



Free Schools Thinking

Places and Spaces for Teaching and Learning



Foreword

Recent Governments have talked about returning freedom and greater independence to schools. This direction of public policy was given life with the creation of Academies under the last Government, and the new coalition policy establishing 'free' schools and new style academies. Autonomy for schools was enshrined by the present Government in the Academies Act in July 2010.

The announcement of the first 16 Free Schools in September 2010 signalled a commitment to thinking about the provision of school places in different ways.

Government, too, seems committed to reforming planning and building regulations, including change of use to enable schools to be established in many different types of buildings.

Free schools thinking is the term we use as a framework for freeing up thinking about the education system and the way schools work: the time when learning happens, the spaces in which teachers plan and deliver lessons, the range of people who help to support learning, and the places where schools can operate and be located.

Through the investment in the school estate, there has been a quiet revolution in the way a number of schools have approached their environment and how they have used this to raise standards and improve the life chances of their communities.

This publication explores the many types of spaces and places that we all recognise and their benefits and limitations for becoming schools.

Realising the ambition of the current free schools policy will take new thinking. What is already evident are new approaches to curriculum and teaching and learning. Ambition will need to be coupled with practical common sense. The new 3Rs of refresh, refurbish and the reuse of our public buildings when budgets are tight should not diminish the need to think creatively about making decent spaces for teachers and learners.

Despite recent press, decent school environments do matter for teachers and young people – and we can now prove it. We must continue to focus on delivery not waste, and partnerships that deliver real value to our communities.

Free Schools Thinking allows us to think about

- Buildings in a different way – they are a public asset
- Re-using buildings – whether old schools or other buildings – rejuvenates our communities and promotes the environmental agenda
- Educational spaces and the quality of the places in which teaching and learning take place

Free schools thinking is already happening throughout the country. This publication urges further thinking and creativity about the environment as a tool and an asset that enriches learning and enables teaching.

It is imperative that we continue to invest in our schools estate. In doing so it is equally important that we free up our thinking about the way our schools work.

Ty Goddard and Ian Fordham
BCSE and The Centre for School Design



www.freeschoolsthinking.org.uk
www.thecentreforschooldesign.org



Introduction

to Free Schools Thinking



The trajectory of government thinking on education is taking us towards greater freedom for schools and academies, more autonomy for staff and teachers, less bureaucracy and fewer initiatives. With free schools there seems to be a chance to rethink the physical spaces and places where teaching and learning take place.

Free schools thinking is the term we use as a framework for freeing up thinking about the education system and the way schools work: the **time** where formal and informal learning takes place, the **spaces** in which teachers deliver the curriculum and learning happens, the range of **people** who help to support learning such as families, businesses, teaching assistants and entrepreneurs and the **places** where schools can operate and be located.

At the heart of free schools thinking is a recognition that the school environment plays a vital role in school improvement. Through the investment in the school estate, there has been a dramatic change in the way schools have approached their environment and used this to raise standards and improve the life chances of their communities.

This publication highlights the importance of free schools thinking in a new policy environment. It focusses particularly on the potential of different spaces and places which could be created. In an age where money is tight and resources restricted, the thinking about how we might use these cannot be hampered in the same way.

In an era of less constraints such as the reform of building bulletins and planning regulations, our case studies and typologies created by some of the UK's leading architects show just how imaginative schools and education providers could be. The education and environmental dividends could be enormous.

Greater autonomy for schools, epitomised by the introduction of 'free schools' and the Academies Act passed in July 2010, provides the opportunity to apply for greater freedoms and a more independent status.

The freedoms granted to these schools include:

- The ability to set their own pay and conditions for staff
- Greater control over their own budget
- Freedom from adherence to the National Curriculum
- Freedom to change the length of the school day and school terms
- Freedom from Local Authority control

Free school groups are also being encouraged to explore a range of places and spaces well beyond the refurbishment of an existing school.

The 16 free schools due to open in September 2011 have understandably opted for more traditional options, given the time constraints available. Yet the potential is much greater given the underutilisation of the public sector estate and the potential

of offices and other private sector assets to be creatively transformed into modern teaching and learning environments.

The Government's capital review is looking to break down barriers – we argue it should be radical in cutting waste but not cutting the investment in our school estate. With careful consideration and by involving the right people early on in the development of the school, a whole range of different building types have the potential to be converted into effective school environments.

This publication aims to create a debate about free schools thinking and uses the typologies and case studies as a stimulus to take thinking forward in this fast paced and changing environment.

Our website www.freeschoolsthinking.org.uk will also enable us to carry on the discussion with schools, local authorities and the private sector.

People

Teachers
Local businesses
Parents and carers
Entrepreneurs
University / college students
Teaching assistants
Mentors

Places

Old schools
Public buildings
Offices
Retail buildings
Industrial buildings
Community / village halls
Churches

School Improvement

Time

Breakfast clubs
Lunchtime activities
After school clubs
Saturday catch-up classes
Holiday / summer programmes
Online – 24:7
Staggered / shared use

Spaces

Classrooms
Halls and social spaces
Dining rooms
Practical / vocational spaces
Library / learning resource centre
Outdoor environments
Studios / breakout spaces

Free Schools Thinking

A Short Guide for New Providers

Who are you?

Group of parents
 Group of teachers
 Local Education Authority
 A private education provider
 An Academy sponsor
 A sports club
 An FE College
 A faith group

What do you want?

To create the best opportunity for children and young people to learn, grow and contribute effectively to their society

What do you need to know?

A lot, but don't be daunted the development of schools has to be incremental

Step 1: Free Thinking

- The new world - what does it mean for your school?
- Thinking differently - challenge and improve
- What is the impact of fresh thinking - are you going to be a Free School, an Academy, an LEA funded school, a new technology/vocational college, a Federation/Partnership with links to FE Colleges, Universities, or other schools?
- What are the legal implications of your thinking?
- What are the governance implications?

Step 2: Prepare your vision

- Who, How, What and Why?
- Identify locations and potential sites

Step 3: Can your site support your vision?

- Options appraisal: what can be refreshed, refurbished, remodelled, extended?
- What is missing and what can be plugged in from the local area?
- Test the options against the Vision
- Identify barriers to success

Step 4: Remove the barriers

Challenge	Opportunity
Budget too low	Be creative and explore what can be done with what you have
Building is too small	Can you change the working day, develop a different curriculum model, have a two shift school, a 48 week year, share space with others?
Building is too big	Bring in incubator businesses (or other schools) which could provide revenue streams, learning opportunities and allow for future expansion
No external sports fields within the site	Use public open space , collaborate with sports clubs, have a contract with public and private providers of sports facilities
Nowhere for assembly or performances	Look for the nearest theatre and other spaces close by that could be used - other schools, colleges, universities, community halls, church halls, cinemas, night clubs
Can't afford commercial kitchen	Contract with other schools, bring in a high street brand catering service, facilitate bring your own

Step 5: Climb the mountain

- Detailed visioning
- Develop detailed proposals, firm up costs etc

Step 6: Building and delivering your vision

- Procure the building – OGC, Academies Framework, LEPs, SCAPE, Design Build Operate Manage, new funding models, prudent borrowing, development opportunities, etc

Step 7: Never stop challenging, improving or innovating

- Assess performance in use and change where required



AIMS & OBJECTIVES



VARIETY OF TEACHING STYLES

RE-USING EXISTING BUILDINGS

IMPROVED OBJECTIVES

ACCESSIBILITY

LOCAL PROVISION

PUBLIC BUILDINGS

EDUCATIONAL GROUPS

OFFICE BUILDINGS

PARENTS

SMALLER CLASS SIZE

FREE SCHOOLS THINKING

INDUSTRIAL BUILDINGS

TEACHERS

BUSINESSES

VILLAGE HALLS

ALL ABILITY

EDUCATIONAL GROUP

FAITH GROUP

SCHOOL BUILDINGS

RANGE OF SCHOOL SIZE

CHURCH BUILDINGS

CHARITIES

RETAIL BUILDINGS

LENGTH OF SCHOOL DAY

RANGE OF CURRICULUM

The DNA of a School



The idea of free schools thinking is to look afresh at what makes up a school (the genetic material) and what a school could be if it were freed from current constraints.

The basic requirement for a learning environment is to provide a shelter where teachers and pupils can gather and partake in learning. How we then expand this to develop the best equipped environment for teaching and learning is open to new ideas that can facilitate learning, promote new methods and inspire a new generation.

A school building needs to moderate the internal environment to provide a comfortable place for learning. The building fabric should provide basic shelter from the elements, along with a means of tempering light, air, heat and sound to varying degrees. It is also a social environment where children learn to communicate and interact.

The components of a school can be tailored to best suit the brief based on the particular ethos, pedagogy and vision.

The current regulatory environment requires consideration of means of escape, fire protection, security, disabled access, energy efficiency and health and safety.

A school building needs to be well organised to support the complex functions associated with teaching and learning. It should be welcoming, safe, robust, flexible and easy to understand.

Ultimately it needs to provide a pleasant environment for eating, drinking, learning, playing and working.

The external environment – the learning site – should also be considered as an important part of the learning experience.

With advances in technology and virtual learning environments there may even be instances where a building is only required for the very basic provisions, with teachers and learners meeting periodically in other publicly available facilities such as museums, theatres and other places of assembly and learning.

There are common and essential elements that are likely to be needed in all learning establishments and these are illustrated in the diagram opposite. Think through your options and think creatively.

External

Outdoor space for respite, playing, socialising

Large spaces

For congregating, eating, performances, exams and sport.



Robust

Schools need to be able to withstand the day to day wear and tear of lively young people.

Welcoming

For young children and the community a school needs to be open and accessible but secure.

Learning spaces

Spaces need to offer the best possible environment for teaching and learning.



Accessible

Schools need to offer facilities for all pupils regardless of physical, visual, hearing or learning impairment.

Generous circulation

Pupils need to be able to move around with ease.

Back of house

Building services, storage, kitchens, ICT infrastructure and other facilities need to be allowed for.

Social

Support the social experience of being in large groups.

Welfare

Toilets, changing, sickness, water fountains and any special facilities.

Servicing

Strategies for deliveries, dealing with refuse, and accommodating car parking and drop-off.

Offices

Staff need to be accommodated in pleasant and supportive work environments.

Flexible

Teaching and learning methods change and buildings need to be adapted so they do not constrain

Typologies and Case Studies



Free schools thinking is about challenging the traditional route to setting up a new school. Once the need has been established and the motivation is in place, looking for premises can be the next major challenge.

In this section we consider a range of building types, the particular merits of each and how they might be converted:

- Commercial Buildings
- Community Buildings
- Retail Buildings
- Industrial Buildings
- Public Buildings

There are many common themes to consider when converting an old or even abandoned building. Breathing new life into a previously underutilised building can be a very creative endeavour and there are many examples of where this has generated functional and successful solutions.

Common themes

Location

The school catchment area may dictate the location, balanced against availability of suitable buildings. For a community building with many users transportation may also be a factor.

Access

How a building is approached, if there is space for drop-off and if the building can be easily entered and serviced.

Condition

The building's condition will have a direct impact on the cost of conversion, ranging from a simple re-paint to a partial re-build. Certain buildings will have particular conditions to consider, for example asbestos in post war construction.

Landscape

Schools need grounds as well as buildings. Where these are and how they can be used will need to be considered.

Services

Schools tend to need a lot of servicing to achieve the environmental conditions and to supply the power and data. Some buildings may have much of this in place already (offices), others none (churches).

Structure

The structural stability and loading potential will need to be considered by an engineer before refurbishment or remodelling starts.

Legislation

Which local or national standards need to be met will need to be assessed.

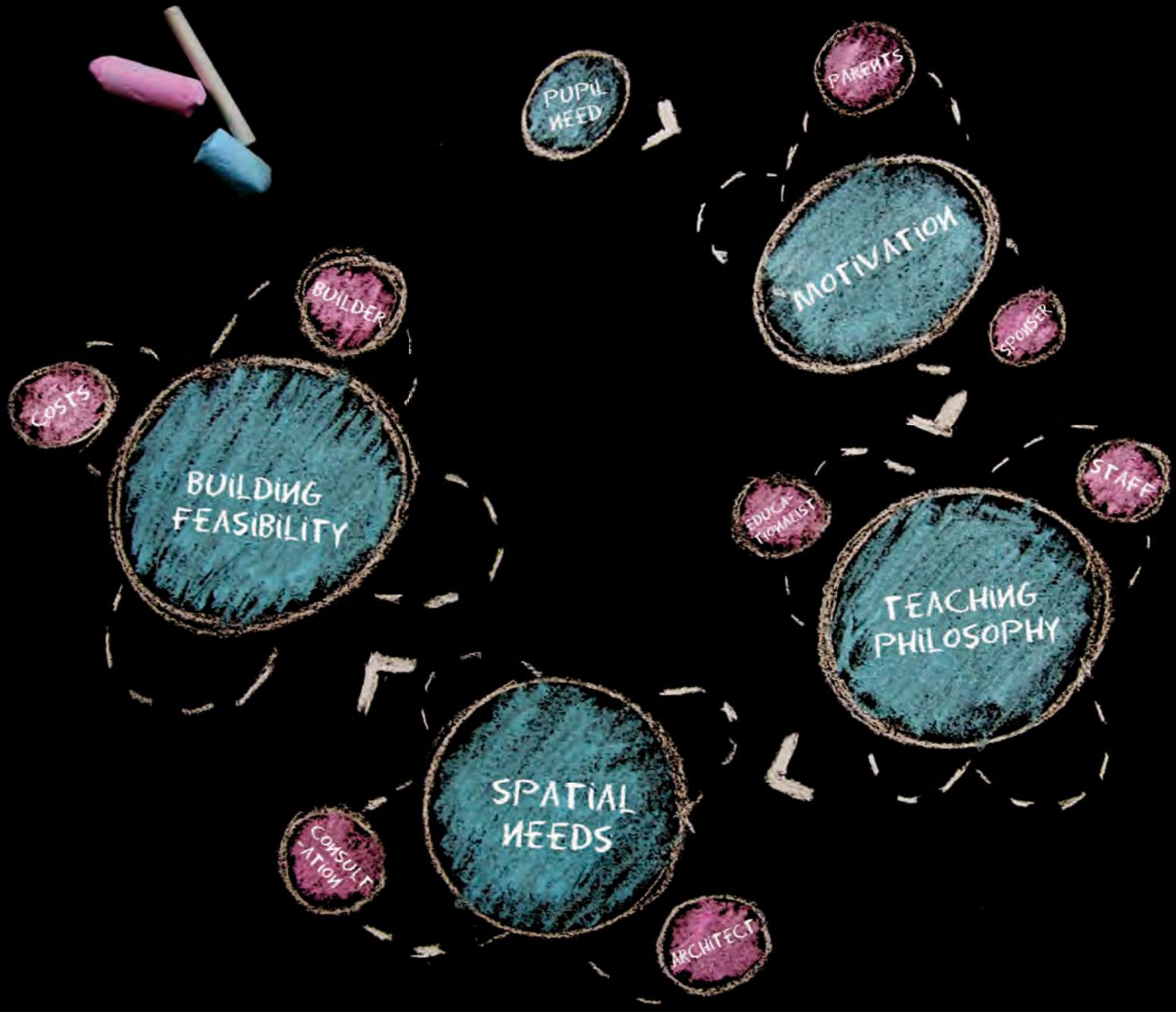
Ownership

The legal process of buying, borrowing or leasing will be a key aspect of acquiring a building.

Many of these themes may require specialist knowledge and expertise. Assembling a team of partners will be part of the process of tackling these issues and developing the building proposals in more detail.

Opportunities and challenges

Many buildings are centrally located and a benefit of this can be easy access to an excellent range of off-site curriculum resources such as libraries, museums, theatres and sports centres. Buildings on high streets in particular are well located to operate as part of a joined-up range of community resources, sustaining the community at its heart.



Commercial Buildings



The term commercial office can apply to a wide range of different building types, from high street solicitors to City Centre bespoke developments, to out of town business parks.

The range within this typology is further differentiated by location and age. The more bespoke the development the less flexible/adaptable they tend to be for a range of other uses.

Over the last 30 years much commercial office space has been developed by speculative entrepreneurs who have built a range of developments that have been designed and constructed without a particular tenant in mind. This has manifested itself in a formula of building type that is recognisable and flexible and suited to a variety of workplace activities.

The location of these developments vary but as part of the commercial formula they have tended to be located so that they are easy to get to and from, for both staff and clientele.

There is a constant shift in popularity of commercial developments which is determined by rental values, location, age and suitability. Many large corporations such as government agencies and finance organisations have vacated their bespoke office buildings for the convenience of the speculative office development. This has left a large number of often high quality buildings vacant, which are less easy to let for commercial use but which could, however, support different uses, including schools.

Typology Study

Modern Business Park

Key Facts

- Built without specific end-users in mind and consequently flexible and adaptable
- Designed to a recognised set of dimensions which could suit school design
- The buildings tend to be varied in size and height from 3 to 6 storeys
- Circulation can work both horizontally and vertically
- The best are designed with sub-division in mind for multiple occupants
- Generous floor-to-ceiling heights
- Good natural daylight
- The best have very good energy ratings
- Generally good vehicular access, close to public transport hubs and a high proportion of surface parking
- Limited outdoor space other than car parking (could be converted)
- Generally highly serviced for power and data

Context

The popularity of the business park has coincided with the decline of traditional manufacturing, the expansion of the service sector, expanded ownership of the car and the dispersal of local government services from the the 'town hall'.

Good examples include Spinningfields in Manchester, Cobalt in North Tyneside and Stockley Park in Hillingdon.

The building type is flexible and adaptable. They are designed to a set of dimensions which could suit school design.

Circulation can work both horizontally and vertically, with the best designed having sub-division in mind, good floor-to-ceiling heights, good natural daylight and energy ratings, good vehicular access, a high proportion of surface parking and generally close to public transport. Whilst outdoor recreation space may be limited, car parking could be transformed into external learning areas.

They would be easy to adapt to learning environments, but would lack large scale spaces such as sports halls etc.



Typology Study

Post War Urban Centre



Key Facts

- The buildings tend to be varied in size and height and can be from 4 to 24 storeys
- Circulation is horizontal in emphasis
- Mostly deep plan, mechanically ventilated and reliant upon high levels of task lighting
- Low floor-to-ceiling heights
- Often contain asbestos which can be costly to remove
- Often poorly constructed with poor thermal performance of the facades
- Generally energy intensive and as such can be expensive to run and maintain but can be upgraded
- Generally good vehicular access and parking
- Limited outdoor space other than car parking
- Building often defines the boundary
- Generally highly serviced for power and data

Context

These developments grew out of the ambition for smaller towns and cities to play a key role in the commercial growth of the nation and were in part a response to the decline of traditional manufacturing, the dispersal of central government services throughout the UK such as Customs and Excise and Inland Revenue, and the exodus from many city centres of commercial headquarters to capitalise on the greater mobility of the populous through mass production of the car.

Southend is a good example where a large business district was developed including a new civic centre and library.

The quality of these developments varies greatly and many now lie empty or have relatively low rental yields as demographics have shifted and city centre living and working has had a renaissance.

The buildings tend to be varied in size and height and can range from 4 to 24 storeys, most are deep plan, mechanically ventilated and reliant upon high levels of task lighting.

They benefit from good vehicular access and parking but limited outdoor space.

Typology Study

Modern City Centre



Key Facts

- The buildings tend to be varied in size and height and can be over 20-30 storeys
- Circulation is predominantly vertical
- They have limited vehicular access and parking
- There is limited or no outdoor space
- The building often defines the boundary
- Often deep plan, mechanically ventilated and reliant upon high levels of task lighting and as such can be expensive to run and maintain
- Very highly serviced for power and data

Context

These developments tend to be high quality, built to impress and express the wealth and success of the businesses that occupy them. They are generally clustered in the central business districts of our larger cities and are self-sufficient, with high quality public spaces between them.

They will often have good public transport links, and are not reliant on car parking to succeed. Good examples include the Manchester Commercial Quarter, the City of London and Canary Wharf.

They generate high rentals which may preclude the use as a school. However, with the complexities of modern living, the attraction of the family travelling together to and from a place of work and learning has logic.



Case Study

1960s Headquarters



Norgas House was designed as the headquarters for Northern Gas in the early 1960s. It was occupied until the late 1990s by British Gas and is now vacant. The building is of architectural merit and built to a very high standard for the period. Its organisation and location make it an ideal case study for re-use as a school.

The site is no longer prime real estate and is currently on the market. It is located adjacent to many local amenities, including a local authority leisure complex with an 8 court sports hall, a boating lake bound by public open space with walkways and trim trails, a primary school and a secondary school with large playing fields.

The heritage of the building would also lend itself to supporting specialisms in energy, technology and science.

The building has dining areas and large span spaces that are adaptable for sports, drama, lectures as well as typical teaching and learning spaces.



Case Study

1960s Headquarters

Challenges

Services

The building will require a thorough audit on services condition. However, it has been well maintained and the services should be adaptable.

The building benefits from a stand-alone energy centre which makes upgrades and replacement of services plant relatively straightforward.

Natural ventilation and daylighting would need to be analysed. However, the facade would be difficult and expensive to adapt.

Materials

There is evidence of a significant amount of asbestos in the building due to the time when it was built. This is only a real issue if there is wholesale removal, demolition or alteration required. It will affect service diversions and alterations.

Acoustic separation between spaces would need to be tested, however, the building was designed with flexibility in mind and as such has been adapted in the past without disruption to the external fabric of the building.

Access and Egress

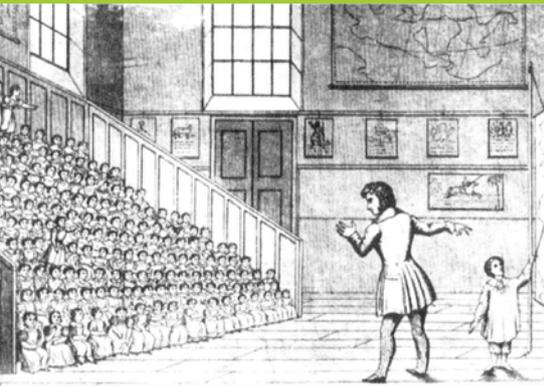
The building was designed for an adult population and did not consider the flows of pupils through its doors, which is a key driver in any good performing school. Unlike office buildings where occupiers come and go and move at irregular times, schools have movement *en masse* at regular intervals. The impact of this on the existing building needs to be fully explored for the proposals to be viable.



Commercial

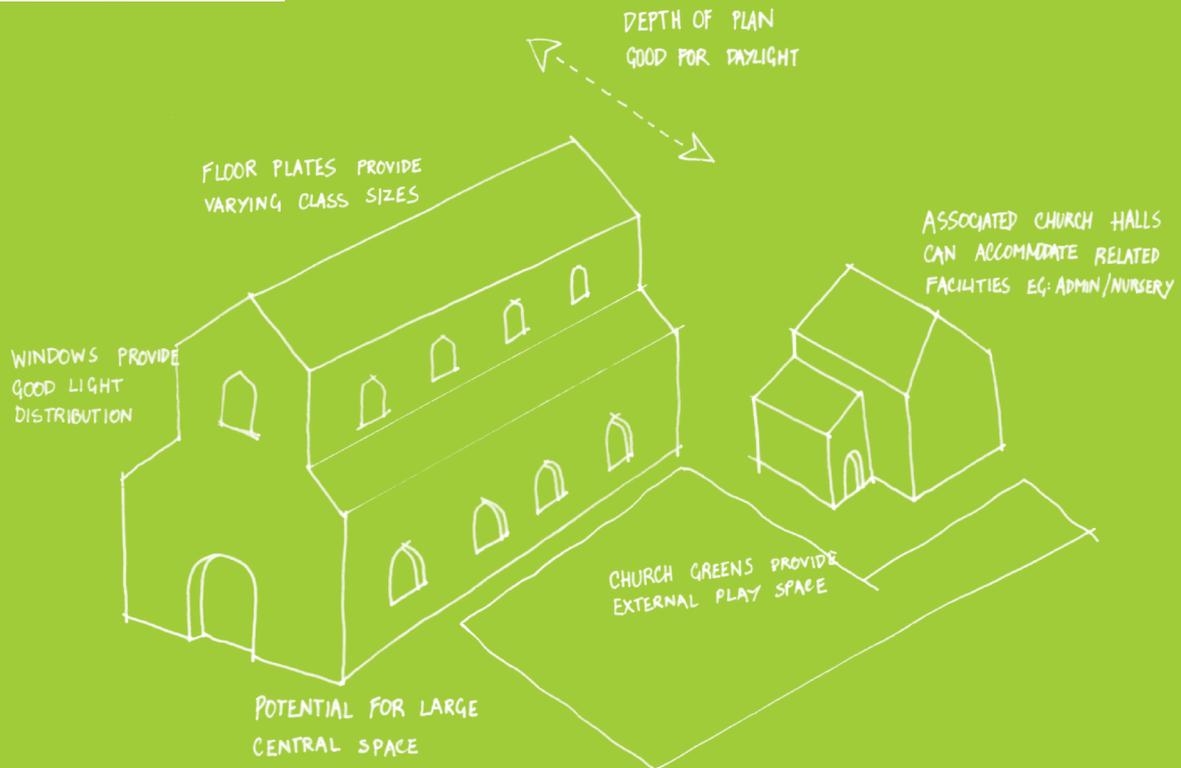


Community Buildings



Key Facts

- Potentially ideal re-use of redundant civic buildings
- Often important 'character' buildings, well located and with an existing community focus
- Typically large open plan space suitable for group activities or creative subdivision
- Size means that they may be more suitable for small secondary or primary schools
- May be limited external space
- May be significant costs in building fabric and ensuring appropriate environmental performance



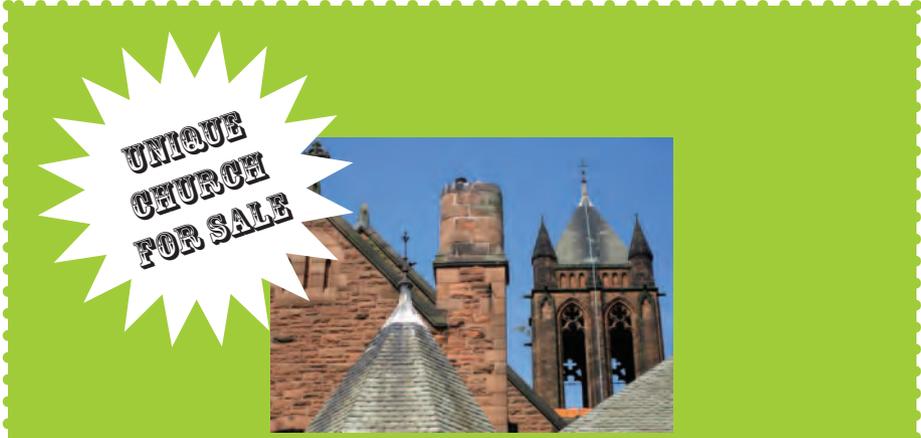
Context

According to the Church of England Commissioners, around 30 churches are closed every year. While some find subsequent re-use as homes or other functions, there are many currently available and in need of a new use. Combine this with redundant or underutilised community halls and other worship spaces, and there is a significant and readily available stock of buildings with the potential for full or part-time educational use.

Many schools have developed from the church hall as a building type and for this reason redundant churches and community halls are often ideally suited for education. Both churches and community halls are commonly planned with a 'nave and aisle' arrangement, comprising a large flexible assembly space with adjacent ancillary accommodation.

The large central space in particular offers potential for creative subdivision, permanently or using flexible furniture solutions. It may even be possible to accommodate multiple levels inserted within the existing volume as a mezzanine.

Nevertheless, churches in particular can pose specific challenges. For example there may be restrictions of covenant, continued access to tombstones or even Home Office approval for consecrated ground. There are, however, many sources of specialist support such as English Heritage and the Churches Conservation Trust and, in some instances, the possibility of funding assistance.



UNIQUE CHURCH FOR SALE

St Georges's United Reformed Church
Belvedere Road, Sunderland SR1 3NW

- Grade II Listed Church in central Sunderland location
- Approximate GIA 1,184.38m²
- Additional 2 bedroom Caretaker House
- Offers invited for the freehold interest

Case Study

Church



The original church, which filled the site, was bombed during WW2 and replaced in the 1950s by a single storey church.

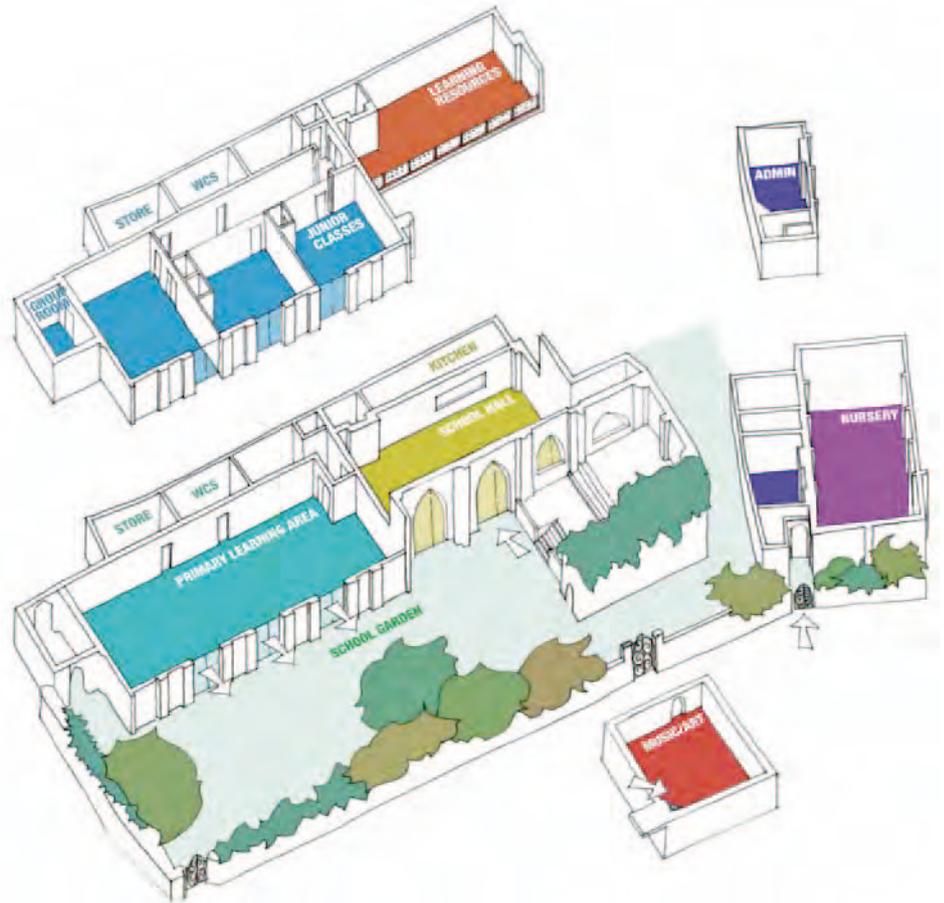
This has subsequently become disused, its last function being as a recording studio.

This case study illustrates how the site might be developed as a small primary school for a single form of entry (30 pupils).

The redevelopment would include:

- Re-modelling of existing single storey church to form a two storey school building, including an extension along the northern boundary to accommodate ancillary spaces including stores, toilets, stairs, lift and kitchen
- Re-use of existing fragment of original church to create a hall and library
- Re-use of existing crypt space to create a music/art room
- Re-use of existing church hall to create a nursery and administration building
- Re-use of existing garden to create external learning/play space





Retail Buildings



Retail businesses – shops, banks, restaurants etc – occupy a wide range of building types situated in diverse locations, mostly within or on the outskirts of built-up areas.

Up until the 1950s retail buildings were generally centrally located in built-up areas to give ease of pedestrian access for the community that they served. This might be as a stand-alone unit, as a cluster in a village or small town, or on a high street in a larger town or city.

With the reshaping of the country to align with private car use that has occurred over the last 60 years there has been significant development of large out of town, edge of town and suburban retail buildings, mostly functioning as supermarkets or home improvement and furniture stores. Generally these are located autonomously or within retail parks.

Another significant trend over the past 30 years has been the development of shopping malls with sheltered 'streets' that function regardless of the weather. These are privately-owned domains that are typically arranged as American-style, out-of-town developments or located centrally within existing town centres, where they can have a reinvigorating effect.

From retail buildings to schools?

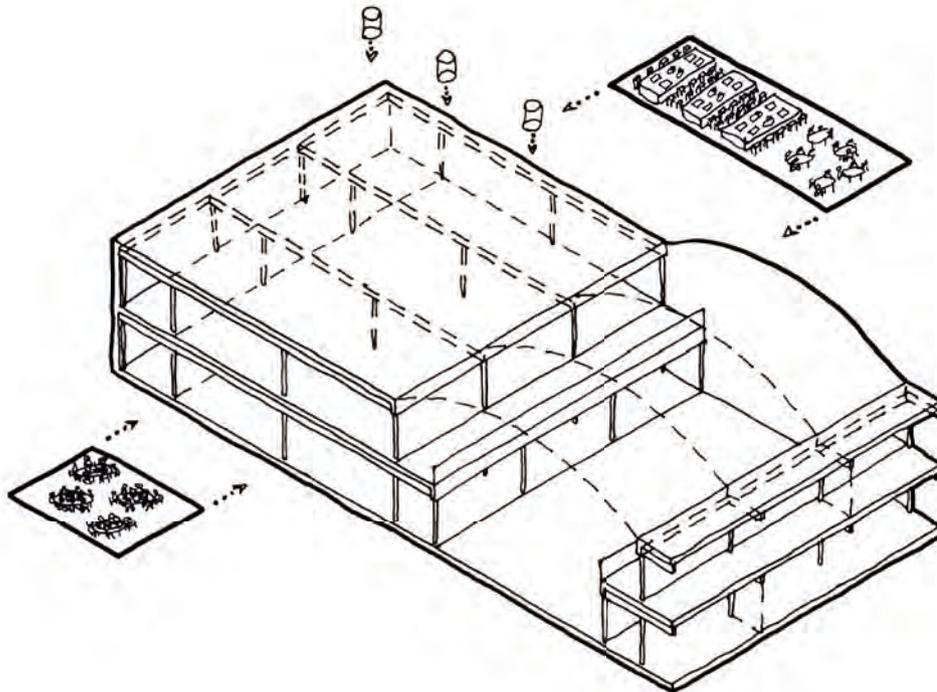
Many retail buildings are ideally located to function as schools as they are situated at the heart of existing communities, either on the high street or in the suburbs.

Current rental market conditions mean that there is good availability of retail space in many parts of the country. Rental values for retail buildings vary widely, from rates that may be considered for school use up to those far higher than would typically be anticipated.

The range of retail buildings available offers broad opportunities to reinvent school design for the new generation of schools. Whilst some retail buildings offer good opportunities for schools, the schools themselves also have the potential to reinvigorate local communities and act as powerful drivers of regeneration and renaissance.

Typology Study

Shopping Mall



Key Facts

- Usually located in town centres or out-of-town
- Typically large scale and arranged over two or three storeys, sometimes with underground car park
- Mall retail units are of varying size, some large enough to accommodate a school
- Private domain starts at entrance to mall causing access challenges for a school located away from the perimeter
- Structure is steel or concrete frame with good flexibility of internal arrangement (but with limited floor-to-ceiling height)
- Units are typically highly serviced but access to sufficient daylight for school use would be a challenge.
- Generally no external space is available so break times likely to be spent indoors, with PE facilities located off-site
- Not ideal for primary school, may suit business or ICT focussed secondary school or 14-19 studio school

Typology Study

Large Shed

Context

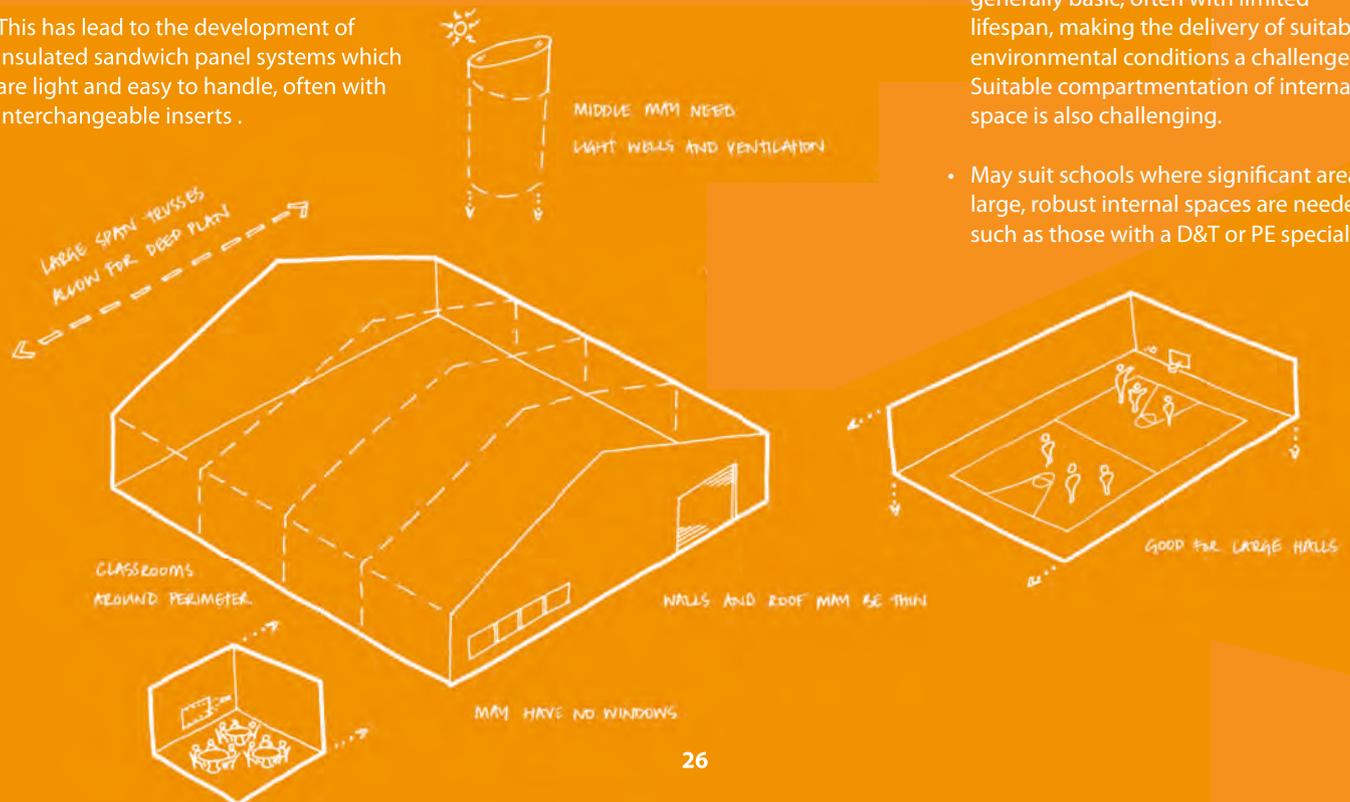
Since the 1970s the development of large-span steel portal frames has meant that lightweight, metal clad 'sheds' which rely on artificial lighting have become the standard means of providing flexible retail, storage and industrial space.

Roofs and floors now account for the largest proportion of the building's surface area, rather than the windows and walls of earlier building types.

This has led to the development of insulated sandwich panel systems which are light and easy to handle, often with interchangeable inserts.

Key Facts

- Typically located in the suburbs or out of town and with new generation stores located in town centres. Suburban locations may suit school use due to residential catchment.
- Buildings are typically laid out over one storey plus a mezzanine level and are very large, some with sufficient area to accommodate a substantial secondary school.
- External hard surfaced area is often available, suitable for conversion to hard games courts etc.
- Building structure is generally steel frame, often with large clear spans suitable for accommodating large volume spaces such as assembly halls, games courts or large teaching studios.
- Building envelope and services are generally basic, often with limited lifespan, making the delivery of suitable environmental conditions a challenge. Suitable compartmentation of internal space is also challenging.
- May suit schools where significant areas of large, robust internal spaces are needed such as those with a D&T or PE specialism.



Case Study

High Street

Context

The high street is the historic heart around which our towns and cities have evolved.

The second half of the twentieth century saw an emphasis away from the high street, towards out of town and edge of town trading alongside suburban development.

Today there are powerful sustainability drivers for reinvigorating the high street as a key forum for local, community interaction.

Key Facts

- Location is typically ideal for schools, at the heart of the community.
- Building age, scale and form of construction vary widely. Unifying factors include high street frontage and an easily accessible ground floor. Rear service access is also common.
- Larger, 20th century steel or concrete frame units may be best suited to school use. Typical original uses would include department store, supermarket and general store such as Woolworths.
- Such units offer flexibility and typically have a taller ground floor suitable for communal use, dance, drama, etc, as well as being a shop front to the wider community. Day lighting could be a challenge in these buildings.
- Typically no external areas are available. Use of flat roofs, as seen in some Victorian Board schools, may be viable.
- High street schools are potentially a powerful driver for regeneration as a part of broader community amenities.



Case Study

High Street



The building selected for this study occupies a central site on a local high street which started developing in the mid nineteenth century.

The building was constructed in the 1930s when it operated as a drapers. More recently it was the local Woolworths and is now in operation as another general store.

The form of construction is robust steel frame with masonry walls and concrete floors. The interiors are laid out in an open plan arrangement with compartmented areas for services, storage, vertical circulation etc.

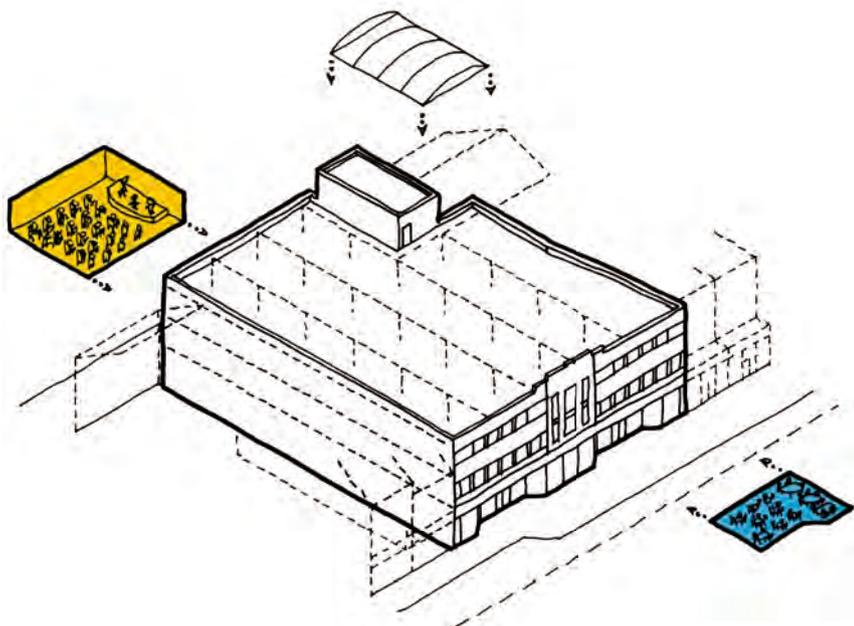
An indication of the current floor layout is shown opposite. The ground floor is the shop floor with storage in the basement and offices and storage to the upper two floors.

The glazed shop front to the ground floor gives views in and excellent access from the generously scaled pavement of the high street. The rear of the building, which is more closed in nature, is accessed via a service road running parallel to the high street.

The plans indicate a potential arrangement as a school. The high street location is arguably best suited to secondary school use and this has been assumed here. The building size (around 3,000m²) would accommodate around 200 pupils, assuming access to off-site PE facilities (both sports fields and indoor facilities are available within 1 km of the site).

The generous ground floor gives an excellent community interface and 'shop window' into the school. Communal facilities and a dance and drama studio are located here. Specialist science and D&T facilities are located in the basement, with general teaching and other specialist accommodation located on the upper floors.

A new glazed roof is indicated, to bring daylight into the deep plan floorplates, and the flat roof is utilised to give informal break-out space.



Area: approximately 3,000m²



Industrial Buildings



The term 'Industrial' can apply to a wide range of different building types, from unheated storage warehouses to highly engineered and specialised factories.

Since these buildings are, by their very nature, machine-like utilitarian facilities, most industrial buildings tend to have internal spaces that are as functional and efficient as possible – often at the expense of the more human scale demands of architecture.

These unusual spaces do, however, offer the potential to create the kinds of spaces undreamed of in other building types. Vast turbine halls or long machine rooms offer a unique chance to develop dramatic, flexible and dynamic environments for teaching and learning.

The UK has a rich heritage of industrial buildings built to symbolise reliability and ambition. Those that have survived have done so because of their ability to adapt to new uses and different configurations.



Typology Study

Historic Mill/Factory

Key Facts

- Structural elements often incorporate ornamental details that add a unique character to the space
- Rows of columns every few metres dictate the placement of partition walls - more suited to smaller cellular spaces
- Shallow plan is ideal for even daylight distribution and natural ventilation
- Timber: easy to alter but vulnerable to fire and only safe if oversized. Check for wet or dry rot
- Cast-iron: corrosion-resistant and fire-resistant. Tends to be brittle and could crack or shatter in a fire

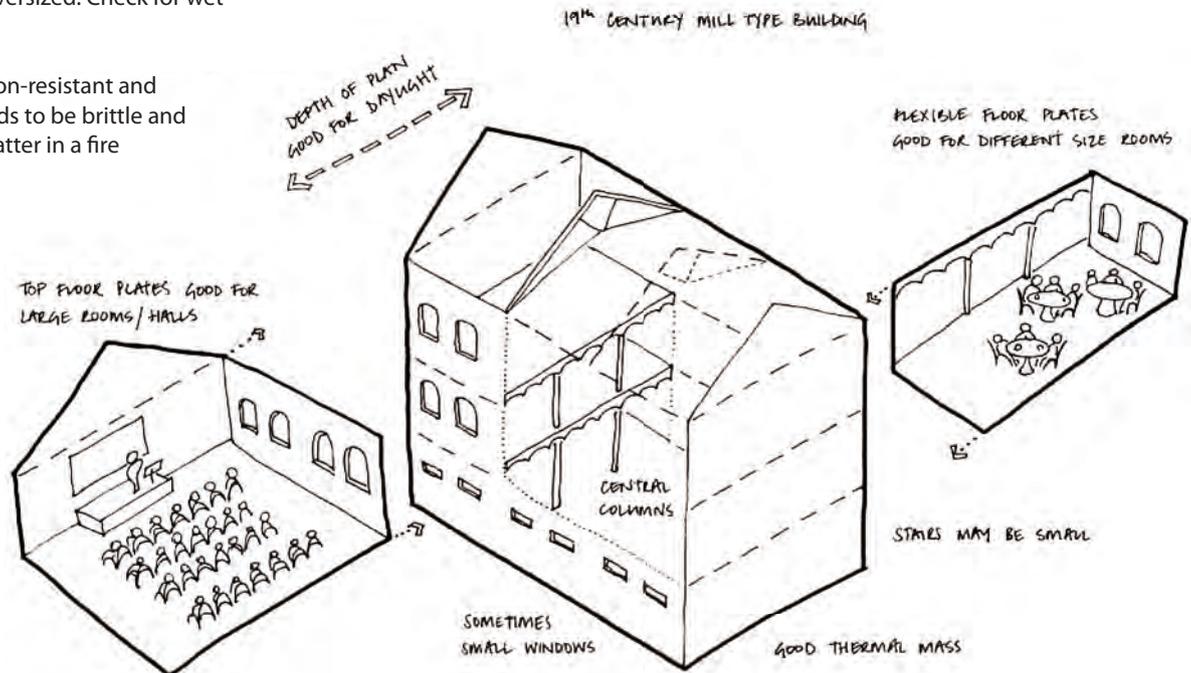
Context

Early 'industrial' buildings of the eighteenth and early nineteenth centuries were mainly mills for processing cereals and for spinning or weaving cloth. They tend to have load-bearing masonry walls with an internal structure of timber columns carrying timber floors.

By the 19th century, standardised materials such as stock bricks and cast iron structural elements allowed the

development of fire-proof buildings using cast iron columns and solid brick floors supported by brick 'jack' arches.

There was a limit to the span that a single roof could cover, so larger buildings typically feature a series of pitched roofs supported by rows of internal columns.



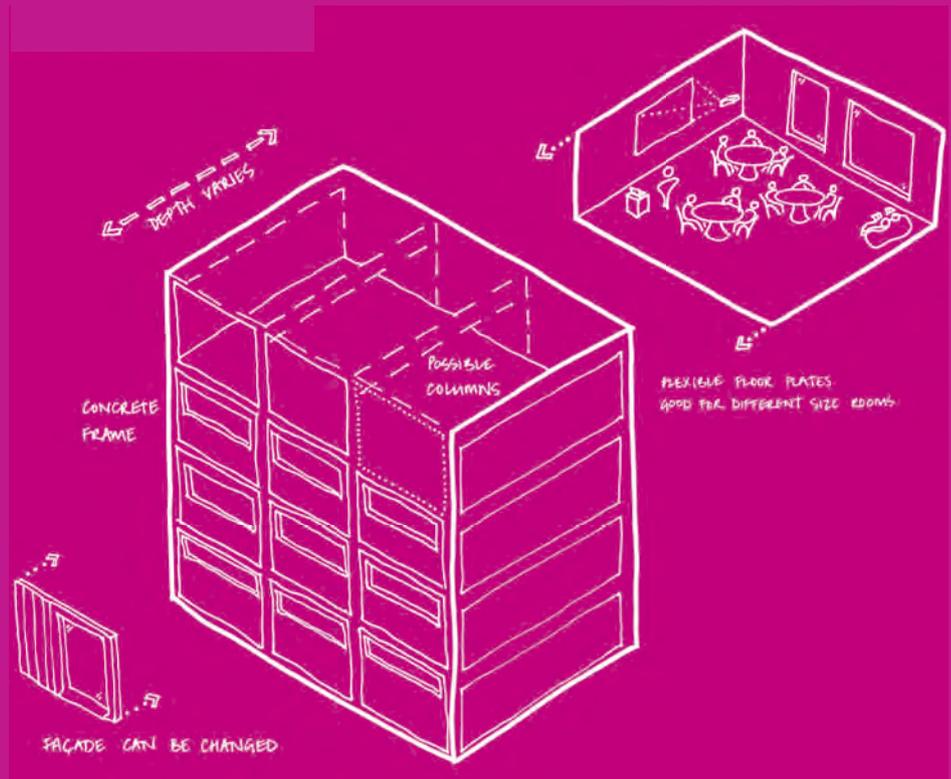
Typology Study

20th Century Factory



Key Facts

- Usually multi-storey with large machine hall at ground Level
- Reinforced concrete: strong but resistant to corrosion as long as reinforcement is not exposed (difficult to cut through or adapt)
- Steel: corrodes if not protected and vulnerability in fire means it needs to be protected by sprinkler systems or coated with fire protecting paint
- Facade infill panels can often be replaced or upgraded



Context

In the early twentieth century the development of reinforced concrete technology allowed more spacious buildings with an expressed structural 'skeleton' based on a regular grid of columns, beams and slabs.

Welded or riveted steel sections and girders were available in stock sizes by the 1920s and the speed of steel frame construction made it equally popular. These new structural arrangements allowed lightweight infill panels to the facade.

Large window areas were ideal for light engineering factories, where workers needed good daylight to see what they were doing. The infill panels could also be easily removed and replaced in order to accommodate new technologies or layouts.



Case Study

Industrial Building



Occupying a dense inner city site, this mid nineteenth century cluster of buildings currently houses artists' workshops and light industrial units.

The fact that the buildings are currently occupied is a good indication that the external fabric is in reasonable condition and therefore any initial construction works can focus on rearranging the internal spaces to meet the requirements of a school.

Likewise, the current lift and stair provision is sufficient enough that these services could remain for the first phase, possibly being replaced at a later stage when pupil numbers increase.

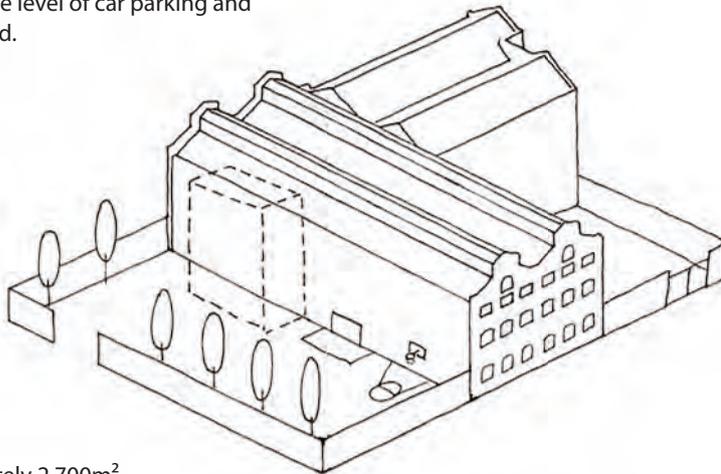


Spatial planning

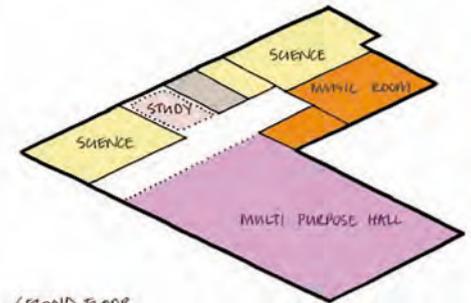
The plans opposite show how it is possible to accommodate all of the principal teaching spaces, staff areas and resource rooms.

The dramatic rooflit top floor provides sufficient space for a multi-purpose hall combining dining and assembly spaces. For the first phase of occupation it would be necessary for external catering provision, but a dedicated kitchen and dining area could be added at a later stage if required.

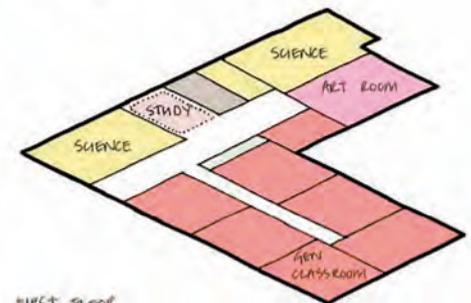
Given the inner-city location, it is anticipated that the school could make use of local sports and gym facilities. However, there is also some external play space available to the front and rear of the building, depending on the level of car parking and servicing required.



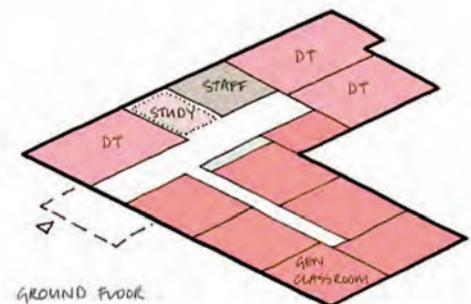
Area: approximately 2,700m²



SECOND FLOOR



FIRST FLOOR



GROUND FLOOR

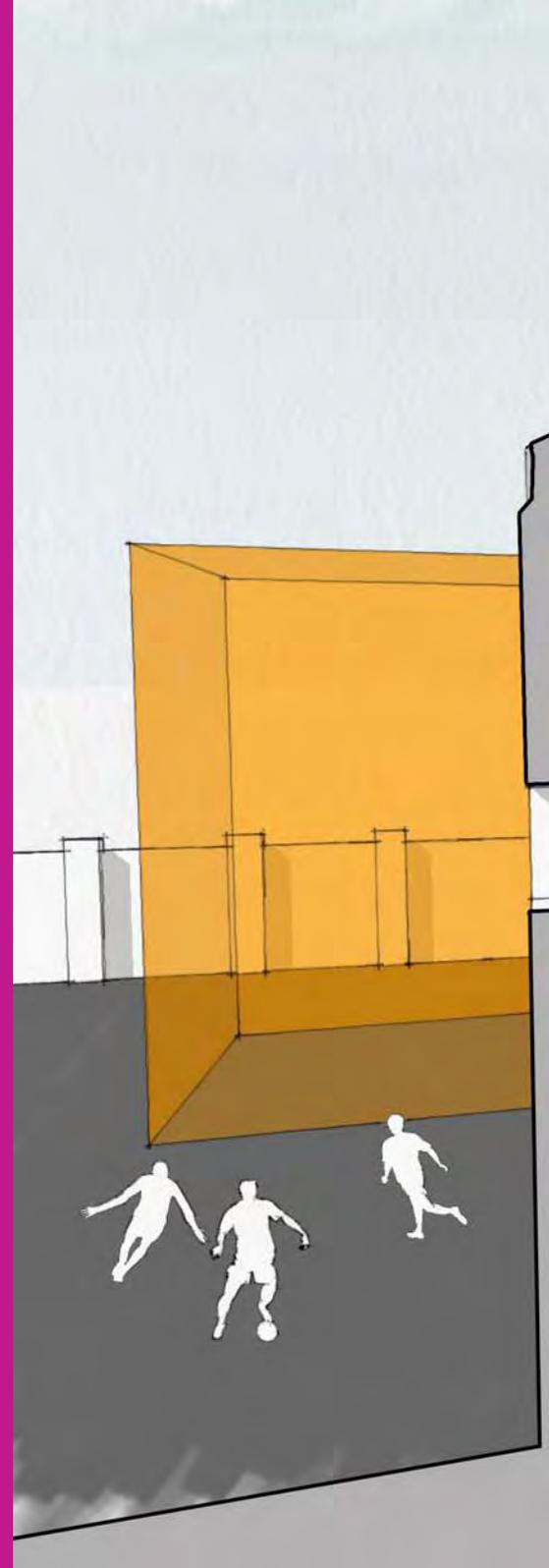
Case Study

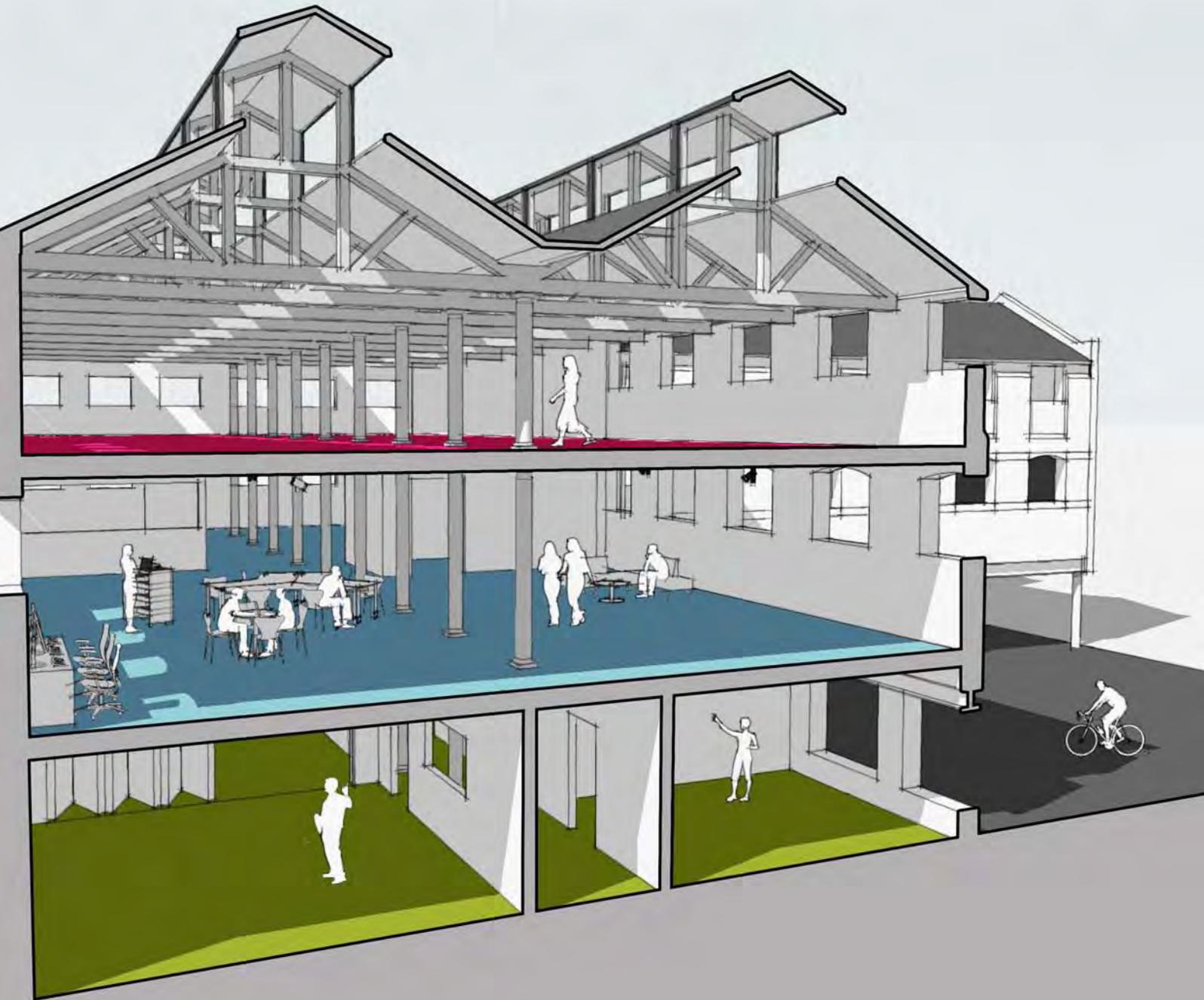
Industrial Building

A lesson in adaptability

The resulting design is a modest, well proportioned school that provides efficient, practical learning spaces with the potential for future expansion as pupil numbers increase.

Structural columns, loadbearing facades and fire escape distances were all factors which determined the scope of what spaces could be accommodated.





Public Buildings



Converting Public Buildings

Public buildings vary widely in their form, function and construction, from grand historic civic halls to simple, modern offices.

Buildings suitable for use may include:

- Schools, colleges and universities
- Childcare facilities
- Libraries
- Emergency services buildings
- Judiciary facilities
- Leisure centres
- Healthcare buildings
- Civic and council buildings

Some will offer the simplest transition, with a well established community position offering an environment suitable for immediate habitation.

Yet others will require greater vision. Public buildings can present prospective schools with great potential, offering unique structures combining character and function.

Many are located at the heart of communities or situated strategically to present public access to their services.

Public buildings have traditionally survived and strengthened through changing use in line with changing public needs and have left a legacy of robust, adaptable buildings.



Typology Study

Educational Buildings

Key Facts

- Existing educational buildings can be a simple option, almost ready to inhabit
- A large variety of building types are available, from those catering for toddlers to adult learning centres, most offer a good base of light, usable spaces
- Reusing educational facilities for students of a different age may require restructuring of spaces or replacement of furniture and facilities
- The existing establishment may benefit from access to sports, drama, or other specialist facilities required by your school

Context

Educational buildings may become available for many reasons, often nothing to do with the basic usability of the available facilities. The buildings may even provide a direct solution, ready to open immediately.

When assessing existing educational buildings, any problems the previous users found must be considered. Issues with facilities, structure or suitability of space may need to be addressed.

The buildings may need some development to best fit the particular vision of the new proposal, yet all school buildings should provide a good starting point of flexible, habitable spaces.

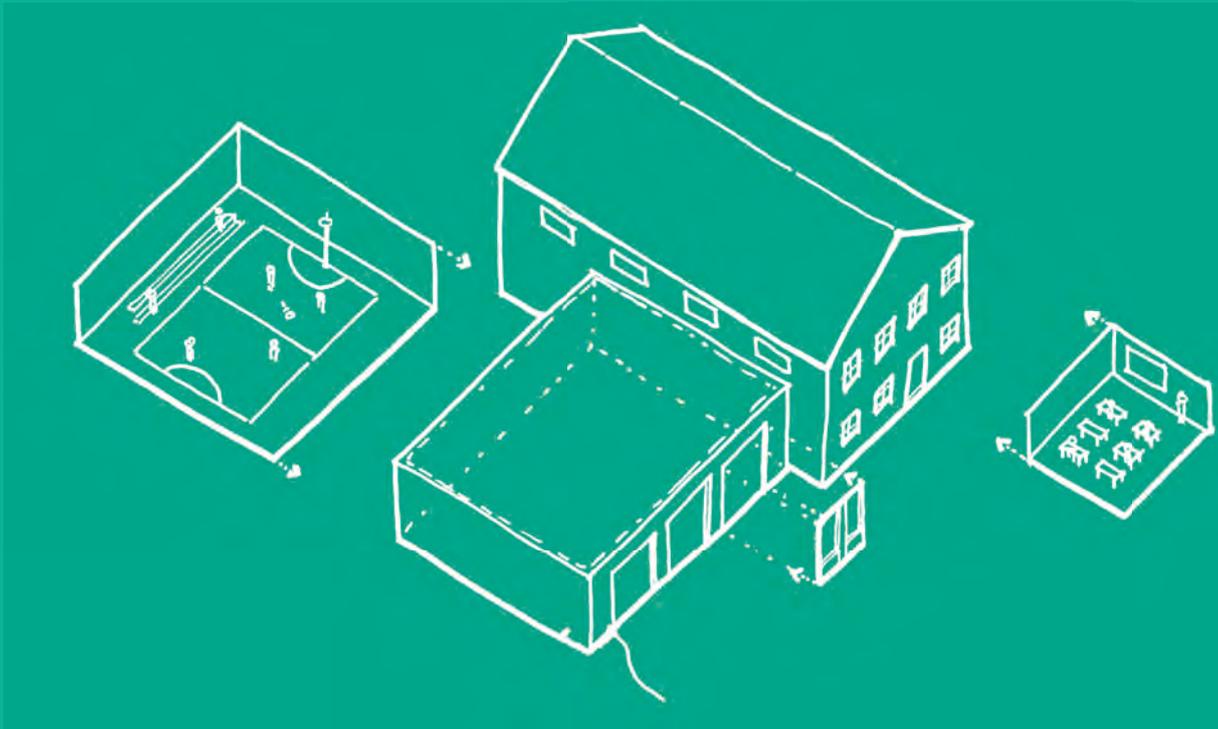


Typology Study

Emergency Services

Key Facts

- Usually based around a combination of communications, vehicle and welfare facilities
- Welfare facilities, including kitchens, toilets and showers can be retained and reused
- Emergency services facilities are well positioned for quick and easy access to a large section of the community
- Services buildings tend to have external space, drill yards and hardstanding which may be suitable for external social or sports space
- Buildings may be old, robust structures, new lightweight panel structures or a mix



Context

Buildings for emergency services have changed as the services have evolved. Some current facilities have themselves been adapted and have proved to be robust. A common feature across different structures is their location, providing services accessible to entire communities.

The buildings are often located on large sites, with spacious yards and outbuildings, presenting a blank canvas for reorganisation or expansion.

Where offices and communications spaces are included, the buildings have a great base for teaching space. Where capacity is limited, teaching space can be added economically whilst the assets that the building does possess in space, location and flexibility can be much more valuable.



Case Study

Public Library

This modest local public library occupies an open corner site on a main road cutting through the centre of this suburb.

The library is in partial public use, with a large storage area. Relocating the book storage would leave a large, light hall, requiring only the arrangement and inhabitation of internal spaces.

Its position close to the facilities of the town centre and adjacent to public sports grounds means that the development can focus on refurbishment works to create the best possible teaching environment.



Design Proposal

Within the existing building, all of the key spaces can be accommodated. The high, open space of the former library is ideally suited to conversion to a school hall with the remaining space divided as required to form class bases and supplementary resource areas. Existing utilities, toilets, store and staff amenities can be incorporated and developed.

The site benefits from generous surrounds, giving space for external teaching or informal play and providing the opportunity to expand, adding extra classrooms as the school grows.

A public library can be retained, maintaining the public resource and strengthening links between school and community.



Typology Summary

Common Challenges

Most of the buildings discussed in this section were designed for a different function and for specific users.

This means that there are several potential obstacles to a successful and fully accessible building conversion.

Access/Fire

Most potential sites of sufficient size for adaptation will comprise of a collection of buildings built at different times and for different purposes.

These may:

- have different floor levels
- have doorways or staircases that are too narrow
- only have a single staircase
- incorporate materials that are combustible or fail in a fire

Unlike office buildings where occupants come and go and move at irregular times, traditional schools tend to encourage movement *en masse* and at regular intervals. The impact of this on existing circulation routes needs to be fully explored for the proposals to be viable.

Services

Any building under consideration will require a thorough audit to assess the condition of the basic services: heating, power, water supply, sanitation and lifts, as many of these may no longer comply with modern Building Regulations.

The capacity for utilising natural ventilation and daylighting would also need to be

analysed. However some roofs and facades may be too difficult or expensive to adapt.

Structure and Fabric

Many historic buildings will contain areas of asbestos, lead-based paint and other toxic materials, so a thorough survey is recommended. The presence of toxic materials may affect any planned diversions or alterations to existing service routes.

Asbestos, famous for its fire-resistant properties, was popular until the 1970s. It can be found in floor tiles, plasterwork, gutters and downpipes, ducts, wiring, pipe lagging and many other items.

Lead, known for its durability, is typically found in paint and plumbing but could also be present in glass and other items.

Acoustic separation between spaces will also need to be tested.

A full structural survey will also be necessary before any building is considered for occupation by the public.

Existing roof and wall bracing could restrict the addition of any extra openings.

Location

Although an out of town or high street site may be ideal in terms of access for parents, the adjacent businesses or neighbours mean that there are often issues of noise, privacy and security to consider.



Ideas Box

Bring out the character

Make the most of the contrast between the old and the new

Think big!

Flexible, large span spaces offer the opportunity to create different types of teaching and learning spaces

Make new openings

Atria and lightwells can be introduced to improve daylighting and ventilation

Use every space

Flat roofs and terraces could be used to provide rooftop play areas and terraces



Next Steps



This publication has set out how free schools thinking challenges the preconceptions about how schools are organised, how they operate and how they can be accommodated in a range of different building types.

The process of creating a new school or relocating an established school into new premises is a challenging endeavour. Undertaking any building project, whatever its scale, can be a daunting experience.

Specialist and expert advice is available to help you achieve your aspirations and vision, as well as add value to your project through good design and lateral (free) thinking.

Pedagogy and ethos are an intrinsic component of a school's philosophy and the premises may need to respond to your particular requirements, or the building itself may even influence the philosophy.

When looking at the adaptability of different building types for conversion to schools, not only are the potential suitability of the space, ease of conversion and location important, but it is also essential to consider the cost of adaption and conversion to provide the required configuration and spatial planning.

The cost of the building will be a substantial part of any investment, but consideration should also be given to the long term running and operational costs once the building has been completed.

The cost of bringing a building up to current standards to meet design criteria can require substantial initial outlay. If the capital cost is not spent wisely, the cost of running and operating a poorly converted building may be expensive and not economically or environmentally sustainable.

As with any project it helps to clearly set out your aims and objectives: the Education Vision. This helps to formulate a Brief which sets out your spatial and organisational requirements. The Brief will inform your Business Case and Feasibility Study.

Think about people, time, place and space. Free up the thinking around schools.

Further Information



For further information about free schools thinking and how you can apply this to your own school, please contact BCSE.

www.bcse.uk.net

Web

Department for Education
www.education.gov.uk

New Schools Network
www.newschoolsnetwork.org

Specialist Schools and Academies Trust
www.ssatrust.org.uk

Independent Schools Council
www.isc.co.uk

US Charter Schools
www.uscharterschools.org

Credits

Edited by Ty Goddard and Ian Fordham, BCSE and Jude Harris, Jestico + Whiles

Graphic design by Aurélien Thomas, Jestico + Whiles

© BCSE September 2010

Partners

BCSE would like to thank the following architects for their invaluable contribution to this publication and free schools thinking.

architecture plb	www.architectureplb.co.uk
GSSArchitecture	www.gssarchitecture.com
Jestico + Whiles	www.jesticowhiles.com
RH Partnership	www.rhpartnership.co.uk
Ryder	www.ryderarchitecture.com

Contributors

BCSE: Ian Fordham, Ty Goddard
architecture plb: Andrew Fifield, Nick Mirchandani (Community);
GSSArchitecture: Thomas Lyons, Michael Magri (Public); Jestico + Whiles: Ben Marston, Tom Fowlie, Suzanne Gilmour, Heinz Richardson, Oliver Watson (Industrial);
RH Partnership: Phillip Naylor, Oliver Wilton (Retail);
Ryder Architecture: Jenny Thomas, Richard Wise (Commercial);

Photographs

Front cover: Walthamstow School for Girls, architecture plb © Simon Warren
Inside cover: Clapton Girls' Technology College, Jestico + Whiles © Tim Crocker
Back cover: Haberdashers' Aske's Hatcham College, Jestico + Whiles © Tim Crocker
Page 39: Queen Elizabeth Hospital School, GSSArchitecture © Fotohaus



**British Council
for School
Environments**

The British Council for School Environments (BCSE) is the UK's leading charity in education, design and construction. We are also a membership organisation made up of local authorities, schools, construction companies, architects and others involved in 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

the centre for
**school
design**

architectureplb

GSSARCHITECTURE

jestico + whites

r h partnership architects

Ryder

