

# Assessing secondary school design quality

## Research report



**Published in 2006 by the Commission  
for Architecture and the Built Environment.**

Graphic design: Duffy

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, copied or transmitted without the prior written consent of the publisher except that the material may be photocopied for non-commercial purposes without permission from the publisher.

ISBN 1-84633-010-6

CABE is the government's advisor on architecture, urban design and public space. As a public body, we encourage policymakers to create places that work for people. We help local planners apply national design policy and advise developers and architects, persuading them to put people's needs first. We show public sector clients how to commission buildings that meet the needs of their users. And we seek to inspire the public to demand more from their buildings and spaces. Advising, influencing and inspiring, we work to create well-designed, welcoming places.

The information provided for the adapted version of the design quality indicator for schools results from the subjective views of independent individuals commissioned by CABE for the purposes of producing a report. These individuals visited the relevant school, and it is that individual's interpretation and view of the school at the time of the individual's visit, and their interpretation of comments made by any headteachers, facility managers, or other operators of the schools who provided input to the report.

CABE 1 Kemble Street London WC2B 4AN  
T 020 7070 6700 F 020 7070 6777  
E [enquiries@cabe.org.uk](mailto:enquiries@cabe.org.uk) [www.cabe.org.uk](http://www.cabe.org.uk)

# Contents

<b>Executive summary</b>	1
<b>Part A</b>	9
The context and reasons behind this review	
<b>Part B</b>	20
The current design quality of secondary schools	
<b>Part C</b>	37
What factors most affect the design	
<b>Part D</b>	47
A snapshot of the design quality of BSF pathfinder and wave one projects	
<b>Part E</b>	64
Recommendations and further work	
<b>Glossary</b>	74
<b>Appendices</b>	79

# Executive summary

**The design quality of secondary schools completed over the last five years is not good enough to secure the government's ambition to transform our children's education.**

**While there are signs that design quality is improving, it is not doing so quickly enough. Too many of the mistakes of the past look like being repeated in the first waves of schools being built under the building schools for the future (BSF) programme.**

**This presents a major challenge. Everyone involved in the BSF programme needs to recommit themselves to excellence in design and to redouble their efforts to turn aspirations into reality. Standards will need careful monitoring to ensure that children get the schools they deserve.**

# Introduction

**The government is planning to rebuild or renew every secondary school in England by 2020 in the biggest capital investment in education for 50 years. This really is a once-in-a-lifetime opportunity to improve our children's education.**

The aim is not just to replace crumbling schools with new ones, but to transform the way we learn. This represents a break with the old way of doing things and should change the whole idea of 'school', from a physical place where children are simply taught to one where a community of individuals can share learning experiences and activities.

The vehicle for this transformation is the government's building schools for the future (BSF) programme. The programme explicitly links the quality of school design to the quality of education. As the prime minister said in 2004: 'Of course, what goes on in a school is far more important than the buildings themselves. But the one contributes to the other, and today we are celebrating a stunning new generation in school design. Not just new classrooms. But state-of-the-art ICT, whiteboards, sports facilities, community facilities, public space, facilities for out-of-hours activities. All built around the needs of students, teachers, and the wider community. All geared to develop the talents of each individual young person to the fullest extent.'<sup>1</sup>

However, half of the schools completed in the last five years and which CABA audited have been assessed as 'poor' or 'mediocre'. CABA audited 52 of the 124 completed schools. There is some evidence that things were getting better towards the end of the period covered by the survey. But it is clear that there are not enough schools being built or being designed that are exemplary, inspiring, innovative, or flexibly designed to allow for a diversity of approaches to education in the future.

Although the BSF programme set out to address many of these issues, our experience indicates that many of the BSF schools on the drawing board are facing the same problems as previous programmes.

The Department for Education and Skills (DfES) and Partnerships for Schools (PfS) are putting measures in place, such as standardised contractual documentation and exemplar design guidance, to try to ensure that BSF learns from the experiences of recent projects and produces well-designed schools that meet the needs of educational transformation. We still believe that, as a matter of urgency, the government needs to review the BSF programme and ensure that it is fit for purpose. It should renew its commitment to the rapid and continuous improvement that is needed to ensure that we provide schools fit for the 21st rather than the 20th century.

**'It is clear that there are not enough schools being built or being designed that are exemplary, inspiring, innovative, or flexibly designed to allow for a diversity of approaches to education in the future'**

# About the research

CABE's research into the quality of new secondary schools was in two parts. In the first, we surveyed the quality of recently completed secondary schools and gathered feedback from our team of 'enablers' – leading professionals employed to offer expert advice on scheme proposals – as well as from clients. In the second, CABE enablers were interviewed to provide a snapshot of the design quality of BSF schemes that are still on the drawing board.

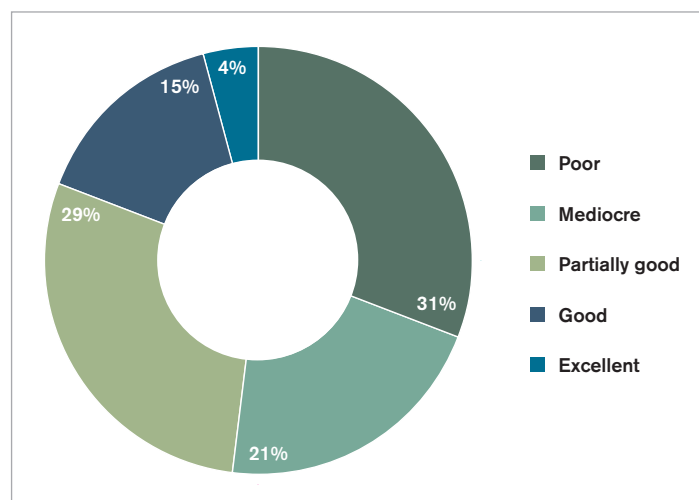
A total of 124 secondary schools were completed between January 2000 and September 2005. CABE assessed the quality of 52 of these, which were selected as a representative sample of schools being built. They were assessed by design experts using a tailored form of the design quality indicator for schools (DQI for schools).<sup>2</sup> The DQI for schools is designed for groups of people to gauge variation of opinions or form a consensus. Developed by CABE in collaboration with the Construction Industry Council, the adapted version introduced additional validation and moderation processes to allow an individual expert to use the indicators to measure design quality.

The assessment is based on 111 indicators presented as statements, grouped into three categories: the way the building is designed to be useful as a school (functionality); its build quality; and its ability to create a sense of place and have an uplifting effect on the local community and environment (impact). Each school was then given an overall rating.

The scope of the audit was necessarily limited and we were not able to include some important factors:

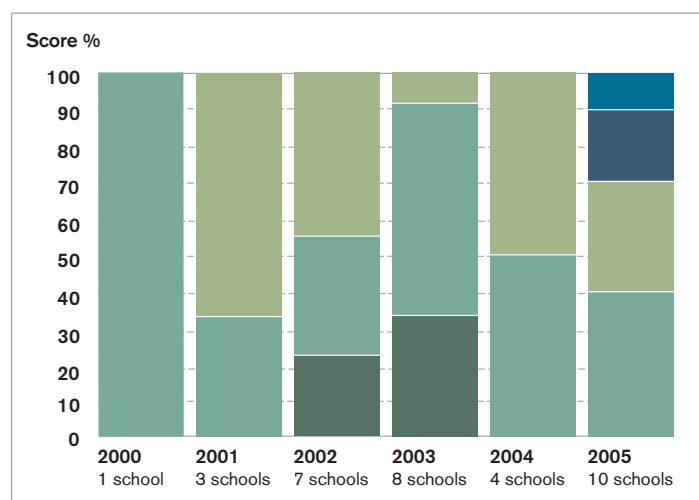
- User perspectives are not explicitly included; rather we have drawn on CABE's expert and professional opinion of the design of school buildings
- We did not gather information on the costs of the schools: accurate breakdowns of figures are not available for PFI schools as this is commercially sensitive information
- We conducted a visual survey of environmental performance and made an assessment of feedback from clients such as facilities managers. The quantitative detail of energy consumption and environmental performance was beyond the scope of our audit.

**Breakdown of schools by quality**  
% of all schools visited by category



**How good are PFI schools?**

% of PFI schools in each quality category by year



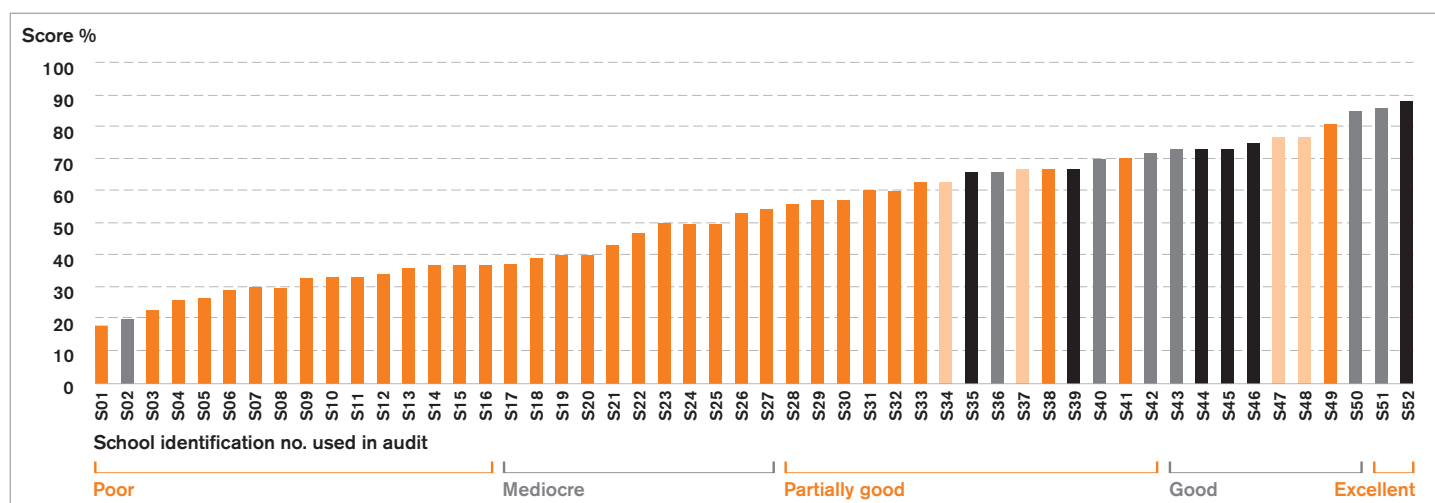
- **Poor** (0% < Functionality, build quality and impact < 30%)
- **Mediocre** (30% < Functionality, build quality and impact < 50%)
- **Partially good** (50% < Functionality, build quality and impact < 70%)
- **Good** (70% < Functionality, build quality and impact < 80%)
- **Excellent** (80% < Functionality, build quality and impact < 100%)

## Key findings from CABE's audit of recently completed schools

- 31 per cent of schools were classified as 'partially good' and 19 per cent were assessed as 'good' or 'excellent'. Half of the 52 schools reviewed were categorised as 'mediocre' or 'poor'.
- All of the good or excellent schools were completed in 2005, which suggests that overall design quality is getting better.
- Generally, schools performed best on issues of functionality and least well on build quality. Individual schools tended to have similar scores on all three categories so that the better schools were functional, well made and an asset to their locality and poor ones were equally poor across all the categories. The schools that were ranked as poor overall performed particularly badly on providing inspiring educational environments.
- With very few exceptions, schools performed badly on transformational design – design that can bring about change in learning techniques – and on basic issues of environmental sustainability such as having natural daylight and ventilation. They performed well on aspects such as size, safety and accessibility that are subject to regulation.
- Any procurement route can produce a good result, although schools using the private finance initiative (PFI) performed less well than other forms of contract. All but one of the lowest 10 schools were procured using PFI, whereas of the top 10 (all the good and excellent schools) only three were procured using PFI.
- There was little variation in the scores achieved by schools in our sample designed by the same architectural practices or built by the same contractor. This suggests that local authorities need to be able to select carefully both the contractor and design team and need to have the ability and authority to do this.
- Clients that had received practical advice from CABE provided positive feedback. In the majority of cases, the CABE enabler was recognised as an invaluable partner in the preparation stage of the school building process.

## How good are new schools?

Average % score for 52 schools visited



### Procurement type

- PFI
- Non PFI (traditional/design and build)
- Enabled PFI
- City academy

## Key findings from CABE's survey of BSF pathfinder and wave one schemes

There is some evidence, based on the qualitative feedback reports from enablers, that designers, contractors and local authorities are rising to the challenge of the BSF programme, with a few promising schemes at design stage. It is worth noting, however, that only a small number of BSF projects have reached 'preferred bidder' status so far. As time goes on, the number of BSF school designs will increase, more new and refurbished buildings will appear, and it will then be possible to make judgements on the design quality with more certainty and assess trends more accurately.

However, on the evidence available, enablers have expressed concern about the design quality of a significant proportion of schemes that are reaching the invitation to negotiate (ITN) or preferred bidder stage. The new Competitive Dialogue Procedure replaces the Competitive Negotiated Procedure under new EU procurement regulations from January 2006 (refer to Appendix I for further details of new items associated with CD). The incentive to produce high-quality designs will be at its peak during the competitive stage of the procurement process. Post-LEP (Local Education Partnership), subsequent projects will be subject to the risk of design quality being watered down, as the drive for efficiency takes place.

According to Partnership for Schools (PfS), 90 per cent of schools will be designed after the competitive sample scheme for a LEP has been decided (see Appendix H). For this reason, the importance of achieving outstanding sample scheme designs cannot be overstated – these will set the standard.

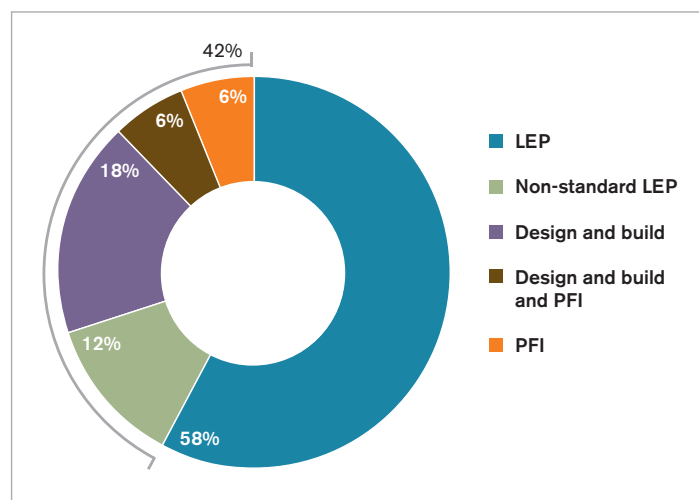
LEP formation is by no means the only procurement and delivery model applied in BSF. In fact, 42 per cent of pathfinder and wave one local authorities are choosing not to form a LEP, despite the guidance from PfS specifying this as their preferred approach. Typically, this is due to a combination of factors including the scale of the BSF investment in the area, existing commitments (such as PFI facilities management), or local preference for an alternative approach.

A key strength of BSF is considered to be the efficiency created by the use of standard procurement and delivery contracts and documentation. It is crucial, therefore, that local authorities are supported in applying non-LEP procurement approaches and that the lessons learned by authorities pursuing alternative procurement approaches are extracted and fed into the procurement advice given to future waves of BSF.

CABE enablers have identified a number of areas of concern where they think the process or ethos of a project is already affecting the potential outcome. Among their concerns are:

- **Getting the initial preparation wrong** In several cases the message about transformational design is getting lost in a procurement process that is more concerned with cost and time. In most cases feasibility studies are not being done properly.
- **Failure to involve the right team** On some projects local authority design champions are ineffective, client design advisors are not acting independently enough and CABE enablers are not being involved early enough.
- **Inadequate procedures for evaluating bids** Our evidence strongly indicates that there is not enough weighting placed on design quality in the guideline PfS scoring system for assessing bidders and that their use and interpretation varies significantly across local authority BSF projects. All bids should go to design review for approval.
- **Failure to apply best practice** The best projects give designers time to work creatively and prepare the best value bid, not the cheapest. The weakest have bidding periods that are too short and leave themselves vulnerable to a bid that superficially looks quite good but is in fact a weak scheme.

### Which procurement approach are local authorities taking for BSF and wave one projects?



# Recommendations

This report's recommendations pose a challenge for everyone involved in the new schools capital programme, from DfES to individual local authorities and schools, and from PfS to CABE itself.

## 1 Invest in preparation

A good building starts with a good brief. A good brief comes from a thorough understanding of the programme, the aspirations of the client and all stakeholders, local constraints such as site conditions and buildings to be retained, and a rigorous testing of possible solutions. Preparation work for BSF projects will need to be even more extensive as schools and local authorities must consider how learning will be transformed, including the massive impact of ICT, and the influence that the extended schools agenda may have on the school buildings and grounds.

- **The educational vision and transformational design**  
DfES should fund the review and analysis of school design briefs as a matter of urgency. They have hardly changed in the last 20 years. They need to reflect new ideas about learning and the demands of transformational design.
- **Feasibility studies**  
Local authorities should undertake mandatory feasibility studies to a consistent, high standard for all sites in a BSF project. This should be part of the strategic business case and outline business case and pre-invitation to negotiate requirements.

Consortia should undertake a mandatory pre-project evaluation of existing or similar schools prior to commencing design work on a project.

## 2 Involve the right team

Our research has shown that a skilled project team significantly impacts on the design quality of a school. Local authorities must ensure that they appoint the highest calibre teams who can champion design quality from the start to the end of the process.

- **Local authority experience**  
Local authorities should make a clear assessment of in-house skills and use outside expertise where necessary.
- **Design champions**  
Local authorities should value and promote the role of design champions, drawing upon the guidance produced by CABE.<sup>3</sup>

- **Client design advisor (CDA) involvement**  
PfS should define a compulsory minimum duration and clear scope of work for CDA involvement in BSF projects. CABE's guidance on the CDA provides further details.<sup>4</sup>
- **CABE enabler involvement**  
DfES should make it mandatory to appoint a CABE enabler at the outset of a BSF project so that they are able to influence key decision-making.
- **Schools' involvement**  
Local authorities should engage with representatives of all potential users in the community in order to assess local and individual needs.  
  
DfES should ensure that practical, individual support is made available to headteachers so that they are familiar with the changing agenda of transformational design, the procurement process, and are aware of the assistance that is available.
- **Design team selection**  
PfS should revise the standard Official Journal of the European Union (OJEU) notice award criteria to state that design teams must have a demonstrable track record of design excellence in complex building projects or the education sector.
- **Provider support**  
DfES should fund the provision of expert seminars, workshops and tours of inspirational school buildings to disseminate best practice to all parties involved in BSF.

## 3 Evaluate proposals

Public money should not be spent on schools that are inadequate. The quality of proposals should be signed off by DfES before the decision to invest is confirmed.

- **Design weighting**  
PfS should change the mandatory criteria upon which bidders are selected to ensure that adequate weighting is given to design quality.
- **Bid information**  
PfS should prepare guidance that lists the mandatory minimum range of necessary drawings and documents required as part of a bidder's submissions to demonstrate that design work is of good quality.
- **DfES-led schools review panel**  
All feasibility work prepared by the local authority and all design proposals prepared by the private sector partner or LEP should be submitted to a DfES-led schools review panel for approval. If the review panel

considers a submission unacceptable, DfES should withhold funding.

Sample or significant projects should be submitted to CABE's design review panel as the 'national centre of excellence for design review' for quality monitoring purposes.

#### ▪ **Whole-life design**

DfES should change funding mechanisms through the use of devolved capital sinking funds, to make lowest whole-life cost mandatory, rather than lowest capital cost.

PfS should develop a core set of mandatory criteria upon which bidders are selected to ensure they demonstrate compliance with building bulletins or best practice and the provision of specific design information regarding issues such as daylighting, glare and acoustics.

The OJEU notice criteria should state that the contract will be given to 'the most economically advantageous tender on a whole-life basis'.

DfES should investigate the robustness of the 'BREEAM' environmental rating system for schools. A similar tool should be developed for use on all refurbished and remodelled schools.

PfS should develop standard output specifications to ensure that schools are designed to minimise energy consumption (which includes provision of controls that are easy to use). Where energy is required, this should be derived from on-site renewables. Given the land and assets schools often possess, they should seek where possible to be net exporters of energy to their local communities.

## 4 Mainstream best practice

Approximately 3,800 new schools will be built through BSF. It is important that a mechanism is established for systematic learning from early projects to ensure the continuous improvement of those in later waves. This applies to both the buildings themselves and the processes used to realise them.

- **Procurement and delivery model** PfS should carry out an analysis of emerging delivery and procurement models (those that vary from the standard LEP, PFI or design and build) and commit to using this information to inform continuous improvement of the BSF process.
- **Industry capacity** PfS should investigate ways to raise the capacity of private sector partners to deliver

education projects by encouraging partnering between organisations with different skills.

PfS should investigate ways of involving small construction companies and localised supply chains to broaden the supply side and develop a local skills base.

- **Programme** PfS should define the minimum time periods which local authorities should allow for in their project programmes for feasibility work for all sites in a BSF project – both prior to release to the market and for key bidder design stages.
- **Affordability** DfES should make it mandatory to use good-quality reference schemes to ensure that local authority cost estimates are more accurate.  
  
DfES should work with architects and quantity surveyors with experience in schools projects to develop a method for comparing costs within BSF that accounts for design quality.
- **Extended services** DfES should ensure it is mandatory to involve other local authority departments and local agencies in early dialogue as a means of co-ordinating and masterplanning the wider agenda of extended services.
- **Funding guidance** DfES should provide further funding guidance linking up regeneration funding, extended services and the 14–19 education agenda.
- **Schools database** DfES should fund the setting up and maintenance of a database on all built or remodelled schools.
- **Post-occupancy evaluation** Every BSF project should include a compulsory post-occupancy evaluation. Results of these should be linked to the award of subsequent contracts.
- **Research collaboration** DfES, CABE and PfS should continue to work together to undertake more in-depth studies of the school building programme when pathfinder and wave one BSF programmes are operational.

- 1 Blair, T, Speech to opening of Capital City Academy, London, on building schools for the future, 2004. Available at: [www.number10.gov.uk/output/Page5353.asp](http://www.number10.gov.uk/output/Page5353.asp)
- 2 The design quality indicator (DQI) is a pioneering process for evaluating design quality of buildings. It can be used by everyone involved in the development process to contribute to improving the quality of our built environment. There is also a version specifically aimed at school buildings, the DQI for schools (DQIfs) Available at: [www.dqi.org.uk/Schools/default.htm](http://www.dqi.org.uk/Schools/default.htm)
- 3 *Local authority design champions*, CABE, 2005, available at [www.cabe.org.uk](http://www.cabe.org.uk) Further information regarding the design champion's role in BSF is available from CABE
- 4 *Building schools for the future: the client design advisor*, CABE/Royal Institute of British Architects, 2005. Available at [www.cabe.org.uk](http://www.cabe.org.uk) Further information regarding the client design advisor's role in BSF is available from CABE.

# Part A: The context and reasons behind this review

The government plans to rebuild every secondary school in England over the next 10 to 15 years.

High-quality design is essential to achieving this programme. This is not just because the quality of the buildings matters but also because the buildings are seen as essential to achieving a transformation in education and learning. Research shows clear links between well-designed schools and academic standards but good design can also impact on the attendance, morale and behaviour of our children. Bad design can have the reverse effect.<sup>1</sup>

The perception is that we are still far from a situation where people accept good design in schools as standard. The study included focus groups of CABE enablers, design professionals whose job is to give independent advice and help raise standards. As one put it: 'What we really need to do is say "we are not going to have any bad buildings". Let's just set the bar and make sure that every school that doesn't get past that bar doesn't get paid for. End of story.' And, as one contributor to the *CABE/RIBA 21st century schools*<sup>2</sup> publication noted: 'As a nation we are currently building a substantial number of new schools. This is welcome news if we are building the right schools, but an accelerating crisis if we are not.'

CABE's audit is in two parts:

- an objective and independent evaluation by design experts of the design quality of a representative sample of recently completed new-build secondary school buildings in England
- an evaluation of the design quality of schemes planned under building schools for the future (BSF) that are still on drawing board.

This section looks at why CABE has conducted this research, and at how design quality is assessed in this report.

# 1.0 The context

**Government plans for new schools are nothing if not ambitious. According to consultation on the capital programme: ‘School buildings should inspire learning. They should nurture every pupil and member of staff. They should be a source of pride and a practical resource for the community.’<sup>3</sup>**

The aim is to rebuild or renew every secondary school in England over the next 10 to 15 years in the biggest education capital programme for 50 years. Little wonder that the programme is routinely described as a once in a lifetime opportunity to improve children’s education.

Good design is vital in achieving this ambitious programme. As prime minister Tony Blair said in 2004:

**‘Of course, what goes on in a school is far more important than the buildings themselves. But the one contributes to the other, and today we are celebrating a stunning new generation in school design. Not just new classrooms. But state-of-the-art ICT, whiteboards, sports facilities, community facilities, public space, facilities for out-of-hours activities. All built around the needs of students, teachers, and the wider community. All geared to develop the talents of each individual young person to the fullest extent’<sup>4</sup>**

## 2.0 The policy background

The Department for Education and Skills (DfES) white paper, *Schools achieving success*<sup>5</sup>, sets out the government's strategy for bringing about sustainable improvement in schools. The department works in partnership across local, regional and central government to help implement the national strategy for neighbourhood renewal, and to deliver on its key commitments:

- Raising achievement in schools and encouraging young people to continue in education and training
- Narrowing achievement gaps – looking at differences that arise between genders, ethnic groups, social classes and place (most and least deprived areas)
- Encouraging young people or adults who were failed by their schools to get back into learning
- Promoting equality of opportunity and outcome for people across all sections of society.

These general aims are matched by specific targets on attainment in key subject areas such as English, maths and ICT.

## 3.0 Capital investment

The government has identified that capital investment is crucial to achieving the world-class standard of education that it aims to deliver. Over the last five years, England has seen massive investment in the education sector, involving an extensive building programme, focusing particularly on secondary education. This programme will accelerate over the next decade.

### 3.1 The private finance initiative

Between 2000 and 2005, the main source of funding from the DfES for new or replacement schools was through the private finance initiative (PFI). PFI is a form of public-private partnership that involves investment by a private consortium, the 'PFI provider'. The PFI provider provides the premises (new, rebuilt or refurbished) and provides facilities management services. PFI projects are funded with a mixture of private equity and senior debt, which is recovered through payment of unitary charges by the local authority. These are in turn largely, but not entirely, funded by DfES through a system of PFI credits. Authorities and schools make up the difference from their own budgets. The unitary payment is a composite charge covering both capital expenditure and the management of school facilities, and is performance-related.

### 3.2 Traditionally procured projects

A minority of schools built over this period used conventional funding. They were mainly procured through design and build contracts (D&B) and traditional contracts such as JCT 98. This expenditure is funded through a mix of capital grant and revenue support from DfES and local authority budgets. Where these contracts involve continuing maintenance charges, these are covered by local capital or revenue budgets.

### 3.3 Academies

Academies form a key part of the government's educational reform programme.

They are funded by:

- Government grants for feasibility and implementation work to cover areas such as project management, consultancy and transitional management and staffing costs

- £2 million capital costs from sponsors with the government providing the balance of the funding in line with the agreed budget. The DfES sets an indicative capital budget for each project
- A general annual grant from the DfES to meet normal running costs.

Because academies receive the bulk of their funding direct from the government, governors have the opportunity to manage a higher proportion of the budget than maintained schools. The government says this means they can direct funds to the priorities of their academy, encouraging greater flexibility and innovation.<sup>6</sup>

### 3.4 Building schools for the future

The building schools for the future (BSF) programme started in 2003/04 with a series of pathfinder projects. It is now a key part of the current strategic and targeted capital programme. The aim of BSF is to rebuild or renew every secondary school in England over an estimated 10–15 year period, subject to future public spending decisions.

In 2005/06, BSF accounted for roughly 40 per cent of capital investment; £2.2 billion out of a total of £5.1 billion. This is split approximately equally between PFI and conventional funding. The funding allocated to individual projects is based on enabling up to 50 per cent of the gross floor area of a local authority's school estate to be new build, 35 per cent major refurbishment and 15 per cent minor refurbishment.

BSF is not merely a building or procurement programme. The intention is to drive reform in the organisation of schooling, teaching and learning, ensuring transformational educational change. At the root of this ambition, BSF attempts to address two key factors:

- Annual bidding rounds for strategic capital investment are removed and funding is allocated to local authorities by wave, based on need
- Local authorities are required to develop a long-term educational vision that encompasses the whole estate and accounts for the extended schools agenda, partnership working with health, surestart and other community resources.

### 3.5 Procurement of school buildings and facilities

The Audit Commission report *PFI in schools*<sup>7</sup>, which assessed quality and cost in early PFI projects (up to 2002) showed that PFI schemes did not all deliver high-quality buildings.

BSF attempts to respond to past criticisms, with a programme of improvements, significantly centred on the establishment of local education partnerships (LEPs) and the national delivery body, Partnerships for Schools (PfS).

### 3.6 The local education partnership

This is a public-private partnership between the LEA, PfS and a suitable private sector partner (PSP).

PfS argues that:

*'This joint venture creates a delivery vehicle where the economic interests of three key stakeholders are aligned to a single corporate objective: successful delivery of the local investment programme. All three can add value: the local authority by feeding in a local strategy perspective; PfS by bringing data and best practice knowledge from the national programme to inform the proposals; and the PSP by bringing commercial acumen, the ability to raise finance and the ability to manage the risks inherent in a large, complex programme.'*

*Transparency and trust is seen as being crucial to the success of the long-term relationship, PfS says a meaningful joint venture (and a meaningful alignment of economic interests) is only possible where a reasonable amount of capital is committed at risk by all shareholders. Relying on contractual provisions would 'make relationships less flexible positions.'*<sup>8</sup>

The DfES will expect local authorities to use the LEP model unless they can demonstrate better value for money and a more effective method of delivering the investment made possible by BSF. The standard LEP model requires the public sector to invest a meaningful amount of equity in the LEP to make the partnership real. If local authorities do not wish to invest equity, they will need to demonstrate how they would secure the same partnering benefits in the absence of the equity investment.

In March 2006, the government announced that PfS would take on responsibility for delivery of the building part of the academies programme. Local authorities that are now on the BSF programme will procure academies through LEPs in the same way as other educational facilities. PfS is procuring a national framework for the design, build and construction of academies and other BSF educational facilities on behalf of those local authorities that are not yet engaged with the BSF programme. A notice was published in the Official Journal of the European Union (OJEU) at the end of March 2006. This raises the prospect of BSF schemes taking place outside of the LEP model.

In the same month, the government also announced a major programme to improve primary schools across the country. Half of all primary schools will be rebuilt or refurbished over the next 15 years. The proposals are outlined in a consultation prospectus which signalled a three-month consultation which closed in mid-June 2006. Funding allocation was being considered via the targeted BSF programme or the flatter formulaic approach used in modernisation or surestart capital.

### 3.7 Partnerships for schools

PfS sees its role as the development of 'central competence and capability'. It will reduce 'demands on key people such as head teachers and help LEAs by standardising much of the procurement and commercial processes that do not need to be different for each scheme'.<sup>9</sup>

# 4.0 Purpose of the audit

**CABE's audit is an objective and independent evaluation by design experts of the design quality of a representative sample of recently completed new-build secondary schools in England as well as projects still on the drawing board.**

The audit seeks to:

## **Establish trends**

- Construct a representative picture of the quality range in recent school design

## **Identify barriers**

- Examine what factors affect the quality of school design

## **Make recommendations**

- Generate a series of key recommendations to help drive the debate about what needs to be done to ensure future schools are well designed
- Ensure that learning from the successes and failures of recent school buildings are embedded in the new thinking of BSF
- Ensure that CABE is providing the most effective support to help public sector clients get the maximum value from their projects through better design.

## 5.0 Audit methodology

CABE's research into the quality of new secondary schools was in two parts. In the first, CABE surveyed the quality of recently completed secondary schools and gathered feedback from enablers and clients. In the second, CABE enablers were interviewed to provide a snapshot of the design quality of BSF schemes that are still on the drawing board.<sup>10</sup>

### 5.1 Methodology for the analysis of the quality of new build secondary schools completed between 2000 and 2005

A total of 124 secondary schools were completed between January 2000 and September 2005. CABE assessed the quality of 52 of these, which were selected as a representative sample of schools being built.

Schools were visited in two tranches, the first between November 2004 and July 2005 as part of CABE's 'schools photography project', using a short adapted version of the DQI for schools (DQIfs)<sup>11</sup> as a quality checklist. The DQIfs was still under development during this period and was not launched until 6 December 2005. The second round of school assessments, during December 2005 and January 2006, were assessed using an evaluation tool adapted from the finalised DQIfs. See Table 1 below.

#### Characteristics of the schools visited

- A total of 52 new build secondary schools, each with a construction cost of at least £7.5 million, were visited
- The oldest school opened in September 2000 and the newest in September 2005

- Schools ranged in size from 500 to just over 2,000 pupils with the majority of schools in the ranges 801–1,000 pupils, and 1,401–1,600 pupils (approximately corresponding to four/five-form entry and seven-form entry)
- The schools were designed by 30 architecture practices and built by 29 firms of contractors
- The schools visited covered all the nine governmental regions, with a spread across urban and rural sites, and tended to follow the pattern where areas of concentrated construction have occurred
- Four of the PFI schools visited were part of CABE's enabling programme. This represents 25 per cent of the CABE enabled schools projects that have been completed.

See Appendices A and B for a detailed description of the selection process for schools for inclusion in this study. See also Figures 1 and 2 overleaf.

### 5.2 Different ways of looking at design

School buildings may be judged by many different groups from many perspectives. Furthermore, responses to a building may be positive, but not necessarily because the school is any better designed. For example, school users involved in developing the brief for their new building understand how it works and feel a sense of ownership. All perspectives are valid, but the scope of the audit was necessarily limited and we were not able to include some important factors:

- User perspectives are not explicitly included; rather we have drawn on CABE's expert and professional opinion of the design of school buildings

Table 1 Numbers of schools in total population and visited

	Number of new build secondary schools (over £7.5m) completed between Jan 2000 – Sep 2005	Proportion of schools by procurement type	Schools visited Nov 2004 – July 2005	Schools visited between Dec 2005 – Jan 2006	Total number of schools visited by CABE	CABE visited schools as % of known population
PFI (including PFI schools enabled by CABE)	69	56%	24	15	39	57%
Non PFI (traditional contract, D&B etc)	31	25%	2	5	7	23%
Academies	24	19%	3	3	6	25%
Total	124	100%	29	23	52	42%

- We did not gather information on the costs of the schools because accurate breakdowns of figures are not available for PFI schools as this is commercially sensitive information
- We carried out a visual survey of environmental performance and made an assessment of feedback from clients such as facilities managers as part of our evaluation. Looking at the quantitative detail of energy consumption and environmental performance was beyond the scope of our audit.

### Evaluation tools for measuring design quality

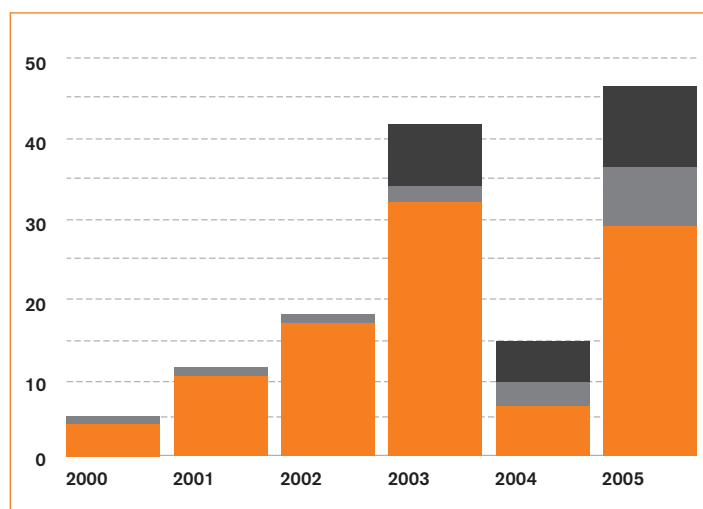
There are a number of tools that have been developed for measuring design quality that evaluate both quantifiable elements of design (such as the level of daylight in a classroom and long-term value for money) and more subjective aspects such as the effective planning of the building.

### Evaluation tool for the 23 schools tranche adapted from DQIfs statements

Twenty three of the 52 schools visited were assessed by design experts using an adapted form of the recently launched design quality indicator for schools (DQIfs).

The DQIfs was adapted by CABE and the Construction Industry Council because it is a tool designed for use by a group of people to gauge variation of opinions or form a consensus and so this version introduced a range of additional validation and moderation processes to allow us to use its indicators as a basis for measuring design quality by an individual expert. Refer to [Appendix C](#) for full details of validation process.

**Figure 1: How many new secondary schools are we building?** No. of new build schools completed per year, since 2000, by procurement type (total = 139)<sup>12</sup>



- PFI
- Non PFI (traditional/design and build)
- Academy

The assessment is based on 111 indicators presented as statements, grouped into three categories: the way the building is designed to be useful as a school (functionality); its build quality; and its ability to create a sense of place, and have an uplifting effect on the local community and environment (impact). These statements broadly relate to CABE's '10 points for a well-designed school'.<sup>13</sup>

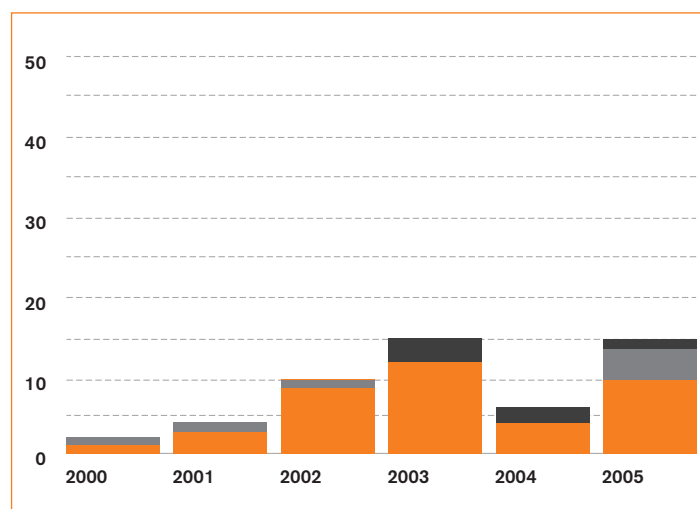
- **Functionality** is concerned with the way in which the building is designed to be useful and is split into access, space and uses
- **Build quality** relates to the performance of a building fabric and is split into performance, engineering services and construction
- **Impact** refers to the building's ability to create a sense of place, and have a positive effect on the local community and environment. It is split into the school in its community, within the school, form, materials, character and innovation.

Typically, (but not always) these follow in a logical progression, from functionality to impact. For example, it is unlikely that a school will be an inspiring place to learn in (impact) if the classrooms are too small (functionality).

### Evaluation tool for the 29 schools photography project tranche adapted from headline DQIfs categories

The remaining 29 of the 52 schools which CABE surveyed were evaluated as part of the schools photography project. These schools were assessed against the three headline DQIfs categories,

**Figure 2: What sort of schools did CABE survey?** Surveyed schools completed per year, since 2000, by procurement type (total = 52)



functionality, build quality and impact, during the development phase of the DQIfs. Scores out of 10 were awarded for each of these categories, and an average percentage score was calculated. Refer to Appendix D for further details of their validation.

▪ **CABE's 10 points for a well-designed school**<sup>14</sup>

This simple list of 10 indicators helps identify a well-designed school and forms a valuable checklist when measuring design quality. It is recognised that they do not in themselves lead to good design, which is a combination of skills and inspiration.

The 10 points are:

- Good clear organisation, an easily legible plan, and full accessibility
- Spaces that are well-proportioned, efficient, fit for purpose and meet the needs of the curriculum
- Circulation that is well organised, and sufficiently generous
- Good environmental conditions throughout, including appropriate levels of natural light and ventilation
- Attractiveness in design, comparable to that found in other quality public buildings, to inspire pupils, staff and parents
- Good use of the site and public presence as a civic building wherever possible to engender local pride
- Attractive external spaces with a good relationship to internal spaces and offering appropriate security and a variety of different settings
- A layout that encourages broad community access and use out of hours
- Robust materials that are attractive, that will weather and wear well and that are environmentally friendly
- Flexible design that will facilitate changes in the curriculum and technology and which allows expansion or contraction in the future where appropriate.

## 5.3 Classification of the schools

### Schools assessed against the full evaluation method

Average percentage scores were calculated for the 23 schools assessed against the list of 111 DQIfs statements. Not answered and don't know responses were excluded from the average.

The range between the worst and the best average scores was 18 per cent to 88 per cent, with a mean score of 52 per cent.

Five quality intervals – excellent, good, partially good, mediocre and poor – were established after consideration of five factors:

- percentage score
- ranking resulting from the scores
- consistency and level of score across the categories functionality, build quality and impact
- CABE's 10 key points for a well-designed school
- discussion at a moderation session where the assessors compared the ranking and scores for all the schools.

Schemes that achieved at least 50 per cent in all of the quality dimensions – functionality, build quality and impact – were considered to have achieved an acceptable quality threshold. This threshold was agreed through rigorous discussion at project steering group meetings and the CABE education enablers' moderation day, ensuring that experienced professionals considered all aspects of design. The threshold of 50 per cent, in terms of the evaluation tool, also demarks the boundary between those schools that achieved more negative answers than positive (under 50 per cent) and those that achieved more positive answers than negative (over 50 per cent).

The five quality intervals are defined as:

- **poor** – schemes that achieved less than a 30 per cent score in all three quality dimensions
- **mediocre** – schemes that achieved between 30 per cent and 50 per cent for the three quality dimensions
- **partially good** – schemes that scored between 50 per cent and 70 per cent in all three quality dimensions. This was a high proportion of the acceptable schools, which were too inconsistent in their design approach to be considered genuinely well designed
- **good** – achieving above 70 per cent for each of the three in all three quality dimensions
- **excellent** – schemes with all three categories scoring above 80 per cent in all three quality dimensions

The complete methodology used to measure the design quality of new build secondary schools completed between 2000 and 2005 is as follows:

- **Schools cataloguing project**  
Compiling an up-to-date database of current school building work covering new build secondary school buildings in England built under a number of procurement routes across a broad spread of regions between 2000 and 2005. Refer to Appendix A for full details.
- **Validation of the evaluation tool (adapted from the DQI for schools)**  
A visit and assessment of a single control school by 25 CAFE enablers, and analysis of the responses for variation or inconsistency. Refer to Appendix C for full details.
- **Assessment of a representative sample of schools by expert professionals**  
Visits to a representative sample of 23 schools (selected from the database) by nine CAFE enablers: schools assessed using the evaluation tool (adapted from the DQI for schools). Refer to Appendix B for details of sample size and selection.
- **Analysis of a sample of schools selected from the CAFE schools photography project**  
Visits to a representative sample of 29 schools (selected from the database) by a single CAFE enabler: schools assessed using a shortened version of the evaluation tool (adapted from the DQI for schools).
- **Moderation session**  
Photographic and verbal presentation of projects visited. Discussion and moderation of the assessment process, the resulting scores, ranking and banding of schools with assessors. Refer to Appendices C and D for details of validation and quality band ranking.
- **Trend analysis under a series of key theme headings**  
Themes derived from CAFE's 10 key points for a well-designed school. Based on moderation session feedback for the schools assessed, identification of trends occurring under theme headings

## 5.4 Methodology for the analysis of what factors most affect the design quality of schools completed between 2000 and 2005

The methodology used to analyse the factors most affecting the design of quality of schools is as follows:

- **The use of the evaluation process described in 5.1**  
As the schools assessed included a range of schools designed using a variety of procurement types, designed by different design teams and contractors, it was possible to analyse these findings.
- **Web-based survey with all CAFE education enablers**  
Survey sent to all 39 CAFE education enablers to gather quantitative data on their views on the pre-BSF (2000–2005) and the BSF school building programmes, procurement processes and the impact of the CAFE enabling programme.
- **Focus group with enablers**  
Focus group with eight enablers to gather qualitative data and opinions on the pre-BSF (2000–2005) and BSF school building programmes.
- **In-depth interviews with clients**  
20 in-depth interviews with CAFE enabling clients of the pre-BSF (2000–2005) school building programme including both local authority facilities managers and head teachers.

## 5.5 Methodology for the analysis of the design quality and other aspects of pathfinder and wave one BSF projects and what factors most affect the design quality

BSF projects are still on the drawing board, therefore it was not possible to use the same methodology as in the other parts of the study to analyse the design quality of the built product. However, we were able to ask our expert enablers some similar questions to those that we asked them about completed buildings, regarding the design quality of pathfinder and BSF wave one. Refer to Part D for full details.

The methodology used to analyse the design quality of BSF pathfinder and wave one projects and what factors most affect the design quality is as follows:

- **Written feedback from enablers regarding BSF projects**  
Written feedback from all enablers who are currently enabling a pathfinder or wave one BSF project.
- **Trend analysis under a series of key theme headings**  
Themes drawn out from the enabler feedback regarding what factors most affect design quality. Identification of trends occurring under theme headings.

## 5.6 CABE's enabling programme

CABE's 'enabling' programme provides hands-on advice to public sector bodies that are procuring new buildings or masterplans, giving strategic advice on how to help get better value from their projects through better design. The advice covers issues such as project vision, client resources, briefing and competitive selection of design and developer teams.

The enabling service also contributes to CABE's overall understanding of procurement processes and best practice in built environment and public space projects. We disseminate those lessons to larger audiences through publications, training and workshops.

CABE's enabling buildings team directs a significant part of their resources towards education issues. The CABE staff team is complemented by expert consultant 'enablers', who we pay to provide 12 days support to a local authority at the early stage of a BSF project, as part of a service level agreement with the DfES. Before BSF, working with the relevant local authority, CABE enabled 27 PFI 'clusters' between 2000 and 2003. These clusters are likely to build 110 secondary schools, the majority of which are yet to open.

- 1 *The value of good design: how buildings and spaces create economic and social value*, CABE, 2003. *An empirical assessment of the learning and other impacts of schools capital investment*, Department for Education and Skills and Price Waterhouse Coopers, 2003, The Stationery Office
- 2 *21st century schools: learning environments for the future*, CABE 2003. *Building futures*, CABE/RIBA, 2004
- 3 *Building schools for the future: consultation on a new approach to capital investment*, Department for Education and Skills, 2003
- 4 Blair, T, speech to opening of Capital City Academy, London, on building schools for the future, 2004
- 5 *Schools achieving success*, Department for Education and Skills, 2003
- 6 *Funding*  
Available at: [www.standards.dfes.gov.uk/academies/what\\_are\\_academies/funding/?version=1](http://www.standards.dfes.gov.uk/academies/what_are_academies/funding/?version=1)
- 7 *PFI in schools*, Audit Commission, 2003
- 8 *The local education partnership (LEP) model: volume 3: frequently asked questions* Partnerships for Schools, 2004. Available at: [www.teachernet.gov.uk/bsf](http://www.teachernet.gov.uk/bsf)
- 9 *The local education partnership (LEP) model: volume 3: frequently asked questions*, Partnerships for Schools, 2004. Available at: [www.teachernet.gov.uk/bsf](http://www.teachernet.gov.uk/bsf)
- 10 Refer to Appendices A and B for further details
- 11 The DQI is a generic toolkit which can be used with all types of building. There is also a version specifically aimed at school buildings, the DQI for schools (DQIfs)  
Available at: [www.dqi.org.uk/Schools/default.htm](http://www.dqi.org.uk/Schools/default.htm)
- 12 The total number of 139 secondary schools constructed was reduced to a sample population for the survey of 124 by excluding schemes with a capital cost of less than £7.5m and schemes that consisted of a single new building, such as a sports hall or performing arts space
- 13 Ten points first appeared in: *Client guide: achieving well designed schools through PFI*, CABE/RIBA Building, 2002
- 14 *Client guide: achieving well designed schools through PFI*, CABE/RIBA Building, 2002, p.8.

# Part B: The design quality of new build secondary schools completed between 2000 and 2005

**This section presents detailed evidence about the quality of secondary schools completed between 2000 and 2005. As well as the overall findings, it looks at areas where the schools performed best and worst and also discusses emerging trends in school design under theme headings.**

**The audit places the schools in one of five categories – excellent, good, partially good, mediocre and poor – and summarises their performance in the three headline areas of functionality (how well the building works as a school), build quality and impact (its ability to create a sense of place).**

**Key themes emerging from the audit, such as the importance of flexibility and adaptability so that schools can respond to changes in teaching and learning, are analysed so that lessons can be learned for the future.**

**Finally, this part of the report asks whether the design of schools is improving by looking at the quality of those completed in 2005 compared to the quality of those finished in the four previous years.**

**‘There are many school buildings that, while functioning well, are not interesting places for children or adults to be. We need to develop new ideas for school design that are exciting and really work. To deliver the best and most effective education, school buildings need to be designed so that they stimulate children’s imaginations and reflect advances in technology.’**

**Mukund Patel, DfES  
(Speaking at a Sorrell Foundation ‘Joinedupdesignforschools’ event)'**

# 1.0 What makes a good school?

Before moving to the detailed evidence about the current quality of secondary schools, it is worth asking what makes a good school. The best people to judge that are the people who have to use them. From the responses we gained from interviews with clients, including headteachers and local authority

facilities managers, Table 2 below shows the attributes that count. We also asked our CABE enablers to name three key areas where design quality of schools could be improved. Their responses are also shown below and are directly comparable to the responses of the client.

**Table 2: What makes a good school? Client and enabler expectations**

Client responses	Enabler responses
<p>■ <b>Sense of place</b></p> <p>A school will be 'inspiring' and 'welcoming'. It will have visual impact, for example an attractive entrance. It will have innovative teaching spaces and a well-placed dining area. Other definitions are 'the way it fits into the community and sits on the site' and 'the way it interacts with the local neighbourhood'.</p>	<p>■ <b>Sense of place</b></p> <p>'Greater focus on the needs of pupils and teachers'</p> <p>'Provision of a heart to the school'</p> <p>'The need for a generous place in which to be'</p> <p>'Making them pupil friendly'</p> <p>'More sharing of facilities and collaboration between schools and other organisations, ie "community in the school" rather than school in the community.'</p>
<p>■ <b>Ease of movement</b></p> <p>A good school will have wide corridors. It will be a building that facilitates easy and logical movement without congestion and has clear sight lines. External spaces will be accessible and there will be separation between cars and pedestrians.</p>	<p>■ <b>Ease of movement</b></p> <p>'Too much reliance on BB98 [<i>Building bulletin 98</i>] results in cellular accommodation and narrow corridors'</p> <p>'Better circulation and social spaces'</p> <p>'Circulation/social space'</p> <p>'Circulation'</p>
<p>■ <b>Functionality</b></p> <p>Good-sized classrooms will have adequate natural and artificial lighting. Their shape will be right for their purpose, for example, very large spaces for arts and design teaching. The school will be a building that encourages good behaviour and is easily managed – 'no nooks and crannies allowing unsociable things to happen' – with active supervision. It will have integrated technology with built-in projectors and television screens.</p>	<p>■ <b>Functionality</b></p> <p>'Shared useful space – banish the corridor!'</p> <p>'ICT interfaces with building'</p> <p>'Classroom environment'</p> <p>'Internal environment'</p> <p>'Creative play space'</p> <p>'External play spaces and recreation'</p>
<p>■ <b>Balance</b></p> <p>There will be a good balance between the functional aspects of the school (teaching areas) and social spaces. The outside is as important as the inside and there will be good links between the two.</p>	<p>■ <b>Balance</b></p> <p>'Spatial variety'</p> <p>'A clear and well-understood relationship with outside'</p> <p>'Interior/exterior relationship'</p>
<p>■ <b>Flexibility</b></p> <p>It will have spaces that can be used for different purposes, allowing teachers to teach mixed classes. The spaces might have sliding doors or be able to be extended for community use. Buildings will be 'future-proofed' and able to accommodate future changes in delivering education.</p>	<p>■ <b>Flexibility</b></p> <p>'Flexibility'</p> <p>'Ensuring they are flexible and adaptable'</p> <p>'Improvisational space (in and outside)'</p>
<p>■ <b>Comfort</b></p> <p>Quality of furnishings, storage for resources and materials and colour schemes will all have been considered.</p>	<p>■ <b>Comfort</b></p> <p>'Solidity'</p> <p>'Internal finishes'</p> <p>'Better finishes and detailing'</p> <p>'Ensuring they are robustly built out of good quality materials'</p> <p>'External works'</p>
<p>■ <b>Green and sustainable</b></p> <p>The school will use natural light and ventilation, consider alternative forms of energy, and be built using well detailed robust materials from sustainable sources.</p>	<p>■ <b>Green and sustainable</b></p> <p>'Daylighting'</p> <p>'Light and ventilation'</p> <p>'Better environmental conditions in classrooms'</p> <p>'Clearer understanding of sustainability'</p> <p>'Sustainable solutions'.</p>

## 1.1 How important is design quality to LEAs and teachers?

All of the local authority clients and headteachers interviewed regarded design quality as imperative to achieving higher educational attainment. Some local authority interviewees made a specific point of giving design a very high weighting in the evaluation of bidders – up to 40 per cent or 50 per cent compared to other factors such as legal issues and financing. Having a well-designed brand new building was perceived as making the school more attractive to potential pupils and as a means to increasing admissions.

The headteachers interviewed placed emphasis on the importance of the internal design of the school building. One in particular stressed the importance of aesthetics and ergonomics as well as the quality of lighting and colour schemes. He felt that not enough attention was paid to the quality of the furnishings installed into classrooms:

**‘Often we look at the design of a classroom but forget about more subtle factors such as how it would make people feel’**

However, there was some resistance amongst interviewees to a standard approach to school design. They felt it was important that the school design fitted the ethos of the school or the vision of headteachers, pupils and the LEA.

# 2.0 Headline findings

## 2.1 The overall verdict: the 23 schools tranche assessed using the evaluation tool adapted from DQIfs statements

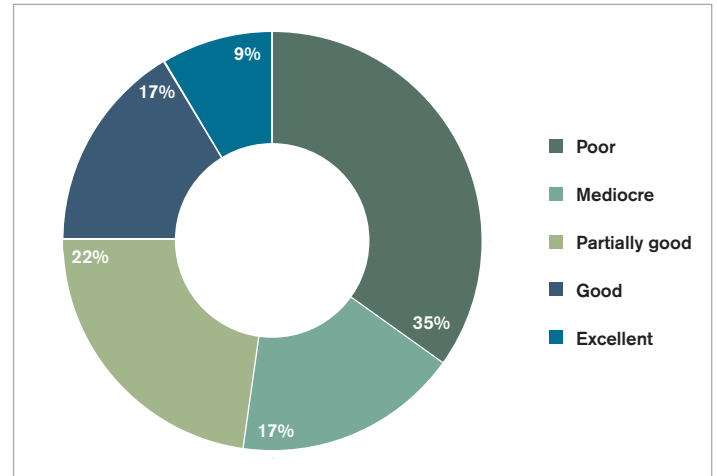
Applying the five quality intervals, the study found that half of the schools recently completed are either poor or mediocre. Well-designed schools are in the minority. See Figure 3.

## 2.2 The overall verdict: the 29 schools photography project tranche assessed using the evaluation tool adapted from headline DQIfs categories

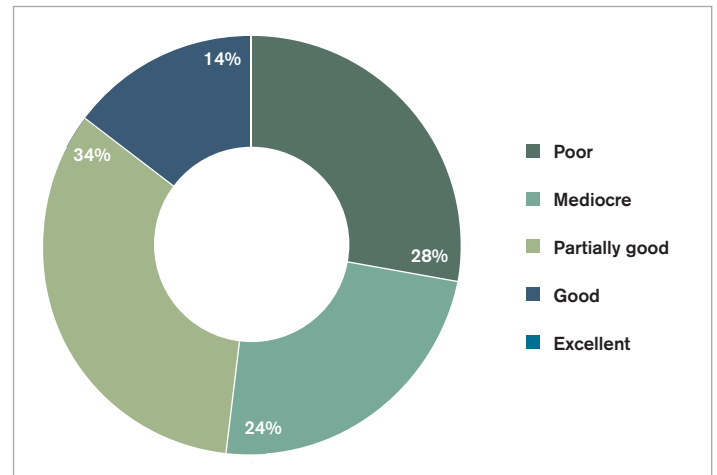
A similar approach was taken to apply the five quality intervals to the 29 schools assessment and the results were similar. See Figure 4.

From the representative proportion and consistency of the total sample of 52 schools, it is reasonable to infer that the total population of 124 schools will share similar characteristics, and that the proportion of schools that are excellent, good, partially good, mediocre or poor will be comparable. See Figure 5.

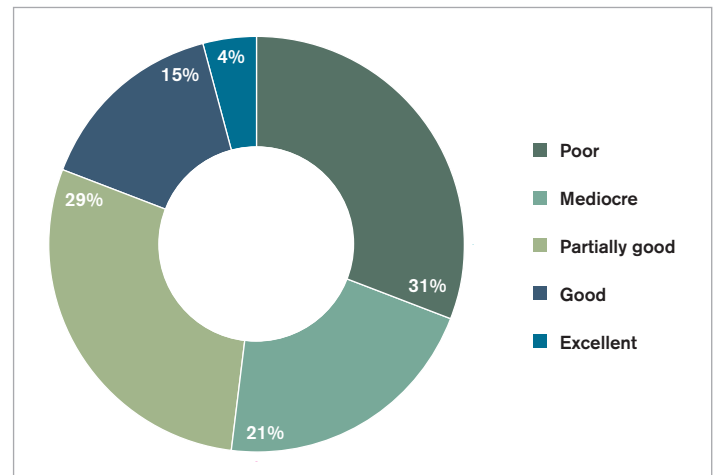
**Figure 3: Breakdown of schools by quality**  
% schools given full quality assessment by category



**Figure 4: Breakdown of schools by quality**  
% of schools given short quality assessment



**Figure 5: Breakdown of schools by quality**  
% of all schools visited by category



- **Poor** (0% < Functionality, build quality and impact < 30%)
- **Mediocre** (30% < Functionality, build quality and impact < 50%)
- **Partially good** (50% < Functionality, build quality and impact < 70%)
- **Good** (70% < Functionality, build quality and impact < 80%)
- **Excellent** (80% < Functionality, build quality and impact < 100%)

# 3.0 What is the relation between functionality, build quality and impact?

Good design consists of the interaction of many characteristics. The 111 DQIfs statements reflect this in the spread of questions in the three quality dimensions: functionality, build quality, and impact. Figure 6 shows the average percentage scores for the 23 schools assessment and Figure 7 plots the change in the score for each of the quality dimensions as the overall percentage score increases. The general trend of these lines illustrates several key findings.

## 3.1 Everything counts

Good design is not attributable to one specific element. It is a combined effect resulting from all aspects of design being delivered. All three quality dimension lines have a similarly positive gradient and converge slightly as overall design quality increases.

## 3.2 Better design means better building

Build quality of schools improves as the overall design quality of a school increases. In poorly designed schools this could suggest failure to deliver the specification or 'value engineering' to find alternative materials. The build quality line generally exhibits a shallower gradient and is consistently lower than the other lines.

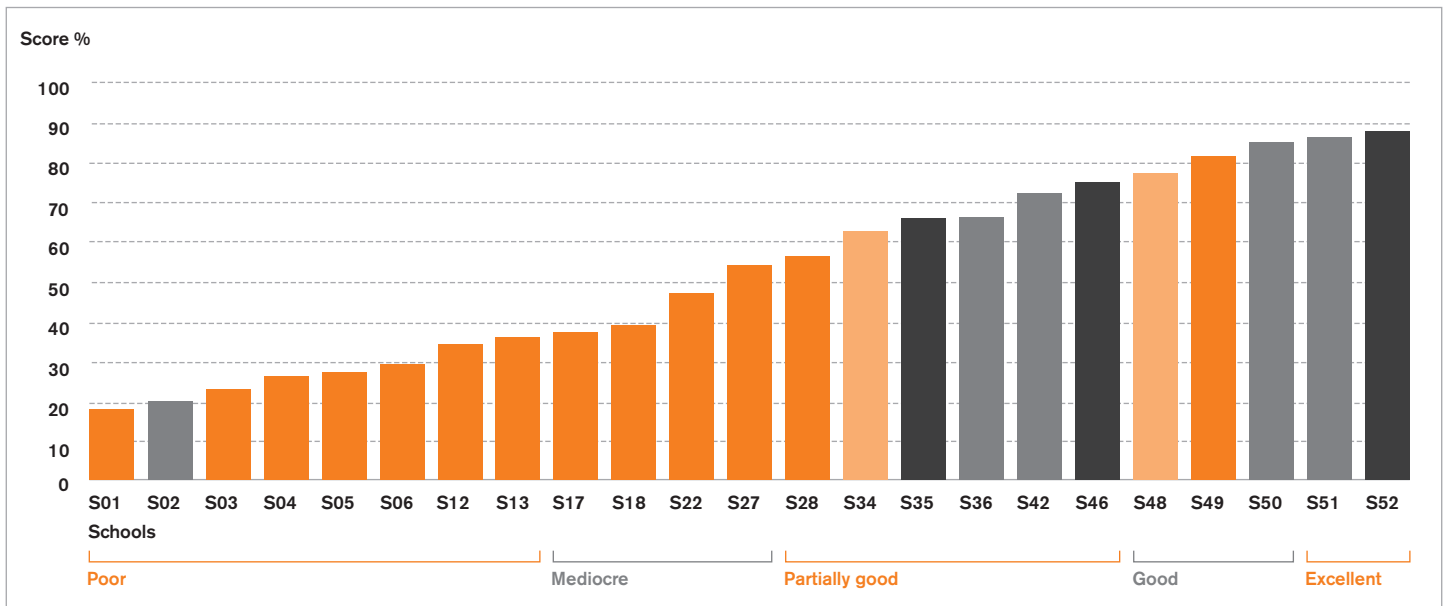
## 3.3 Materials matter

Aspects of design quality relating to robustness and durability of materials, health and safety and lifetime costs are the weakest performing. The build quality line is consistently the lowest scoring.

## 3.4 Get the basics right

Basic elements of school design such as layout, space standards and flexibility for changes in use are in some instances not being delivered. Facets of functionality of school design are the most inconsistent. The functionality line shows the greatest variation in gradient.

**Figure 6: How good are new schools?**  
Average % scores for schools given full quality assessment



**Procurement type**

- PFI
- Non PFI (traditional/design and build)
- Enabled PFI
- City academy

### 3.5 Impact makes the difference

For better-designed schools, inspirational aspects of design have a greater influence on the overall perception of the school's quality. This includes both physical aspects such as daylighting and the more intangible aspects of the impact of the school on its surrounding community through a sense of local ownership and welcome. The impact line shows the steepest gradient of the three dimensions and starts to exceed the other lines for good and excellent schools.

### 3.6 Be consistent

A well-designed school has consistency across design elements and the ability to accommodate trade-offs between various requirements to produce a well-rounded design. Mediocre schools exhibited the widest variation between the three characteristics. There were schools in each of the quality bands that illustrated a similar spread, but this variation reduced as the quality

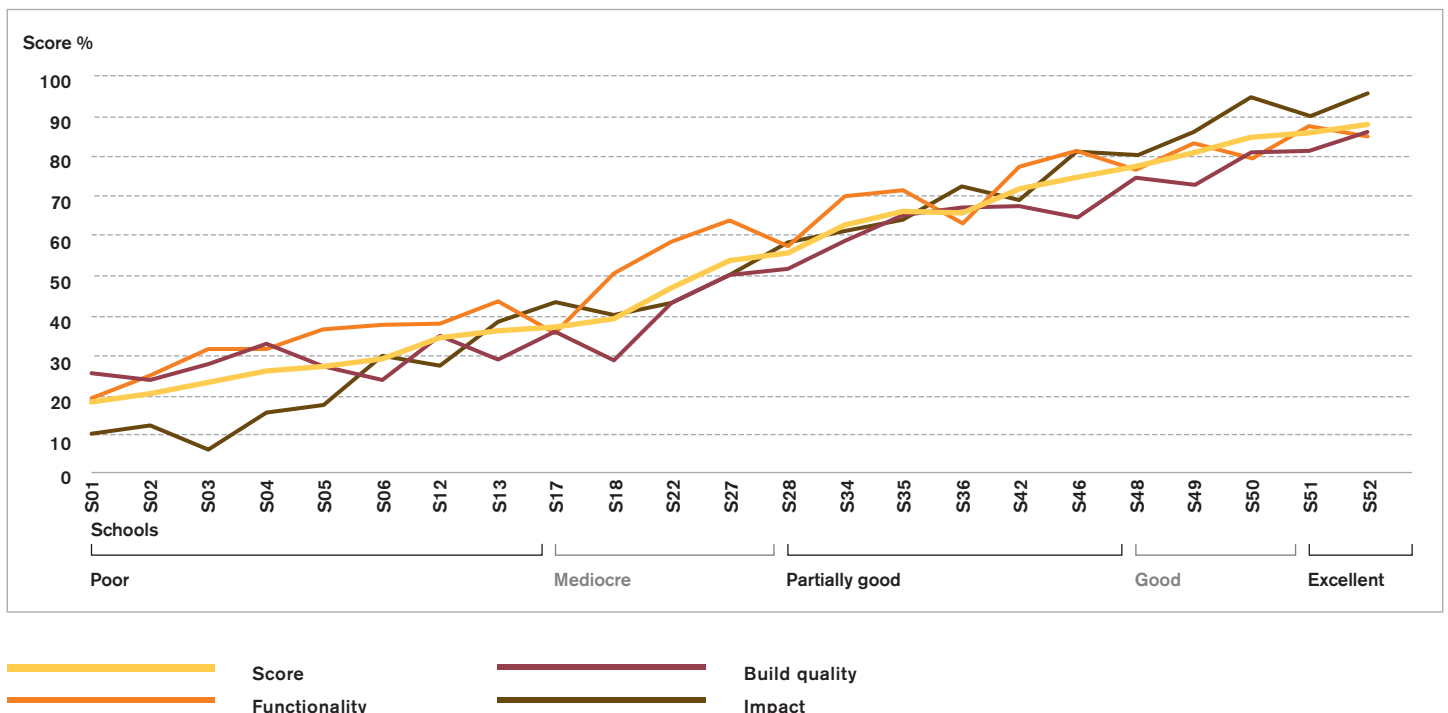
of schools increased. Several schools demonstrated a very close relationship between the three characteristics, with the tightest having only a 5 per cent spread. These could be considered as the most consistent schools. Again the tightest spread appeared in the better-designed schools, reinforcing the subtle effect of a balanced well-rounded design mentioned above.

### 3.7 One element can let down the whole design

Occasionally schools are let down by one particular design element such as poor performance of engineering controls and usability, poor air quality and thermal environment, or a particularly significant spatial failing such as poor circulation. This is demonstrated graphically where either build quality or functionality has an uncharacteristically low score.

**Figure 7: How did schools score on three key indicators?**

% scores for functionality, build quality and impact for schools given full quality assessment



## 4.0 Where did most schools perform best?

Encouragingly, nine of the criteria on which schools performed best were perceived as fundamental to good design:

- There is a clear fire safety strategy
- The building is safe to use
- There is sufficient car parking
- The building has been designed so that it can be safely constructed
- There is good pedestrian and public transport access
- Halls are an appropriate size and design for their intended purpose
- The school grounds have adequate space to meet all school and community needs
- Learning resource areas are sufficient and appropriately located
- The building is accessible to pupils, staff and visitors with special educational needs, and/or disabilities
- The building is the right size for its functions.

The three themes that the greatest number of schools performed best on were size, accessibility and safety.

### 4.1 Size

Almost three-quarters of respondents agreed with the general statement 'the building is the right size for its functions'. However, the assessors considered that this was a poorly defined statement, and may not necessarily reflect how the building will adapt to changing needs and pupil numbers in the future. The specific areas where space standards were considered appropriate were libraries and halls.

Beyond the school building itself, the statement 'the school grounds have adequate space to meet all school and community needs' scored well.

### 4.2 Accessibility

Accessibility was the second-best performing theme. This covered the spectrum of accessibility issues for pupils, staff and public, from being accessible to pupils, staff and visitors with disabilities to pedestrian and public transport access to car parking.

### 4.3 Health and safety

The criteria that achieved the highest average scores were related to safe construction and use of the school: 'the building is safe to use' and 'there is a clear fire safety strategy'. Only three schools received a partially negative response to the statement 'the building has been designed so that it can be safely constructed'.

## 5.0 Where did most schools perform worst?

Looking at the overall results for the schools, they performed worst on the following criteria:

- The building's design and construction contributes to development of new knowledge
- The building uses sustainable and renewable systems, and materials which have low embodied energy
- The building controls systems are simple to use and work well
- The building and engineering systems minimise CO<sub>2</sub> emissions
- The building makes you think
- Future climate change has been considered in the design of the building
- The indoor temperature in the building is comfortable in all seasons
- The natural light in the building is of high quality
- The level of personal control of the internal environment is appropriate
- The requirement for mechanical ventilation is minimised by the design of the building.

Three clear themes emerge from these results:

### Transformational design

The weakest area of performance was in innovation and developing new understanding about both construction and education. Contributing to development of new knowledge was the weakest criteria, and only those schools in the top band – the excellently designed schools – achieved a positive rating for this. This is unsurprising as design time is limited at competitive stage. Constructors are keen to ensure costs are affordable. Therefore there is an argument for use of familiar construction techniques over novel approaches in a programme of this significance. Innovation is a risky notion. Alarming, there is less evidence of schools being used as tools to aid transformational learning, with the criteria 'the building makes you think' ranked fifth from the bottom.

### Sustainability and control of engineering services

Low ratings for the cluster of statements on the sustainability of the schools – using sustainable and renewable systems, minimising CO<sub>2</sub> emissions and considering future climate change – are indicative of the limited extent to which requirements for sustainable construction have been integrated into the current construction programme. This is not just an issue of the use of complex technologies for renewable energy generation, but some very basic issues of energy performance of the building that have been overlooked. Passive energy design approaches such as minimising the requirement for mechanical ventilation and ensuring that the natural light in the building is of high quality also had very low rankings.

The third worst performing statement was 'the building control systems are simple to use and work well' with a derisory one fifth of schools achieving a positive rating. This was echoed by the poor ratings for the internal temperature and environment.

The next tranche of poorly performing statements contained three statements that CIBE considers fundamental to good design and the themes of sustainability and energy in the earlier paragraphs. Minimising demolition and construction waste, ensuring that the thermal climate is appropriate and that the indoor air quality is pleasant all received low average scores.

### Build quality

Most concerning was the poor performance of the fundamental criteria 'the building is easily maintained'. Half of the schools received a negative response to this statement, raising concern over the consequences on long-term value for money.

Evidence from the enabler focus group reiterated their particular concerns regarding the sustainability of recently built schools. There was generally stronger agreement for negative statements such as 'the quality of the design is often eroded between the original concept and the finished school' (72 per cent strongly agreed) than there was for positive statements such as 'there is a great deal of design innovation going on in the building of new schools' (11 per cent agreed).

They felt that poor quality materials were often used that would be likely to deteriorate quickly and that some of the poor design would lead to vandalism.

The sort of poor design that the enablers had seen in schools that they had not been involved with included:

- Poor, narrow corridors
- No natural light
- Designs that were too inflexible to be adapted (for example, small classrooms with fixed walls)
- 'Soulless' buildings
- Use of poor materials that would quickly deteriorate.

## 6.0 Do schools meet the expectations of clients and professionals?

Very few of the schools surveyed achieved the high standards expected as set out in the table at the beginning of the chapter. It is worth noting that the areas in which schools performed best – size, accessibility and safety – were those dictated by prescriptive contractual documentation or regulations. They are covered by *Building bulletin 98 (BB98)* guidance and regulations on fire safety, security, construction design and management and health and safety on site and even the number of parking spaces will probably have been specified. Alternatively, the nature of the site may have pre-determined a positive opportunity, for example, space for a good range of recreational spaces, or space for the building to be extended.

Conversely, the areas where the schools are failing are those that are performance based. For example, to meet a performance specification to 'provide sufficient lighting', it is not necessary to use daylighting. So while still meeting lighting standards, the school could fail on its daylight assessment. Our evidence indicates that transformational design is a qualitative process rather than something that can be prescribed, which emphasizes the importance of a good design team.

Despite the fact that many of the new schools were poorly designed, headteachers and staff were often pleased with the new buildings because they were so much better than what they had before. This consequently put little pressure on contractors to build to a high-quality design. This means that CIBE and others need to play a major role in raising aspirations through explaining the benefits of good design and demonstrating what is possible.

'They (headteachers) think it is brilliant because they are comparing it to where they have come from which is such a low common denominator...the people who are sometimes involved in the commissioning side of it have got such low aspirations that it is limiting how far you can take the architecture'

'Compared to what they had, it's not draughty, it has got a carpet...people will say okay we know it's not good but at least it is physically good. It gives us the basic requirement, it is comfortable, it is a humane environment'

One headteacher interviewed was disappointed because he found the school design was overly complex and not driven by a bold enough philosophy focussing on learning instead of teaching. He was very supportive of buildings that might look like a shed from the outside, but were completely flexible on the inside with adaptable use of space. Perceptions of good school design evidently varied. As another interviewee remarked: 'You either like boxes or not.' However, the desire for innovative learning spaces instead of traditional teaching spaces was emphasised by a number of interviewees, with varying perceptions of the extent to which this was achieved in the final school building.

# 7.0 Emerging themes

Behind the headline findings, a number of key issues often make the difference between successfully and unsuccessfully designed schools. Identifying and understanding these themes is a useful step to improving the design quality of future schools. The themes can be related to CABE's 10 key points for good design of a school.

## 7.1 Clarity of organisation

From CABE's key points for well-designed schools:

- Good clear organisation, an easily legible plan, and full accessibility
- A layout that encourages broad community access and use out of hours
- Attractive external spaces with a good relationship to internal spaces and offering appropriate security and a variety of different settings.

### Strengths

The schools that delivered a strong, legible layout in the completed building were judged to be the most successful. These schemes all responded to their site context sensitively and were variations on a straightforward school typology that is understood to work effectively.

In the better schools, circulation spaces were consistently generous, easy to navigate and clearly defined into primary and secondary zones with breakout, teaching bases and supervision well considered. Lifts and major vertical stairs were organisationally clear, ancillary spaces such as toilets were located adjacent to node points and spaces such as special educational needs (SEN) were central. All these factors contributed to accessible and inclusive environments.

These schools also demonstrated a logical placement of key spaces such as learning resource, assembly and sports halls. Classrooms were sensibly grouped in clusters or linear format. This meant they could respond to the school's educational preference by department or by year group.

Simple design strategies benefited pupil management, such as teacher bases forming recognisable supervisory points at consistent points in the cluster (often relating to the staircases).

In the hands of a good designer, multi-purpose use of spaces, such as the canteen combined with the 'street', were extremely successful.

### Weaknesses

Assessors identified a surprising lack of strategic organisational planning at many of the schools visited. Effective school design typologies, such as the simple street, cluster, courtyard and block, were rarely used. If typologies were identifiable, these were often overcomplicated, dispersed or condensed, to the detriment of the scheme. Common failings in spatial relationships included: lacking a hierarchy of primary to secondary spaces; illogical grouping of ancillary spaces; and unsatisfactory circulation solutions. All three affected the efficient and smooth running of the schools.

A number of layouts failed to operate effectively due to long or torturous travel distances, incorrectly located vertical circulation or narrow width horizontal or vertical circulation. Frequently isolated secondary circulation links caused supervisory and management problems. Whilst the courtyard typology should be a simple, legible and accessible plan type, one example lacked points of reference due to double loading of corridors (corridors with rooms on both sides) preventing glazing to the outside. This resulted in a disorientating, internally focussed 'race-track' feel.

Deplorably, a few schools failed to provide good access for users with disabilities, with no lifts or long travel distances to single lifts or up steep gradients.

The commonly found 'classroom cluster' typology worked less effectively in cases where circulation, hierarchy of spaces and grouping were ill considered. For example, if the length of cluster was excessively long, without relief or without sufficient daylight and if stairs were isolated, the cluster no longer performed as such.

A number of schools failed to locate major ancillary spaces accessibly. In particular, canteens and halls were often placed remotely, compounded by inadequate circulation routes and breakout and queuing space. Community spaces were sometimes added on as an afterthought, not necessarily in the most accessible position.

Legibility of entrance was inconsistent. In many of the schemes assessed, car parking to the front of the school became the inappropriate marker for identifying entrance, dominating any sense of arrival and confusing the hierarchy of served and service spaces. Low-key entrances, which were hard to find, led to mean unwelcoming reception areas. Some schools identified operational difficulties due to pupils, staff and community using one narrow entrance or children entering via alternative entrances. Conflicts of service roads with main entrance and playground areas were also seen, causing a significant health and safety risk.

Permeability of the site and attitudes to site security were variable. Schools visited demonstrated a range of solutions, from high-security double-fenced compounds to open access sites. Palisade fencing was common. Solutions seemed to be largely dependant upon the attitude of the school to the benefits of an open or closed site.

One interviewee felt an important limitation of school building through PFI was that security concerns override a vision to establish schools fit for the 21st century.

*'In PFI security is a major issue. PFI determines that the school needs to be built like a fortress that goes against the idea of community schools. The contractor needs to protect the building for 25 years therefore insurers want it built like a fortress to keep premiums low.'*

## 7.2 Spaces fit for purpose

**From CABE's key points for well-designed schools:**

- Spaces that are well proportioned, efficient, fit for purpose and meet the needs of the curriculum
- Circulation that is well organised, and sufficiently generous.

### Strengths

Not surprisingly, the schools with better clarity of organisation tended also to provide spaces fit for purpose. Much of this resulted from the skillful manipulation of the overall layout and an understanding of its key constituent parts.

In particular, the use of single-loaded corridors (rooms only on one side, with window openings on the other) or wide circulation spaces such as clusters or streets provided variety and relief, as well as contributing to the effective functioning of the school.

A minority of generous, loose-fit classrooms made an enormous impact on the range and quality of teaching. This is discussed further under the theme 'flexibility and adaptability'.

Encouragingly, some schools succeeded in offering a wide variety of landscaping, including formal, informal, covered and sheltered spaces, as well as the more standard hard and soft playing areas. In the more successful schemes, car parking tended to be to one side of the entrance. Generally, there was good provision of sports pitches. This happened particularly when new schools were being built on existing (non-urban) school sites.

### Weaknesses

A large number of schools surveyed failed to function spatially. The survey identifies that teaching, key ancillary spaces and circulation are often inappropriate for their function.

Assessors criticised the use of lengthy double-loaded corridors (with rooms on both sides). These were consistently considered to be a poor, gloomy and depressing design solution. In two cases, schools visited had introduced one-way circulation systems due to single-width corridors. Compounded by the strung-out nature of the plans, this caused extensive travel time between lessons. One school provided more successful teaching 'houses' along a linear route but the circulation at high level and the linking stairs between 'houses' was considered too narrow by the assessor to manage full-capacity class changeover.

A common solution was to provide unheated circulation spaces such as 'covered streets'. This saves on service installation and running costs. It is also a recognised trick for managing the issue of maintaining a low gross internal area (GIA) but providing sufficient circulation – if that space is not heated, it does not necessarily have to be counted within area. It can be argued that a covered, unheated internal street is more advantageous than a covered or uncovered external circulation route. However, in one case, it failed to be anything but extensive, and expensive, circulation space because it was too cold for a large part of the year to form sociable breakout spaces.

A well-proportioned classroom takes into consideration a number of factors including the use (specialist or general teaching), storage, age of students, pedagogy, class sizes, accessibility etc. Space standards are often compromised. At a number of schools visited, standard classroom sizes were too small, typically 50m<sup>2</sup>. This would make it impossible to teach using new kinaesthetic learning styles as teaching can only take place in a formalised layout of rows of desks. Frequently, there seemed to be a lack of ICT space, denoted by the large number of schools that had converted classrooms into additional ICT facilities.

The assessors consistently reported problems with inadequate storage within classrooms. Typically, integrated storage space and simple details such as space and hooks to hang coats had not been included. Classrooms often had a mixture of temporary or inappropriate storage solutions, jumbles of shelves and old cupboards from previous buildings. This encroached on the often small area of teaching space and also made safety, organisation and access difficult for both staff and students.

More significantly, issues with size of space and associated storage were witnessed at a number of schools in specialist facilities. These included overcrowded art rooms, restricting curriculum scope. In one case, the brief for a new PFI scheme for a school with a reputation for a broad and successful art agenda had no specialist spaces such as kiln rooms. One technology space visited had indirectly accessible storage, creating administrative and safety problems due to technicians or teachers having to leave children unsupervised while fetching materials.

Two headteachers interviewed perceived the official guidance from the Department for Education and Skills (DfES) (*Building bulletin 98*) as too formulaic.

*'Applied, it does not keep up with changes happening in classrooms. The amount of IT equipment going into classrooms now demands more space. You also get more than one adult in classrooms – taking more space. Increasingly in schools you get students on crutches or in wheelchairs – there is no significant allowance in formulas for this.'*

**'I find the architects very willing to adapt to our needs but the DfES standards are stuck in the 1950s.'**

A small number of interviewees mentioned the DfES space planner as too inflexible. They said it was based on a *'tick box mentality'* and that *'it designs you into corners'*.

A range of approaches to canteen layout was observed. Some of these layouts resulted in a number of problems. An organisational solution that combines dining with assembly space often failed to work successfully. In one school, the assembly hall had a corner stage (itself unsuccessful) used for drama teaching. The noise and smells produced by the kitchen adjacent to the assembly hall, as well as the audio and visual disturbance of tables and chairs being set out for lunch, proved disruptive to teaching according to teaching staff. The hall was also not designed to connect directly to outside recreational space in a controlled manner, and a single fire exit was used for pupil movement.

Assessors witnessed a number of canteens which were simply too small to manage the numbers of children requiring lunch, even with staggered lunch sittings in place. Likewise, kitchens were often too small. A number of schools responded post-occupation by changing adjacent spaces to additional dining space or creating additional spill-out dining in assembly hall or circulation spaces. Another problem exhibited in some schools was provision of queuing space. In one school, children had to queue outside and additional circulation space was

not available to allow children to queue alongside standard circulation.

Surprisingly, several half- or three quarter-size sports halls had been built. In both cases, staff reported these were impracticable for competitive sports, but this did not appear to be due to the constraints of the site.

## 7.3 Environmental conditions

**From CABE's key points for well-designed schools:**

- Good environmental conditions throughout, including appropriate levels of natural light and ventilation.

### Strengths

A few schemes showed very positive consideration of environmental issues, integrating well thought-out active and passive energy design into the overall building design. These schemes not only provided sustainable building design solutions, but also contributed to the appeal of the schools and the well-being of the users.

One example of successful daylighting consisted of a single-loaded, fully glazed primary circulation corridor at ground floor level, alongside an adjacent covered external route. This gave choice of route and relief at peak circulation times as well as providing passive shading to the corridor, borrowed light to adjacent spaces and a covered external area.

The more successful double-loaded solutions used shorter length, wider corridors, with a daylight source visible at the end or a break in the double loading with views to the outside.

One scheme made innovative and imaginative use of a relatively new but tested material, PTFE, to the top of a double-height primary circulation route, providing diffuse top light of a quality rarely seen outside of civic buildings.

Where acoustic panels were integrated successfully, they combined their practical use with a welcome splash of colour. This was used to give a sense of place, in one case, using school colours, and in another, to identify departments.

Wind chimneys to the rear of classrooms were used to provide natural ventilation in a school on an inner city urban site. The chimneys incorporated acoustic panelling internally and were neatly detailed at high level. Flat paved and pebbled roofs provided access and doubled up as additional teaching terraces.

A few schemes used the thermal mass of exposed concrete ceiling or roof slabs combined with vents or windows that can be opened to provide night-time cooling and thermal regulation.

The use of green roofs in one scheme not only increased the thermal mass (combined with exposed, fair-faced concrete to sports hall and circulation), but also provided a welcome aesthetic and natural habitat on an urban site.

Generally, the schools that incorporated passive design with simple methods of environmental control, such as windows that can be opened, tended to be considered more user-friendly, providing important user control of the environment. This was contrasted with the remotely controlled facilities managed systems, which caused users to report problems of marginalisation.

Similarly, the best schemes responded to site context and orientation with sensitivity, resulting in successful internal and external microclimates.

### **Weaknesses**

Schools are, by and large, underperforming on issues of sustainability and environmental factors such as acoustics, lighting and ventilation. Narrative evidence continuously identified a large number of schools failing to achieve appropriate levels of natural light. Assessors reported examples of insufficient daylighting to classrooms. Typically, windows were too small or too few or with a high sill level, preventing both visual connections to the outside or the extended views recommended to facilitate varying eye focus.

A number of reports indicated that major spaces such as drama rooms (not intended as black box spaces), assembly halls and sports halls had no source of natural light. Whilst there are issues associated with admission of daylight that require management, such as glare and overheating, best practice and exemplars indicate that such issues can be affordably overcome. Sport England supports the inclusion of controlled daylight in sports halls.

A constantly observed failure was lack of daylight to circulation spaces, principally corridors. Top-floor corridors repeatedly did not take advantage of the availability of top-light, or plans for rooflights were omitted. This indicates the importance of ensuring that, where necessary, output specifications are prescriptive. The design typology in many of the schemes visited involved artificially lit corridors with classrooms on both sides at ground level. This may prove efficient in terms of net to gross area but it produced corridors that were reported as 'gloomy', 'miserable' and 'unrelenting'.

Conversely, one assessor described a scheme where excessive areas of curtain walling flooded stairwells with natural light, with risks of overheating, but classrooms and corridors were served with little or no glazing.

From the schools visited, the overall impression was that acoustic quality was generally poorly considered or insufficiently provided. Several schools have required extensive retrofitting of acoustic panels. One new PFI school had extensive remedial work to fit acoustic board across all classrooms and other major spaces. This study was unable to verify that the school now met the BB93 (*Building bulletin 93*) acoustic guidelines, but aesthetically this was crude and ill considered. The same school was assessed to represent the worst example of poor co-ordination of service pipework and fit-out indicating a lack of care for either form or function.

Low-quality specification aggravated acoustic issues. Where plasterboard was used internally, this often did not have an acoustic property. Assessors noticed that the high use of exposed (non-perforated) metal decking combined with hard surfaces such as blockwork predetermines acoustic problems. These materials are likely to be favoured due to a combination of speed of construction, durability and cost. Low specification hollow core doors resulted in sound transference. One assessor noted how an easily avoidable design flaw of classrooms being reflected on plan, so that doors were in pairs, led to particularly bad transference of sound. Acoustically perforated metal sheet decking was infrequently used. Assessors were not always able to identify whether the drop-in suspended ceilings used extensively across most of the schools visited had any acoustic properties. Some schemes did allow for acoustic moderating surfaces, but typically in small areas. Double height circulation, entrance spaces and 'streets' seemed to suffer particularly, with complaints of noise travelling from one end of a school to the other.

A variety of ventilation solutions were observed, ranging from full mechanical ventilation and some air conditioning through hybrid solutions, to naturally ventilated schemes.

In two schemes, windows that can be opened had not been considered appropriate due to external pollution or traffic noise, resulting in sealed buildings. In both cases, the assessors questioned the validity of this decision.

A large number of schools required additional engineering servicing as a consequence of poor planning decisions, effectively offsetting budget at the disadvantage of the internal environment. For example, savings made by double loading lengthy corridors resulted in increased service installation and running costs to artificially light and ventilate corridors. Alternative scheme design could have allowed for lights that open, which can offer better in-use energy costs, user control, as well as sustainable, healthier solutions. This is an evident example where long-term value – saving energy and money – is being offset against short-term costs. Where in PFI the running costs are usually payable by the school it is possible that the company behind the PFI has a different motivation when considering construction and ongoing costs.

Assessors also observed examples of schools where design savings impacted negatively on effective heating, ventilation and lighting. Schools routinely employed basic gas-fired or oil heating systems with radiators, which varied in quality and effectiveness. A number of schools exhibited cold spots, often due to insufficient or inappropriately located location thermostats.

Assessors reported problems associated with substandard mechanical ventilation or inadequate natural ventilation. Issues with solar gain and overheating during the summer term were also reported. On two occasions, environmental problems were compliant with the original specification.

Occasionally schools incorporated building maintenance systems (BMS), ranging from basic to relatively sophisticated applications. In the majority of instances, these had associated problems. One school reported that the (simple) system was too complicated for the staff to understand and therefore remained on manual override most of the time. Another school's BMS had a large number of, at present, unresolved issues associated with the heating and night cooling systems. These included failing or damaged vents and windows or radiators operating inconsistently. It appeared that such problems with servicing were usually aggravated by interface problems between internal school management and local authorities and facilities management. It was also noted that successful induction of users to such systems did not always take place, or when this occurred, turnover of staff meant knowledge and/or value was not being passed on.

A key point is that servicing strategies are not being integrated into overall design strategies. This ranged from a shocking confusion of exposed internal services, inappropriate ducting, and ICT provision, to large-scale plant spread haphazardly across visible roofscapes. Very little in the way of sustainable design was evident in all but three of the well-designed schemes. Observations

indicated that in-use energy costs were consistently unconsidered. Carbon dioxide reduction and energy monitoring were almost non-existent.

## 7.4 Architectural expression

**From CABE's key points for well-designed schools:**

- Attractiveness in design, comparable to that found in other quality public buildings, to inspire pupils, staff and parents
- Good use of the site, public presence as a civic building wherever possible to engender local pride.

### Strengths

The schools identified as successful all had a sensitive response to their context in common.

One school design countered its brownfield site and surrounding new housing by making a strong and civic gesture. This included the use of scale: two- and three-storey elements, high canopies and overhanging roofs providing shelter to the entrances and the impression of grand porticos. The school is constructed from large, fair-faced precast concrete sections and in-situ concrete work. This resulted in a modern building of great civic presence on an unprepossessing site, which is welcoming and open to the general public, who can use many of its facilities. So far, it has also resisted surrounding itself with high-security fencing.

Another design developed a bold urban frontage to an important route and it was decided to use the other two frontages for housing. This generated finance and helped to recreate a townscape that had been eroded by piecemeal development. The body of the school consisted of a 'quieter' architecture creating a sense of enclosure, hugging a courtyard that is used for informal play and also provides more formal sports areas.

### Weaknesses

Attractiveness and response to setting varied considerably among the schools surveyed. A notable proportion of schools exhibited a jumble of confused, poorly assembled and over-articulated crude forms. This seemed to relate strongly to the clarity of organisation identified earlier. Ironically this resulted in some unnecessarily complex and costly detailing, particularly in terms of complexity of roof forms and roof junctions.

Another significant number of the schools assessed exhibited a disappointing lack of public presence. Typically these included extremely basic and austere light industrial shed-like forms, with some occasional added false traditional elements, such as crude 'feature porches' or 'clock towers'. These schools could only be described as uninspiring.

## 7.5 Materials, build quality, robustness

### From CABE's key points for well-designed schools:

- Robust materials that are attractive, that will weather and wear well and that are environmentally friendly.

#### Strengths

The few successful solutions used a controlled palette of materials externally which related to their context. This sometimes re-interpreted the vernacular in a modern way, but also used the materials and details to reinforce the building's architectural representation. For example, a scheme in a quiet suburban setting used a local palette of red brick, combined with white render, grey aluminium and painted steel. This was all carefully and neatly detailed but the build quality was failing.

The design team for one academy challenged the use of typical internal finishes, using fair-faced concrete to great effect in circulation areas and the sports hall. This had the advantages of being extremely robust, providing a smooth surface to increase safety whilst playing sport and during the crush of class changeover. Combined with colour and daylight, the inventiveness paid off.

One assessor reported indications that pupils markedly appreciated and respected their environment where a high-quality fit-out was specified.

#### Weaknesses

Materials used were consistently identified as being inadequate for the wear and tear of a school environment. Nearly all schools showed signs of strain or damage, both deliberate and from wear and tear, partly due to the cheapness of fittings or materials. This was a surprising revelation, particularly amongst the PFI schools visited, as a key part of the PFI contract usually involves maintenance and upkeep over decades. The quality of workmanship, installation and detailing was also extremely variable.

Both clients and assessors expressed concerns that materials, fixtures and fittings, would fail in the short term. They felt that poor-quality materials were often used that would be likely to deteriorate quickly and that some of the poor design would lead to vandalism.

Typical comments included:

*'What's it going to be like in 40 years time...unloved and rubbish.'*

**'I went to one school that was less than two years old and was being extensively vandalised. It was a mess, it was looking pretty tired'**

*'I feel the people who are building schools don't take into account that it will be used by 1,500 boisterous 11- to 18-year-olds. Painting everything pristine white, especially down corridors that are not enormously wide, is not ideal. Corridors get scuffed up and yet contractors seem surprised by this. One of the impressions we have is that the people who are building schools need to be constantly reminded of the audience. Schools are not built for a genteel group of users.'*

Some common failures of specification included poor-quality windows and doors and inadequate ironmongery, indicated by broken window stays, doors splitting at lock points and requirements for new door closers and stops. Systematic replacement or re-installation was not reported. Toilet cubicles and lockers formed a prime focus in schools for vandalism, and un-repaired facilities and fittings continued to be targeted. The quality and specification of fixtures, fittings and loose furniture seemed variable.

Many schools used a common, recognisable palette of basic, minimum standard materials for fit-out. This typically included extensive drop-in suspended ceiling tiles, vinyl flooring (reports of flooring failure were common) and blockwork walls. A lack of colour or departmental identity contributed to inward-focussed spaces that were described as 'joyless' and 'functional'.

Externally, the unimaginative range of materials used included brick, render and block, occasionally with 'highlights' of reconstituted stone, combined with cheap standing seam roofs. The quality of materials varied and in the better quality buildings the external materials were robust, if crudely and unimaginatively combined. This unchallenging, functional, safe aesthetic was considered by the assessors to be a reflection of fast-track demands of school building programmes and cost.

Few of the clients interviewed remarked on the quality of materials. One headteacher was disappointed with the quality of the materials used – profiled steel instead of brick – to save costs. Another PFI manager felt it would be helpful to know more about where corners could be cut with the use of materials to save costs.

At the other end of the scale, the attempt to incorporate more unusual materials sometimes proved impractical. For example, white render or concrete cladding was marked by balls and low-level steel was subject to denting. Extensive glazing caused a maintenance problem for one school, which had to carry out a frequent window-cleaning programme.

## 7.6 Flexibility and adaptability

### From CABE's key points for well-designed schools:

- Flexible design that will facilitate changes in the curriculum and technology and which allows expansion or contraction in the future where appropriate.

### Strengths

Encouragingly, a small number of schools visited exhibited a range of flexible and adaptable solutions that made steps towards meeting the BSF agenda for transformational, 'future-proofed', 21st century environments. One school located two black box drama studios to the rear of a hall, with high-quality opening partitions between both the drama studios and hall itself. These screens allowed the drama studios to be combined as well as be used as a stage area opening up to the hall, which provided bleacher seating.

One of the most successful examples of multi-purpose use of space was the combination of dining space with a broad, heated and naturally lit street with supervisory connecting bridges linking wings at first-floor level. This had the benefit of enlivening the central circulation space without clashing with the needs for quiet, clear space or focus required in other teaching spaces such as halls.

A headteacher explained that the more generous classrooms provided in his school had transformed teaching methods. Further evidence of buildings supporting new ways of teaching included use of movable walls between the classrooms of an academy, allowing two to three classes to be taught at the same time. However, it was accepted that there were other problems, including supervision and sightlines and that the cost of this installation was likely to be beyond the reach of the majority of new school builds.

The more innovative schools visited also included a range of breakout space and tended to include overlooking staff bases to provide a local presence. Many schools incorporated electronic white boards as standard, and a few schools had introduced other successful ICT support, for example vario-tech tables with computers in the lids of desks.

It emerged that the more ambitious design intentions were often a reflection of an individual teaching method of a specific headteacher. However, some design teams presented innovative re-working of classroom typologies to create variations on themes and, in collaboration with educationalists, respond to the changing needs of school environments.

### Weaknesses

The majority of schools visited were, unsurprisingly, designed to tight spatial briefs limited by financial constraints. A loose-fit design would clearly allow for more future flexibility. As already identified, classrooms designed to minimum areas present the largest barrier to being able to vary everyday teaching methods to suit changing needs. ICT spaces appeared to be the most underprovided type of space, with a large number of standard classrooms converted to additional ICT accommodation. Some schools used spaces for more than one purpose, most notably halls being used as canteens and streets used as breakout. As described above, the success of these spaces varied.

Major constraints to flexibility related to walling materials used. Blockwork walls limit flexibility but have the advantage of being durable, robust and low cost as well as limiting noise transference. Conversely, plasterboard construction allows for medium-term reconstruction to adjust adjacent spaces, but requires a costly, high-quality specification to provide suitable durability and to avoid noise transference.

ICT servicing was generally via standard dado trunking. One academy incorporated category 5 servicing, which has now been superseded by wireless networking. Similarly, in one school high-tech lockers incorporating laptop charging and swipe card locks failed and have proved too expensive to repair. They have been replaced with more durable standard lockers.

In terms of organisational layout, the schools with simpler typologies appear to offer more potential to extend. For example, in many schools it would be simple to extend clusters to provide additional classroom space.

Contractual forethought is also needed when planning for extension or alteration.

## 8.0 Is design quality improving?

Simply by analysing the whole sample of schools by average score against year of completion, there does not appear to be a strong trend for improvement in design quality since 2000. However, concentrating only on the PFI schools and inspecting the proportion of schools in each category, the picture becomes clearer. See Figure 8.

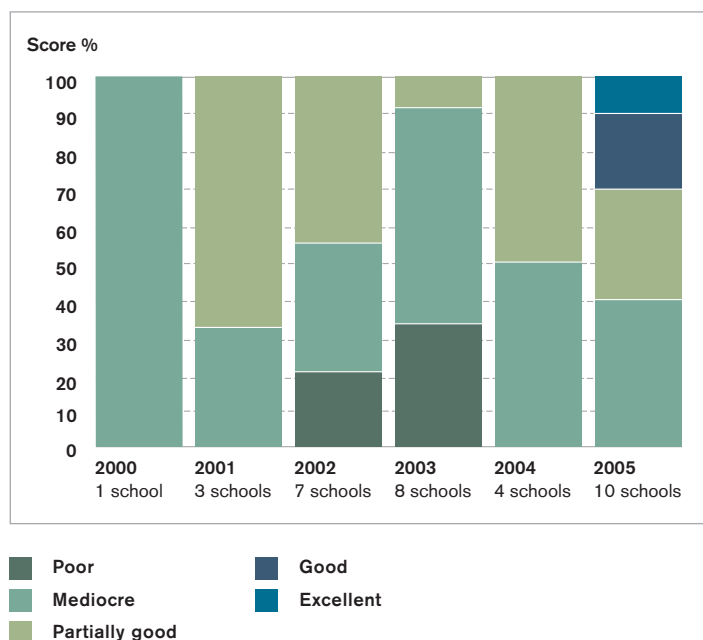
There is a very small sample size for the earlier years. However, the numbers had increased by 2002 and 2003, the years when all the poor schools in the sample were completed. During 2003, 2004 and 2005 the proportion of mediocre schools remains similar, but the number of partially good schools increases. Encouragingly, 2005 sees the completion of all the excellent and good schools in the sample and a relatively slight reduction in partially good and mediocre schools. This effect will require monitoring to identify if the apparent higher design quality of schools completed in 2005 is a one-off occurrence or a positive trend.

This optimism is supported by the findings of the enablers' web survey and the focus group. CABA enablers are very negative about the current quality of school design, with 84 per cent rating the overall quality of design of secondary schools built during the last five years as fairly poor or poor. However, the enablers expect to see significant improvements in the coming years, with only 39 per cent expecting the secondary schools currently being built to be fairly poor or poor.

The enablers expect that the BSF programme will lead to an improvement in school design compared with the standard PFI school builds.

**Figure 8: How good are PFI schools?**

% of PFI schools in each quality category by year



Experience of school construction within the industry has grown rapidly since the 1990s. The pool of experience will grow further as opportunities expand in an increased construction programme. However, the programme will be dependent on the capacity of designers and contractors to carry out the work. Interviewing professionals involved in the process, there was concern whether the capacity of those architects who were experienced and good at designing schools would be exceeded, and whether others would develop the skills to take on the additional work. They were concerned that this would not happen and that, as the BSF programme is rolled out, some local education authorities in the later phases would be selecting from a pool of relatively poor bidders. Typical comments included:

*'We've got a limitation in terms of capacity and at a certain stage the good bidders are just going to say "no, thanks very much this doesn't look attractive to us, we're just not going to bid on this". Then you've got a series of relatively poor bidders involved and somebody has to win because there is a political imperative within the local community that they're going to get their new schools and they're going to be delivered come what may and the private sector is simply not going to be able to deliver the goods.'*

**'You know that if your best bidder goes off and does £750 million worth of BSF in, say, Birmingham, they're going to say we're not going to bid on anything else'**

On the other hand, many of the enablers who are also architects had only designed their first school four or five years ago. They believe it is possible for other architects to learn about school design if they are motivated to do so.

1 [www.vam.ac.uk/school\\_stdnts/schools\\_teach/programmes/previous\\_events/joinedup/](http://www.vam.ac.uk/school_stdnts/schools_teach/programmes/previous_events/joinedup/) accessed 11/02/2006

2 'The devil in the detail', *Building design*, 10 March 2006.

# Part C: What factors most affect the design quality of schools?

The design quality of a school depends on far more than the quality of the architect's original drawings. This part of the report examines how design quality is affected by a wide range of other factors, from the ethos behind the project to the relationships between the parties to it and the process of procuring the building.

Issues covered include how much time and budget was allowed for design on the completed schools and how much understanding clients and headteachers have of the process. It also looks at the effect on design quality of the form of procurement used – PFI or non-PFI – and of the design team and the contractor.

The headline results of an independent review of the impact of CABE's enabling programme are also examined. Under this scheme, design professionals offer help and advice to schools and local educational authorities planning building projects.

Finally, this part of the report examines the factors that affect design during the early stages of the procurement process and during the later stages.

# 1.0 What key areas would improve the design quality of schools?

When asked to name three key factors which enablers most think affect the design quality of schools, unsurprisingly, process issues such as time, cost and procurement featured heavily in their responses. However, 70 per cent of respondents' comments described a far wider range of issues. The majority related to the skills and commitment of all the participants involved.

The enablers' responses can therefore be split into two themes:

- The ethos – skills, partnering and the changing educational environment
- The process – briefing, procurement, cost and time.

## The ethos

Comments about the ethos can be grouped into the following categories:

### Partnering

- 'Consultation with the end user'
- 'Constructor commitment'
- 'How well designers and builders work together'
- 'Influence of contractors over designers'.

### Aspiration

- 'Insufficiently demanding briefs (in terms of design aspirations)'
- 'Lack of importance of design in bidding process'
- 'Commitment to design quality by all stakeholders'
- 'Client vision and leadership'
- 'Client aspirations/ethos'
- 'Education vision'
- 'Leadership and aspiration: making design a priority'
- 'Lack of aspiration/experience of excellent school design across world'
- 'Driver to quality'
- 'Consortia committed to good design'
- 'Contractors who have a view to the future not just the building and on to the next scheme'.

### Skills

- 'Leadership/capacity of LEA'
- 'Committed client/headteacher'
- 'Quality of architects and their retention during the construction period'
- 'Architect designer'
- 'Architect/design team'
- 'A good architect' (three responses)
- 'High calibre design teams'
- 'High quality design team'
- 'First class designers'
- 'Design team'
- 'Bidders employing talented designers'.
  
- 'Design team and client quality'
- 'Skilled clients, including informed schools'
- 'Supportive client'
- 'Headteacher personality'
- 'Identity of decision makers'
- 'Experience of all those involved'
- 'The presence of a design champion'
- 'Ditto a CABE enabler'
- 'CABE enabler/client design adviser'.

## The process

Comments about the process can be grouped into the following categories:

### Time

- 'Enough time to design the schemes – cluster projects not good'
- 'Time'
- 'Sufficient time for consultation and refinement of designs'

### Cost

- 'Adequate programme funding'
- 'Adequate budgets'
- 'Money' (three responses)
- 'Budget'

- 'Funding'
- 'Funding and briefing'.

### Procurement

- 'The method of procurement'
- 'Dumbing down of initial designs at build stage'
- 'Invitation to negotiate'
- 'Government policy/directive'.

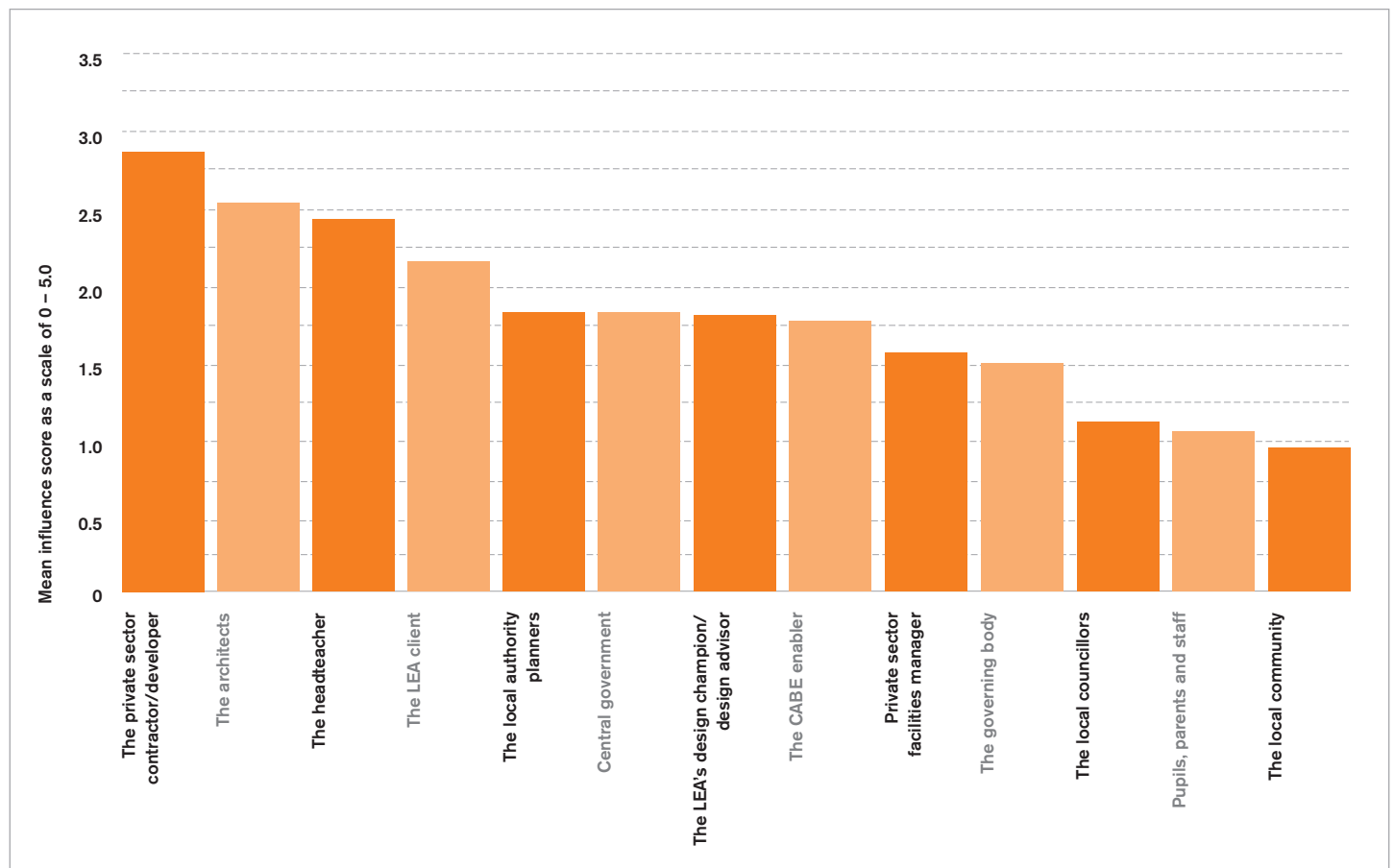
### Brief

- 'Clear brief'
- 'Building bulletins'.

## 2.0 Who has the greatest influence over the design quality of schools?

When enablers were asked to rate the amount of influence exerted by various parties on the final design quality of a school, the contractor/developer was perceived as having the most significant influence. Architects and headteachers and then local education authority (LEA) clients were considered to have the next most influence, followed by central government, local planners, the governing body, design champions or CABE enablers. The end users – local councillors, pupils, parents, staff and the local community – are perceived as having the least influence. See Figure 9. This can be related back to the key factors which would improve design identified by the enablers above and it can be easily observed how the contractor can exert significant influence over the majority of these factors.

**Figure 9: Who do people think have the most influence over design quality?**  
Mean influence scores for various parties involved in new school builds



## 2.1 Is design quality affected by the design team or the contractor?

Thirty separate architectural practices, varying in size and experience, designed the 45 schools visited on which we had data regarding the design team. As only six firms in the sample had designed more than one school, it is hard to offer conclusive opinions on their consistency of design output. Of that small subset, the schools tended to fall into the same (or adjacent) quality bands. Two firms had all schools in the good or excellent band, two had both schools in the partially good band. One practice had all their schools in the poor or mediocre bands. Only one ranged across poor, mediocre and partially good. See Figure 10.

Out of the 26 different contractors who built 50 of the projects we assessed and on which we held contractor data, 12 had built more than one school. There tended to be more variation in quality than for architectural practices. For example, two contractors built schemes spread across four bands, while another contractor exhibited a polarised variation in quality, with both a poor and an excellent scheme. Interestingly, the most consistent contractors produced schemes which were all in the upper design quality bands - partially good, good and excellent. See Figure 11.

Looking at the effect of procurement, the poorer schools are consistently produced through the private finance initiative (PFI) and a small number of the same architects and contractors appear to be responsible. The better architects design good schools under both PFI and non-PFI forms of contract.

Senior designers said they were finding that many younger architects coming into architect practices did not want to work on PFI buildings. They felt that PFI builds have a stigma attached to them due to the short design time that does not allow creativity and quality thought and that they are therefore not seen by architects as 'real design work'.

There was a perception among professionals that some of the major contractors have a tendency to go to architectural practices that will not challenge them as they are not themselves committed to producing good design. The enablers felt that there were many poor architects involved in designing schools that will not stand up to contractors and are not really bothered about the design. The enablers were also concerned at the quality of architects that the bigger companies were employing:

*'I think there could be a mechanism by which we start talking intelligently to them [the big practices] and saying "the problem is we think schools aren't being well*

*enough designed...we think you haven't got enough talent in house to do it. You've got the size, you tick all the financial boxes and all that stuff but actually we think you should think about how you're going to encourage the talented people to join you. We're talking about getting really good people into your organisations and if you can't employ them directly as an employee you need to find another way of getting to work with them"'*

Overall the enablers felt that contractors did not care about design:

*'Some of it's sloppy. They're just going for easy choices. It's not just about money, it's about commitment and effort. They go for over value-engineered solutions, repetitive, thoughtless, where they could have just thought about it.'*

Contractors are perceived to erode the design produced by architects. As one architect said:

*'We have been beaten down very severely by contractors to the point where you begin to wonder whether you can still keep your name on it.'*

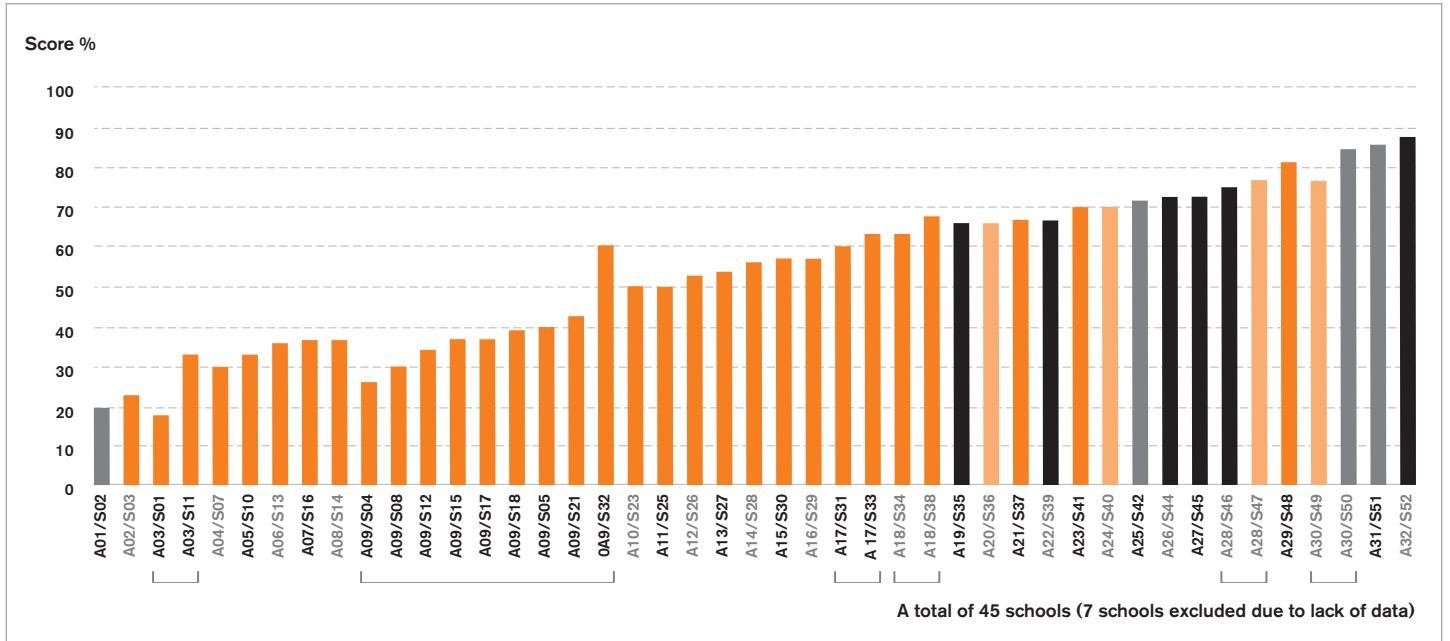
Because of this the enablers stressed the importance of having a strong basic design concept that persists through the build process. *'There are a lot of rubbishy architects out there who don't come up with a strong enough initial design concept,'* said one. *'That means when it goes through the PFI process and the erosion does occur it can't stand that and you end up with real rubbish.'*

The fact that architects' drawings are often not sufficiently progressed at the point when the contract is awarded can make it very easy for the design to be eroded. Some also felt that the better architects provided more detail on their plans, allowing the contractors to price them, but others only gave general details and so could look cheaper.

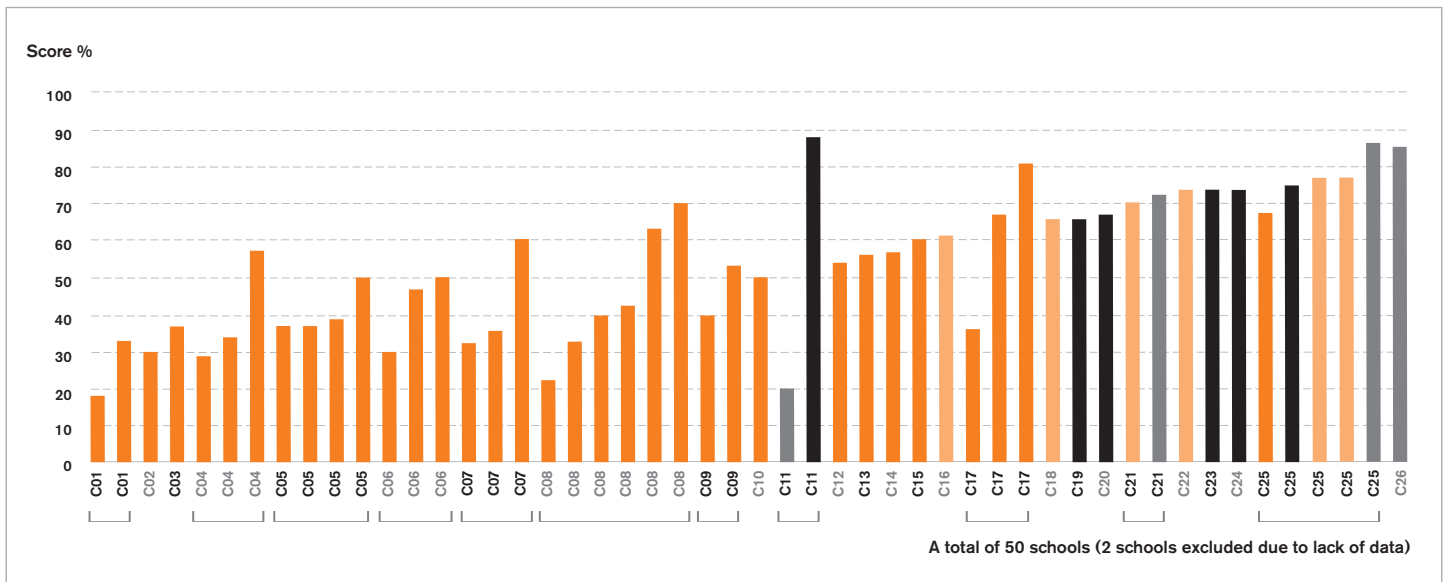
Some enablers thought that occasionally architects are charging very low fees to design a school (around 2 per cent of the budget against a more standard charge of 4 per cent). The amount of time that architects can spend on the project if they are charging such low fees was questioned. However, the actual charges are not very transparent and enablers felt that LEAs and head teachers did not know how much they were being charged for design as it was all wrapped up in the total amount for the PFI contract.

As with good designers, good contractors also appear to produce well-designed schools regardless of procurement approach. Further analysis could investigate specific pairings of design teams and contractors or categorise architectural practices into

**Figure 10: What difference does the architect make to the quality of the design?**  
Average % score of all schools visited, grouped by architect



**Figure 11: What difference does the contractor make to the quality of the design?**  
Average % score of all schools visited, grouped by contractor



**Procurement type**

- PFI
- Enabled PFI
- Non PFI (traditional/design and build)
- City Academy

those with specific education building experience and/or an explicit design ethos, and those with a broader range of skills and less design emphasis. This analysis would explore the extent to which the selection of a skilled design team is a key influence on achieving design quality.

## 2.2 What is the impact of CABE's enabling programme on design quality?

The impact of CABE's enabling programme was evaluated independently by consultant OPM.<sup>1</sup> A summary of the assessment can be found in Appendix F. Researchers spoke to school enabling clients and to enablers themselves.

All the interviewees who had experienced the enabling service were unanimous in providing very positive feedback. Particularly positive results have been achieved (from the perspective of the client) in cases where a good bond was formed with the CABE enabler.

In the majority of cases, the CABE enabler was recognised as an invaluable partner in the preparation stage of the school building process. Some of the words used to describe the services from enablers were as follows: succinct, practical, down to earth, direct, challenging, helpful, encouraging, added value, professional, objective, charismatic, extensive industry knowledge and proactive.

Enablers were generally perceived as 'very busy' people, requiring intelligent clients if the best use is to be made of their time. It was seen as an added bonus that the majority of the CABE enablers also designed schools in their respective private practices and/or were experienced in complex PFI projects.

## 2.3 Do clients and head teachers have sufficient skill and understanding of design quality?

Going through the PFI process involved a steep learning curve for many of the clients involved. One client said:

**'Change is usually a challenge but change on such a scale was difficult for people to accommodate.'**

The majority of local authority interviewees had to buy in skills they lacked. Aside from the need for design guidance, many had to buy in legal and financial advice.

There was a strong perception that a next round would be far smoother. There was also recognition that some of the contractors were gaining a great deal of expertise.

At the selection meetings the CABE enablers say that they are often the only ones who will ask any questions. The others in the room are not sufficiently knowledgeable to ask detailed questions:

*'Everyone else is just sitting around deathly quiet because their view is "we're not designers, we don't know what good design is. How can we judge? How do we know if these people are going to provide a decent quality of school?" You are the only person who can have a huge sway.'*

A headteacher, or other key person involved in the commissioning, who takes a real interest in the design can make a huge difference in pushing design up the agenda. As one enabler commented about a school that he had visited which had received a positive assessment.

*'The thing that made the difference was the headteacher took it upon himself to educate himself. He decided he was going to learn about the school environment and visited a number of schools and worked out in his own mind what was good practice and drove the briefing process: things like wide corridors and natural light in these spaces, very common sense things that he had learnt from other schools. He was able to steer the process in a way that gave him an effective school. I am not saying it was wonderful but if all the schools I had seen were as good as that you would have an effective learning environment.'*

Having a strong vision and being able to voice it was mentioned by many interviewees as a factor that strongly influenced the design of their schools. A considerable number of interviewees, both from local authorities and headteachers, visited other school buildings in the UK, North America, Sweden and Denmark. They found this a very useful process in enthusing people. In particular, several local authority interviewees felt it was important for headteachers and governing bodies to be introduced to new design concepts visually as they did not necessarily have the ability to visualise it themselves. Many interviewees also felt that through this process a body of knowledge was established. Ideally, this should be consolidated so that others could access it as well:

*'I can help loads of schools now. CABE needs to put us on a website. I've been to America – Seattle and San Francisco. In this country there is a lot of innovation in design but it is not being pulled together. We are all reinventing the wheel.'*

## 3.0 What affects design quality during different stages of the design and construction process?

**Getting the right people on board as quickly as possible, with the right skills, commitment and aspirations affects design quality most significantly at the beginning of the process. Once these people are in place, they are in a position to make sure that the right process can follow on.**

### 3.1 What affects design quality during the early stages of the design and construction process?

Improving the quality of the bids submitted appears to be a combination of ability and commitment to design. All the clients interviewed felt that having CABE working on a project ensures that the private sector contractors have an incentive to feature good design. CABE's involvement reinforces to contractors that they are unlikely to win the competition if they pay insufficient attention to design.

**'If the contractors go to an open day and there's a CABE enabler there saying design is very important, when they go away and put their team together they pay more attention to including a good designer'**

CABE's impartiality is felt to be a major feature in successfully influencing the quality of design proposed because it is taken seriously in the bid selection process by all members of the team.

For the school, the logistics of moving into a new building are very important. It may consequently select their contractor on this basis even if it is not the best building or the best long-term solution.

Clients often had to choose between a number of designs that were all poor, so even where the selected design was poor it might be 'the best of the worst'. Commissioners were extremely unlikely to reject all the schemes and go through the process again, particularly as they might feel that this could end up with them losing the money and time allocated for their school.

In a few cases local authority clients commissioned architects to design reference schemes before the bidders got involved in the process, in one instance as a result of the recommendation of a CABE enabler. The development of reference schemes was generally seen as a very good way of getting consensus amongst local schools and other stakeholders along the way, establishing a good base from which to judge and review new designs.

Some of the enablers felt that the client design advisers were not of sufficient quality. They questioned in particular the degree of ownership that they have of individual projects.

### 3.2 What affects design quality during the later stages of design and construction?

During the later stages of design and construction, monitoring and regulating the quality of the process, which, of course, is partially dependent on the right ethos, becomes very important. Practical aspects of process, such as cost and programme, tend to play a more significant role as the project develops.

A number of clients and enablers mentioned significant alteration of the original school designs once preferred bidder status was achieved or construction started. In one case this was because of cost considerations, in another simply because of lack of control over what the contractor did. This was echoed in the enabler web survey in which 72 per cent of respondents strongly agreed with the statement: 'The quality of the design is often eroded between the original concept and the finished school.'

One client commented:

**'These are good schools. They meet the requirements. They were on time, which counts for a lot. We are satisfied but we are aware of how the design quality was diluted by the contractor. What the architects originally prescribed wasn't taken on board by the in-house architect team to the end'**

## 4.0 Is there sufficient time for design quality?

The time allowed to put in a bid following an invitation to negotiate to design a PFI school is approximately 12–16 weeks. The enablers felt that this did not leave sufficient time to put forward a well thought through design, particularly as by the time the architects had got the right people on board, and had allowed time for the other things that need to get done, there was probably only around five weeks of design time. Design and build and other forms of conventional procurement allow four times longer than this for design: 12–18 months. This gives the architects time to really understand the individual school, to involve the staff and governors and to give more thought to the final design.

One headteacher mentioned time constraints as a significant barrier to quality school design, especially with regard to attending meetings considering detailed design issues such as the location of plug sockets. However, small details like the location of plug sockets or the colour of walls could have a real impact on user satisfaction:

‘It was difficult anticipating all the questions. When we got to the detail stage it became much more difficult. I attended almost every meeting from the school’s perspective as far as I could’

‘Like with all buildings the devil is in some of the detail, eg are the plug sockets in the right places?’

## 5.0 Is there sufficient budget for design quality?

**One interviewee described PFI as the battle of ‘money versus loveliness’. Affordability was a real constraint for many local authorities. Design considerations (in particular the amount of space allocated for different areas within the school) had to be balanced against the cost of incorporating them:**

*‘It is not uncommon in PFI that corners get cut in the quality of finishes and materials.’*

*‘Size of classrooms in PFI is a problem because of resources and cost.’*

**‘One of the problems with PFI is that you get extremely functional buildings with not much design flair. Serious considerations have to be given to whole-life costings of buildings so functionality overrides and you get very utilitarian buildings. They are not exactly making a statement. The providers are driven by cost’**

# 6.0 Is design quality affected by procurement type?

The study found unequivocally that there was a relationship between the design quality of schools and the procurement route used. Of the 52 schools visited, all but one of the lowest 10 schools were procured using PFI (the other was built under a design and build contract), whereas of the top 10 (all the good and excellent schools) only three were procured using PFI. All bar one of the non-PFI schools appeared in the upper two quality categories. See Figure 6.

It is harder to decide whether clustering PFI schemes affects their quality. Of the 39 PFI schools visited, 11 were constructed as single PFI schemes. These were evenly spread though the PFI sample, implying that clustering schools has no perceptible positive or negative effect on design quality. This will be a significant trend to investigate during the developing waves of BSF.

The academies visited were procured by a variety of contractual approaches. Four schemes were PFI compared to one partnering and one traditional JCT form of contract. However, regardless of the form of procurement type, the academies all fell into the upper two quality bands, reflecting the greater impact of additional resources over procurement type on design quality.

This was reinforced by the opinions of CABE enablers, who felt that academies were generally of a far higher design quality than other schools. In general, PFI-built schools were also felt to be of worse quality than those procured by traditional contract or through design and build style of commissioning:

**‘The city academies are producing good architecture on the whole but more often than not PFI is the absolute reverse’**

One enabler described his recent visit to three PFI-built schools. Two were ‘abysmal’ and one was ‘okay’. He felt that the budgets were all fairly similar but that the difference had been that the one that was okay had a headteacher and local education authority who were more interested in design:

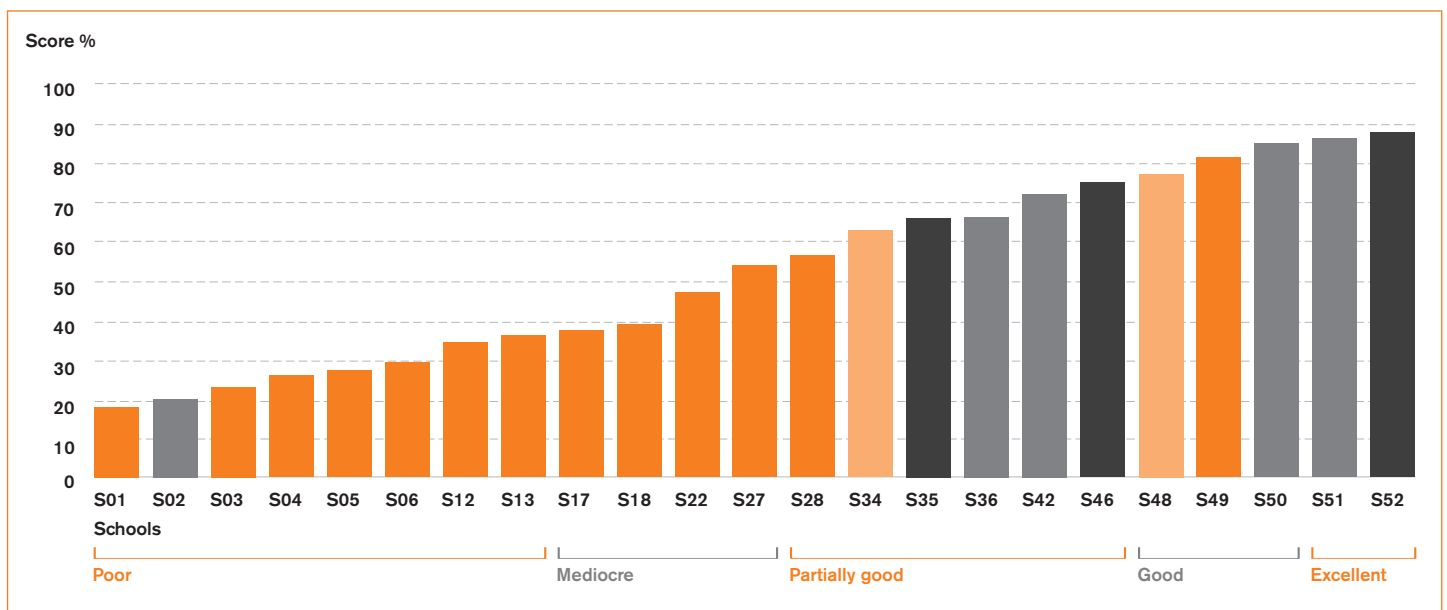
*‘It was just about people who gave a damn and actually had some sense about design. The materials weren’t particularly any different. It was all about design.’*

*‘What I expected to see was largely quite competent, probably pretty awful looking buildings but in the main sort of okay. What I actually saw was crass incompetence and hugely badly spent money which was all down first of all to bad design.’*

1 The impact of CABE’s enabling programme on the quality of secondary schools built, OPM, 2006.

**Figure 6: How good are new schools?**

Average % scores for schools given full quality assessment



**Procurement type**

- PFI
- Non PFI (traditional/design and build)
- Enabled PFI
- City academy

## **Part D: A snapshot of the design quality of BSF pathfinder and wave one projects**

**Schools take time to build: up to four years from project inception to operational delivery. So the design quality study within this report necessarily focuses on initiatives that came before building schools for the future (BSF).**

**This section of the report looks at BSF pathfinder and wave one projects that are on the drawing board. As none of these projects had been constructed at the time of our research, it was not possible to assess the built quality of the schemes. Instead, we asked all of our enablers working on pathfinder and wave one projects to give us feedback on progress to date to provide a snapshot of the design quality of the schemes on paper. We also asked enablers to highlight the key factors that they think affected these projects. By asking a series of simple questions we discovered some very consistent and identifiable trends across the projects.**

**Our snapshot has shown us that many of the problems with design quality identified in the rest of this report still exist as potential problems within BSF.**

# 1.0 The expected benefits of BSF

**As described in Part A, building schools for the future is not a form of procurement, but a government investment programme, with the development of 'joined-up' educational visions and transformational design at the heart of the process.**

The context for the BSF programme is positive:

- The government is firmly committed to bringing together significant investment in buildings (and ICT) with significant educational reform, subject to future public spending decisions.
- At the heart of the programme is a requirement for local authorities to come up with an innovative educational vision, which considers the whole estate holistically and extends school activities and related services such as healthcare and social care into the local community.
- There is a strong support network of organisations covering all aspects of school design and delivery. Constantly improving ways of communicating and disseminating experience-based advice and guidance support and inspire interested parties and illustrate what 'good' looks like.

The delivery model preferred by Partnerships for Schools (PfS) is the local education partnership (LEP). This is a public-private partnership joint venture that can accommodate various forms of procurement. PFI is the option preferred by PfS but the LEP has also been developed to allow for a design and build (and ICT) option. Considerable work and consultation by the Department for Education and Skills (DfES) and PfS has gone into creating and agreeing the LEP approach and it is considered fundamental to realising the benefits of the BSF programme.

Many of these benefits relate to consolidating risk, reducing costs and streamlining delivery by providing centralised project management, procurement and commercial transacting experience, standardised contract and other specifications as well as design solutions.<sup>1</sup>

In particular, PfS considers that the BSF programme offers distinct advantages due to the longer-term nature of the partnership with the local education authority (LEA), which should provide a good incentive to build high-quality schools in the initial phase to win confidence for subsequent buildings.

CABE enablers have welcomed the fact that the contracts will be larger and there will not be a competition for each school. They felt that this meant the bidders would put in far more effort and energy into the programmes.

As BSF gathers pace, one of the most positive developments is the amount of experience that is being gained. The enablers said there were now more architects and contractors around who had been involved in building schools and that 'everybody has learned a lot'.

Enablers felt that some good teams are being put together:

*'On my project for example, the bid teams are very strong. In the two BSF projects which have gone to the preferred bidder, all the teams bidding had good architects.'*

**'Groups bidding for BSF are putting together quite good teams and it's quite hard to be in them so I'm encouraged by that'**

And they felt it was changing the way they looked at how to select a team:

*'The BSF thing is different...it's a test, it's an examination as opposed to designing a building. I am thinking about setting in place a process by which I can examine the depth of the whole consortium, not just designing one school or two schools. It's getting into that ability to look at a problem and solve it in different ways, because obviously you've got different problems. If you say "the test is building a sixth form full-entry, secondary school" then that's one particular peculiar problem but it doesn't actually solve a small or a larger refurbishment project. I'm trying to think of a way to go about setting an examination which actually examines their ability to respond to particular issues because it's very different to selecting a design. It's a subtle difference.'*

**'You're selecting capability and attitude'**

As a 'joined-up' programme, BSF has attempted to remove a considerable number of the barriers to creating transformational schools, particularly those to do with delivery issues. As we saw in Part A, the idea is that new schools will not merely be new buildings but places that will change how we learn and teach. That will require transformational design. Under BSF the government is putting revised frameworks into place to support local authorities and enable them to take advantage of the considerable investment offered and to think strategically. However, as will be seen, local authorities are not all following the same model. While this is perhaps only to be expected, there is a danger that this could be less efficient.

CABE believes that BSF does have the potential to deliver its stated objective to create schools that inspire learning that:

*'...nurture every pupil and member of staff ... (and are) a source of pride and a practical resource for the community.'*<sup>2</sup>

However, this will only be possible if the important lessons to be learned from the early BSF projects are applied to the future programme.

## 2.0 BSF pathfinder and wave one projects

**There are five pathfinder local authorities and 12 wave one local authorities. CABE enablers are enabling (or have completed enabling) all 17 local authorities as part of a service level agreement with the DfES.**

Figure 14 in Appendix H<sup>3</sup> indicates the progress of each project at May 2006, when we conducted our research.

## 3.0 Delivery and procurement models

For this part of the study, we collected reports for all 17 of the pathfinder and wave one projects. We have removed all references to places, people or organisations to maintain anonymity in the findings.

We asked our enablers to describe the delivery model and procurement for their project, in particular explaining where this deviates from the 'standard' PfS-preferred model of LEP with design and build, PFI or a combination of the two.

Ten out of 17 (58 per cent) of the BSF pathfinder and wave one projects are broadly following the PfS-preferred model of forming a LEP and using a mixture of PFI and design and build procurement, with variations on facilities management.

The remaining seven (42 per cent) deviated from this model. The reasons for these variations were all unique and included:

- preference for an alternative delivery model to the LEP due to the local authority considering an alternative model will be more successful
- preference for not forming a LEP due to the scale or number of BSF projects in area
- preference for not following a contractual route due to the local authority considering an alternative model will be more successful
- existing private framework commitments (contracts to build) that the local authority considers are fit to continue maintaining
- existing private framework commitments for facilities management (FM) that the local authority considers are fit to continue maintaining
- existing local authority FM that it considers are fit to continue maintaining
- a combination of the factors above.

### 3.1 Variants from 'standard' LEP model

#### Variant one

This alternative delivery model involves a two-stage process. Stage one involves the appointment of a strategic partner organisation (SPO). The SPO is a delivery organisation, with the emphasis on the financial, management and educational capability rather than design capability. Stage two is the procurement of a supply chain of builders and service providers.

The local authority is appointing an SPO to procure and manage the reconstruction and refurbishment of major capital projects. The appointment will be made at the end of a competitive process and the SPO will enter into an exclusive 10-year agreement to supply services relating to the feasibility, design, financing, procurement,

delivery and maintenance of public buildings, particularly, but not exclusively, school buildings.

The next design procurement stage is now under way (summer 2006), steered by the SPO. It will involve establishing a panel of suitably qualified architectural practices to provide full design and landscape design services and act as lead consultant to a client appointed multi-disciplinary team.

The wave one programme anticipates the rebuilding of three new secondary schools with a further two schools to be substantially extended and remodelled. The local authority is establishing one panel to undertake the new build projects and one panel to undertake the refurbishment projects. Each panel will comprise five practices.

Once the panels are established the practices will compete for the commissions on the basis of price, quality, capacity and other criteria.

#### Variant two

This project involves the rebuilding of eight secondary schools. The local authority does not want PFI schools. Cost analysis identified a shortfall in funding with PFI procurement. The first of the schools in the local authority's BSF wave will be procured via a traditional route.

The CABE enabler commented:

*'The local authority's operational and maintenance side is strong, and they do not wish to lose control of this in the development of new schools.'*

#### Variant three

This BSF programme includes all of the city's secondary schools. The local authority has an existing FM provider for the whole of the school estate. Phase one of the BSF programme has reached preferred bidder and consists of schools already designed but not constructed under the previous PFI programme. Design services have been novated. Returns from the pre-qualification questionnaire (PQQ) for design and build services for phase 2 of the BSF programme are due in the autumn.

Schools built under the BSF programme will be transferred to the FM provider subject to the resolution of legal matters, once the capital works are complete. The BSF programme will therefore be carried out by design and build contractors under a partnering services arrangement with the local authority. It is probable that the ICT service provider will be procured separately.

#### **Variant 4**

This BSF project has a sample size of two schools. The programme involves secondary and special schools, new build and refurbishment of schools on very tight sites. The local authority is not forming an LEP but proceeding on the basis of design and build contracts with two of its framework contractors, which bring their own architects. These are both large national contractors with large architectural practices.

#### **Variant 5**

The local authority's BSF project uses a one-off model with no LEP for two secondary, one special and one voluntary-aided secondary school. The voluntary-aided school will be procured by design and build while the others will use PFI. Facilities management services may also be considered for the voluntary-aided school in discussion with the archdiocese.

#### **Variant 6**

This project involves the replacement of all 11 of the local authority's secondary schools with eight new learning centres. Because this covers the entire stock of secondary schools in the borough, there is no need for a LEP and therefore all the projects will form a single PFI contract.

Three learning centres have been selected as samples, and the remainder will be negotiated post contract. It is intended that the bidders produce a generic design that can be adapted to each site and size of learning centre.

#### **Variant 7**

The local authority bolted its second PFI project on to its BSF programme. The result was a large initial group of sample schemes. According to the CABE enabler:

*'The only reason that the local authority chose to go out to tender with such a large sample was that the primaries, whose PFI 2 was already heavily delayed, thought that being in the sample would speed things up. I advised strongly against such a large sample but did not convince them.'*

The local authority will set up a LEP for all the projects and will introduce a number of additional non-sample schemes after it has been formed.

### **3.2. Significance of variation**

Many of these variations address particular contextual situations, but they are also preferences. Despite still being a form of partnership in principle, variant one is in some ways the most radical, in so far that it separates out the selection process for different areas of expertise. It is a model that could be potentially applied to other local authority projects and allow variations to allow for local preferences.

On the one hand, it is worrying that such a high proportion of projects (42 per cent) have deviated from the LEP model, since one of the strengths of BSF is considered to be the use of standard procurement and delivery contracts and documentation. Local projects should be able to draw on national expertise and there should be no need to keep on reinventing the wheel. On the other hand, there should still be room for local innovation in national programmes. There should be some freedom for local authorities to respond flexibly to local circumstances and it is important to bear in mind that the whole point of pathfinders is to learn from their experience.

It is too soon to be able to evaluate all the effects of these variations from the 'standard' LEP model. However, CABE believes it is vital for PfS to support local authorities in applying non-LEP procurement approaches, whilst continuously assessing their impact and ensuring that experience will be extracted and fed back into procurement advice given for future waves, potentially as alternative recommended models.

## 4.0 Design quality of BSF and pathfinder schemes

### 4.1 What is the design quality of the sample schemes produced by bidders invited to negotiate?

For this part of the study, we collected enabler reports on the design quality of sample schemes for 11 out of 17 pathfinder and wave one projects. Refer to Appendix G for full details. Three projects were excluded from our research because they had not reached invitation to negotiate (ITN) stage. A further three projects were excluded from the analysis due to the alternative basis of procurement resulting in the avoidance of sample schemes and/or the competitive process. Of these 11 pathfinder and wave one projects, we looked at sample schemes (by three bidders) for 37 schools (a total of 111 samples). 106 schools are being built as part of pathfinder/wave one, and so CABE looked at 35%. The total number of schools that will be built over the complete BSF programme by these selected LEPs is 257 schools. So 257 schools will be built based on the samples we saw. These are estimated figures based on PfS data. See Figure 14, Appendix H.

We asked our enablers the following question:

- How many bidders invited to negotiate produced schemes of an 'acceptable' standard or higher?

The definition of 'acceptable' was a scheme that is not flawed significantly, fundamentally or less significantly on a number of different levels. All schemes submitted by a bidder had to meet this acceptable standard.

Whilst it would be inappropriate to infer too much from the evidence we gathered because projects are at different stages and have all been subject to a different iterative process, there is certainly no clear trend of consistency of design quality amongst the schemes being presented at the ITN stage.

It is of particular concern that, in the opinion of the enabler of the project, in roughly a quarter of cases none of the schemes presented at ITN by any of the bidders were of an acceptable standard. A similar proportion appeared to have only one acceptable set of schemes out of three, which would imply a lack of competition. Further, it should be noted, that of those schemes deemed 'acceptable', only a very small proportion were deemed 'transformational'.

An important aspect of the selection procedure is that it is a competitive, 'knock-out' process, which means that in some cases the quality of schemes did improve by the time they reached best and final offer (BAFO) or preferred bidder stage. However, this was not always the case, and is of course largely dependent on the strength of the competitors in the first place.

CABE has identified a risk that sample schemes will be viewed as the 'high water mark' for designs procured through an individual local education partnership (LEP). The incentive to produce high-quality designs will be at its peak during the competitive stage of the procurement process and the drive for efficiency could take precedent over design excellence once the LEP is formed. According to PFS projected figures, approximately 90 per cent of the pathfinder and wave one schools procured through an LEP will be designed at this non-competitive stage. For this reason, the importance of achieving outstanding sample scheme designs cannot be overstated – these will set the standard.

### 4.2 What is the design quality of sample schemes produced by bidders invited to negotiate and by selected preferred bidders?

Further to the simple statistical study above, there are a number of key findings and clear themes that can be drawn out from the enablers' written reports.

These reports show evidence that some architects, contractors and local authorities are rising to the BSF challenge. However, they also confirm that enablers are concerned about the design quality of many proposals at both invitation to negotiate and preferred bidder stage. They are also worried about procurement systems that place insufficient emphasis on design. This section presents a selection of their comments.

Where contractors and architects were rising to the challenge, they were producing good schemes:

**'Each of the schools has an individual design. The schemes have the potential of being developed to be interesting'**

*'Because it was a pathfinder, I think the contractors were as keen as mustard, and went the extra mile.'*

Evaluation of the submissions of different bidders indicated that quite often the different bidders' schemes were of variable design quality. In some cases enablers considered the 'least bad' option was chosen; in others, due to issues such as affordability the better quality schemes were not always selected as preferred bidder.

*'One bidder's designs were considered unacceptable overall and design was evaluated as "fail", therefore bid excluded. One bidder's schemes were of variable quality but two would require major redesign. All were over-complex and raised serious concern on whether*

*they would actually be affordable. The recommended preferred bidder's schemes were considered overall to be acceptable but not outstanding, although they do have potential for considerable improvement.'*

On another scheme, the enabler thought bidder one's initial designs were 'over-ambitious and unaffordable'. The bid was 'revised to very mediocre designs'. Bidder two produced designs for the three schools that were all based on different planning approaches and 'appeared to have been individually developed to suit the different sites and the requirements/ethos of each school'. Bidder three (which was selected as preferred bidder) also had different design approaches to all three schools, which were 'clearly responses to the specific sites and school requirements'.

Another enabler's assessment of the three bidders shows some of these recurring themes. Bidder one has a 'generally good quality of design with proposals closest to "exemplar" standard. Best understanding of education vision. Strong on energy saving devices, environment and sustainability. Compliance with BB93. Landscape well integrated. Issues with the design philosophy for one school. Future expansion proposals not fully thought through. Affordability problems.'

Bidder two had 'generally good, robust scheme designs. Well-detailed solutions on landscaping and servicing. Some planning concerns and issues to resolve. Design integration with facilities management needs further consideration. Designs not future-proofed in terms of energy efficiency/sustainability. Better balance between design and cost.'

Bidder three's design proposals were considered 'weak'. The enabler noted: 'Scheme's very ordinary with little understanding of how students socialise. Generally poor use of space both internally and externally. Circulation a problem – too many corridors. M&E proposals weak. No commitment to renewables and little use of alternative power sources. General non-compliance with BB93. Affordable at ITN submission.'

Other project teams were overcoming obstacles to come up with solutions that worked for their schools. However, funding remained a problem that could hamper progress:

*'The nature of the procurement route avoids sample schemes and the preferred bidder process. Design development has been spread over a much longer period with full consultation with the schools, pupils etc. One of the schools retains a significant percentage of the existing buildings, but these constraints have resulted in an innovative design solution that will result in a very good school, conditional on resolving a funding gap. If this is not resolved then there will*

*remain serious reservations about the design solution. The second school is entirely new build and includes a co-located special school. Whilst there are good elements to the proposals, there are also major flaws which are currently being addressed, though we have yet to see the outcome of the redesign.*

*'This is generally a cost/quality issue at present, with one bidder proposing the better designs but which are unaffordable; one bidder more affordable but with designs of slightly less quality; and a third which is wholly affordable but with poor design quality. Thus the council are engaged in a long clarification situation in order to produce a "level playing field" for proper decision making.'*

In other BSF projects, all bids were judged to be unsuccessful:

*'In my opinion all the schemes submitted by the bidders were poor with several fundamental problems in terms of their function and form which resulted from fundamental errors in the strategic thinking or unresolved issues of detail. Examples of these problems were: poor access and site circulation; unclear circulation through the building; a lack of structural clarity; potentially poor environmental conditions within the buildings; inappropriate and undisciplined use of cladding materials and fenestration.'*

*'The projects from the preferred bidder selected were probably the best of a poor bunch but they also contained some fundamental errors. We have attempted to correct these errors by means of a workshop process and there is some evidence that two of the projects are now acceptable but we still have worries about the third. Examples of problems which remain unresolved are: poor circulation within the school; inappropriate position of blind spaces on the façade such as the sports hall at the expense of teaching spaces needing an outlook; lack of discipline in the structural grid; and inflexibility for the future.'*

**'The level of design was at the maximum five or six out of 10. The schemes also varied in their content and quality with lack of identity to each of the sites'**

*'Design is reasonable although could be developed further. I believe that the scheme is at five out of 10 in terms of quality.'*

Another enabler noted a scheme in which little brief development had been carried out and little education development or dialogue. 'Unimaginative designs' had been produced across the board and many of

the schools felt uninvolved, with little dialogue between design teams and schools. Many designs replicated past schemes.

Similarly, one enabler could see the shortcomings in his project:

*'Of the three bidders invited to negotiate, one has produced reasonable designs that with further development and refinement could attain above average quality; the other two bidders have submitted designs that have not developed significantly in recent weeks (in spite of intensive design workshops) and are generally not of an acceptable quality. Whether either of these two bidders can translate these under-developed submissions to an acceptable quality is questionable. All three bidders' schemes lack sufficient evidence of materiality, spatial development, and clear strategic proposals for landscaping and sustainability (social and environmental).'*

In some cases enablers noted that fundamental parts of BSF, such as transformational architecture and sustainability, had not even been addressed:

**'Mixed views on the bids. In all cases the level of information for the external treatment of the building is limited. There is no attention to sustainability in the proposals – or just token gestures – which is a shame bearing in mind the importance placed on this by the local authority'**

*'The design quality for some of the new schools is disappointing. Most of the designs are standard with limited evidence of transformational architecture. A few of the designs have signs of repetitive layouts and elevational treatments.'*

## 5.0 Factors affecting design quality

**We asked our enablers the simple question: ‘In your opinion what are the key factors which have affected design quality most on your project?’ Several important lessons emerge from their answers:**

### 5.1 Getting the initial preparation wrong

#### **The educational vision and transformational design**

Enablers recognised that transformational design represents a break with the past and therefore a challenge to schools and designers alike. That challenge would mean breaking with past orthodoxies, embracing new ideas of learning and creating a new idea of ‘school’:

*‘Historically over the past 40–50 years secondary education environments have not changed that much, often constrained and controlled by rafts of restrictive guidance and regulations, mitigating against the “transformation agenda”. The challenge is therefore not to repeat what has been done in the past, but for LEAs to build upon their educational successes and embrace the new emerging pedagogies in education and I don’t just mean increased use of ICT.*

*‘For example, transformation in education also raises issues of how a learning environment fits into its wider context and its integration with the community it serves. In the future the boundaries between schools and the outside world will be less clearly defined and new educational facilities should enable these boundaries to be spanned.*

*‘This raises a raft of issues around how educational buildings might operate in the future, their specialisation, hours of opening, security and so on. I don’t believe this vision for educational buildings as a community resource has been really addressed in the work I have seen, which is a missed opportunity in the context of the BSF programme.*

*‘A key challenge for designers, teachers and educationalists is to make secondary schools more stimulating and rewarding. BSF is an opportunity to change the perception of “school” from a place you are obliged to come to one where you want to come, an environment that is both welcoming and well designed.’*

*‘Diversity in an LEA’s educational approach and therefore school building, particularly in the BSF programme, is likely to be much greater than the rather formulaic approach to school organisation and buildings of the past. This suggests a responsibility for the LEAs to develop a clear vision for learning with their educators from the outset and “buy-in” to the new*

*pedagogies that are emerging, including the staffing levels to support a new and transformational approach to education.’*

In some cases, this message was getting through:

*‘The council has extremely high aspirations for innovation and design quality. The learning centres are intended to be quite radical in design terms, and the brief rejects many of the conventions in BB98. There is a very strong emphasis on achieving a step change in educational standards, and in transforming attitudes and approaches to education in the borough.*

But in others the message was getting lost in the procurement process:

*‘In my experience this vision for new ways of learning has been slow in development within LEAs, affecting brief development, support from head and senior teachers and the output specification for the new buildings that are being designed and built. This has caused some problems within bidding consortia, which, with their design teams, have really attempted to promote transformational teaching environments in their design approach, if you like leading on the education vision rather than following one that has been clearly developed by the client and firmly supported by the head teachers. This does raise another fundamental issue with the PFI process and that is the lack of client engagement and participation through consultation with design teams to develop a design solution, often promised at “preferred bidder” stage but never really delivered in the enormous rush to complete the buildings!’*

*‘The understanding and analysis of the wider context in which these projects are being developed is often poorly considered, affecting fundamental decisions on how a site is masterplanned to achieve the best possible result with regard to civic presence and impact, as well as just sorting out how traffic and pedestrians should be separated and moved around a site. Invariably it is affordability that drives the more expedient building solution, where the new school gets “shoe-horned” on to the only available area of site and in a number of cases not the best location. LEAs are told that bidding consortia will bring a raft of development skills to deliver innovative solutions for a site’s development – mixed-use, residential, etc. To date I have not really seen these skills demonstrated, which, within the context of a long-term LEP, is worrying.’*

*‘Another lost opportunity is that design teams do not have the time within the PFI process to consider and expand through dialogue transformational learning environments with regard to pedagogy and technology.*

*The traditional design of a school is slowly transforming from the current specialised teaching spaces and classrooms with a set school day and curriculum towards multi-purpose spaces with flexible timetables and individual learning plans – potentially at multiple locations across a neighbourhood. Until consultation on these issues is properly addressed, we will only receive rhetoric on issues of flexibility, future proofing, sustainability etc rather than exciting, integrated and innovative design solutions.'*

### **Feasibility studies**

In some cases, feasibility studies were not being carried out properly:

#### **'Brief development hardly commenced beyond basic level'**

*'Feasibility studies commissioned for three schools demonstrate good design quality. Work carried out in house is less satisfactory, poor design quality.'*

In several schemes, the procurement process was causing problems. This was wasting time in a system where there was not enough time in the first place:

#### **'Size of sample far too large. The bidders simply couldn't do all the design work to a satisfactory standard in the time allowed'**

*'The option appraisals were unsatisfactory and time has been wasted trying to clarify briefs etc. The planning constraints on some sites were also unrealistic in the original briefs.'*

*'The transformational vision and brief for the scheme is not always fully resolved prior to release of the ITN, resulting in time being spent by consortia "going backwards" with clients/schools. The available time between ITN release and submission is inadequate, resulting in design teams in reality having to produce designs for major new transformational secondary schools in only three or four weeks. As demanded by the ITN, schemes are drawn up as RIBA stage D designs, but in terms of clarity of thought they are really only at stage C or C+ and therefore subsequent work is required before a preferred bidder can be declared. This is why so many BSF schemes go to best and final offer stage, with all the attendant delays and additional costs.'*

## **5.2 Failure to involve the right team**

### **Local authority experience**

As was to be expected, enablers found some good local authorities and some poor ones. Good ones were engaged with design:

*'The local authority has considerable depth of experience in PFI projects. Brief documents and evaluation process seemed generally to be well handled.'*

#### **'The council have consistently had high design aspirations, and the planner seconded to the project full time has played a useful role'**

*'High-quality input from local authority in terms of technical advice and design support through in-house meetings and design workshops involving all local authority disciplines, plus client design advisor, design champion and CABE enabler; excellent briefing documents from local authority. Very good follow-up notes after design workshops from the client.'*

However, the influence of design champions varied according to the individuals involved. In poor local authorities they lacked influence and failed to display leadership:

*'The design champions have been pretty useless. The councillor given the role apparently fell out of political favour. The officer design champion (an architect/planner in charge of urban design) has been almost completely ineffective, and didn't respond when I raised critical design issues, such as sample size.'*

*'The client design advisor and the design champion have not led the schemes and have not been as supportive as they could be. They have not understood the principle of leading and developing the design.'*

The lesson drawn from this was that:

#### **'The client design advisor and also the design champion need to be on board well before any design or discussion takes place with consortium'**

### **Client design advisor involvement**

Unsurprisingly, enablers see the client design advisor (CDA) as a crucial role. *'Absolutely necessary to manage design quality,'* as one put it.

Where the role works well, the project as a whole benefits:

*'Involvement of two good client design advisors has been very successful and liaison between them, the authority and CABA enabler has been a very positive and beneficial experience.'*

However, advisors need to be influential and be appointed at an early stage:

*'I believe local education authorities should invest in the services of informed client design advisors who can engage early with a client and help develop strategic and visionary design principles, embody them in the output specification and perhaps have some involvement in developing exemplar public sector comparitors (or at least advise on the selection of an appropriate design team to undertake this piece of work) which in my experience bidders normally welcome. What is important is that a client design advisor maintains a role throughout the entire project even at preferred bidder stage to ensure that all that is being promised at ITN is delivered and not value engineered into something quite unrecognisable, which can often be the case.'*

*'The local education authority failed to select a high-quality design advisor and have not had the benefit of independent design advice throughout the bidding process.'*

*'The client design advisor was not appointed until half way through the ITN stage. Although the CDA has done a fantastic job since appointment, if they had started earlier a lot of problems and delays could have been avoided.'*

Another key lesson is that advisors need to think and act independently:

*'The CDA was a subcontractor to the project managers and, although he apparently got on well with the schools, he was not very challenging on quality. I was called in to help out when the schools didn't like aspects of the proposed preferred bidder schemes.'*

*'There is an in-house architect chosen by the local authority. He had much experience of PFI schools and was able to work almost full time with bidder design teams and schools. However, he was disappointed with final designs. Perhaps he was too close to past PFI outcomes. An independent "critical friend" was also*

*appointed to give further design critique but was appointed too late in [the] process to affect bid designs.'*

*'The council decided not to appoint a CDA direct, but have one as a subcontractor to the technical advisers. I have concerns that the person carrying out the work is not particularly challenging in terms of design quality, but I have not yet seen the results of his design evaluation of the bids.'*

*'The LEA chose a lacklustre in-house design advisor without considering any other options. He has been too close to the procurement team and has allowed himself to be swept along with the pressure of the programme and failed to stop most of the proposals going off the rails. My limited involvement in the vetting of schemes did not allow me to spot these errors until late in the procurement process.'*

*'The in-house client design advisor has not had sufficient input placing too much reliance on the CABA enabler.'*

*'The CDA and the design champion have not led the schemes and have not been as supportive as they could be. They have not understood the principle of leading and developing the design.'*

Enablers say the role needs to be clearly defined and settled early in the process:

*'The CDA and also the design champion need to be on board well before any design or discussion takes place with consortium. I would suggest that the CDA should be on board at the completion of the SBC [strategic business case]. This will ensure that the design and the weighting are maintained at the highest level.'*

**'The role of the CDA needs to be clearly defined for the project team and the role also needs to be emphasised to the bidders'**

### **CABE enabler involvement**

Some local authorities are keen to get CABE enablers involved:

*'CABE were involved at an early stage – which was good and influential. It also enabled CABE to get to know the schools and the stakeholders and to understand their vision.'*

*'The authority are well organised and have involved CABE as often as possible within the budget.'*

And enablers felt they were making a useful contribution even to projects that were experiencing problems:

**'This has been quite a good project to enable. I think the project team have been under-resourced and a lot of the problems stem from this. The project leader is committed to good design, and the CDA has been used very effectively by the council, once in place'**

However, other enablers found it difficult to engage with the client and the project team:

*'My enabling activity was pretty minimal. This was because the first council project manager seemed to see me as a threat. Also, I came into the project far too late – half way through the ITN bidding stage.'*

*'This has been a difficult project to enable. I have found it difficult to engage with the project team, I suspect because they have been very stretched delivering a very ambitious programme.'*

One enabler summed up a general feeling that changes were needed so that enablers started work earlier and spent more time on the project:

*'The role of the CABE enabler if possible should be extended. The ten days support is not enough and should be more. Again CABE involvement should start at the beginning of the project and not mid way through the process. There needs to be a close relationship between the CABE enabler and CDA to ensure that the designs are progressed.'*

### **Schools' involvement**

One of the aims of BSF is to involve schools in the new buildings they will be using. According to enablers, schools are reacting enthusiastically:

*'The schools involved had visited a lot of new schools, and had pretty clear ideas about what they wanted (and didn't want). They had also done work with Schoolworks. I don't think the relationship between*

*the schools and the LEA was particularly good, but the schools stuck out for high design quality.'*

*'The staff of each school were closely involved in the process: they arranged several visits to precedents in UK and Sweden, had several meetings with each design team and CDA during ITN process, had local authority BSF co-ordinators, and were part of ITN evaluation team (using DQI). However, some of the final bid designs were not considered acceptable by them.'*

*'The council has very ambitious plans for stakeholder involvement and has arranged imaginative visits, such as a trip to a new school in the Netherlands for school students. The authority will be carrying out DQI evaluations of the bids by a wide range of stakeholders.'*

*'Good involvement and consultation, particularly with pupils.'*

However, one enabler said that more support was needed to keep up that initial enthusiasm:

**'The headteachers are relatively well informed but need more support to progress through the next stage and to be guided on the technical proposals for the schemes'**

### **Design team selection**

Enablers found that the quality of the design teams working on BSF schemes was variable. On the positive side:

*'Despite being a "one-off" project with no LEP, the pre-qualification questionnaire and pre-invitation to tender [PITN] attracted major consortia with generally good quality design teams.'*

**'The good bidders' schemes are affected by the quality of design teams, using more than one architect practice (two for each of the two bidders), separate but integrated landscape resources, a holistic approach and serious engagement with the process'**

In contrast, other architects were not engaging with schools and seemed to be unaware of the need for transformational design:

*'The poor bidders' schemes are affected by design effort not following through rigorously enough, in sufficient detail to resolve the proposal. There is no joined-up thinking across the design team, no real engagement with concerns of school.'*

*'Architects seem to lack any real knowledge of recent educational trends and developments.'*

**'Generally design skills of all the architects seem incapable of reflecting the transformational agenda'**

Several enablers felt that the importance of design was being under-played in the selection process:

**'The calibre of design teams selected by shortlisted bidders was very variable. I don't believe the LEA took much notice of bidders' design teams in the shortlisting process. Two of the design teams were good, the other poor. So the LEA were lucky to get two quite reasonable sets of designs'**

In some cases, local authorities had realised this and done something about it:

*'The quality of the design teams does not appear to have been taken into account when shortlisting bidders. Although I provided advice on the track record of bidders' design teams after expressions of interest had been received, this appears to have been ignored. The calibre of the design teams working on bids has been variable, but I am hopeful that some of the designs will be good. The council did realise that their design teams were weak after shortlisting, and bidders were advised to expand their teams to include more creative practices. Two teams did this and made interesting choices for an additional design partner.'*

In others, they had realised but taken no action:

*'Several bidding consortia containing design teams with a record of high-quality school design were rejected because of perceived faults in other parts of their bid because they were not rewarded sufficiently for the calibre of their design teams. The LEA was unable, or unwilling, to convey their unease about the quality of these designers to the selected bidders. Success in school design often depends on working with talented and committed designers and it is impossible to get good high-quality designs from those who are incapable of producing them.'*

## **5.3 Inadequate procedures for evaluating proposals**

### **Design weighting**

Several enablers felt that the evaluation process was fundamentally flawed because national guidelines did not include enough weighting for design:

*'The weighting for design in the evaluation was ridiculously low – 2.4 per cent of the overall score. The council got very shirty when I suggested increasing it – they said it came from the standard PfS documentation!'*

*'The evaluation process was not structured.'*

**'The PFS scoring matrix has produced a "levelling" effect on the scores for the consortia to the detriment possibly of design. Whilst there has been a fairly clear order and hierarchy of the bids in terms of design, other evaluation criteria have considerably affected this order'**

*'The low apportionment of points for building design within the PfS assessment system at pre-qualification stage allowed bidders with weak design teams to enter the bidding process.'*

*'The procurement route has restricted the selection process for the architects.'*

Worryingly, one enabler felt this was leading to a situation where some design teams would build schools inferior to ones they had built before:

*'At ITN stage, design and construction was only 21 per cent of evaluation, and of that only 6 per cent was on scheme designs themselves. The remainder was on factors like methodology, health and safety, consultation etc that were seldom differentiators. The local authority insists it tried to increase design weighting but were prevented from doing so by PFS. Not only did this mean that the designs actually counted for little in the final evaluation, but also that the signal to bidders was that selection and resourcing of design teams was not critical. All the design teams had previously built better schools than these designs. At PITN stage quality of design team only counted for 2 per cent of selection scoring.'*

However, these problems did not stop other local authorities and schools giving a much higher weighting to design in the evaluation:

*'Design has been given a high weighting in the evaluation, at I think 35 per cent overall.'*

*'There has been a very positive management of the scheme since autumn last year, engaging with schools, and embracing and trying out design quality indicators to a greater extent than anywhere previously, and most recent bid evaluation has involved bidders presenting their self-evaluation of each school's DQIs, with particular attention to the distinguishing added value and excellent indicators, which has allowed the different qualities of the bids to be evident, and their presentations to be marked on a comparative basis by a wide range of stakeholders.'*

Some problems came from clients focussing on the wrong things:

*'I have a concern that the council are more focussed on achieving innovation than on securing well-designed buildings. Their evaluation criteria do not appear to give due weighting to excellence in building design, and are more orientated towards process and technical considerations. However, sustainable design is an important evaluation criterion.'*

Enablers felt that evaluation should be made more rigorous as far as design quality is concerned:

**'There needs to be a formal evaluation process for the schemes to be assessed. This needs to be established at an early stage to ensure that the schemes are weighted against the right criteria'**

*'The process and the weighting for design should be clearly defined at an early stage.'*

#### **Design development**

Enablers felt more persuasion was needed to improve designs:

*'It will be critical to try to persuade preferred bidder to improve quality of designs during design development stage, although this may be hard to achieve without the competitive leverage.'*

In some cases the problem was the client:

*'The LEA team clearly do not believe that the huge level of investment in new school buildings over the long-term warrants the careful selection of talented design teams and affording them time to demonstrate their skills.'*

In others the concern was that the contractor would dilute the design quality:

*'Concern over the next stage of the design and maintaining the quality – particularly if the contractor leads the design.'*

*'Elevations are very bland and in some instances the materials are not detailed. This is the resistance of the contractor to commit. This could have a major impact on the overall scheme.'*

## **5.4 Failure to apply best practice**

### **Procurement and delivery model**

Some BSF schemes are using innovative delivery models that ought to improve design quality:

*'The model is set up to produce a strategic partnering organisation (SPO) first, and design input subsequently. This raises interesting questions which will only be answered once the model has been allowed to run a cycle. If the model were allowed to run in its pure form, there would probably have been no design at all in the SPO selection. On the plus side, this has the big advantage of not wasting scarce and valuable design time in the production of sample schemes, the majority of which will be binned. But, this does raise a fundamental question: if design is not headlined at SPO selection, will it ever really be an important enough issue in the process downstream?'*

### **Programme**

Construction programmes mean pressure for all concerned. As one enabler put it:

*'The time/quality/cost equation is always a very real and serious challenge for all parties involved.'*

In one case, an extended programme did allow for quality of design:

*'The longer bidding period does seem to have produced more creative designs from two of the design teams.'*

In more cases, enablers felt the programme did not allow enough time:

*'Because of time constraints all three design teams approached the development of their design as a planning exercise (ie resolve the plan then draw some elevations) rather than taking a holistic view about designing a new educational facility with, for instance, a strong architectural philosophy regarding the educational strategy, community involvement, or concept about landscape integration or environmental sustainability. Architectural theory is generally weak or absent; design priorities focus on resolution of plan and site footprint.'*

*'The programme was pretty tight, and the initial designs were a bit light on detail.'*

*'The LEA procurement team set an impossible programme for the bidding programme and there has not been sufficient time to work through the amendments needed to the sample schemes.'*

*'The authority would like more time to assist in the development of the design.'*

*'The timescales have been very tight for the development of the four schemes – which has an effect on the development of the designs.'*

*'The bidding period was also too short. The normal three-month period was allowed, which is inadequate to produce high quality designs for a small number of sample schemes. For seven designs it was ridiculous.'*

*'Severe lack of time due to LEA and DfES indecision. Design time therefore restricted.'*

This meant that pressure was exerted on the whole process and enablers feared this would mean design losing out:

*'It has been clear from my limited observations of the process that the procurement team has been so obsessed by the programme that it has not wanted to stop and consider the longer-term implications of the design proposals. It has also been clear that the design teams have been working under such pressure that they have been too tired to respond to reasonable critical comment.'*

*'The LEA procurement team have subjugated design quality to deliverability.'*

**'I have many years experience of acting as design advisor to an LEA delivering a variety of PFI projects and have recognised in this project the unhealthy effect of a strongly motivated procurement team working through a pressurised programme and avoiding adverse comment about design in case it delays the programme. This will probably result in the delivery of poorly designed schools bang on time'**

## **Affordability**

Apart from time, cost is the other main driver of construction projects and concerns about costs are bound to emerge. The issue is how project teams react to this.

They can respond by cutting back on design:

*'Impressive presentations by design teams at the beginning of the ITN stage, regarding landscape strategy, sustainability and design approach were largely abandoned either because of lack of design development time or because the architects were not being paid adequate fees to undertake the work required to develop proposals in sufficient depth and to adequate quality.'*

*'Two bidders had to completely redesign schemes at a very late stage, during ITN clarification stage, due to affordability problems, radically cutting back and changing the schemes which had been developed with schools and the CDA. This suggests insufficient co-ordination and cost feedback within bidder teams.'*

*'Generally a good field attracted to bid, but time/cost/quality equation proving difficult to deliver transformational solutions.'*

*'CABE have been involved in the initial design process and have been able to enable the design however the cost has taken over.'*

The better bidders had systems in place to respond to concerns about costs:

*'The good bidders' schemes were affected by not cutting back on cost at this stage but responding to brief and consultation.'*

*'Affordability is an issue at the moment but I have advised that the better bidders' teams will be better able to make cost savings and achieve a good school compared to the inadequate bidder (who appears at this stage to have produced a compliant and affordable bid).'*

Enablers also identified some schemes where there was no independent cost evaluation and others where they feared the contractor would be making the decisions:

*'One bid was within affordability target but design complexity and specification raised concerns as to whether it would really be affordable. This could not be evaluated properly as the local authority had no independent cost evaluation within process.'*

*'The business case and the establishment of the initial figures for the schemes need to be clearly defined and*

*subject to current market conditions. The costs per sq m for some of the business case are very low. This does not take in account the current market trends and also innovation in design.'*

**'The contractors' costs have had a major effect on the design. The contractors have in some instances restrained the design proposals. This includes the innovation of the schemes and the development of the concept designs'**

That means there is a real need for systems that can compare and evaluate costs in a more sophisticated way:

*'There has still been a risk that a "cynical" bid, ie one which goes for affordability above all else and pays lip service to design quality, could be preferred in the second round over the other two, which at this stage appear less affordable, (especially where there are decision makers with a PFI history where they see cost as dominant and the rest as a minor detail) but we hope this risk has now been averted. Clearer guidance to LEAs would be a good idea to avoid this risk. It is likely that the financial evaluation is still superficial at this stage and there is a danger of comparing seemingly cheap apples with seemingly expensive pears. In reality the costs are likely to be much closer if all are pursuing a comparable level of quality.'*

- 1 *Building schools for the future – Questions and answers*, DfES, 2006. Available to download from [www.bsf.gov.uk/documents](http://www.bsf.gov.uk/documents)
- 2 *Building schools for the future – Consultation on a new approach to capital investment*, DfES publications, 2003
- 3 Spreadsheet available from [www.p4s.org](http://www.p4s.org) as most recently updated version
- 4 One local authority has made the decision to re-programme the timing of the project to enable more efficient delivery. This will mean that the project runs alongside wave two BSF projects. It is understood that it will remain the intention to form a LEP
- 5 See Figure 14, Appendix H. Spreadsheet available from [www.p4s.org](http://www.p4s.org) as most recently updated version.

# Part E: Recommendations and further work

**Our snapshot of design quality in pathfinder and wave one projects in building schools for the future (BSF) has shown us that the problems with new school design quality identified elsewhere in this report still exist as potential problems for the future. Our recommendations therefore draw on both earlier completed initiatives studied in depth and the fast-changing world of BSF.**

**Implementing them will require hard work from and collaboration between government, local authorities, schools, architects, contractors and all the other organisations involved in the school building programme. However, there are also some very positive signs for the future. The Department for Education and Skills (DfES) and Partnerships for Schools (PfS) have already launched several new initiatives to improve design quality. Other organisations such as Schoolworks, the Design Council, the Sorrell Foundation and others have been working to spread inspirational ideas and best practice.**

**These recommendations do not seek to reinvent the wheel. At the time of going to press many had already been identified by industry interest groups and were already being applied on the best projects. The challenge is to make that improvement across the board and ensure that our secondary schools are truly fit for 21st century education.**

**Specific recommendations appear after the square bullet points in this section.**

# 1.0 Invest in preparation

A good building starts with a good brief. A good brief comes from a thorough understanding of the programme, the aspirations of the client and all stakeholders, local constraints such as site conditions and buildings to be retained, and a rigorous testing of possible solutions. Preparation work for BSF projects will need to be even more extensive as schools and local authorities must consider how learning will be transformed, including the massive impact of ICT, and the influence that the extended schools agenda may have on the school buildings and grounds.

## 1.1 The educational vision and transformational design

The importance of the educational vision has already been emphasised as the starting point of a successful BSF project. The translation of this vision into practical solutions to 21st century teaching problems remains the challenge. These solutions will have to be adaptable and flexible enough to evolve to respond to changing needs and requirements.

- The DfES should fund the review and analysis of school design briefs as a matter of urgency. They have hardly changed in the last 20 years. They need to reflect new ideas about learning and the demands of transformational design.
- The DfES should explore new models for legislation and guidance to replace *Building bulletin 98*.

## 1.2 Feasibility studies

It takes time to get the brief right and undertake the 'manipulation of the brief', as well as to include stakeholders in the design. The long-term relationship of the local education partnership (LEP) may help but better preparation is essential. As the Treasury's PFI taskforce put it recently: '*The government's view is that authorities need to do a certain amount of design work upfront in order to test their requirements and the design brief properly.*'<sup>1</sup> This should be possible as BSF waves are defined. This initial work will provide an invaluable learning curve for client bodies new to BSF.

- Local authorities should undertake mandatory feasibility studies to a consistent, high standard for all sites in a BSF project. This should be part of the strategic business case and outline business case and pre-invitation to negotiate requirements.
- Consortia should undertake a mandatory pre-project evaluation of existing or similar schools before starting design work on a project.
- PfS is drafting a document detailing a range of necessary information required from the local authority at each project stage. This should clearly identify the skills required and consultant type best suited to carry out each item of work in the output table of documentation to be produced at each stage.
- Local authorities should use feasibility work to develop and inform their design objectives and the market brief. Work should form a benchmark for the competitive process quality, which will be invaluable in assessing providers' bids. This information should be available to bidding consortia. This is not about removing design from the bid process. It should be seen as a method to promote, not stifle, innovation from the private sector and the client should be willing to recognise whether ideas have been bettered.

## 2.0 Involve the right team

**Our research has shown that a skilled project team significantly impacts on the design quality of a school. Local authorities must ensure that they appoint the highest calibre teams who can champion design quality from the start to the end of the process.**

### 2.1 Local authority experience

It is vital that the local authority demonstrates adequate assessment of resources required to support all BSF project stages and commits necessary funding.

- Local authorities should make a clear assessment of in-house skills and use outside expertise where necessary.

### 2.2 Design champions

- Local authorities should value and promote the role of design champions, drawing upon the guidance produced by CABE.<sup>2</sup>

### 2.3 Client design advisor involvement

The job description of a client design advisor (CDA) is all-encompassing and is set out in CABE's guidance, *The client design advisor*.<sup>3</sup> The 'ideal model' assumes a CDA has been appointed at the earliest possible opportunity and has all the skills set out within our document to carry out the job description. The reality is that it is unlikely that any CDA will have all the skills or capacity to be contracted to carry out the whole of this job description.

- PfS should define a compulsory minimum duration and clear scope of work for CDA involvement in BSF projects. CABE's guidance on the CDA provides further details.<sup>4</sup>
- The CABE enabler should advise on the selection of CDA(s) to meet the full job description as set out in CABE guidance. This may involve more than one CDA to reflect the amount of work involved, capacity and skills shortage issues identified.
- PfS should regulate to ensure that the CDA comes from a design background and a different organisation from the technical advisor. This means the design advisor will complement the technical advisor's skills and generate alternative points of view. It is desirable that the design advisor is employed direct by the client. In many cases, local education authorities (LEAs) employ technical advisors to cover a wide range of roles, such as project management, cost

advice and facilities management advice. The design advisor then tends to be a subcontractor of another discipline, such as a quantity surveyor. This can affect the influence of the design advisor in relation to crucial decisions affecting design quality.

- DfES should advocate the CABE enabler working in a mentoring capacity to the CDA(s) and other consultants.

### 2.4 CABE enabler involvement

Our research reveals a strong view among clients that the involvement of a CABE enabler inspires confidence and leads to a smoother project process and more effective outcomes with bidders.

- DfES should make it mandatory to appoint a CABE enabler at the outset of a BSF project so that they are able to influence key decision-making.
- CABE should carry out an evaluation of the scope of work of the enabler to ensure projects are gaining the maximum benefit from their time and expertise.

### 2.5 Schools' involvement

Participation becomes a driver for innovation and change and generates a sense of ownership. The school and its community must decide what they need and want for both the immediate and longer term future.

- Local authorities should engage with representatives of all potential users in the community in order to assess local and individual needs. It may be possible to include facilities that the community lacks, such as a nursery or library, in the school building project.
- DfES should ensure that practical, individual support is made available to headteachers so that they are familiar with the changing agenda of transformational design, the procurement process, and are aware of the assistance that is available. This service should signpost resources that are available, explain details of the procurement process, link up clients at similar stages of the building process and develop best practice mentoring networks.
- Consultation and feedback should continue throughout the construction period. Newsletters, websites and displays can all be used to update everyone on progress.

## 2.6 Design team selection

If bidders do not have high-calibre design teams, achieving more than mediocre design will be virtually impossible. It is therefore up to the client to set these standards and ensure their delivery.

- PfS should revise the standard Official Journal of the European Union (OJEU) notice award criteria to state that design teams must have a demonstrable track record of design excellence in complex building projects or the education sector.
- PfS should revise standard contract documents in order to include potentially competent design teams in BSF who are currently liable to exclusion from bidding due to limited professional indemnity insurance cover (PII) or secondary education experience.
- PfS should revise the OJEU notice and subsequent associated documents to emphasise the design quality aspects of the brief.
- CABE's 10 key points for good design in schools should be included in PfS documentation from the outset and used as a reference point throughout the procurement process.

## 2.7 Provider support

Some private sector partners (PSPs) are beginning to see that issues such as design quality and sustainability could give them an edge in bidding for work. For example, a project that aims for an 'excellent' BREEAM environmental rating could appeal to clients over one that pays less attention to energy efficiency. This trend needs to be encouraged by promotion and clarity of the value of good design, reflected in the evaluation criteria of the bidding process.

- DfES should fund the provision of expert seminars, workshops and tours of inspirational school buildings to disseminate best practice to all parties involved in BSF.
- Mandatory post-occupancy evaluation will encourage contactors to commit to better design.

## 3.0 Evaluate proposals

Public money should not be spent on schools that are inadequate. The quality of proposals should be signed off by DfES before the decision to invest is confirmed.

### 3.1 Design weighting

- PfS should change the mandatory criteria upon which bidders are selected to ensure that adequate weighting is given to design quality. These criteria should be issued at OJEU stage, in order to meet competitive dialogue procedure<sup>5</sup> regulations.
- These weightings need to reflect the particular type of procurement being used and also the increasing and welcome standardisation in the areas of finance, legal and facilities management.

### 3.2 Bid information

Clients need to ensure that the invitation to negotiate (ITN)/preferred bidder submission is in sufficient detail to allow proper evaluation of design quality.

- PfS should prepare guidance that lists the mandatory minimum range of necessary drawings and documents required as part of a bidder's submissions to demonstrate that design work is of good quality.

### 3.3 DfES-led schools review panel

The quality of proposals should be signed off by the DfES before the decision to invest is confirmed.

- All feasibility work prepared by the local authority and all design proposals prepared by the private sector partner or LEP should be submitted to a DfES-led schools review panel for approval. If the review panel considers a submission unacceptable, the DfES should withhold funding.
- Sample or significant projects should be submitted to CABE's design review panel, as the national centre of excellence for design review, for quality monitoring purposes.
- The review reports should be usefully fed into a performance monitoring process conducted by PfS.

### 3.4 Whole-life design

From our evidence, demonstrations of ‘value for money’ do not appear to equal best value in terms of design quality and, in particular, long-term gains. For example, they do not reflect flexibility, learning outputs and build quality (consistently the weakest of the three design aspects of each building that CABA reviewed). In particular, this affects energy use, sustainability issues, mechanical and electrical services and robustness of finishes.

The recent Gershon review<sup>6</sup> sets ambitious targets of 2.5 per cent per year efficiencies for local government. The review recognises that a large majority of this will come from efficiencies in spending on schools. BSF aims to deliver these targets based on rigorous value for money demonstration. Unless a local authority can demonstrate a better value for money and more effective method of delivering the investment made possible by BSF, this will be through the LEP model. The LEP model’s aim is to streamline procurement processes and to generate the maximum possible efficiencies in working together with private sector partners<sup>7</sup>.

However, with bid evaluation criteria for design at ITN and preferred bidder stage undefined and typically within a negligible percentage range, this will undoubtedly be to the detriment of the transformational design quality and long-term value for money of the completed schools. This conflicts with the emphasis in BSF on the importance of design life.<sup>8</sup>

- DfES should change funding mechanisms through the use of devolved capital sinking funds, to make lowest whole-life cost mandatory, rather than lowest capital cost.

- PfS should develop a core set of mandatory criteria upon which bidders are selected to ensure they demonstrate compliance with building bulletins or best practice and the provision of specific design information regarding issues such as daylighting, glare and acoustics.
- The OJEU notice criteria should state that the contract will be given to ‘the most economically advantageous tender *on a whole-life basis*’.
- DfES should investigate the robustness of the BREEAM environmental rating system for schools. A similar tool should be developed for use on all refurbished and remodelled schools.
- PfS should develop standard output specifications to ensure that schools are designed to minimise energy consumption (which includes provision of controls that are easy to use). Where energy is required, this should be derived from on-site renewables. Indeed, given the land and assets schools often possess, they should seek where possible to be net exporters of energy to their local communities.
- Risk should be transferred to private sector partners for meeting post-occupancy environmental targets for both PFI and design and build/facilities management.
- As part of the building handover and as part of a school’s readiness for service, the consortia should be required to assist the building users during the initial occupation period to ensure design and operation of the building is well understood. The achievement of design intents, energy use targets etc would then be verified by the post occupancy process.
- Local authorities should employ extended building handover periods such as the ‘soft landings’<sup>9</sup> method to ensure building managers take responsibility for user understanding of the building.

## 4.0 Mainstream best practice

### 4.1 Procurement and delivery models

Approximately 3,800 new schools will be built through BSF. It is important that a mechanism is established for systematic learning from early projects to ensure the continuous improvement of those in later waves. This applies to both the buildings themselves and the processes used to realise them.

Design quality varies significantly, but based on the evidence from this report and from previous audits, conventional PFI and design and build methods of procurement consistently score lower than other forms of procurement across the complete study period (2000 to 2005). Unfortunately, CABE's review does not match the government's optimism indicated in 2004 that 'PFI is now delivering some truly excellent school buildings'.<sup>10</sup>

It is not proven yet whether the introduction of the LEP model of delivery, which is designed to make these two forms of procurement more effective, will deliver improvements.<sup>11</sup> Emerging models are being developed to respond to individual client needs and changing market requirements.

- PfS should encourage and carry out an analysis of emerging delivery and procurement models (those that vary from the standard LEP, PFI or design and build) and commit to using this information to inform continuous improvement of the BSF process.

### 4.2 Industry capacity

There is a risk that the increasing demands of the BSF programme will not be matched by a supply of high-quality design teams and consortia.

Our evidence indicates that there has already been an observed market shift towards the supply side, with providers asking 'what can you do for me?' This is in contrast to the previous DfES expectation that '*the larger scale of projects will be more attractive to the construction industry, and both the public and private sector have proportionately lower bid costs*'.<sup>12</sup>

A lack of design teams with the skills and expertise, as well as an inability to think transformationally, was a feature of the schools programme between 2000 and 2005, reflected in the poor design quality of the sample. As one CABE enabler put it:

*'I think there could be a mechanism by which we start talking intelligently to them [the large practices] and saying "look here's a problem, the problem is we think schools aren't being well enough designed...we think you haven't got enough talent in-house to do it. You've got the size, you tick all the financial boxes and all that stuff but actually we think you should think about how you're going to encourage the talented people to join you...we're talking about getting really good people into your organisations and if you can't employ them directly as an employee you need to find another way of getting to work with them".'*

- PfS should investigate ways to raise the capacity of private sector partners to deliver education projects by encouraging partnering between organisations with different skills.
- PfS should investigate ways of involving small construction companies and localised supply chains to broaden supply side and develop a local skills base.

### 4.3 Programme

Our report identifies that procurement timescales are often not long enough to meet the demands of the programme. Inadequate timescales, coupled with insufficient resources cause greater inefficiencies down the line in the procurement process.<sup>13</sup>

- PfS should define the minimum time periods which local authorities should allow for in their project programmes for feasibility work for all sites in a BSF project – both prior to release to the market and for key bidder design stages.

### 4.4 Affordability

The current BSF funding split is 50 per cent new build, 35 per cent major refurbishment and 15 per cent minor refurbishment. Approximately half of that funding is in the form of PFI credits rather than conventional financing. Clearly this dictates the procurement route, despite the BSF and the LEP model being open, in principle, to conventional PFI and design and build methods of procurement.

Under BSF local authorities are having to make difficult decisions about where to ‘cut the economic cake’ in a short period of time, based on limited feasibility studies. Some of the school estate may invariably be compromised due to local asset conditions. Alternatively, this may result in an affordability gap, which will become the burden of the local authority.

- DfES should make it mandatory to use good-quality reference schemes to ensure that local authority cost estimates are more accurate.
- DfES should work with architects and quantity surveyors with experience in schools projects to develop a method for comparing costs within BSF that accounts for design quality.
- DfES and PfS should investigate obtaining ‘open-book’ costings for commercially sensitive BSF projects via the LEP, where board members are from the public sector.

### 4.5 Extended services

The government wants to use the school rebuilding programme to create buildings and facilities that reach out in to the wider community. As the BSF consultation paper makes clear:

*‘Achieving greater community use of schools’ learning and sports facilities and, where possible, co-locating other services such as health, childcare or neighbourhood renewal, other community activities, can be complex. The strategic planning necessary to renew the secondary school estate will provide an opportunity to plan and draw in funding from other sources such as neighbourhood renewal, for these important wider needs and services. Guidance on improved joined-up planning and funding can be found at [www.teachernet.gov.uk/bsf](http://www.teachernet.gov.uk/bsf).<sup>14</sup>*

In addition to local authorities not always considering strategic planning, many clients are unaware of where to source information regarding funding from other sources.

- DfES should ensure it is mandatory to involve other local authority departments and local agencies in early dialogue as a means of co-ordinating and masterplanning the wider agenda of extended services.
- DfES should provide further guidance regarding linking up regeneration funding with BSF and examples of funding stream models for offering extended services and meeting the 14–19 agenda.

### 4.6 Schools database

It is imperative to develop and maintain a schools database to maintain representative criteria sets to be drawn up for audit, assessment and accountability reviews of the validity and assumptions inherent in the BSF strategy. The dissolution of asset management plans makes it even more essential that a complete, up-to-date schools database, as gathered by CABE for its review, is available and accessible.

- DfES should fund the setting up and maintenance of an accessible, centralised database on all built or remodelled schools including those falling outside of the BSF programme.
- The database could be extended to provide an accessible written and photographic library service that provides comparable data. This could include good practice aspects, build costs, procurement methods, points of interest and basic data on the type of school, size, consortia and design teams as well as energy consumption as built (asset rating) and actual in use (operational rating).

- The database would provide the material to put together a road show of good schools to provide further stakeholder, consortia and client support.

## 4.7 Post-occupancy evaluation

In other areas of the built environment, such as housing, post-occupancy evaluation has proved to be an invaluable tool in assessing design quality. The same should apply to new schools.

- Every BSF project should include a compulsory post-occupancy evaluation. This analysis should include user satisfaction, DQI for schools, a quality assessment and a cost analysis. Results of these should be linked to the award of subsequent contracts.
- The findings should be shared anonymously with PfS and CABA, which should in turn be responsible for producing and disseminating a summary of lessons learnt at the conclusion of each wave of the BSF programme. This directly echoes the recommendations in the Audit Commission report, *PFI in schools*, on lack of open-book accounting and 'asymmetry of information' between buyers and sellers.<sup>15</sup>

## 4.8 Research collaboration

The number of school completions will increase dramatically as the BSF programme escalates and monitoring the quality of the buildings completed will help ensure that lessons are learned and integrated to produce better designs. This study sets a baseline against which the emerging schools programme can be measured. Further research should be expanded to include refurbishment and extended school aspects of BSF.

- DfES, CABA and PfS should continue to work together to undertake more in-depth studies of the school building programme when pathfinder and wave one BSF programmes are operational.
- DfES should publicise good practice aspects of BSF more widely and coordinate on a working level with the Department of Health, learning from LIFT projects.
- DfES should expand and modernise Teachernet to make links to relevant technical and educational research and expertise available.

- 1 *PFI: Strengthening long-term partnerships*, HMSO, 2006, Refer to p.104. 'The government's view is that authorities need to do a certain amount of design work upfront in order to test their requirements and the design brief properly'. Available at [www.hm-treasury.gov.uk](http://www.hm-treasury.gov.uk)
- 2 *Local authority design champions*, CABE, 2005, available at [www.cabe.org.uk](http://www.cabe.org.uk) Further information regarding the design champion's role in BSF is available from CABE
- 3 *Building schools for the future: the client design advisor*. CABE/Royal Institute of British Architects, 2005. Available at [www.cabe.org.uk](http://www.cabe.org.uk) Further information regarding the client design advisor's role in BSF is available from CABE
- 4 *Building schools for the future: the client design advisor*. *ibid*
- 5 The new Competitive Dialogue Procedure replaces the Competitive Negotiated Procedure under new EU procurement regulations from January 2006
- 6 *Local education partnerships: PfS response to consultation feedback on the LEP model*, PfS, 2004. Available at [www.p4s.org.uk](http://www.p4s.org.uk)  
Sir Peter Gershon, CBE, Releasing resources to the front line: independent review of public sector efficiency, HMSO, 2004. Available at [www.hm-treasury.gov.uk](http://www.hm-treasury.gov.uk)
- 7 Partnerships for Schools: Local education partnerships: PfS response to consultation: feedback on the LEP model (August 2004), [www.teachernet.gov.uk/bsf](http://www.teachernet.gov.uk/bsf). accessed 05 January 2006
- 8 'Building schools for the future – questions and answers, June 2004' [www.bsf.gov.uk/faqs/](http://www.bsf.gov.uk/faqs/) accessed 04 January 2006
- 9 Soft landings is a recently piloted process which aims to ensure education and training for staff and students in energy performance measures and how to run the buildings better.  
B. Bordass and M. Way, *Making feedback and post-occupancy evaluation routine: soft landings – involving design and building teams in improving performance*, Building Research and Information, volume 33, Nos. 4.  
Available at [www.tandf.co.uk/journals/pr.asp](http://www.tandf.co.uk/journals/pr.asp)
- 10 'Building schools for the future – questions and answers June 2004' [www.bsf.gov.uk/faqs/](http://www.bsf.gov.uk/faqs/) accessed 04 January 2006
- 11 *Partnerships for schools: the local education partnership (LEP) model: volume 3: frequently asked questions*. [www.teachernet.gov.uk/bsf](http://www.teachernet.gov.uk/bsf). accessed 04 January 2006
- 12 Refer to [www.p4s.org.uk](http://www.p4s.org.uk), frequently asked questions/ensuring improvement/how is this going to deliver different results from the existing PfS?
- 13 In line with 'PFI; Strengthening long-term partnerships' recommendations, p103–105
- 14 *Building schools for the future: consultation on a new approach to capital investment*. Department for Education and Skills, 2003, p.8
- 15 *PFI in schools*, Audit Commission, 2003, part 5, paragraph 71.



### **14–19 agenda**

Government policy on education and training for 14–19 year-olds.

### **Accommodation schedule**

Outlines the exact number of rooms, their minimum sizes, and any special internal requirements.

### **Asset management plan (AMP)**

The local education authority (LEA) strategic assessment to identify schools in need of building work.

### **Best and final offer (BAFO)**

In PFI, the final priced bid submitted by bidders.

### **Best value**

The value that is represented by considering quality and lifetime costs, rather than construction costs alone. Central and local government clients are charged with obtaining best value for their construction projects, as for all other aspects of government, rather than seeking lowest price.

### **Bidder**

See **Consortium**.

### **Bill of quantities**

A quantity surveyor writes this to describe the full architectural drawings, schedules and specification in order that the contractor can price this at the tender stage of a traditional contract.

### **Building Research Establishment (BRE)**

Company conducting research into building methods and technologies

### **BREEAM**

BRE environmental assessment method which measures energy efficiency of buildings

### **Brief (outline or detailed)**

The outline brief is an initial description of the client's goals and requirements. The detailed brief is a development of this with input from users and the design team.

### **Build quality**

Relates to the performance of the engineering systems and construction, including structural stability, safety and robustness of the systems, finishes and fittings.

### **Buildability**

The extent to which the design of a building facilitates the ease of construction.

### **Building bulletin 98**

DfES briefing guidance for secondary school projects, including area guidelines

### **Building Schools for the Future (BSF)**

A government programme set up to deliver new and refurbished secondary schools, normally in part of one LEA area, using a mixture of PFI and conventional funding with substantial private sector involvement. Partnerships for Schools (Pfs) assists local education authorities to deliver this programme.

### **CABE enabling and enablers**

CABE's enabling programme provides advice for clients to help them get better value from their projects through better design. The enabling panel consists of built environment professionals who are allocated to individual projects. A CABE enabler is a member of a panel of experts, mostly architects, who are allocated by CABE to provide client-side advice on certain public projects.

### **CIC**

The Construction Industry Council is the representative forum for the professional bodies, research organisations and specialist business associations in the construction industry. The CIC is also responsible for developing the DQI tool (see Design Quality Indicator)

### **City academies**

Central government and private sponsor funded all-ability schools to provide secondary education for pupils aged 11–16/18. They cover the full national curriculum and they also tap into the expertise of the sponsor.

### **Client design advisor**

An architect who works with the client and users to advise them on brief development, on the appointment of the design team and has an ongoing role advising the client on design quality.

### **Consortium/consortia**

In PPP/PFI the teams bidding for the contract are known as the consortia. The consortia normally consist of funders, facilities management and construction companies. The design teams are subcontractors to the construction companies.

### **Construction design management (CDM)**

Regulations that require a client to appoint a planning supervisor who is responsible for checking that the design, construction and occupation of a building complies with health and safety regulations.

### **Contractor/building contractor**

The team (or person) that constructs the building.

### **Contract signature**

The point where the project team becomes formerly committed to building. See **Financial close**.

### **Covenants**

Restrictive rules that apply to specific tracts of land or property.

**Design and build**

Procurement route where the building contractor is partly or entirely responsible for design development and for construction.

**Design champion**

A person appointed to provide leadership, generate enthusiasm and commitment to design quality and safeguard design quality on behalf of the client. Ideally a senior officer or elected council member.

**Design team**

Responsible for designing the building. It is usually led by the architect and includes landscape architects, structural and service engineers and cost specialists.

**Design quality indicators (DQI)**

An online and paper based tool developed by the Construction Industry Council to evaluate design quality based on three aspects, impact, build quality and functionality ([www.dqi.org.uk](http://www.dqi.org.uk)).

**Detailed design**

RIBA plan of work stage E. The last stage in design development.

**DfES**

Department for Education and Skills.

**Education development plan (EDP)**

The document outlining the local education authority's development strategy for education, used in applications for DfES funding.

**Employers' agent/clerk of works/client's agent**

Check work as it proceeds to ensure compliance with the specification and make regular reports to the client/architect.

**Enabling**

Preparation work before the main construction contract starts on site. For example site clearance, excavations and services diversion.

**Exemplar designs**

The DfES BSF programme commissioned best practice concepts and ideas for five primaries, five secondaries and one all-through school.

**Facilitator**

A specialist who helps an organisation articulate its needs and define internal channels of communication.

**Facilities management (FM)**

Maintenance and running of the building following its completion.

**Feasibility study**

An initial study to determine the suitability of all of the various available options for a project.

**Final business case**

The development of the outline business case to be approved by the government's project review group before contract signature.

**Financial close**

Contract signature in PFI.

**Fit for purpose**

Meeting adequate standards for its use.

**Foundation schools**

A state school that voluntarily withdraws itself from local authority support and is instead maintained directly by central government. Previously known as grant maintained.

**Full or detailed planning permission**

Sought from the local authority to get agreement on detailed design.

**Functionality**

How well a building functions. The design quality indicator (DQI) measures functionality by use, access and space.

**Funder**

A body that provides finance. Many publicly funded projects have more than one funder. Funders impose conditions and are important stakeholders.

**Gross internal area (GIA)**

The amount of floor space inside a building, including staircases, plant rooms etc.

**Holistic**

Looking at the whole project rather than just concentrating on individual components.

**ICT**

Information and communication technology

**Impact**

Refers to the building's ability to create a sense of place and have a positive effect on the local community and environment. The design quality indicator (DQI) measures impact by character and innovation, form and materials, internal environment and urban and social integration.

**Invitation to negotiate (ITN)**

The competitive stage of the PFI procurement route.

**JCT98**

The traditional form of contract most commonly used and recognised in the industry.

**Kinesthetic learning**

Learning by physical activity.

**Local education authority (LEA)**

The part of the local authority responsible for education.

**Local education partnership (LEP)**

Formed, in BSF, when the successful private sector partner (PSP) is appointed. It consists of representatives from the LEA, PfS and the PSP.

**M&E**

Mechanical and electrical services.

**Masterplan**

A spatial plan which sets out proposals for buildings, spaces, movement strategy and land use.

**Non-sample designs in BSF**

The school projects that are not part of the bidding process in the selection of a private sector partner (PSP); the subsequent projects after the sample designs.

**OJ/OJEU**

Official Journal of the European Union. Formerly known as OJEC. Publicly funded projects over a certain size must advertise here for professional teams and builders.

**Options appraisal**

A first stage of design to examine options. For example the relative merits of new build or refurbishment.

**Outline business case (OBC)**

This is a requirement of the second stage of approval for BSF funding and has to contain full details of all the school projects included in a particular phase of funding.

**Outline planning permission**

RIBA plan of work stage C. Submitted to the local authority to get agreement in principle on an initial design strategy. Ideally obtained by client and included in ITN documentation in PFI projects.

**Output specification**

Part of the tender documentation for PFI projects. Identifies outcomes rather than prescribing detail.

**Partnering**

Method of procurement involving contractors, professionals and suppliers working closely together in partnership to reduce costs and improve quality. This can be a contractual or goodwill agreement.

**Partnerships for Schools (PfS)**

Non departmental government body set up by the DfES to assist local education authorities in delivering the BSF programme. Wholly owned by the DfES, but jointly funded by DfES and Partnerships UK.

**Pathfinders**

First pilot projects in BSF trialled to ensure the most effective approach is adopted on how we deliver new proposals.

**Pedagogy**

The principles and methods of teaching. Changing pedagogy necessitates different sorts of architecture, to allow for changing teaching and learning methods.

**Personalised learning**

Tailoring education to individual need, interest and aptitude so as to ensure that every pupil achieves and reaches the highest standards possible, notwithstanding their background or circumstances and right across the spectrum of achievement.

**Planning supervisor**

Appointed by the client (or in PFI, Preferred Bidder) under the CDM regulations.

**Pre-qualification questionnaire (PQQ)**

Questionnaire filled in by interested parties as a response to an OJEU notice advertising a contract.

**Preferred bidder**

The bidding consortium selected at the end of the ITN for final negotiation of the PFI contract.

**Private finance initiative (PFI)**

PFI is a form of public private partnership. A procurement route in which a private sector supplier takes over the design, construction, finance and management of a building for use by the public sector. The typical operating period is 20–30 years. Outputs that the service is intended to provide must be clearly defined. At the end of the operating period, ownership of the building normally reverts to the public sector.

**Private sector partner**

The private company or companies in contractual partnership with the public body as part of a PPP

**Procurement**

The complete process of developing and purchasing a building and related services.

**Professional indemnity insurance (PII)**

Liability insurance cover which protects professional specialists including architects against third party claims arising from activities in their professional field; policies and conditions vary according to profession.

**Project leader**

Leads the client-side project team. May be a local authority officer or an external project manager with the time, authority and resources to see the project through, and will be the point of contact for all other groups and stakeholders.

**Project manager**

A specialist given day-to-day management of the building team, co-ordinating timetables and maintaining appropriate communication channels. The client's project manager safeguards the client's interest at all times, ensuring that the project is completed within budget, on time and to the right level of quality. The project delivery team will have its own project manager.

**Public private partnership (PPP)**

Procurement methods that involve working in partnership with private finance, including private finance initiative (PFI).

**Public sector comparator**

Cost of building a project by the public sector. Used to measure value for money against PPP costs.

**Reference design/scheme/project**

Initial design work commissioned by the LEA. Useful to confirm costs, consult with stakeholders and issue to competing bidders.

**Refurbishment**

Upgrading, remodelling or extending an existing building.

**RIBA**

Royal Institute of British Architects. A professional organisation with around 30,000 members, which exists to advance architecture and promote excellence in the profession.

**Risk transfer**

The transfer of risk from the public to the private sector is a fundamental feature of PFI and the LEP. Risks are of many kinds including political, operational and financial; not all are appropriate for transfer. Risks are allocated according to the principle that the risk should lie with the party best able to manage it.

**Strategic business case (SBC)**

The aim of a SBC is to combine the vision for education in an area with strategic asset planning. This will help ensure that successive projects put forward by local authorities at outline business case (OBC) (see outline business case) are implemented in a phased manner, with projects that are properly scoped and affordable and that meet the objectives of BSF. This strategic planning is an important contributor to value for money. As such, the SBC will help to co-ordinate the plans and aspirations of all users and providers of secondary education in the locality, with regards to BSF.

**Sample schemes in BSF**

In BSF, the school sites included in the competitive phase (ITN) to select the PSP (private sector partner).

**Secondary school**

Key stages 3 and 4 (5 if it includes a sixth form), Years: 7–11/13, ages 11–16/18.

**Stakeholders**

All parties who have a right to be involved in some aspects of the project and should be regarded as 'clients'. These vary for different types of schools project but may include the pupils, parents, carers, the headteacher, teaching and non-teaching staff, the governors, the LEA and the Diocese.

**Special purpose vehicle (SPV)**

The company set up by a consortium to deliver and individual PPP/PFI project.

**Technical adviser**

A professional adviser who offers advice to the local authority client on the technical aspects of the PFI process.

**Tender**

A proposal, with costs, to carry out a piece of work.

**Tendering in traditional procurement**

A quantity surveyor produces a bill of quantities that describes the design team's drawing and specification. Building contractors submit prices and normally the lowest priced tender is selected.

**Traditional contract**

In traditional procurement, design and construction teams are procured separately, one after the other, and managed independently. The design is worked up first and used by the contractors to price their construction cost.

**Transformation agenda**

The DfES BSF programme is about more than just buildings. It is about transforming educational opportunities and attainment in secondary schools.

**Value for money**

See best value.

**Wave one**

First wave of BSF projects.

**Whole-life costs/life-cycle**

The full cost of a building over its life, usually taken as 25 years. This includes initial capital, running, replacement and repair costs.



# Appendix A: Audit of completed secondary schools – schools catalogue

To do a robust evaluation of new build secondary school buildings in England, we needed to compile an up-to-date database of current school building work built using a number of procurement routes, across a broad spread of regions, between 2000 and 2005.

## Inclusion

Inclusion in the catalogue was subject to the following conditions:

### Date of completion

We compiled a catalogue of all secondary schools completed between January 2000 (the year when PFS was established) and September 2005.

Relatively few new build schools were opened between 1997 and 2000. The rate of school completion increased very rapidly during 2003 and 2005. The dramatic dip in completions in 2004 has been commented on by a number of industry commentators, for example the Construction Products Association (CPA) in 2005:

*'Despite the sustained increase in available funding, education-related construction growth has slowed considerably during the past year. The pause in work flow and subsequent sector output, should be temporary, stemming from disruptions due to the creation of the Building Schools for the Future programme and the termination of other programmes such as New Deal for Schools.'*<sup>1</sup>

This explanation is likely, where speculation on policy decisions being made in 2002/03 were compounded by the timing of early phases of PFI completion, to affect delivery of projects in the 2004/05 third round of PFI.

Some of these later schools may only have been in operation a very short time and have not been through a full heating season. A full post-occupancy evaluation should not sensibly be undertaken until after at least one full heating season, and ideally after an 18-month 'honeymoon period' once the new school users have learnt how to use, and have become familiar with their new building. As the emphasis of this study was on a snapshot of professionals' views of the design quality of the finished product rather than the users' opinions of the construction process or the running of the new schools, inclusion of these recently occupied schools is acceptable.

### Value of construction

Only schools with a substantial degree of new building (over £7.5 million capital cost) were included. The average cost of a PFI school was found to be £14.9 million. This construction cost was calculated from publicly available data on clusters of schools and information provided by contractors.

The study excluded schools where new build works consisted of a single element of new construction, for example a sports hall or music building. Similarly, special educational needs (SEN) schools were not included as this tended to give a specialist slant to the design approach.

### Exclusion of refurbishment schemes

While not refuting the significance of refurbishment, especially to the BSF programme, it is beyond the boundaries of this research and refurbishment projects were excluded from the study for the following reasons:

- The initial stages of the study tried to collect information on both new build and refurbishment projects. However, there is poor information on the extent of refurbishment before BSF. The task of separating refurbishment and new build schemes within PFI clusters has been an extensive one.
- The information available on the number of non-PFI procured refurbishment schemes is particularly limited and fragmentary. Excluding non-PFI procured refurbishment schemes and selecting a very small sample to visit from the known PFI population would provide an extremely biased view.
- The selected methodology is likely to reflect unfairly on the complexity of issues surrounding refurbishment projects. The DQIfs statements which the evaluation uses in an adapted way do not cover all important refurbishment aspects and would not reflect in a comparable way against new-build schools, when used as an assessment tool.
- A snapshot of the design quality will not explore the variety of refurbishment approaches, the influence of standards of current accommodation, and suitable user evaluation.

### **Exclusion of primary schools**

Similarly, while a large proportion of PFI schemes to date have been primary schools (and the primary school aspect of the BSF program is gearing up), they have been excluded on grounds of comparison. There is an argument to study primary schools in a future study for the following reasons: their simpler typography; the number of exemplar schools/classrooms for the future; and the greater number of examples of primary schools designed by a diverse variety of smaller architectural firms.

### **Procurement route**

Differing forms of procurement and approaches to construction were included. Academies were placed in a separate category to recognise the individual focus and additional resources invested. However, it was felt that there were sufficient generalities and lessons to be learnt to include academies in the study.

## **Sources of information**

CABE's catalogue was based on a number of sources of information. Surprisingly, local authorities did not have a complete record of all construction taking place in their area. Some general information, such as PFI clusters and completed academies, was relatively available and reliable. However, it proved harder to obtain consistent and reliable detailed information on, for example, the number, location, and completion dates of individual PFI schools or voluntary-aided schools where construction work has taken place by non-PFI procurement methods.

Obtaining information successfully for PFI schools depends largely on building contacts within the private consortia. Schools, contractors and architects are often restricted in terms of information they are permitted to give out. Figures of individual capital costs largely belong to the consortia and are guarded as such, as is information about the architects and contractors involved in the project. Information on opening dates, school size and post-16 education as well as contextual information was generally obtained directly from schools, or their websites.

If there were uncertainties, or lack of confidence in the quality of the data, it was excluded.

1 *'Achievable targets 2005 – is government delivering'*

Construction Products Association 2005

[www.constprod.org.uk/micropdfs/achievable\\_targets.pdf](http://www.constprod.org.uk/micropdfs/achievable_targets.pdf) accessed 13/03/2006.

# Appendix B: Audit of completed secondary schools – sample size and selection

**To do a robust evaluation of new build secondary school buildings in England, we needed to visit a representative range of secondary schools built using a number of procurement routes, across a broad spread of regions, between 2000 and 2005.**

## Selection of schools to visit

Schools were visited in two tranches, the first between November 2004 and July 2005 as part of CABE's 'schools photography project', using a short adapted version of the DQI for schools (DQIfs) as a quality checklist. The DQIfs was still under development during this period and was not launched until 6 December 2005. The second round of school assessments, which was conducted during December 2005 and January 2006, were assessed using an evaluation tool adapted from the finalised DQIfs.

The schools selected for visits were a random sample, chosen to reflect the proportion of procurement approaches, and to provide a balanced spread by regional and school size. The earlier schools photography project selected schools from a smaller population (due to the fragmentary nature of information discussed earlier, and the increased numbers of schools opened in September 2005) but retained the same emphasis on diversity of procurement type, school type, region, and size (the brief was to visit 'four interesting schools' per region). These may have been slightly higher-profile schools (hence explaining their slightly better performance) and there is the possibility that this introduced a slight bias into the overall proportion of schools performing well. However, the compilation of the catalogue of all schools was an opportunity to verify the characteristics of the total population, and to adjust the the overall sample of schools visited to make sure that it was representative.

Regional spread was across the nine regions by urban and rural sites where building was occurring.

## Sample size

As a percentage of schools constructed, CABE visited over 40 per cent of the schools completed since 2000. This is a representative sample.

When the frequency of scores for PFI and non-PFI schemes were compared there appeared to be two separate normal distribution curves for each of the separate populations; the bell curve shape of the curves indicating a representative proportion of the total population had been assessed, and suggesting that the two populations had distinguishably different characteristics.

# Appendix C: Audit of completed secondary schools – validating the evaluation method

## The DQI for schools

The DQI for schools, launched by DfES on 6 December 2005, consists of a set of 111 statements that collect the views from all stakeholders by looking at the functionality, build quality and impact of schools:

- Functionality is concerned with the way in which the building is designed to be useful and is split into access, space and uses
- Build quality relates to the performance of a building fabric and is split into performance, engineering services and construction
- Impact refers to the building's ability to create a sense of place, and have a positive effect on the local community and environment. It is split into the school in its community, within the school, form, materials, character and innovation.

## Validation of the evaluation tool

The part of the audit which studies completed secondary schools assesses design quality using an adapted form of the DQI for schools (DQIfs) tool. It is necessarily adapted because the DQI for schools is a tool designed for consultation and gauging variation of stakeholder opinion purposes only, therefore this adaptation introduces a range of additional validation and moderation processes in order to allow us to use its indicators as a basis for measuring design quality.

On 13 November 2005, CABE undertook an exercise to test the use of the evaluation tool. This consisted of 25 of CABE's enablers and architecturally qualified staff visiting a single school and independently completing the assessment checklist of 111 statements.

### Variation of scoring

The statements were scored on a six-point scale, from 'strongly agree' to 'strongly disagree', depending on how much the enabler felt the statement was relevant to the school. They could also score the statement 'don't know', if they felt there was insufficient information to score the school or 'not applicable', if they felt the statement had no relevance to the school.

This scale was then given a numerical value where strongly disagree = 0 up to strongly agree = 5. For the purposes of testing the answers statistically don't know, not applicable or no response were given a null value. Following the calculation of an average score for the school, and for individual assessors, the variation for assessors overall and for individual statements was calculated. The six-point agree/disagree scale was converted to a five-point scale so that a school that

was graded 'strongly disagree' on all the statements would score 0 per cent rather than 20 per cent. The assessors discussed this possibility, and agreed that a completely unacceptable school building could exist, and score 0 per cent, but none of the schools visited were that appalling.

Variation between enablers (and the identification of optimistic/pessimistic markers is illustrated in Figure 12 overleaf showing the range of assessors' responses. A couple of the enablers were somewhat erratic in their opinion of the school. The nine assessors selected to undertake the visits to other schools tended toward a harsher critique of the school, when compared to the mean score, but overall demonstrated a greater consistency.

### Variation in responses to specific statements

In the control school used to validate the evaluation tool, several statements received a statistically wide spread of responses. These included subjective statements such as 'the building has character' or 'the building is well composed', but surprisingly there was greater variation on more objective issues such as the maintenance or durability of the building's finishes. The assessors' opinions of the suitability and quality of daylighting were particularly variable. On further exploration of this issue, the variation was less an assessment of the empirical daylighting levels, than the perceived suitability of the two dramatically different design solutions that the architect had employed. There was a contrast between the daylighting levels in the glazed circulation street and that provided by small high-level windows within the classrooms. This led to the agreement to regulate future responses to this question to a combined evaluation of daylighting across both the teaching spaces, and main circulation.

There was detailed discussion of the interpretation of the statements, identifying areas of ambiguity or emphasis. This exercise, jointly undertaken with Construction Industry Council (CIC), clarified the robustness of the use of the DQIfs statements in this way.

There was also a discussion of the test school's potential role as a mean or benchmark for acceptable achieved level of design.

**Questions with a low number of committed responses**

During the test there were several sections where the assessors felt they had insufficient information to complete the statements confidently. That is, questions with a high number of unanswered or ‘don’t know’ responses. This included the sections on performance (for example ‘the building produces a low number of complaints/faults reported by users’) or build quality and services engineering (‘the building and engineering systems minimise CO<sub>2</sub> emissions’). Questions of this type were considered difficult to verify without empirical testing and comparative verification, for example identifying what constitutes a low number of complaints, or the seriousness or impact of those complaints.

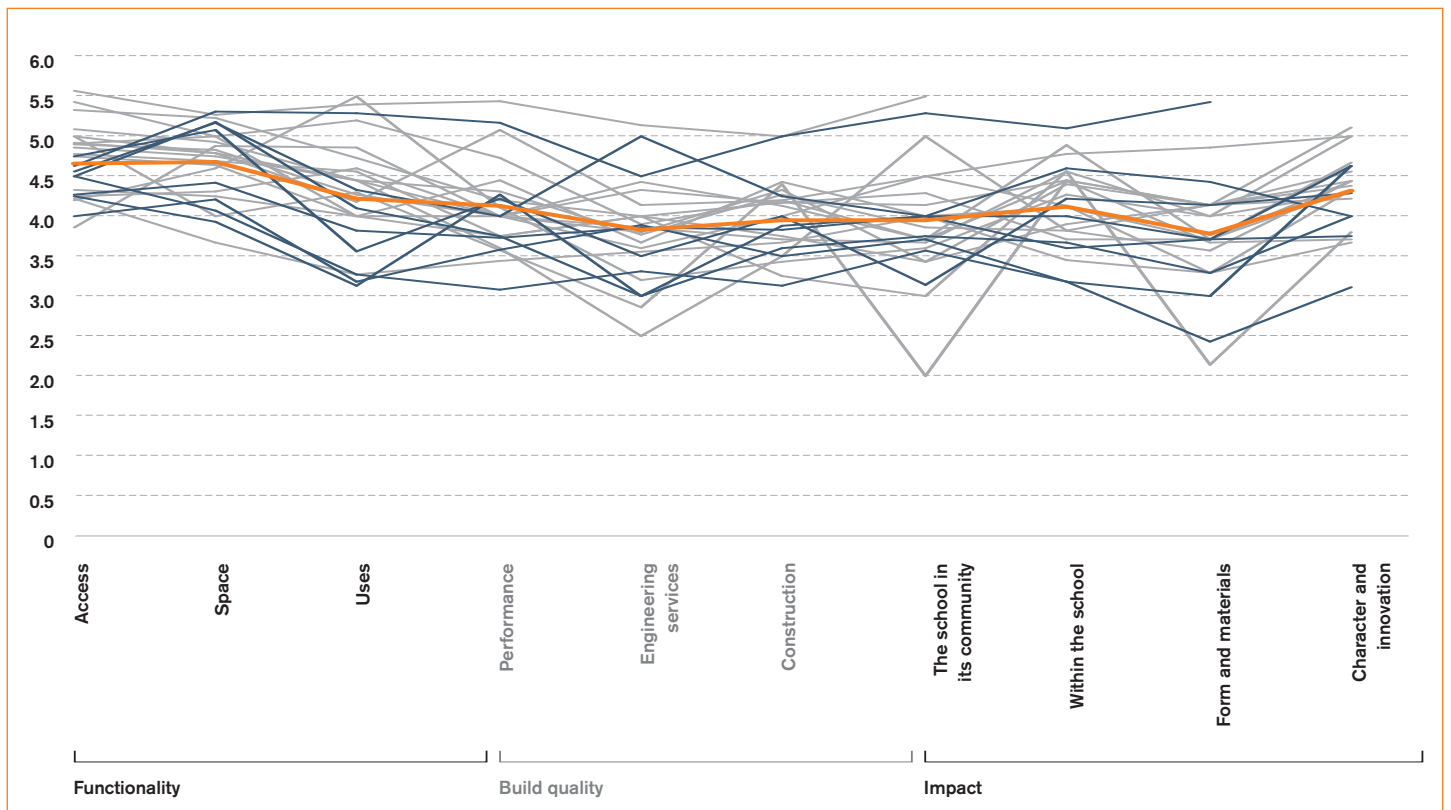
In practice the assessors’ tours around the schools were usually accompanied by the head teacher, facilities manager, or other member of staff involved in the commissioning process of the new school. These

members of staff were well informed and sufficient additional information was gathered during the actual school visits for the majority of assessors to provide a reliable response, even to questions on the detailed operation of the engineering systems.

Six statements had a high level (over 20 per cent) of ‘blank’ or a ‘don’t know’ response; that is, for four or more schools the assessors were unable to answer. The assessors were unable to determine a response for ‘removal or containment of hazardous materials was managed safely’ for 16 schools and for ‘any demolition and construction minimised waste, and materials were re-used on site where possible’ for nine schools. These six questions were not included in the detailed analysis.

However, on the basis of the quality of information collected, we decided it was unnecessary to exclude any of the statements from the calculation of overall scores.

**Figure 12: How consistently 25 CABE assessors judged new school performance**  
Data used to calculate survey statements



— Enablers undertaking assessments  
— Other enablers  
— Mean score

## Moderation session

On 24 January 2006, seven assessors attended a session to moderate the findings.

In the absence of a group of design professionals carrying out each visit, the moderation session acted to remove inaccuracies caused by a bias or by single assessor-only visits.

The moderation session used the guidance of the collective opinion to identify aspects of the scheme that may have influenced the decision that the school might be inaccurately ranked, and this was used to reconsider the scoring.

CABE ordered a slideshow of photographs and plans of the schools visited based on the initial average scores from lowest ranking to highest. The schemes were reviewed in batches of five schools, accompanied with appropriate short commentary from the relevant assessor. The assessors discussed the relative ordering of schools, based on evidence presented and their experience, and any suggested departure from the initial order was noted. After each batch of five schools was evaluated, the assessors referred back to the previous batch of five schools to agree the contextual ranking. The assessors collectively identified which aspects of the school particularly influenced this decision or any contentious issues. This was either an element of the evaluation such as impact, or a particular aspect, such as daylighting or servicing, or that the school had simply been marked consistently more positively or negatively. Any school that was agreed collectively to be misplaced in the ranking was re-scored 'blind' (ie without reference to the previous scoring, but with the benefit of the fellow assessors comments) by the visiting assessor.

# Appendix D: Audit of completed secondary schools – classification into quality bands

## Classification of the schools into five quality bands

Five bands were established after consideration of five factors: the ranking of the average scores, percentage score and consistency of response across the categories: functionality, build quality and impact, CABE's 10 key characteristics and the discussion at a moderation session where the assessors compared the ranking and scores for all the schools.

The distribution of average scores followed a smooth trend line – with no obvious steps or plateaux. See Figure 6 on page 24.

Percentage scores were calculated for each of the categories – functionality, build quality and impact – and the performance for these areas was used to identify thresholds. (Percentage rather than absolute scores were used, as there are different unequal numbers of questions in each of these categories.) See Figure 7 on page 25.

The schemes that achieved 50 per cent in all of these categories were considered to have achieved an acceptable quality threshold, and so could be considered partially good, good, or excellent. This also corresponds to the tipping point for the 'tend to agree', 'tend to disagree' in the adapted DQlfs scoring evaluation method.

In the lowest two quality bands, achieving more that 30 per cent in all three categories designated a threshold between mediocre and poor schemes. An assessment against CABE's 10 key characteristics for good schools was used to validate the threshold between partially good and good.

This three-stage approach was validated during the moderation process. Where a school sat on the boundary of a band (for example, two of the categories scored exactly 50 per cent, even if the average score was slightly higher) then the assessors' opinion on the moderation session dictated which band it fell into.

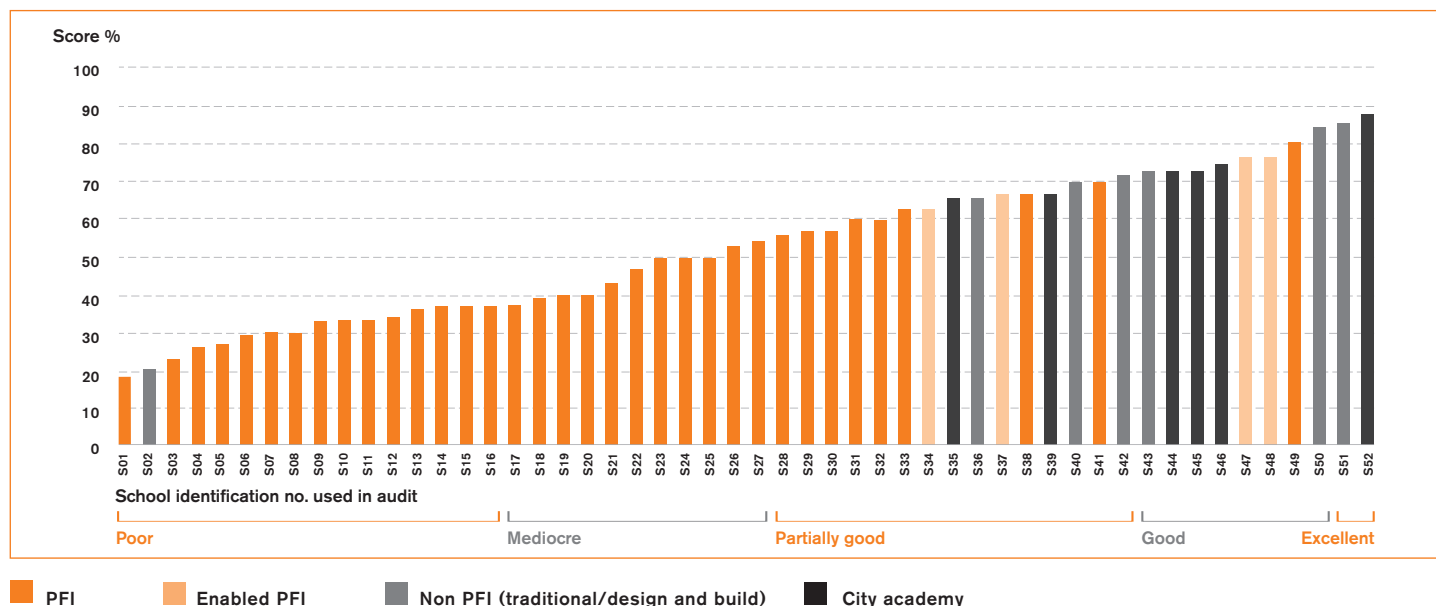
## Incorporation of 29 schools evaluated using shortened assessment into the total sample

A total of 29 schools were assessed against the three headline DQlfs categories: functionality, build quality and impact. Scores out of 10 were awarded for each of these categories, and an average percentage score was calculated. See Figure 13 below.

All of these schools were assessed by a single individual, and two tests were applied to ensure these additional schools were inserted at appropriate places in the ranking of the initial 23 schools. First, five schools were included in the moderation session. Second, the assessor's evaluation of the test school was analysed. See Figure 5 on page 23.

The average percentage score for the initial 23 schools was 52, and this was unaltered by the incorporation of the additional 29 schools. The same criteria for the quality banding were applied, and the proportions of schools that are excellent, good, partially good, mediocre or poor remained broadly similar to Figure 3 on page 23. See Figure 4 on page 23.

**Figure 13: How good are new schools?**  
Average % score for 52 schools visited



# Appendix E: Gathering the opinions of professionals and clients involved in building new schools

Between November 2005 and February 2006, OPM was commissioned by CABA to undertake three pieces of opinion research to understand the views of professionals and clients involved in the schools building program and to assess the impact of CABA's enabling programme.

## Web survey

Electronic surveys were sent to 39 enablers and we received 18 responses (a 46 per cent response rate).

The survey asked for:

- Views on the current state of school design
- Views on how this would change in the future
- Identification of individuals and factors that most significantly influence the design process
- Potential actions from DfES and CABA that might improve schools design.

## Focus group

A focus group with eight of CABA's enablers who are involved with school design enabling took place on Friday 6 January 2006. Some of the enablers had been involved for the last five years whilst others were relatively new. Most were also involved in school design through their own professional practice. The discussion lasted for two hours and addressed the following key topics:

- Views on the current state of school design
- Views on how this would change in the future
- CABA's current impact on school design
- Future models/improvements for the way CABA enables school design.

## Telephone interviews with clients

As a component of the research to understand the impact of CABA's enabling programme on the quality of secondary schools built, or in the process of being built, OPM conducted 20 in-depth telephone interviews in the period December 2005 to January 2006. The interviews represented a high proportion of the LEAs where CABA has been actively involved, covering 15 LEAs from the 32 LEAs where CABA has enabled projects during the pre-building schools for the future phase.

The majority of the telephone interviews were conducted with local authority PFI project managers. Three of the telephone interviews were conducted with headteachers. CABA provided OPM with contact lists for both local authority clients and headteachers. OPM drew up a topic guide for the telephone interviews with CABA. The main themes of the telephone interviews, were:

- How CABA's enabling service is perceived and the impact of the service on the quality of the schools built
- The importance of the design quality of schools compared to other factors
- The attributes of a good school
- Views on the current school building programme
- Barriers to improving the design quality of schools being constructed
- Key areas for improving the enabling programme
- Further messages for CABA.

All of the schools referred to in the feedback were built through PFI. Most of the projects were fairly complex and included the building, rebuilding and/or reorganisation of more than one school per project. Among the three headteachers we interviewed, one school underwent major refurbishment with some rebuilding, the other was in the process of being rebuilt completely and the third school was completed on the existing school site. The headteachers all felt they were closely involved in thinking about the design and changes to their schools, although one head had no knowledge of CABA.

# Appendix F: What is the impact of CABE's enabling service?

The impact of CABE's enabling programme was evaluated independently by consultant OPM.<sup>1</sup> A summary of the assessment can be found below.

## The client view

OPM reported that a clear-cut assessment of the value added by CABE's enabling service was complicated by the fact that the clients it had spoken to were all at different stages of the school building process. The clients had also entered the process with different levels of experience, commitment to good design and confidence in delivering PFI projects. CABE's flexibility in being able to meet the needs of clients in such a diversity of situations was seen as a valuable part of the service.

Opinions were more or less equally divided between those who thought CABE had a very definite impact on the LEA's attitude to design quality and those who thought that the impact was less definite, possibly as it was too early to say.

The extent to which the local authority client was committed to good design before CABE's involvement had a huge impact on their views of the value added by CABE in the enabling process. However, there was a strong view that CABE's involvement added gravitas to an in-house commitment to good design. It also inspired confidence. Typical comments included:

**'The council was very keen that the design elements of the new schools should be as innovative and forward looking as possible. Therefore we were anxious to get CABE involved'**

*'To be fair, the director of education, the headteachers and the PFI manager all had a strong vision for the schools. Because we were performing poorly as an LEA, they were very aware of the impact of the design of spaces on educational attainment. The use of CABE woke up feelings of the idea that a school could inspire pupils.'*

*'The elected members of the county council who make policy decisions were made well aware of the involvement of CABE. The profile of CABE is very high here and possibly also in neighbouring authorities. Contractors use us as an example all the time.'*

*'We don't spend an awful amount of time building new schools because we don't have a lot of money. CABE's influence is yet to be seen really. Certainly the CABE enabler we worked with spent time working the council's architects. It remains to be seen what rubbed off.'*

Interviewees were less clear on whether the input of CABE meant that the schools built were of a higher quality than they would have been without their involvement. Nevertheless, there was a strong perception that CABE's involvement leads to a smoother project process and clarity of vision, leading to more effective outcomes with bidders. It also provided an additional skills-set, which in some instances was very much needed. Typical comments included:

**'We are very keen to maintain a long-term relationship with CABE. They bring a degree of consistency and continuity to projects. CABE brings credibility to the process'**

*'Inevitably the council have design people and architects, but partly because of the size of the project and partly because it was PFI and there were particular characteristics of PFI to be taken into account where it was useful to have the external objective view from CABE. They use people who are at the forefront of current thinking about the design of schools.'*

*'Really most helpful was the confidence knowing we had somebody and an organisation behind us who were striving for excellence and helped us to achieve that whilst simultaneously being realistic about the pitfalls and working with developers to find ways round it.'*

*'CABE's involvement gave our scheme credibility. When we did the evaluation of the bids we stressed to the potential bidders the essence of high design quality and that it would score very highly. We got high-quality architects who performed exceptionally well.'*

All the enablers felt that where they had been involved in the process the bid that had been selected was the best bid in design terms. *'The schools that I've enabled? Has the best scheme won?'* asked one. *'Yes, yes and yes in my case.'*

OPM said it was clear that CABE's impact is helped by the fact that the enablers feel that their clients take CABE very seriously. *'They treat you very, very properly and they're terribly keen to hear what you have to say so there's no question that it carries some influence.'*

The study found that the impact that CABE has was further demonstrated by the fact that two of the architects who design schools in their practices said that they would only bid for a school PFI contract if it was being CABE enabled as then they know that design is on the agenda.

## How did CABE help?

According to the OPM study, the aspects of the CABE enabling service that were perceived as most useful varied from case to case. Some local authorities needed more help right at the beginning in describing the aspects of good school design, whilst others found the CABE enabler's input more helpful in meetings with bidders, reviewing the proposed designs. A small number of interviewees were also assisted by CABE to appoint design advisors, a process they found very useful.

Feedback from interviewees on the way the CABE enablers were used included:

### In the preparation stage

*'We used him a lot at the start to give us guidance. The first half is really where you need it. Once you have the guidance right, the rest follows suit.'*

*'He spent a lot of time with us going round the sites; this was really good.'*

*'CABE was very useful early on when we were formulating our authority's requirement, particularly in explaining the design process.'*

**'The CABE enabler talked with head teachers and governors, describing the design process. This helped to articulate their ideas about how a school should work'**

*'Advised us as to what data we needed and what studies we needed to undertake.'*

*'CABE assisted greatly with the selection of architects to do our feasibility work.'*

*'He backed me that I needed outline planning permission. Our own planners said we didn't need it. Our local architects weren't particularly forceful.'*

*'The advice on school design, especially non-PFI design, was helpful.'*

*'He helped developing reference schemes. He was also able to develop a vision of how it could all work after looking at the sites for only a short time.'*

**'He sat in to some milestone meetings we had. He listened carefully and commented at the end of sessions. He was able to give immediate advice'**

*'We formed a view early in the project that the schools would have to be extensively involved in finalising the designs. CABE was very good at this. The enabler we worked with spent a lot of time in discussions with headteachers, governors and so on, helping them to understand the sorts of issues they need to address in finalising the designs. He was very good working with school staff. It is one of the pronounced features of CABE's involvement – their ability to work not only with councils but schools directly.'*

### In the design phase

*'He put us through the mid-way review. He was very frank. The architects had to pull round the design.'*

**'For the technical design briefing report he produced a schedule that looked at objectives, timescales, deliverables and milestones'**

*'Providing advice on the designs we were developing with the contractor and their architects. This bit I would love to have done more of.'*

*'CABE provided quite a lot of advice during ITN [invitation to negotiate] stage. He helped in developing our brief and attended meetings with the potential bidders. He helped to articulate the aspects of good design we were looking for. Since we have selected our preferred bidder their involvement has been less.'*

*'The CABE enabler worked with us to devise a reference case for the PFI tenderers to follow. The design concept they came up with regarding the arrangement of spaces is what was followed at the end of the day. The very early intervention from CABE set us on the right track. It helped us to distinguish the bidders that were serious about following our philosophy throughout the PFI design process and those seeking to dilute it.'*

**'We involved him heavily in our evaluation process. He scored our bidders against CABE's 10 principles. It gave us a much more rounded evaluation of the bidders. He acted as a sounding board for our in-house architect'**

*'By the time CABE came on board we had drafted and finalised our tender documentation. Although we felt it had a strong design content, CABE weren't really able to influence it because we were too far down the line. We used the CABE enabler to influence design bidder meetings though. We structured for all three bidders.'*

*rigid design meetings with designers, landscape teams and so on. We involved in this process relevant headteachers, primary and secondary advisors for schools, highways people and so forth. It was a very open process.'*

*'He basically approved what the architects were doing. He was also there at bidding stage, and he favoured the bidder that won in the end.'*

*'His most significant involvement was reviewing designs from the preferred bidder and modifying them and signing them off.'*

The interviewees who knew how to best make use of the CAFE enabler's skills and knowledge (by being intelligent clients) found their service most useful. For example, one council has very strong views on design, so a presentation on good school design was not going to be helpful.

**'We had a competency base not many local authorities have. As a mature PFI and educational authority we had a number of boxes ticked. We felt the CAFE enabler's expertise could be employed differently'**

As with some other clients described above, it used the CAFE enabler in meetings with potential bidders:

*'It was a very healthy and valuable process although different from the way CAFE suggested we deal with the time.'*

#### **Working with LEAs and schools**

All the interviewees felt that it was important for CAFE to continue to work with LEAs. However, there was also support for increasing the amount of work done with schools with the emphasis on a partnership between CAFE, the local authority and schools.

*'CAFE need to work with both schools and local authorities. Local authorities have responsibility for the design and establishment and maintenance of schools [a legal responsibility]. It would not be appropriate for CAFE to work directly with schools without the authority. It is about genuine partnership. There are PFI schools where schools have not been involved in discussions about their new buildings – this is a disaster frankly.'*

As a result of recent changes in government policy, one interviewee felt that it was inevitable that CAFE would need to directly provide advice to schools in the future.

**'It depends on how the school reforms go. If more powers are delegated to secondary schools and academies, CAFE can't ignore it. CAFE will have to give a lot of advice to secondary schools on alterations. Personally, I think working with schools only will be a mistake as the LEA experience gets lost'**

It was felt that LEAs offer a much-needed strategic perspective on school development. Many interviewees felt the opinions of headteachers on what they wanted and needed could be very wide ranging and subject to short notice changes. Working with schools would result in a lot of energy focussed on the inside of the school building – how the school should work. Whilst undoubtedly this is an important consideration, it should not be done at the expense of the overall design of the buildings. Some interviewees also felt working with schools would take a lot of resources away from schools that were already overstretched. The majority of local authority interviewees also felt that CAFE should continue to work with the LEA because it was paying for the development.

There are a number of ways in which CAFE enablers feel that they have an impact on the quality of those secondary schools that they enable.

#### **Improving clients' skills, knowledge and interest in design**

In more traditional forms of procurement and commissioning such as design and build, the architects tend to work very closely with the headteachers and have the time to educate them, take them round other school buildings and discuss different solutions with them. With PFI the process is for more compressed and so there is not time to do this. Enabling therefore becomes more crucial in order to ensure that the design element is properly considered.

CAFE enablers have also presented examples of what they consider good and bad design of schools at initial meetings for potential bidders so that anyone coming forward with a bid understands the importance of giving sufficient attention to good design if they want to be awarded the contract.

The enablers also play a big role in helping the LEAs to understand the PFI and BSF processes. *'A lot of people involved in PFI and BSF from the client side have never done it before,'* said one. *'They are administrators, they have no experience of design, especially the process.'*

The report says that CABE enablers raise the aspirations of those commissioning the new schools through increasing awareness of the importance of good design and what is possible. In many cases this is seen as a key factor, as those commissioning may not have much knowledge as to what a difference good design can make. They may simply see any new building as such a vast improvement on existing facilities that they may not pay much attention to design issues without CABE's input.

### **Improving the quality of the bids submitted**

According to clients interviewed by OPM, the presence of CABE enablers ensures that contractors have an incentive to build in good design as, once they know CABE is involved with a project, they realise they won't be selected without a commitment to design. Enablers felt that they were able to influence the final design of the schools so they are less dull and soulless.

### **Bid selection**

At the selection meetings the CABE enablers say that they are often the only ones who will ask any questions and really test the bidders about the quality of their proposals. *'Everyone else is just sitting around deathly quiet because their view is "we're not designers, we don't know what good design is. How can we judge? How do we know if these people are going to provide a decent quality of school?"; explained one. 'You are the only person who can have a huge sway.'*

Enablers also feel that CABE's impartiality is a major feature of their success in influencing the quality of design that bidders put forward and being taken seriously in the bid selection process.

<sup>1</sup> *The impact of CABE's enabling programme on the quality of schools built*, OPM, 2006.

# Appendix G: Gathering the opinions of enablers on BSF pathfinder and wave one projects

We asked our enablers for written feedback regarding the design quality of their pathfinder or wave one projects. We asked our enablers to answer the following questions:

- In your professional opinion, please describe the design quality of the scheme(s).
  - The sample schemes produced by the bidders invited to negotiate?
  - The preferred bidder schemes, if selected?
- In your professional opinion, please describe the five (or less) key (positive or negative) factors which have affected the design quality of the proposals (either those submitted by bidders or preferred bidder if reached).
- Please add any further comments you would like to make about the project you are enabling.
- We also summarised quantitatively the design quality of the bids at ITN stage based on the enablers' written reports. We asked our enablers to validate these conclusions.

# Appendix H: BSF progress so far

The diagram overleaf, included with the permission of PfS, indicates the progress of pathfinder and wave one projects at May 2006. Updated versions of this diagram can be accessed from the PfS website on [www.p4s.org.uk](http://www.p4s.org.uk)

Status as at end May 2006

Shaded Cell with date Phase completed at date  
Clear Cell with date Phase completion forecast at date

Pathfinders/Wave 1  
Total Number of Projects: 17

Wave Percentage Complete	Number of Projects																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Local Authority	Bradford	Bristol	Sheffield	Newcastle	Greenwich	Soullui	Knowlsey	Lincs	Stoke	Lewisham	W Forest	Leeds	Letcher	Manchester	Sunderland	Newham	STMG
EDUCATION VISION SIGNED OFF	5.9%	11.5%	17.5%	23.5%	29.4%	35.3%	41.2%	47.1%	52.9%	58.8%	64.7%	70.5%	76.5%	82.4%	88.2%	94.1%	100.0%
SBC SUBMITTED TO DIES	Jul-04	Aug-04	Sep-04	Sep-04	N/A	Jun-04	Mar-04	Dec-04	Jun-05	Nov-05	Jan-05	Feb-05	Mar-05	Jun-05		Nov-05	Jan-05
OBC SUBMITTED TO DIES	Sep-04	Aug-04	Jul-04	Jan-05	Dec-04	Nov-04	Jan-05	Jan-05	Jan-05	Feb-06	Jan-05	May-05	Mar-05	Jul-05		Apr-06	Feb-06
OBC TO PRG REVIEW	Sep-04	Sep-04	Oct-04	May-05	Jan-05	Nov-04	Mar-05	Jan-05	N/A	Feb-05	Jul-05	May-05	May-05	Jul-05		Jul-06	May-06
OJEU ISSUED	Oct-04	Oct-04	Jan-05	Dec-04	Jan-05	Mar-05	Jun-05	Apr-05	Dec-05	Apr-05	Aug-05	Aug-05	May-05	May-05	Jul-05	Jul-06	May-06
LONG LIST ANNOUNCED	Feb-05	Dec-04	Mar-05	Mar-05	Apr-05	Jun-05	Aug-05	Jun-05	Mar-06	Jul-05	Oct-05	Nov-05	Jul-05	Jul-05			
ITN ISSUED / SHORT LIST	Feb-05	Jan-05	Sep-05	Jun-05	Nov-05	Sep-05	Dec-05	Aug-05	May-06	Apr-06	Nov-05	Dec-05	Sep-05	Jul-05			
PREFERRED BIDDER ANNOUNCED	Jan-06	Dec-05	May-06		Apr-06			Feb-06									
FINANCIAL CLOSE/LEP SET UP																	
START CONSTRUCTION																	
OPENING OF FIRST SCHOOL																	
OPENING OF LAST SCHOOL																	

Project Summary	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Number of schools in project	3	4	10	13	5	8	8	9	23	12	7	14	18	13	9	7	15
Number of pupil places in project	4740	5240	7904	11970	8800	4400	8100	8908	13940	8748	4630	18465	17010	9010	7900	8850	12332
Project CAPEX £m (includes ICT at 100p prices)	71	98	117	142	165	62	140	165	181	190	85	212	235	159	85	129	134
Number of schools funded through PFI	3	4	3	3	2	3	7	8	0	3	2	5	6	0	5	2	2
Next wave of investment if applicable	4 to 6	4 to 6	4 to 6	N/A	4 to 6	13 to 15	N/A	7 to 9	N/A	N/A	4 to 6	13 to 15	N/A	4 to 6	7 to 9	4 to 6	10 to 12 (G)
Estimated remaining no. of mainstream secondary schools in BSP	23	6	14	0	8	9	0	75	0	0	9	15	0	8	10	6	6 (G)
Preferred Bidder	Integrated Bradford	Stanska Paradigm	VT group	Pic	Lease	Catalyst Land											

# Appendix I: Competitive dialogue

Recent EU regulations have introduced the new competitive dialogue procedure, for use in the procurement of 'particularly complex projects', where the Official Journal of the European Union advertisement is placed on or after 31 January 2006. Competitive dialogue replaces the competitive negotiated procedure. The flowchart below indicates stages of competitive dialogue and its equivalent in the negotiated procedure. It also indicates the new terms associated with competitive dialogue.

For the purposes of this report, which was written before and after the changeover, most references refer to the old form of competitive negotiated procedure.

Refer to the following documents for more detailed information regarding competitive dialogue:

*Competitive dialogue procedure: OGC guidance on the competitive dialogue procedure in the new procurement regulations*, Office of Government Commerce, 2006.  
Available at: [www.ogc.gov.uk](http://www.ogc.gov.uk)

*BSF guidance note: how to conduct competitive dialogue*, Partnerships for Schools, 2006.  
Available at: [www.p4s.org.uk](http://www.p4s.org.uk)

*A map of the PFI process using competitive dialogue*, 4ps, 2006  
Available at: [www.4ps.co.uk](http://www.4ps.co.uk)

**BSF competitive dialogue diagram\***



\* This diagram is based on PfS and 4Ps guidance. [www.p4s.org.uk](http://www.p4s.org.uk) [www.4ps.co.uk](http://www.4ps.co.uk)

\*\* The OJEU notice should set out the contracting authority's 'needs and requirements'. These can be further defined in the OJEU notice itself or in a 'descriptive document' (information pack). For this purpose, and in the context of BSF, the invitation to participate in dialogue (ITPD) is likely to be regarded as the first version of the 'descriptive document'. It should include a copy of the output specification.

\*\*\* The Directive does not require the dialogue to be conducted in two phases. It can be conducted in as many phases as may be required to identify the solution or solutions which best meet the contracting authority's needs. (See BSF guidance note: How to conduct a competitive dialogue procedure, p.8)

**Acknowledgements**

Many thanks to our team of specialist education enablers. They contributed enormously to this report by conducting assessments of schools, contributing reports and attending focus groups and moderation sessions. Without their involvement, this report would quite simply not have been possible. Thanks also to CABE commissioners Sunand Prasad and Robin Nicholson for their detailed feedback and expertise. Thanks also go to William Hawkins of CIC for help with the design quality indicator and the research methodology. Thanks to colleagues at the Department for Education and Skills, Partnerships for Schools and 4Ps. Thanks to Julian Birch for the copy editing and to Ellie Duffy for the graphic design.

Just how well designed are the new secondary schools being built in England today? With the country in the midst of the most ambitious schools construction programme in 50 years, it's a vital question. This once-in-a-lifetime opportunity is seeing every secondary school in the country being renewed or rebuilt.

Responding to concerns, CABE and its team of expert enablers audited the quality of new secondary school design – with some startling results. This is the full report of that research. It sets out both the detailed findings and our clear recommendations for change.

1 Kemble Street  
London WC2B 4AN  
T 020 7070 6700  
F 020 7070 6777  
E [enquiries@cabe.org.uk](mailto:enquiries@cabe.org.uk)  
[www.cabe.org.uk](http://www.cabe.org.uk)

Commission for Architecture  
and the Built Environment

The government's advisor  
on architecture, urban design  
and public space

