

Rethinking schools capital investment: the new 3Rs?

Refresh, refurbish, reuse



British Council for School Environments

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Introduction

Has the planning of schools estates during the past decade unduly favoured new build over refurbishment? If so, is this presumption about to change? Concerns over the state of potential public finances, the increasing need to reduce carbon emissions, questions over the suitability of PFI, the rise of parent promoted free schools and the drive to increase the number of independent academies are all pointing to a future that will ensure that the refurbishment of existing buildings could be seen as the redevelopment option of choice.

There is now a significant body of research which suggests that the physical environment of schools has a direct impact on students' academic achievement and behaviour. It is therefore critical that the recent achievements of the Building Schools for the Future Programme are not completely abandoned in favour of a piecemeal and reactive approach. Schools continue to need significant capital investment and in many cases new build may be the only option available. However, the refurbishment of existing schools may have a valuable place in contributing to the reduction of the UK financial deficit whilst significantly helping to raise educational standards and improve the life chances of young children.

Michael Olliff, Architectural Director, Scott Brownrigg
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I believe that investment in school environments is an overlooked tool for the improvement of school standards. Alongside quality teaching and purposeful leadership, decent school environments inspire pupils to give their best and properly enable our teachers to teach. Decent air, light, acoustics and quality furniture are as vital as water in helping you concentrate and learn.

The Big School Makeover, a national educational programme, enables schools to think about those neglected or wasted spaces for teaching and learning and change them within days. With our partners, Willmott Dixon, we transform spaces to be fit for learning and provide a showcase for British products and expertise.

We need to think more about the state of our schools and then act on sorting them out. This new pamphlet from BCSE members highlights work, large and small, that could help change the school experience for pupil and teacher alike.

Thank you to all, but particularly Michael Olliff, who it was a pleasure to edit. We are creating world class schools in this country and a little pride would not go amiss.

Join us. Ty Goddard, Director, British Council for School Environments
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The purpose of this booklet

In the context of a new austerity in public spending, refurbishment work of some kind will comprise a significant part of the new coalition Government's building programme. The BCSE proposes that reinventing existing school buildings can help enhance learning outcomes and can create environments that are both comfortable and inspirational.

This booklet looks at the opportunities that refurbishing existing buildings can offer, breaking the term refurbishment into what we are calling 'the new 3Rs'.

Refresh which looks at the valuable contribution that good interior design and high quality furniture can make.

Refurbishment which includes more major upgrading of the building fabric and services as well as remodelling of internal spaces, whilst **Reuse** considers new functions for redundant buildings, whether it is breathing new life into old school buildings or converting existing offices or retail units into new schools.

As part of the Government's drive to reduce levels of public spending, a greater focus on making best use of new and existing assets is likely to be an important theme for cash-strapped public bodies. As experience of the implementation of new educational models, such as personalised and independent learning, matures in the UK, capital spending is also more likely to be focused on creating the setting for achieving high standards, rather than a physical upgrade of the schools estate.

The BCSE already plays a major part in contributing to the debate about how thoughtful refurbishment can enhance teaching and refurbishment. The Great

Schools Enquiry and The Big School Makeover have been particularly successful in highlighting key issues. This booklet continues that programme of work and points out a number of issues that future policy makers should consider when contemplating a replacement for the Building Schools for the Future (BSF) programme. It highlights a number of case studies that demonstrate the added value that good designers can bring when working with existing buildings.

The place of refurbishment in a new school investment programme

The BSF programme was originally set up with targets to put 35% of schools through a major remodelling exercise, with a further 15% receiving a lighter refresh, comprising repairs and maintenance, decorations and new loose furniture. Given the average age of the school building stock (70% are over 25 years old), a longstanding maintenance 'time bomb', and widespread evidence that poor building environments negatively affect educational outcomes, the refurbishment programme could easily end up being focused on just solving the bricks and mortar problems. However, refurbishment projects can be central in driving through educational reform, and there are an increasing number of striking examples of how very effective learning and true value for money is being delivered in refurbished rather than purpose-built space.

There are many other challenges associated with refurbishment. Given the

rapidly evolving sustainability agenda, now driven in part by the Carbon Reduction Commitment, improving the energy and carbon efficiency of the existing building stock will need to be a major component of the future schools programme, incentivising this as a one-off opportunity to decarbonise the schools sector. Furthermore, in an environment where public funding is scarce, ensuring that a refurbishment-based project portfolio can be made attractive to private funders will be significant, requiring a flexible approach to risk management.

With the prospect of independently managed 'free schools' being introduced, the use of buildings other than purpose-built schools is being actively considered. Independent schools have a history of converting residential buildings for educational use, albeit often used very conventionally. However, there are a growing number of examples of highly successful conversions of former industrial and commercial buildings in Sweden and the USA which provide effective settings for radically different approaches to teaching and learning. If this model is to become more widely used in the UK then more flexibility is required in meeting the requirement to deliver environments that are fit for purpose, as well as overcoming the challenges set by the current town planning system.

This booklet identifies the issues that face policy makers, teachers, parents, governors and their professional advisors when they are considering how to modernise their schools within existing buildings.

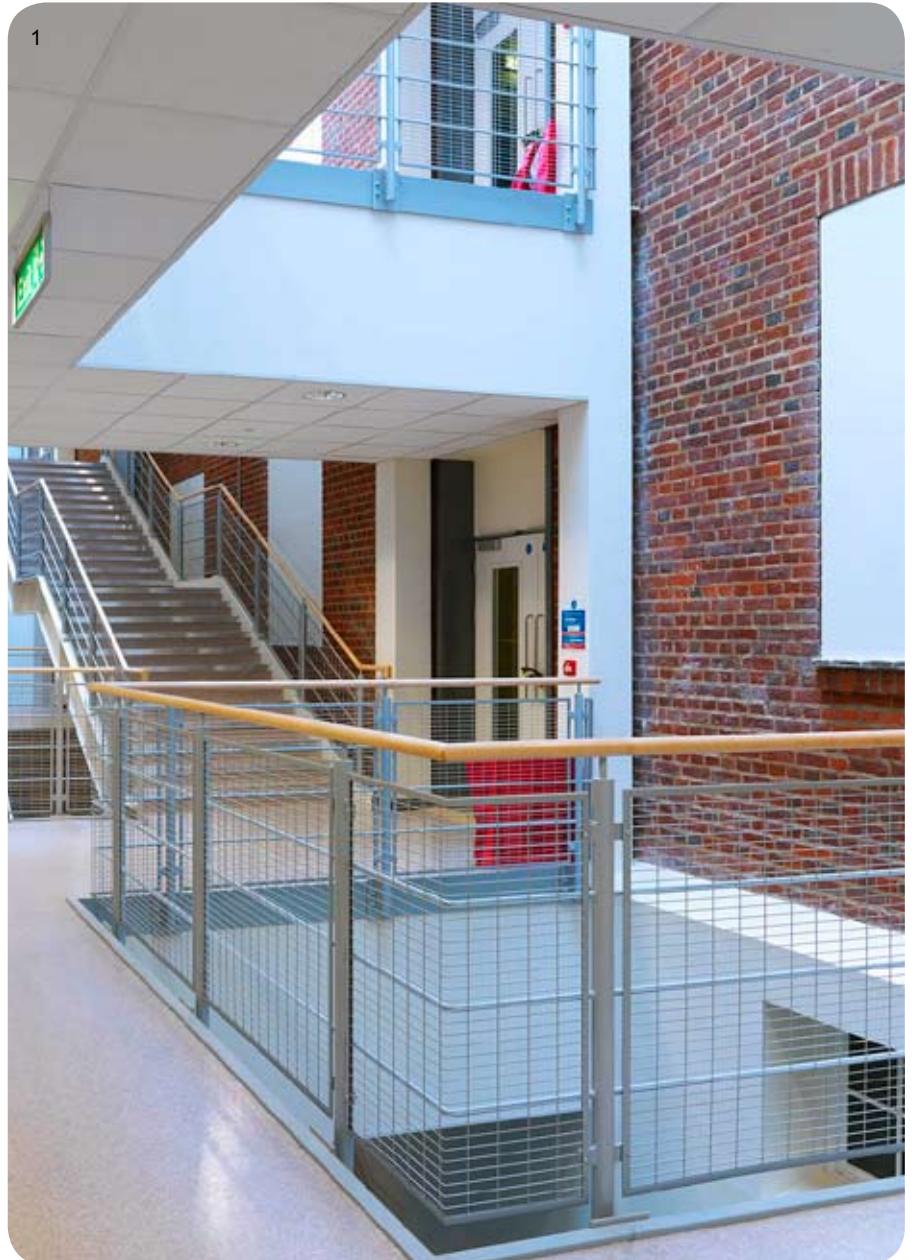
Refurbishment and remodelling challenges

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Most schools have developed their facilities in a piecemeal fashion over time, and as a result, individual buildings are likely to be in different physical conditions. Issues such as space standards, ease of circulation, accessibility and internal environment will vary across the estate. Successful schools which have increased in size over time may suffer particular legacy issues resulting from infill development. Refurbishment is not a simple panacea for all these issues. The solution must be driven by the education vision first and followed by a deep and thoughtful analysis of the existing building stock. Only then will value for money solutions emerge that deliver environments fit for 21st century teaching and learning.

Older buildings have their own inherent benefits and a large scale refurbishment also provides opportunities to correct mistakes made in previous development programmes. Improving circulation, or carefully introducing more uses into under-utilised space, are good examples of quick wins. There are inevitably disadvantages associated with the refurbishment option, including the risk that works will focus on fixing the buildings rather than delivering the educational transformation. Constraints of existing buildings, construction risk allocation and securing sources of funding are other issues that need to be considered in the business case.

Phasing and decanting issues are also more significant than for new-build schemes, and a high cost decant solution such as the purchase of temporary classrooms will reduce funding available for construction



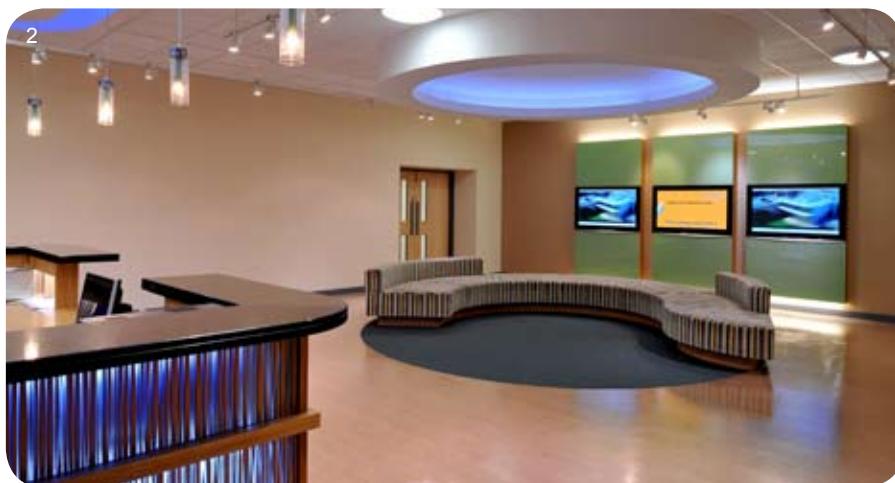
works. Phasing of works so that new build elements can be used as decant space, together with the programming of refurbishment to major shared spaces such as halls and kitchens, may extend the programme, but will defend the overall budget.

The scope of refurbishment will, in many cases, need to be very extensive. Space standards have been increased by around 18% in Building Bulletin 98 (the latest edition of the Secondary Schools Briefing Framework) which means that preferred room sizes and departmental or faculty clusters may be difficult to incorporate into existing building shells, and creative solutions will be needed in order to find productive uses for 'leftover' space.

There are significant practical benefits associated with the refurbishment of existing facilities including:

- Retaining the use of the site as a school. The refurbishment may also trigger other aspects of local regeneration through provision of additional community facilities;
- Retention of aspects of the existing schools estate that work, and that contribute to school and neighbourhood identity;
- Retention of potential benefits of good space standards;
- Using existing buildings as the organisational 'building blocks' of a larger redevelopment including aspects of new build.

Images 1 and 2: South Thames College, Wandsworth; new build extension and refurbishment of listed building by Scott Brownrigg. © Scott Brownrigg



Issues for policy makers

Points to inform an estates strategy

- Ensure both the architects and educationalists consider the conclusions of the existing building condition surveys very carefully. Do not rely on a building surveyor's opinion alone as to whether a building should be retained or demolished. School buildings often have hidden qualities and potentials that are not immediately apparent.
- Carefully analyse the existing buildings to investigate their spatial efficiency. What may appear to be a building worth retaining may in fact be very inefficient and could be replaced by a new building that is much smaller and may meet the vision better.
- Work closely with the school to identify surplus capacity and use these spaces to reduce the amount of decanting within the overall redevelopment programme.
- Use temporary accommodation only as a last resort and ensure pupils and staff only move once during the building works.
- Ensure both the school and builders have the space to learn and work safely without disruption.
- Consider the sustainability and recycling opportunities of buildings to be demolished.

The historical context

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School buildings have long occupied an important cultural and usually very visible place in cities, towns and villages. The growth in provision of education in the 18th and 19th centuries meant that school buildings provided an additional focal point for large parts of society. The evolution of school boards and local authorities during the late 19th century ensured that schools became very much part of the local landscape.

Today, schools continue to form a significant part of the local community. The shared experience they represent can be a powerful source of community identity and cohesion. They are often an integral part of local identity and character in villages, towns and cities. Furthermore, in addition to their primary role as an educational venue, they can often act as a social hub for communities through other uses such as life-long learning or sports activities. For these reasons it is imperative that in order to achieve the wider aims of the new coalition Government, the renovation of the local school is recognised as also being vital in rebuilding and regenerating communities thus creating the 'Big Society'.

Board schools and the 1870 Education Act

Victorian and Edwardian schools provide good working environments, are often robust and can be readily adapted to new uses. Challenges often include constricted sites, load bearing internal walls, requirements for improved access and fabric improvement, and potential constraints in some schools if listed or in a conservation area.



The Board Schools have many common features: most are simple buildings in brick or stone, with large windows and rows of gables. The designs combined economy with a concern for good light that produced high roofs and large gables, and a sense of civic pride reflected in the high quality of architectural detailing and grand entrances. A common feature also found included segregated boys and girls classrooms with separate entrances and staircases, arranged around a central hall space. Some schools also included innovative features such as rooftop play areas as found in Catherine Street School, Hackney.

What is fascinating is that some of the most so-called radical educational

models are actually not new at all. Project based learning spaces where students stay in the same home base, but move between instruction spaces and project spaces can actually be found in London Board Schools. These spaces are very suited to providing schools within schools and work very well with a minimum of structural intervention.

Hygiene, open-air schools and the 1926 Hadow Report

Inter-war schools also provide good working environments, but will require extensive updating. These schools saw the introduction of steel frames that will require remedial work whilst many still relied upon load bearing partitions which may constrain some deeper

remodelling. The main issue with these schools is often the legacy of 50 years of piecemeal improvement and extension across their sites.

This period saw a number of innovations such as the open air movement, which began in Germany at the turn of the century and soon spread to the UK, where the benefits of fresh air and natural light were claimed to improve health, behaviour and learning. The 1926 Hadow Report proposed the building of 'secondary elementary' or 'modern' schools to offer a more general education that complemented the more academic grammar schools. These new modern schools, sited on the edge of towns with extensive playing fields and new facilities such as gymnasias and science laboratories, found favour with the international design style emerging from Europe. The grammar schools however, tended to favour a neo-Georgian style.

Post-war prefabrication and system building

Standardised prefabricated components were recommended by the Ministry of Education in 1943 to respond to the need to rebuild the one in five schools destroyed during the war. Initially the demand was for primary schools to satisfy the post-war baby boom. As this bulge worked through the system the need to rebuild secondary schools peaked in the 50s and 60s. In response to the demand to build schools quickly with limited resources, education authorities joined together to form CLASP (Consortium of Local Authorities Special Programme) which created a



systemised school building comprising a lightweight steel frame system clad with variations of timber, tile hanging, curtain-walling and concrete panels.

Systems schools from the 1950s to 1970s represent some of the biggest challenges with respect to building condition and fitness for purpose, but nevertheless provide good opportunities to deliver flexible space by reusing existing structures. Almost all the elements of the external fabric and

mechanical and electrical systems are likely to need replacement in order to meet the current building regulations and the environmental and acoustic standards set out in current DfE Building Bulletins.

- Images:*
- 1: *Bellenden School, Southwark, London. 1876-77*
Example of a London Board School
 © Elain Harwood
 - 2: *Charlton Park Open Air School, Woolwich. 1929 - 1930*
 © City of London, London Metropolitan Archives
 - 3: *Intake School, Mansfield. 1955-56*
Built using the CLASP system
 © Elain Harwood

Refresh

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This category covers the type of redevelopment that provides minor redecorations, new floor and ceiling finishes and making good after ICT installations. It was often viewed upon as the least attractive category of work in the BSF programme; however, transformational environments can still be achieved with a combination of good interior design, innovative furniture and flexible ICT solutions. As well as headline issues such as changes to the physical capacity of the school, more subtle issues relating to layout and adjacency should also be considered carefully. Requirements for increased storage and more widespread use of desktop ICT in classrooms means that standard classroom module sizes have increased in current guidance. Furthermore, there is a trend towards more generous circulation standards to accommodate pupil movement between classes. These requirements may mean that existing buildings cannot be space-planned as intensively as a new build option, which in turn provides opportunities to reorganise space to provide other learning settings.

Importance of interior design

Many existing school buildings have been well designed and are in good structural condition. Often though, they lack the single design vision that can transform them into world class learning environments. The substantial investment in school buildings provides the opportunity to apply this vision, but it is too rarely applied. The interior design profession was not well represented in BSF and considering the impact that can

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be made with a minimum of resources, is it time for this to be put right?

Role of colour in learning and behaviour

The ways in which colour, light and contrast are used within built environments are critical in determining how people interact with the space, and how confident, safe, and secure they will feel when doing so. They also have a major influence on a person's sense of well-being and their ability to use the environment independently and without undue effort. There is now significant research to suggest that colour and light affect both behaviour and concentration. Refreshing schools can also be an opportunity to introduce

clear signage and wayfinding strategies. Using graphic design is a relatively inexpensive method of promoting the schools vision and ethos.

Can new furniture alone deliver improved teaching and learning?

It can be argued that major reforms will never happen using the same old furniture that has been used for the last 50 years. Furniture needs to work harder and it needs to support a whole range of teaching and learning styles. With this increased flexibility comes a requirement for higher quality and more robust furniture.

Careful selection of furniture and storage will give schools greater flexibility

in the way in which classrooms are used, and in particular in the way that non-conventional spaces for either large group learning or peer-to-peer work are exploited. The most effective furniture strategies use a small number of standard furniture components that can be re-arranged in different formats. Similarly, furniture, storage units and equipment such as whiteboards that can be used as mobile screening will enable smaller groups to function effectively in larger spaces including a conventional classroom module. Storage provision is particularly important to flexible space strategies, as the ability to reconfigure space is reduced by clutter.

Integration of new technologies

Integrating the ICT solution in an area identified as undergoing refresh can often be very challenging. Wireless signals are sometimes patchy and the new standards of data cables can be difficult to route through existing buildings in an unobtrusive manner. Designers need to innovate and move on from a 'one size fits all' solution to a mixed economy that uses well designed furniture to combine specific areas with fixed equipment for more data intensive work with more flexible and agile areas where mobile devices are supported with reliable local wireless networks.



Ideas box

Achieving the unexpected

- Applying colour to existing surfaces is one of the cheapest ways of transforming space. Be thoughtful, consider the psychological effects that colour brings. The publication, 'The Colour, Light and Contrast Manual: Designing and Managing Inclusive Built Environments' by Keith Bright and Geoffrey Cook is a very useful source of reference.
- Consider the furniture as an integral part of the design process, not to be simply picked from a single furniture manufacturer's catalogue.
- Use furniture to define space and inform the different behaviours, learning styles and teaching methods.
- Consider the impact of fixed ICT very carefully. Is a row of fixed computers strictly necessary or would more mobile solutions provide greater flexibility? Wireless solutions in selective areas combined with specific fixed points for higher bandwidth use can make a space work more intensively.

Images

- 1: Ordrup Skole, Copenhagen: Refresh of historic school
© BCSE
2: West Hill Primary School, Wandsworth: © Davis Langdon

Case study: The Big School Makeover

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The Big School Makeover has produced significant transformations in schools across the country from Newcastle to Devon. In 2008 the Big School Makeover went to an Edwardian School in London. Predominately a refresh of five spaces, this project also incorporated elements of reuse and refurbishment.

An art classroom underwent a significant transformation with a mezzanine level being added to make full use of the space both horizontally and vertically. The mezzanine with new ICT equipment became an i-media space above a fully equipped art classroom.

A significant refresh of the attic, previously used for storage, created a space that could be used for a new purpose. A light and bright drama and music area was created by replacing the windows, removing partition walls and redecorating.

A refresh in the dining hall led to the creation of a colourful and bright space with large orange flowers painted on the walls and graphics of fruit on canvas panels.

The importance of the external space should not be forgotten and in this case an overgrown, no-go area was redeveloped into an outdoor classroom with hard and soft landscaping and bench seating around a pond. In addition, the school's interest in chess was incorporated in the fifth space through the provision of a giant outdoor chess set.

The difference that these relatively small changes have made to the school is marked. Two years on the new music and drama spaces allow end of term performances to be rehearsed and the art and outdoor classrooms are well liked and used by the students. The dining hall has also been a success with school meal uptake increasing by 40%, which staff attribute solely to the refreshed space.

For more information visit: www.bigschoolmakeover.org.uk



All images: © BCSE



Refurbish and remodel

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A question that we feel is often overlooked is whether it is appropriate to use schools that require significant refurbishment as sample schemes during a bidding process. Strategic design decisions need a level of detailed understanding about the existing buildings, and time with the users that is rarely available, as well as a detailed dialogue with planners, conservation officers and English Heritage that is not entirely appropriate in a competitive situation. The consequence of doing so is that often designs are progressed at a superficial level until Preferred Bidder stage, leading to the risk that the proposals cannot be delivered or afforded. The result is all too often the inevitable value-engineering after the bid is won. High quality refurbishment projects require a full partnership of all stakeholders that may not in fact be suited to the competitive environment of a bid, which is why perhaps there has been a default to new build.

Surveys – accurate and early

Designers are too frequently issued with measured building surveys that are incomplete, not warranted nor fully coordinated. Key design decisions are being made on the basis of often inaccurate and out of date information. This has severe consequences for Health and Safety and leads to late changes that often are detrimental to the design. If transformational environments are to be delivered using existing building stock then governors, sponsors and local authorities need to invest more in obtaining accurate data for the bidding teams to work from. Perhaps the

basis upon which the funding model has been put together should be challenged. With the pressure to obtain approval and get the project to market, there is a risk that insufficient rigour has been applied to the decisions that lead up to the final allocation. Often decisions as to whether a building is suitable for refresh, refurbish or remodel are

made on the basis of visual inspections of the fabric of the building, not detailed investigations that draw in the educational aspirations.

Images:

1: Hugh Myddleton Primary School, North London; extensive remodelling of 1960s school; © Architype
2: Stockwell Children's Centre, Lambeth; two storey extension to Victorian school; © Architype



English Heritage and historic buildings

Both English Heritage and the Victorian Society have recently voiced their concern regarding the proposed demolition of historic school buildings. Whilst they recognise the need for change to enable the use of ICT or to create multipurpose learning spaces, they are urging local councils to ensure that the value of their historic schools is fully understood before decisions are taken affecting their future.

Tim Brennan, English Heritage Policy Officer has said that “Proposals for change should be sustainable, based on an understanding of the architectural and historical significance of the school and the way in which it is valued by the community.” This statement is not in conflict with school building programmes and the BCSE has added to this by commenting that this respect of heritage should combine with a respect for the needs of present and future teachers and learners. This position is in favour of sustainability, promoting community cohesiveness and enabling change. Architects and designers need to inspire confidence that the needs of communities and learners can be met through careful and sensitive use of historic buildings.

Building systems and sustainability

The main environmental factors influencing comfort and attentiveness in schools are quality of natural



light, acoustics and control of noise, temperature control and air quality. Solutions inevitably involve a compromise between different components of the working environment, particularly in an existing building. Many of the strategies available to designers to optimise internal conditions and daylighting such as building orientation will of course already be determined by the existing estate and additional constraints such as floor to ceiling heights. Window to window dimensions will determine strategies for ventilation, lighting and so on. Low carbon performance will be an important aspect of any school redevelopment, and although existing schools may not be required to go down the zero carbon

route, the extent of refurbishment works will in many cases require a solution fully compliant with Building Regulations covering thermal performance. Other approaches to reducing the carbon footprint, such as sustainable energy sources, rain water storage and grey water recycling are equally applicable to refurbishment as they are to new build.

It is crucial when considering refurbishment to fully design the environmental strategy and to ensure it is coordinated and does not compromise the appearance and character of the existing building. Where buildings are listed, alterations and insertions of mechanical systems will require close dialogue with the local authority's

conservation officer. Whilst Building Regulations do offer the possibility of designing to a lesser standard in the case of listed buildings, a more sustainable model that could be applied to all refurbishment projects is to work on the basis of carbon offsetting and building in higher performing systems with larger renewable energy content.

Incorporating specialist provision and accessibility

Access and safe means of escape are vital aspects of new school development which for refurbishment projects can introduce the need for major interventions related to providing level access, extensive lift provision and easy to access WCs in all blocks. It is estimated that over 10 million adults in the UK have a disability and that there are a further 700,000 disabled children. Recently published figures show that nationally 3% of all school pupils are stated, 14% have a special educational need, but no statement.

When dealing with existing school buildings it is essential to define relevant legislation and current best practice guidance. Whilst there are no technical standards which dictate compliance with the Disability Discrimination Act, the legislation is constantly being upgraded and the DDA itself is due to be replaced in time by the Equalities Act.

Some of the widely acknowledged weaknesses of existing schools include limited facilities for learners with special educational needs (SEN), teaching vocational courses and other dedicated

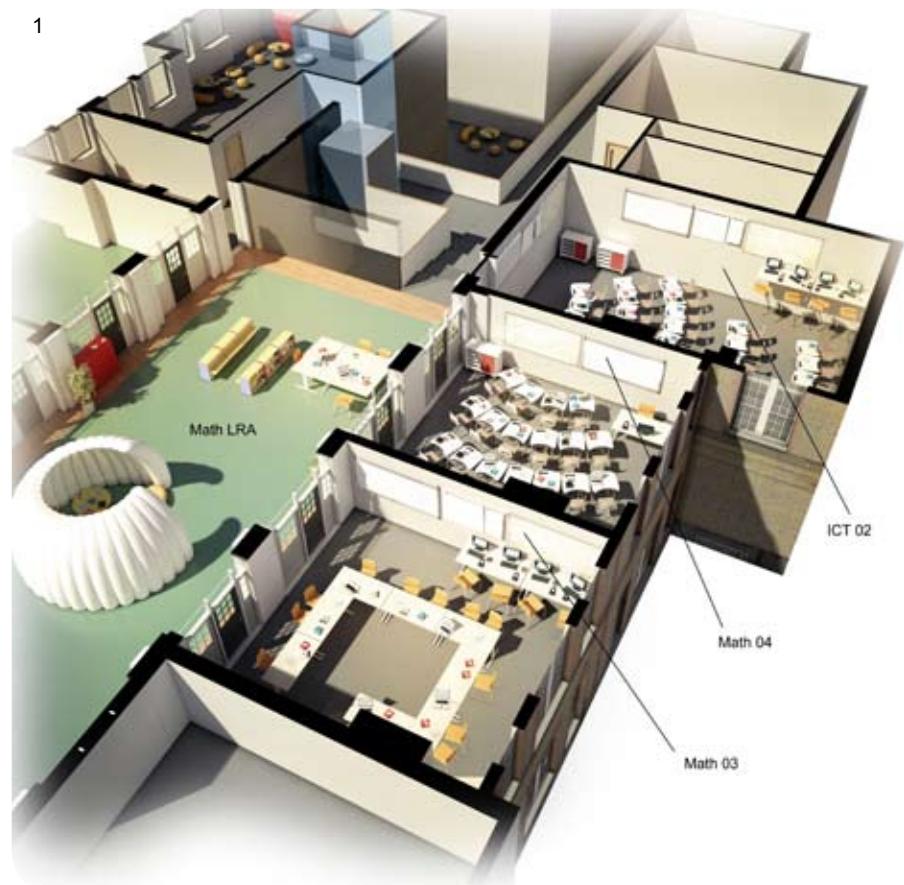
facilities for sports etc. Some new build accommodation may in fact be needed to provide appropriate dedicated resources for SEN.

Education continuity planning

A programme of remodelling can transform a school and affords the opportunity to provide a rational and cohesive site strategy. Unless handled very carefully though, this amount of work can cause considerable disruption

to pupils' learning and inevitably some will leave the school before works are complete and never see the benefit.

Decant costs are a major affordability issue, and a phased approach is likely to be necessary to reduce temporary work costs. Space on site may be a further constraint. Health and safety requirements for work within an operational school will inevitably have cost and programme implications,



so the programming of the most disruptive works during holiday periods has significant benefits to school management.

Contribution of landscape design

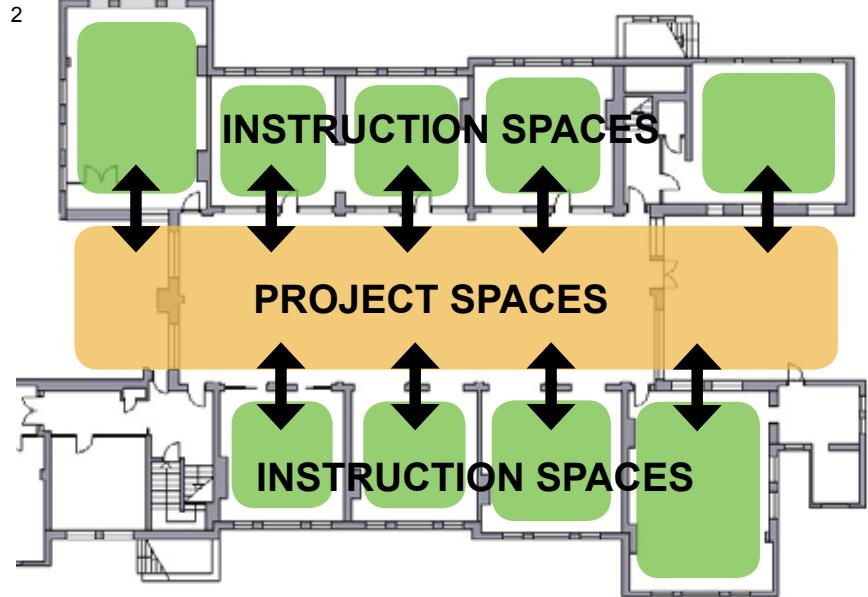
Landscape design too can have a dramatic place to play in the transformation of existing schools. What were barren spaces given over to tarmac and cars can become an oasis providing high quality social spaces within an otherwise cramped inner city environment. The challenge here is to protect the budget for landscape design in recognition of the contribution it has to offer.

Circulation and balance space

One of the advantages of a new build solution is that the school can be designed from a bottom-up perspective with accommodation being designed to respond to the way in which the school is being planned to operate post-completion. To an extent, refurbishment projects are constrained in that they have to fix existing problems, of which circulation is often a major challenge. Using new buildings and amended layouts of existing buildings to provide clearer navigation, better and safer circulation and a stronger presence in the community are an important aspect of a successful school design. Providing secure access to facilities for use by the wider community may also be a further functional requirement.

*Images: Sarah Bonnell School for Girls, Stratford
1: Cutaway view of classrooms around a central resource area*

2: Diagram demonstrating that 'radical' education models can be found in London board schools. © Scott Brownrigg



Ideas box

Managing costs and expectations

- Manage the budget with care. Costs of extensive remodelling can escalate very quickly and often very high costs can actually achieve very little visible impact on the completed scheme.
- Have an open dialogue with the constructors and design team. Work together to prioritise the brief and be prepared to compromise as the unexpected occurs.
- Ensure the building has been surveyed thoroughly. Successful remodelling is about controlling risk and reducing the amount of unknowns. Provide the design team with fully coordinated measured surveys at the outset. The impact of discovering inaccuracies later can be huge.
- Ensure the brief is practical and achievable. Use the available budget to achieve maximum impact. For example, large costs can be incurred in ensuring all classrooms are 60 sq m. Do they really need to be that size or can alternative solutions be found for storage or ICT?

Case study: Sarah Bonnell School for Girls

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The remodelling of Sarah Bonnell School for Girls in Stratford, Newham demonstrates the qualities of London board schools and how the original organisational model entirely supports new ways of learning.

The existing site is very constrained for the 1,100 girls attending presently and the site was characterised by a piecemeal development of buildings dating from 1904 to the present day. The toilets for the pupils were located in a single facility which became a bottleneck during breaks between lessons. The dining facilities had a major effect on the school's ability to function with lunchtime queuing occurring in corridors, creating congestion and frustration. There were numerous corridors with no visual points of reference by which to navigate and they were dark and imposing with low headroom; not inspiring spaces. The external spaces relegated play areas to the rear of the school with almost the entire frontage being given over to car parking.

The design solution has cleared the site of the majority of the piecemeal development and focused the emphasis back on the original board school. The central hall spaces have been opened up on the ground floor to create a Languages Café, supporting the schools' specialism, with project based learning areas on the upper floors. The art block that had once been the infant school has been converted to a new restaurant with a glass pavilion added to provide additional seating space. The cars that once dominated the frontage have been relocated to the rear creating a stunning new garden linking to the dining pavilion and the entrance and providing the girls with much needed external social space.

The elements of new build are intentionally minimalist in design with simple use of brick and timber that does not compete with the intricate detailing and high gables of the original board school building.

Lessons learned:

- Ensure detailed and coordinated surveys are undertaken before major design work is undertaken. The reluctance to carry out intrusive tests may prove costly in terms of redesign, replanning and resequencing the works.
- Constrained sites require the landscape design to work very hard. Spaces need to have multiple functions requiring the boundaries of social, learning and sports spaces to be blurred.
- Investing time in researching the history of the buildings and site can prove invaluable when deciding what elements to retain and which to demolish. Returning the building back to its original state demonstrates the quality and robustness of its design.
- The consequences of discovering asbestos and lead paint in areas to be refurbished can cause delay and lead to additional costs if not identified at the outset.





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Reuse and renewal

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The best way of securing the upkeep of historic buildings is to keep them in active use. The best use will very often be the use for which the building was originally designed. The continuation of that use should certainly be the first option when the future of a building is considered. However there may be instances where the degree of remodelling required is beyond that found acceptable to the local conservation officer and English Heritage. In these situations where redevelopment for educational purposes has been ruled out, every effort should then be made to find a new use. The aim should be to obtain the best return consistent with Government policies for protecting the historic environment. This may mean accepting less than the highest price for the building if the outcome promotes the economic, social or environmental well-being of an area. There are many examples where the reuse of an historic building has acted as a catalyst for the economic and social regeneration of an area.

Where school use is no longer an option, school buildings can be adapted for a variety of new uses. Residential conversion is often most favoured as this traditionally has delivered the highest capital receipts, however, issues such as vehicle movements, privacy and overlooking need careful attention.

Approvals for any disposals must be sought from the Secretary of State under Schedule 22 of the School Standards and Framework Act 1998. This includes land as well as buildings. Where development is proposed on playing fields, then early consultation



must be held with Sport England to ensure the sport provision is maintained or enhanced. The DfE has published guidance in the form of 'The Protection of School Playing Fields and Land for Academies'.

Can schools exist on the high street or in business parks?

Converting underused and vacant buildings into schools isn't a new idea. Pre-schools, independent schools, further education colleges and universities have long employed adaptive reuse to meet their estate needs, turning office buildings, factories, churches, retail units and even hospitals into schools. Adaptive reuse is not common practice however, in the schools sector. The desire to start with a clean slate, the unknowns associated with renovating older buildings, the need to meet strict design standards, and Building Bulletin 98 space standards limit its popularity. If the promise to rebuild or substantially refurbish every school in England is to be fulfilled, then radical new solutions are required.

Potential budget cutbacks, school overcrowding, unpredictable school place planning, lack of affordable land and inadequate capital funding are now changing the picture. Schools and communities are realising that adaptive reuse can bring more than just good new schools. Reuse can create valuable community resources from unproductive property, substantially reduce land acquisition and construction costs and help regenerate local communities by placing schools back in the centre instead of being located on the margins.

However there are still significant obstacles to overcome in achieving this degree of community regeneration. Town planning legislation requires complex change of use applications and there is often a conflict between national policy that promotes integrated and sustainable communities and local policy that emphasises the importance of highways and transportation impacts. School environmental standards need to be redrafted to reflect these new complex typologies whilst funding models need to be flexible enough to respond to the need to purchase properties with underwriting provided to support borrowing from new institutions that do not have the traditional covenant strengths funders require.



Images 1, 2 and 3: City Learning Centre, Kensington.
© Architype

Ideas box

Breathing new life into community assets

When considering a building for reuse or renewal, check:

- the building's structural layout and its capacity to accommodate various learning styles and other required spaces and functions;
- the energy efficiency of the building's walls, windows, and roof, and their capacity for upgrading;
- the building's potential for meeting building, health, safety, and accessibility requirements;
- the condition of mechanical, plumbing, and electrical systems and their capacity for modification;
- for the presence of hazardous materials;
- the ability of the building and site to provide a safe and secure environment;
- the convenience and safety of the building's location for the students and communities served, and all applicable property and facilities management issues.

Case studies: Reuse and renewal

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Historic school buildings have a grandeur and sense of place that is very powerful. Decrepit old schools that have survived through generations of 'patch and mend', where teachers and pupils make do with a building rather than it serving their needs are, however, much less grand. A lack of what is often perceived as expensive maintenance over decades can finally grind a building's heritage into the ground.

Yet, our public realm may be full of spaces that can readily be adapted for reuse as schools and learning spaces. BCSE study tours to Sweden and conversations with architect, Kenneth Gardestad, from Kunskapsskolan, have opened up the possibility of the power of the old informing the new. An old submarine factory as a school? An old light bulb factory? Industrial production spaces transformed as learning spaces. What the spin merchants never tell you is that they work because the curriculum is perfectly matched to the spaces available. It really isn't corridors and chicken crates, it's thinking about children and their teachers with a new respect - and you can't always get it on the cheap.

These spaces are not just new 'old' schools. Adaptive reuse does demand challenging what you've always done - using spaces for learning and teaching in different ways. The social space becomes much more a learning space whilst the private study space becomes even more important. Colour to uplift and stimulate in more mature ways than the cartoon colours that adults think young people like. Often sites are restricted and old spaces limited by past use. HGO's bread factory has been re-imagined as a hotel lobby type that is welcome and respectful. The industrial past is now long gone because of an emphasis on the involvement of teachers. How inspiring to ask teachers, 'How do you work best and where?'

Whether it's office reuse, high street or out-of-town retail space, let's aim for decent environments. They don't have to be grandiose, they just need to work for a new generation of teachers and learners. Good light, proper air, acoustics with ease, furniture that doesn't hurt your back and technologies you can fit and forget.

Does everything have to be on that school site? If not then what are the implications for management and safety?

Reuse; worth exploring. Sustainable; possibly. Better value; often.

But please don't start from the romantic; be practical. Can this building serve the needs of teachers and young people?

And don't forget some buildings are as particular as people.

Ty Goddard



City Learning Centre, Kensington
Architype undertook this complex refurbishment project transforming an existing library hall within the Isaac Newton Centre into an innovative City Learning Centre. The early twentieth century building houses an adult training facility for the borough, and Architype created a separate entrance for school children visiting the CLC.

The centre is a joint venture between the Royal Borough of Kensington & Chelsea and the Royal Borough of Westminster, and provides state of the art computer facilities for schools across the two boroughs.

By collaborating with specialist lighting consultants and furniture designers, a series of exciting and stimulating spaces have been created, including a discovery room, an interactive learning hall and a dramatic digital editing pod.

"Users have responded incredibly well to the building, which needed to go beyond being a modern classroom."



Unlimited Paenga Tawhiti, Christchurch, New Zealand

The school was established to explore different and alternative options for schooling. It is housed in central city bus exchange, a former department store and in a high rise 'office' building.



Gower School, Islington

This Montessori primary school is located within two historic co-joined workshop buildings. Archtype has created a warm, intimate environment with four flexible teaching spaces that encourage experiential learning.



Whitelands College, Putney

Scott Brownrigg's redevelopment of the grade II listed Whitelands College is an example of how education buildings can be successfully renewed for other purposes. It has delivered significant added value to enable rebuilding on other parts of the campus.



Heimdalsgades Overbygnings Skole, Copenhagen (HGO)

HGO is housed in a former bread and paper factory in Copenhagen. Rather than classrooms, the school is organised into five competence environments, which pupils pass through during their time at the school.



Kunskapsskolan, Sweden

Kunskapsskolan opened up the possibility of the power of the old for new. They recognise that everybody learns in different ways so the schools have a variety of spaces that are modern and open with space, glass and bright colours.



Buro 4, Islington, London

Originally St Ann Street School which closed in 1915, the building is now the office of Buro Four. The high ceilings, large windows and natural mass give good quality daylight and ventilation and adaptability for Buro Four's open plan and communicative working style.

Indicative cost model

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This cost model is based on the updating of a group of Victorian and 1960s school buildings giving costs for different options relating to the extent of intervention: refresh, refurbish and remodel and reuse and renew. There is a total floor area of 9,850 sq m including a mix of accommodation which covers general classrooms as well as specialist departments such as science and music. The refurbishment cost covers repairs to the existing fabric of the 1960s building including replacement window wall glazing as well as a comprehensive updating of finishes, a complete overhaul of the building services installation, and a new FF&E and ICT installation.

These costing clearly demonstrate that whole school refurbishment and remodelling does not deliver significant cost reductions over new build. The cost and disruption to learning caused by complex phasing and decanting does not always deliver value for money. What this model does demonstrate is that tactical interventions on specific areas can significantly improve learning environments for less money and with less disruption. The key to achieving more from less lies with partnerships of skillful architects and educationalists, who intuitively understand where the value lies in existing buildings and can make inspired judgements on where the resources should be deployed.

	Description	New	
1.0	Enabling works	£/ sq m	
	Asbestos removal (site specific)	excl	
2.0	Construction	1,693.00	
	Fabric - (roof, external walls, windows and doors)	546.00	
	Structure - (internal wall alterations and staircase)	400.00	
	Finishes - (floors, walls and ceilings)	190.00	
	Services - (mechanical and electrical)	557.00	
3.0	External works	0.00	
	Landscaping	excl	
4.0	Others	222.00	
	ICT infrastructure	32.00	
	Furniture, fittings and equipment (FF&E)	190.00	
	Temporary classrooms (not included in the overall rate)		
5.0	Abnormal costs	0.00	
	Abnormal costs (decant, phasing, asbestos)	excl	
	Total at June 2010 prices	1,915.00	

Refresh

Typically focused on ICT and furniture, fixtures and fittings. A small scale intervention making an impact to convert underutilised areas into space for enriched learning. Retain a contingency for dealing with unknown issues.

Refurbish / remodel

Requiring more extensive intervention, albeit focused and targeted to achieve the best mix of circulation / balance space, specialist provision, access, building systems and sustainability. A contingency of 10% for dealing with unknowns as necessary. Phasing and decanting may be required and will need careful management to minimise cost and programme impact.

Reuse / renew

Adaptation of existing building elements, typically structure and services to suit change of use. Care needs to be taken when assessing condition against current legislation and statute requirements. Retain a contingency of 7.5% for dealing with unknown issues.

	Refresh	Refurbish / remodel	Reuse / renew
	£/ sq m	£/ sq m	£/ sq m
	excl	excl	excl
	400.00	1,360.00	1,320.00
	0.00	520.00	280.00
	0.00	140.00	330.00
	200.00	180.00	180.00
	200.00	520.00	530.00
	0.00	0.00	0.00
	excl	excl	excl
	340.00	240.00	240.00
	0.00	40.00	40.00
	340.00	200.00	200.00
		1,020.00	
	0.00	0.00	0.00
	excl	excl	excl
	740.00	1,600.00	1,560.00

More information:

The **British Council for School Environments (BCSE)** is a membership organisation made up of local authorities, schools, construction companies, architects and others involved in, and concerned about, the design and build process in the education sector.

It acts as a forum for exchange, dialogue and advocacy for anyone interested in learning environments; from educators to policy makers; users to designers; managers to constructors.

To join the BCSE

Visit our website - www.bcse.uk.net or contact Georgina Garforth on georgina@bcse.uk.net, 020 7785 6286

Address: 2nd Floor, Downstream Building, 1 London Bridge, SE1 9BG

British Council for School Environments Founding Members:

Aedas, Association of Teachers and Lecturers, Bedales School, Building Design Partnership, Buro 4, CABE, Capita Symonds, Carillion, Carlton Hill Primary School, Catalyst Education, Catholic Education Service, CITB Construction Skills, Davis Langdon, Devon County Council, Dorset County Council, Ecophon, EC Harris, English Secondary Students Association, Feilden Clegg Bradley Studios, Fenstanton Primary School, Galliford Try, Hawksmoor Engineering, Hampshire County Council, Hertfordshire County Council, HOK International, Investors in the Community, Isis Concepts, Islington Council, Jo Richardson Community School, Knowsley Metropolitan Borough Council, London Academy, Manchester City Council, Max Fordham, Milton Keynes Council, mpb education, Nightingale Associates, Northgate Information Solutions, NPS Property Consultants, Penoyre & Prasad, RIBA, Ryder HKS, Skanska, _space, Stoke City Council, Synergy, Taylor Woodrow, The Learning Trust, The Southwark Diocesan Board of Education, Wates.

Visit www.remodellingschools.org.uk to share your case studies, views and to shape the future of school capital investment.

For more information, the following are useful resources:

English Heritage: www.english-heritage.org.uk - England's Schools: History, Architecture and Adaptation" and "Refurbishing Historic School Buildings"

Victorian Society: www.victoriansociety.org.uk - Manchester Board Schools 1870-1902

British Council for School Environments: www.bcse.uk.net, www.bigsschoolmakeover.org.uk, www.remodellingschools.org.uk

Centre for School Design: www.thecentreforschooldesign.org

DfE: www.education.gov.uk and www.teachernet.gov.uk/management/resources/financeandbuilding - Schools for the Future: Transforming Schools - an inspirational guide to remodelling secondary schools

CABE: www.cabe.org.uk - "New from Old: transforming secondary schools through refurbishment" and "Our school building matters: How to use investment in the fabric of your school to inspire learning"

Royal Institute of British Architects: www.architecture.com

Royal Institute of Chartered Surveyors: www.rics.org

Policy Exchange and New Schools Network: www.policyexchange.org.uk www.newschoolsnetwork.org - "Blocking the Best - Obstacles to new, independent state schools"