt with under Performance
9. **Form and Materials** is concerned with the building's physical composition, scale and configuration within its boundaries
10. **Character and Innovation** is concerned with what people think of the overall building.

Where these aspects overlap there is opportunity for advanced results. Where all three aspects are considered and managed there is the opportunity for 'inspired' quality

FUNCTIONALITY
• Access
• Use
• Space

IMPACT
• Character & Innovation
• Form & Materials
• Internal Environment
• Urban & Social integration

Desired

Inspired

Desired   Desired

BUILD QUALITY
• Performance
• Engineering
• Construction

3. Benefits

General Benefits:
- Enables a simple and objective assessment of design quality
- Clarifies the design process by providing a common language shared by all stakeholders
- Empowers stakeholders to set and manage aspirations
- Ensures user briefing requirements are integrated in later stages
- Engenders sense of ownership of the building
- Simple to incorporate in all common forms of procurement
- Process outcomes are quickly available in visual form to facilitate discussion and agreement
- Helps develop a shared vision for the whole project
- Clarifies the project brief
- Facilitates periodic testing of original aspirations
- Provides a structured framework for a good value design
- Can reduce whole life cost of the building
- Reduces user complaints
- Supports BREEAM and energy efficiency

Users / Occupiers:
- Helps all stakeholders to communicate their needs and aspirations to the designers
- Provides end-user engagement without reliance on expert criteria that people feel excluded from
- Improves functional efficiency of working space
- Increases staff productivity

- Enhances the quality of space

"...DQI raised my knowledge of plans for the project and helped develop a sense of ownership and commitment to the building – it was nice to be asked and I felt like I had more of a stake in the project."

Estates / Facilities Managers:
- Helps develop a more sustainable building
- Incorporates post-occupancy feedback
- Helps avoid duplication, encourages standardisation and associated savings
- Ensures future proofing and avoids costly bespoke solutions
- Assists integration of experience from previous projects across the education sector
- Facilitates participation in briefing discussions and communication with the designers and other stakeholders

"… the DQI session left the architects with a good understanding of what we wanted… we are the people who are left with the building in the end – we have the most at stake in ensuring the building is fit for purpose."

Designers:
- Clarifies the project brief and why it is required
- Minimises design errors
- Environmental issues are highlighted early
- The briefing session provides a structure through which different parties communicate collectively

Project Managers / Delivery partners:
- Manages stakeholder engagement in a structured and recorded way
- Clarifies the project brief
- Enables a comparative assessment of demand and supply side requirements
- Allows useful analysis and performance checks throughout the delivery process

4. DQI Process

Introducing the DQI process to the construction of a new building or the refurbishment of an existing building will dramatically improve the quality of the final product.

The DQI process consists of a series of 5 workshops linked to the industry phases of a building project – Briefing, Concept Design, Detailed Design, Ready for Occupation, and In-use. See Appendix 1.

At each stage there is a formal workshop and it is recommended that a day is allocated to the workshop. These workshops enable DQI to record what participants think about the building or design and present this information in clear and consistent way.

Representatives of the demand and all the supply side stakeholders participate in the workshops. The events are prepared and facilitated by an independent DQI Facilitator who is accredited by the Construction Industry Council.

DQI Questionnaire

At the heart of the process is the DQI questionnaire that is used to structure workshop presentations, discussions and reporting. The questionnaire is a comprehensive, non-technical set of statements under three main headings, Functionality, Build Quality and Impact. Together they measure all the factors applicable to the design quality of most buildings.

The 5 stages are as follows:

Stage 1. Briefing

At the Briefing workshop the stakeholders debate and agree their aspirations for the project. The DQI Facilitator documents their consensus as to what the project should achieve in the form of a Briefing Record. This document contributes to the project design brief and becomes a benchmark against which to evaluate the design at later DQI Stage workshops

Stage 2 & 3 Design

At Concept Design (DQI Stage 2) and Detailed Design (DQI Stage 3) workshop participants will receive a presentation of the current design proposals at a level of detail appropriate to the stage reached. Presentations should cover all design and construction disciplines and be accessible to a lay audience.

The aim of these workshops is to enable participants to compare their respective opinions of the design proposals and to help them identify the strengths and weaknesses of the scheme relative to the targets set in the Briefing Record.

Stage 4. Ready for Occupation

At the Ready for Occupation (stage 4) stage the workshop takes form of a physical walk around the project as well as the workshop setting. As part of this process the project supply team members explain the operation of the occupied building and prepare the demand side for occupations.

Stage 5 In Use

The In Use Assessment (Stage 5) is recommended to be undertaken 12 months after the project has been occupied and at the end of any defect liability period the supply team may have. This is in order for the issues of quality and defects not to be mistaken.

Timing

To gain the greatest benefits DQI should be introduced at an earliest stage possible in the process. However, DQI can equally be introduced at any stage of the project if the client has already commenced the briefing or design.

The outputs from each stage help inform the process of designing a better building.

Accredited

By successfully undertaking all three to five DQI Stages a project receives the Construction Industry Council's DQI badge of Accreditation

At the Workshop

At the assessment workshop the DQI Accredited Facilitators use their knowledge of the DQI process to formulate and deliver the structure needed for meeting interactions to be effective. The Facilitator focuses on group dynamics and interaction, ensuring the workshop's participants focus on the content and the substance of DQI Questions.

Facilitators will also bring a wealth of understanding and experience of the briefing, design and building procurement processes. The DQI Facilitators are experienced senior professionals from within the sector. This will help stakeholders who are unfamiliar with project process, design and construction jargon.

DQI Outputs

It should be noted that participants often comment that simply bringing the stakeholder community together to discuss their respective views of a project, in a way that otherwise seldom happens, is reward in itself for the few hours invested in attending the workshops.

The DQI Facilitator is responsible for applying the DQI analysis tool to the data collected during the workshop to prepare a Workshop Report. This includes simple graphical representations and a narrative that compares the views of different participants and measures stakeholder assessments against their aspirations at Briefing. The Workshop Report will contribute to the development of the design and the success of the final scheme.

5. Which Stakeholders should attend assessments?

DQI focuses the design and construction team on the needs of the end user, resulting in a building tuned to user requirements. It does this by balancing the tradition influence and impact positions of the groups as shown in the table on the right.

Using DQI creates a sense of ownership by engaging users throughout the process from briefing to post occupation. It also helps disseminate feedback and learning for future projects because it captures how improvements are made and helps to develop a more sustainable building in response to user expectations.

Once your project has commissioned the use of DQI, the Accredited Facilitator will work with you to ensure the relevant individuals attend the workshop. This will, in part, depend on the nature of the project, the stage of the assessment and the number of team members who are already associated with it. An example of some of those who are likely to attend one, more, or all of the assessments include:

Organisation's Project Leads
- Project Director
- Project Manager
- Head of Finance
- Head of Estates
- Head of Facilities

Other Stakeholders
- Client representative(s)
- Local Authority representative
- Governors
- Pupils
- Parents Association Representatives
- Teaching Staff
- Management Teams

Organisation's External Advisors
- Cost Advisor
- Architect
- Planner
- Lead contractor
- Any specialist that may be required

Power to influence the building (vertical axis) / Impacted upon the building (horizontal axis)

Designers and contractors	Commissioning client, govenors	Head and senior staff
Planners Enabler	Parents	Students, staff and FM
	Local community	

DECIDE / INVOLVE / INFORM
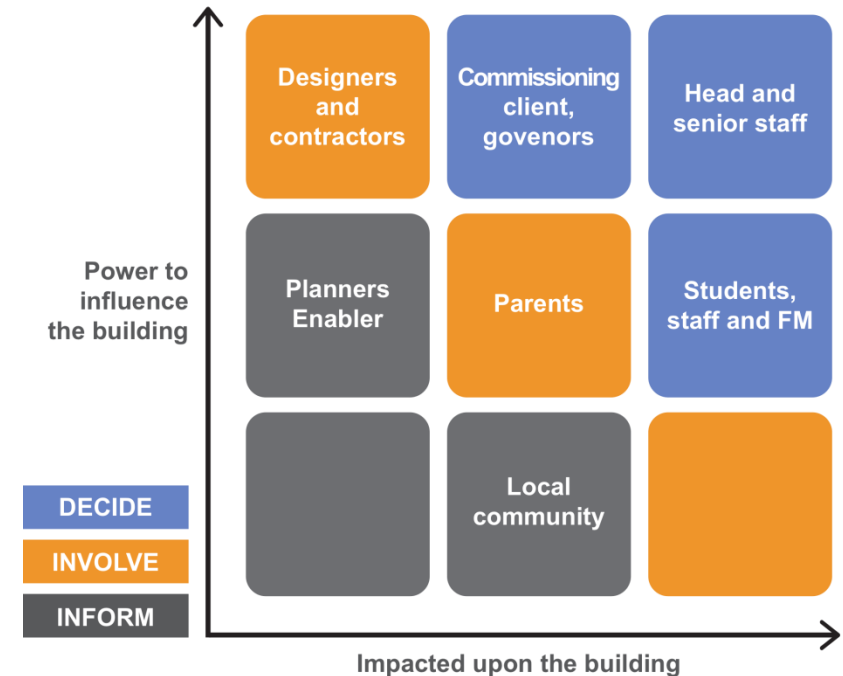
6. DQI Outputs

DQI Briefing

- Sets stakeholder aspirations
- Achieves consensus throughout the group
- Creates a DQI Briefing record of issues and images that have been discussed and that have informed decisions
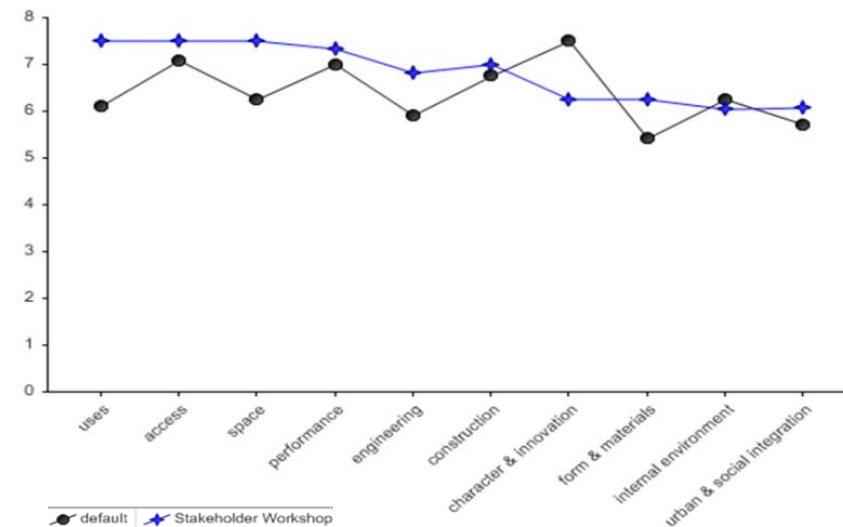
All outputs and notes from the Briefing session are recorded in the DQI Facilitator's report and can be used as part of the output specification documentation.

In the briefing record there are set benchmarks against the framework established by the DQI Working Group. These targets can be adjusted to suit the aspirations of the project. If this is the case the Facilitator will work with you to update selected section questions under the following headings

- **Required**. Compliance with standards and regulations.
- **Desired**. Above plus the setting targets beyond the minimum.
- **Inspired**. Above plus setting exceptional targets.
- **Not applicable**: Where the question is not relevant to the project.

The Briefing target and default line illustrates targets for the project in all the different sections and compares it with the original DQI Benchmark.

DQI Assessment

The DQI outputs at the assessment stages include the following:

- Section Scores
- Section Scores Weighted
- Quality Dimensions
- Supporting Report

Quality Dimensions

The Quality Dimensions graph illustrates the overall DQI priorities and it is scaled between 0% to 100%. It visualises two sets of results; firstly it takes into account the overall weightings allocated to Functionality, Build Quality and Impact. The length of the segment shows the importance of that dimension compared to the others two. Secondly the darker colour of the segment summarises how well the participants scored the building or design against the questions within that dimension.
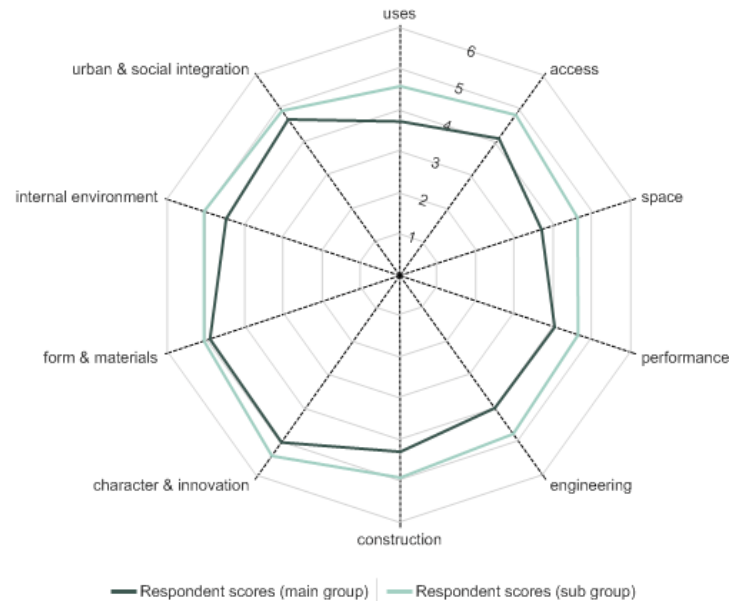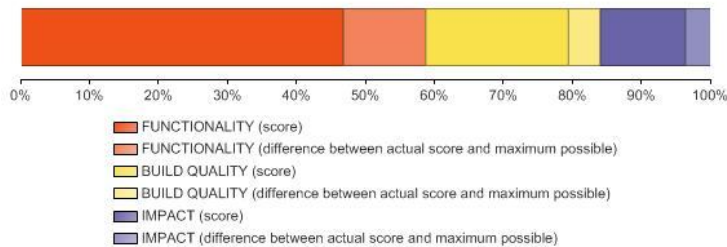
Section Scores

The Section Scores graph is a spider diagram scaled between 0 and 6. This graph displays the average of all the selected participants' answers to each section. The higher the score (the further out) the better the participants felt the design or building was achieving that characteristic. The graph provides an idea of how well a building or design is thought to have performed in each section.

This graph can be set out to show two sets of data (a main group and a sub group). It can be used to see the different scoring of groups such as designers vs users and to highlight where there are significant differences in views.
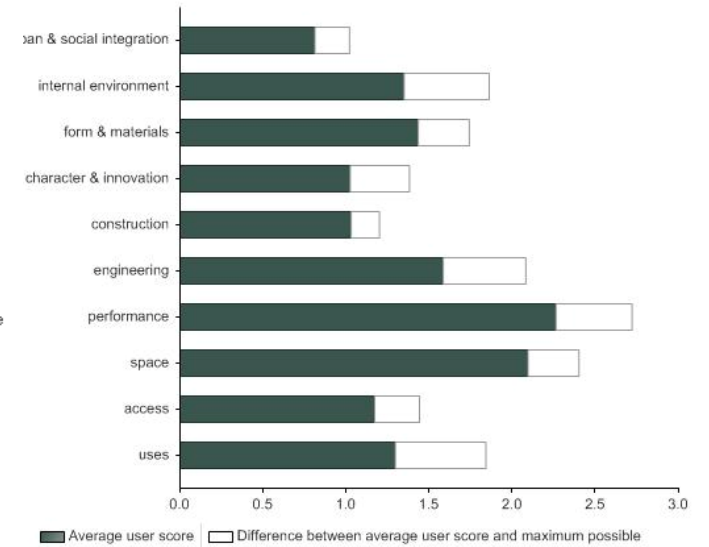
Section Scores, Weighted

The Section Scores Weighted graph is weighted using the data given by participants at the end of the main sections. This graph allows the team to see the most important sections (the overall length of the white bar) and how well the building/design is performing against each section (the dark bar). The project teams are therefore able to see which areas specifically can be improved to deliver great design. The scale of this graph is not set and can vary due to the original weighting provided.

Target line

The Target line graph is generated by comparing the results achieved by the design or building in the DQI Assessment Tool, with the active Briefing Record tags - Required, Desired, Inspired and Not Applicable. This is done using an algorithm which weights the results depending upon the tags; it will not weigh any statements that are tagged Not Applicable.

The target line is the maximum the design or building can achieve. The green bars display the results from the assessment and highlight where a building or a design is:

- doing very well and meeting, or nearly meeting the target line, so participants feel the building is not only achieving what is Required, but excelling in the Desired and Inspired statements to help deliver a building of distinction (example 1)
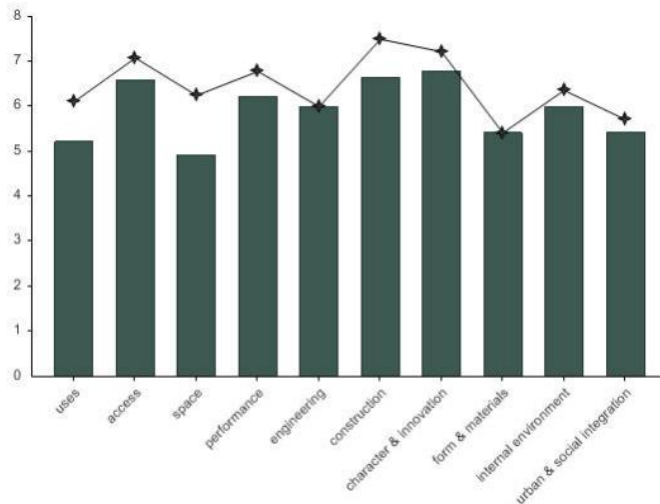
- achieving the Required characteristics to deliver a building which fulfils its purpose (example 2)
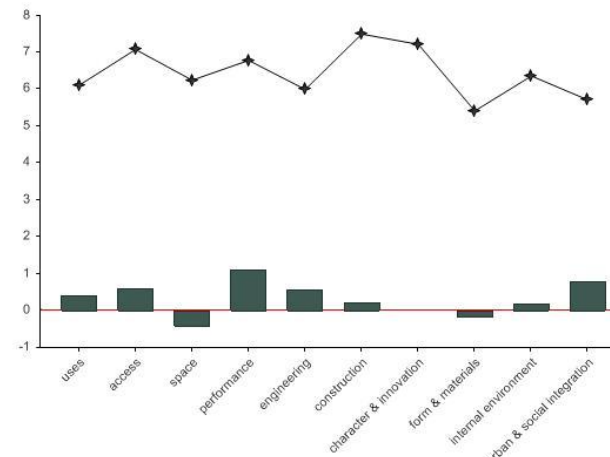
- underachieving on what participants want from their building (example 3)
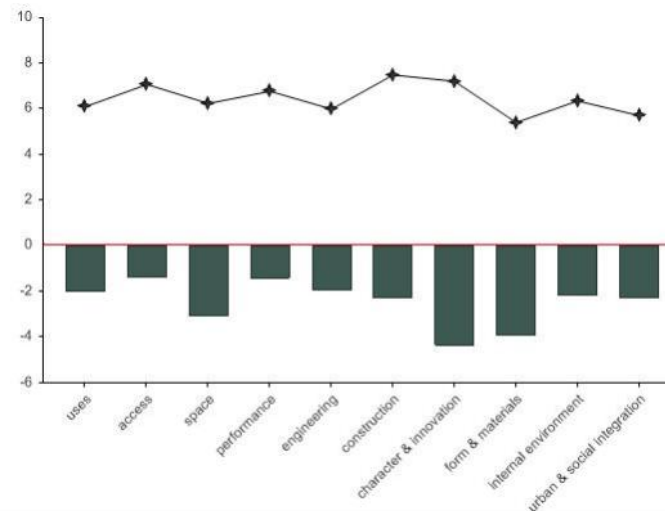
There may be several assessments associated with a particular project and results can be compared.

Any statements that were tagged as Required but which participants felt have not been achieved are listed above the target line graph. This list should be taken seriously and particularly during the design stage these should form an action for design development.

Follow Up Assessments/Actions

The DQI Report is issued to the Client within 14 days of the workshop.

Observations highlighted in the DQI Report are to be followed up by the project team members in order for the ebbs results to be achieved. Each Report forms the basis of the following Assessment.

7. Education Facilities to have used DQI

You will find below some of more than 800 schools that DQI has been used at:

Abacus School, Essex County Council
Abbey Hill School and Performing Arts College, Stoke on Trent Council
Abbotts Ann CE Primary School, Hampshire County Council
Acacias Primary and Levenshulme High School for Girls, Manchester City Council
Acland Burghley School, Camden Borough
Acton High School, London Borough of Ealing
Addey and Stanhope School, Lewisham Council
Air Balloon Hill Primary School, Bristol City Council
Alexandra Park School, Haringey Council
Alfred Slater Primary School, Southwark Council
All Saint's School, Leatherhead, Surrey Council
Allesley Primary School, Coventry City Council
Andrew Marvell School, Hull City Council
Archbishop Sentamu School, Hull City Council
Archibishop Tenison Boys School, London Borough of Lambeth
Ashcroft High School, Bedfordshire County Council
Ashmount SEN School, Leicestershire County Council
Ashton Park School, Bristol City Council
Avenue Primary School, Newham London Borough
Aynsley School, Stoke-on-Trent City Council
Baden Powell and St Peters C of E Middle School, Poole Borough Council
Ballynahinch High School, Down District Council
Bank Leaze Primary School, Bristol City Council
Bankside Primary School, Leeds City Council

Barcroft Primary School, Walsall Metropolitan Borough Council
Barnby Road Primary and Nursery School, Nottingham City Council
Bartley Green School, Birmingham City Council
Barton Hill Primary School Redevelopment, Bristol City Council
Baskerville & Hamilton Schools, Birmingham City Council
Baubigny Schools, States of Guernsey
Beauchamps High School, Essex County Council
Beaumont Leys School, Leicester, Leicestershire County Council
Belfair School, Essex County Council
Benedict Primary School, Merton Council
Bexhill High School, East Sussex County Council
Bingley Grammar School, Bradford Metropolitan District Council
Birches Head High School, Stoke-on-Trent City Council
Birchills Primary School, Walsall Council
Birkenhead High School Academy, Wirral Borough Council
Bishopsgarth School, Stockton-on-Tees Borough Council
Bishopston Primary School, City & County of Swansea
Blackshaw Lane Primary School, Oldham Council
Bognor Regis Primary School, West Sussex County Council
Bolton - Ladybridge & Rumworth Schools, Bolton Council
Bolton - Muslim Girls School, Bolton Council

Bolton - Westhoughton School, Bolton Council
Bordesley Green Girls School, Birmingham City Council
Bow School, London Borough of Tower Hamlets
Bowden House School, East Sussex County Council
Brampton Primary School, Newham Council
Brandon and Esh Winning Primary Schools Projects, Durham County Council
Brannel School, Cornwall Council
Brentfield Primary School, Brent Council
Bridge Farm Primary School Expansion, Bristol City Council
Bridge School Holloway, Islington Council
Bridge School Hungerford, Islington Council
Brigshaw High School, Leeds City Council
Broomfield Secondary School, London Borough of Enfield
Brunswick Park Primary School, London Borough of Barnet
Buckingham Primary School, London Borough of Richmond
Buglawton Hall School, Cheshire West and Chester Council
Burnage High School for Boys, Manchester City Council
Burntwood School, Wandsworth Borough Council
Bushloe High School, Leicestershire County Council
Buttershaw School, Bradford District Council
Bydales School, North Yorkshire County Council
Canklow Woods Primary School, Rotherham Metropolitan Borough Council
Cape Primary School, Sandwell Council

8. Engaging with DQI

Fee structure

To secure a quotation for a DQI Assessment on your project go to www.dqi.org.uk and fill in the 'Request A Quote form'

The quotation will be based on the scale and complexity of the project, with this rated A,B,C or D,

Keeping In Touch

You can keep in touch with us in a number of ways:

Follow our Twitter feed @DQIorg

Email: dqi@cic.org.uk

Telephone: 020 7399 7400

Website

Visit our website www.dqi.org.uk to see case studies and organisations from

Appendix 1 DQI and RIBA Stages

The 5 stages of DQI mapped against the 2013 RIBA
Plan of work is below:

RIBA 🏛	0 Strategic Definition	1 Preparation and Brief	2 Concept Design	3 Developed Design	4 Technical Design	5 Construction	6 Handover and Close Out	7 In Use
Design Quality Indicator	1. Briefing		2. Concept		3. Mid Design	4. Ready for Occupation		5. In-Use

Summary	1. Briefing	2. Concept	3. Mid Design	4. Ready for Occupation	5. In-Use
	The Project Team define and identify their priorities for the project. A language will be developed which they will use throughout the project to communicate with stakeholders, the suppliers and review their designs. The team will form a common understanding of what constitutes success by which they can assess all areas and stages of the project. The team gain a more in-depth understanding of their client's brief and users' needs.	An effective dialogue continues between the members of the team. The range of uses and needs of the building are made aware to all members. Assessment group are able to review designs with the design team. Design teams can explain design decisions and uses of materials to the Assessment group. Design teams gain valuable feedback on their designs and plans. Project design teams remain critically informed of their clients' needs.	Assessment group can re-assess designs to ensure that any outstanding issues have been resolved. Assessment group can be satisfied that the designs will deliver an exceptional project that satisfies the needs of its users and the community. Project suppliers can affirm that the building they will deliver will succeed in reaching the expectations of the users. Construction is ready to begin using designs that have been approved by the assessment group.	Assessment group recognise successes of the project. Building suppliers understand the degree to which the delivered project fulfils the expectations of the Assessment group. Building suppliers and the client gain an understanding of what people think of the building when it is new, which can be usefully compared to opinions once the building has been in use for a period of not less than 12 months.	The impact of the building on the local community and its users is captured and can be communicated to the client. The successes, limitations and lessons of the building project are reviewed understood and recorded. The importance of design quality is understood by all those involved in, and effected by, the project.

Appendix 2 Project Cycle 3 Stages
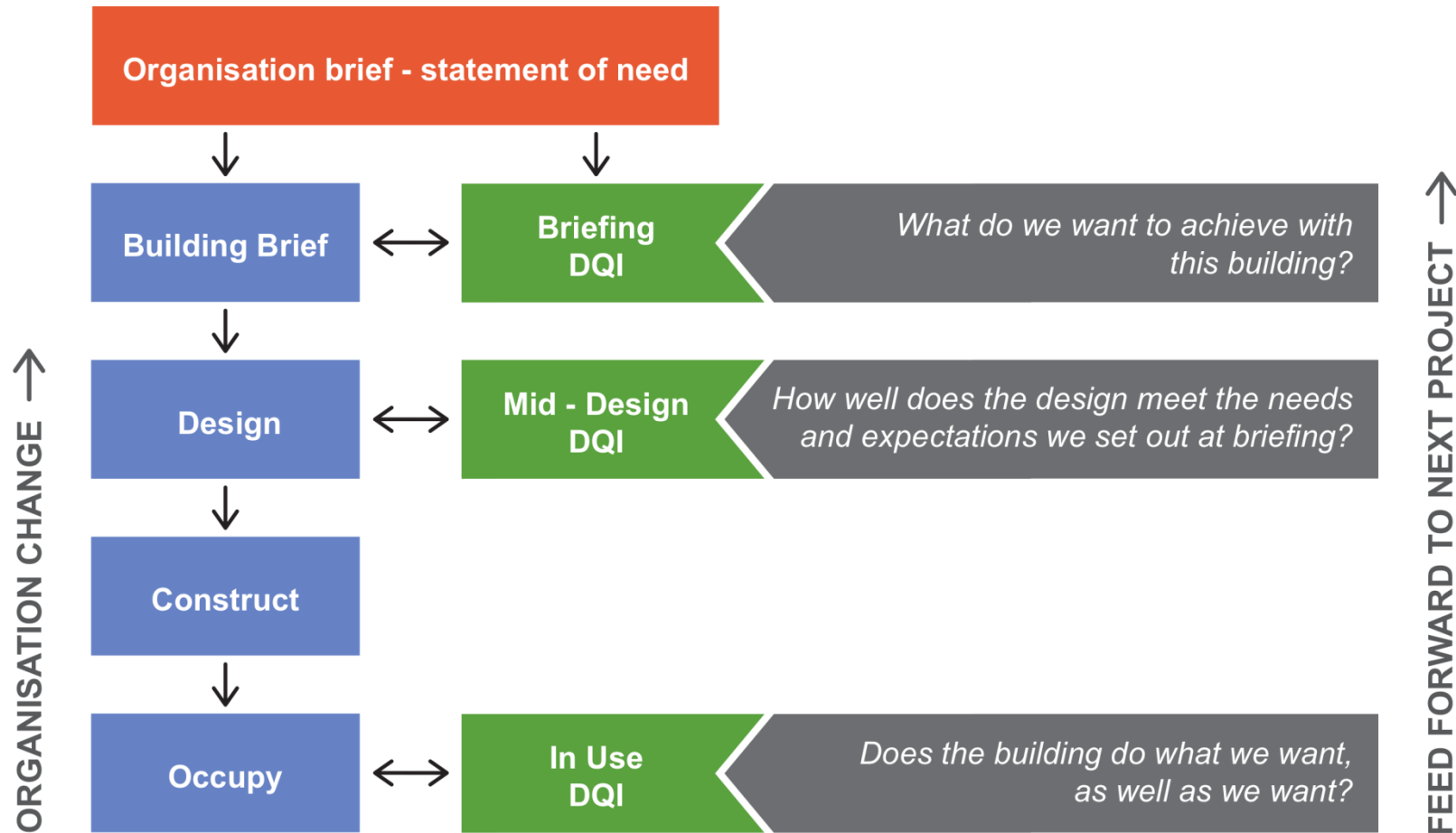
Appendix 3 Project Cycle 5 Stages