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ESSEX COUNTY COUNCIL PRIMARY SCHOOLS (1973-1993)

A DESIGN APPRAISAL

VOLUME TWO

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A thesis submitted in partial fulfilment of the requirements of the University of Greenwich for the Degree of Doctor of Philosophy.

This research programme was carried out in collaboration with the Essex County Council Property Services Department.



August 1996

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CHAPTER 9
INTERIOR DESIGN

9.1 INTRODUCTION

There have been many differing opinions expressed to me by Headteachers and other professionals during visits to schools and interviews (French, C. P., 1995g) about the degree of success of Essex primary school architecture over the past 25 years, but most critics agree that generally their interiors have been of a very high quality. This consistent quality has been the result of the highest standards being set during the early 1970s and pursued relentlessly, even when design teams have been under considerable financial pressure.

This chapter will examine some of the educational and design factors affecting the interior of Essex primary schools during this period, the internal finishes, fittings, and loose furniture in an attempt at establishing clear guidance for future design teams.

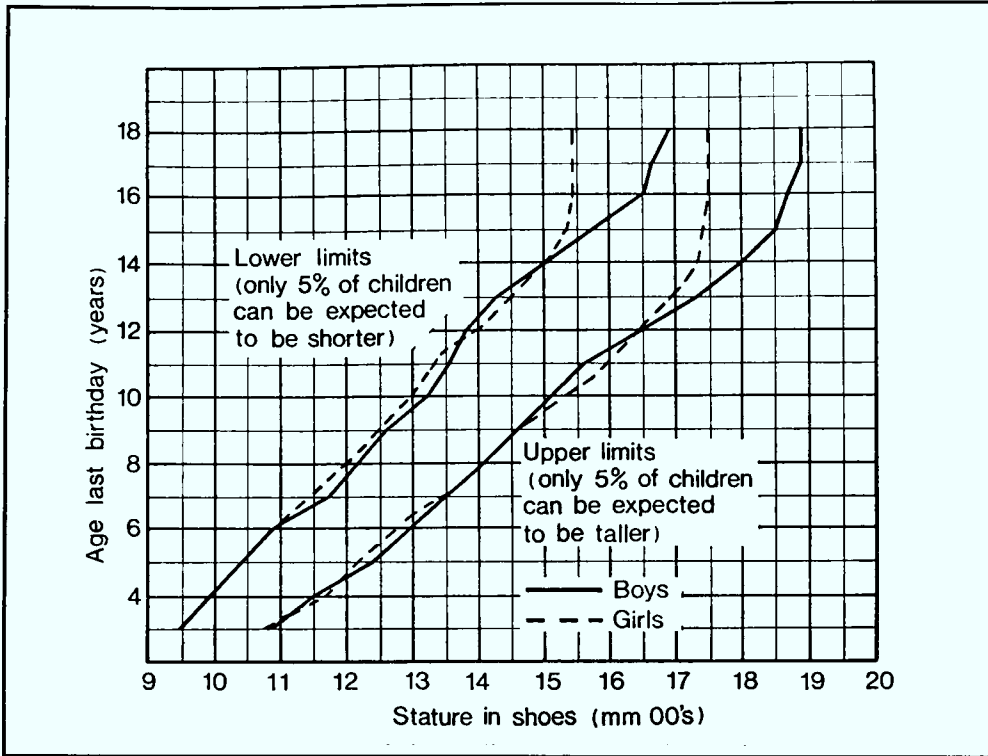
9.2 EDUCATION AND OVERALL DESIGN ISSUES

The child centred teaching methods and open plan layout of most Essex primary schools, discussed in detail in earlier chapters, has had a significant impact on their interior design.

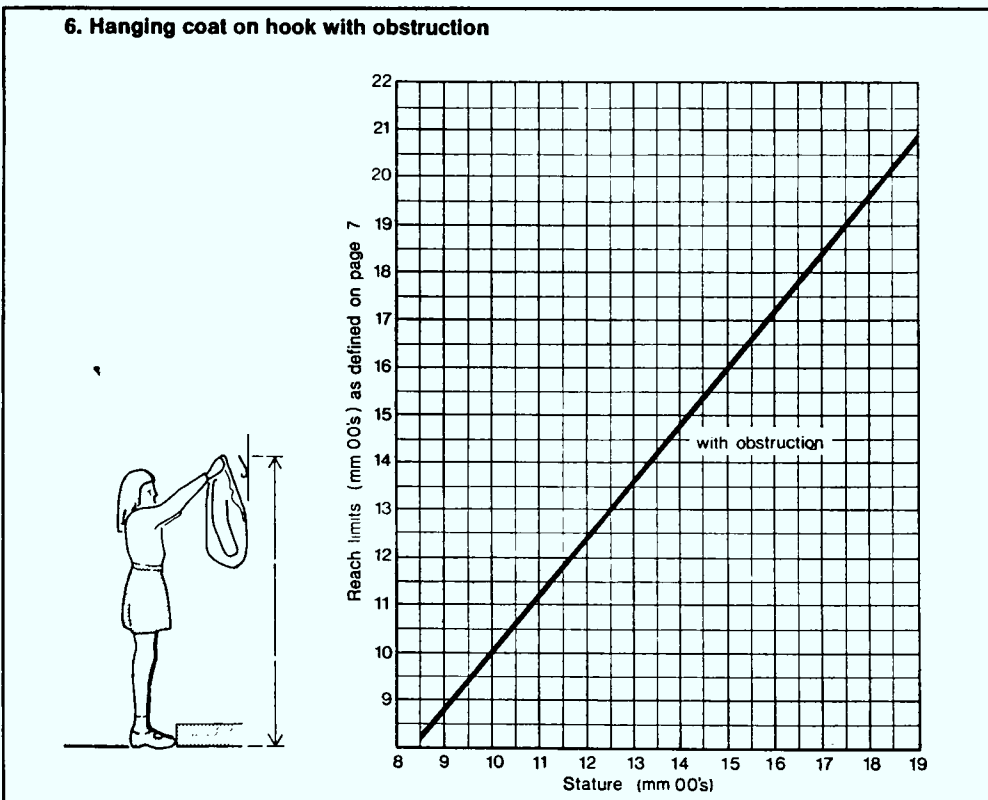
D.E.S. Guidance

The Department of Education and Science Architects and Building Branch carried out considerable research in the 1960s, following the publication of the Plowden report, with the various school building consortia on the furniture needs of young children. They published several bulletins (DES, 1974.) recording basic dimensions of pupils for standing, sitting and reaching in the early 1970s, which prompted a re-appraisal of furniture design for schools, with more comfortable working heights and an acceptance that different age children required different height furniture (see illustration D83 & D84). They also pointed out the important role colour and texture plays in ensuring school interiors and furniture create a domestic ambience where young children will feel at home (French, C.P., 1994n).

This influence and advice from DES encouraged authorities like Essex to use new non-institutional materials and develop a new child sensitive range of furniture which have continued to evolve and are still in use today.



STATURE FOR AGE - 90% LIMITS



HANGING COAT ON HOOK WITH OBSTRUCTION

ILLUSTRATION D83 - ANTHROPOMETRIC DATA ON CHILDREN FROM DES BUILDING BULLETIN NO. 38

Reproduced from
DES Building
Bulletin 38
(See DES, 1974)

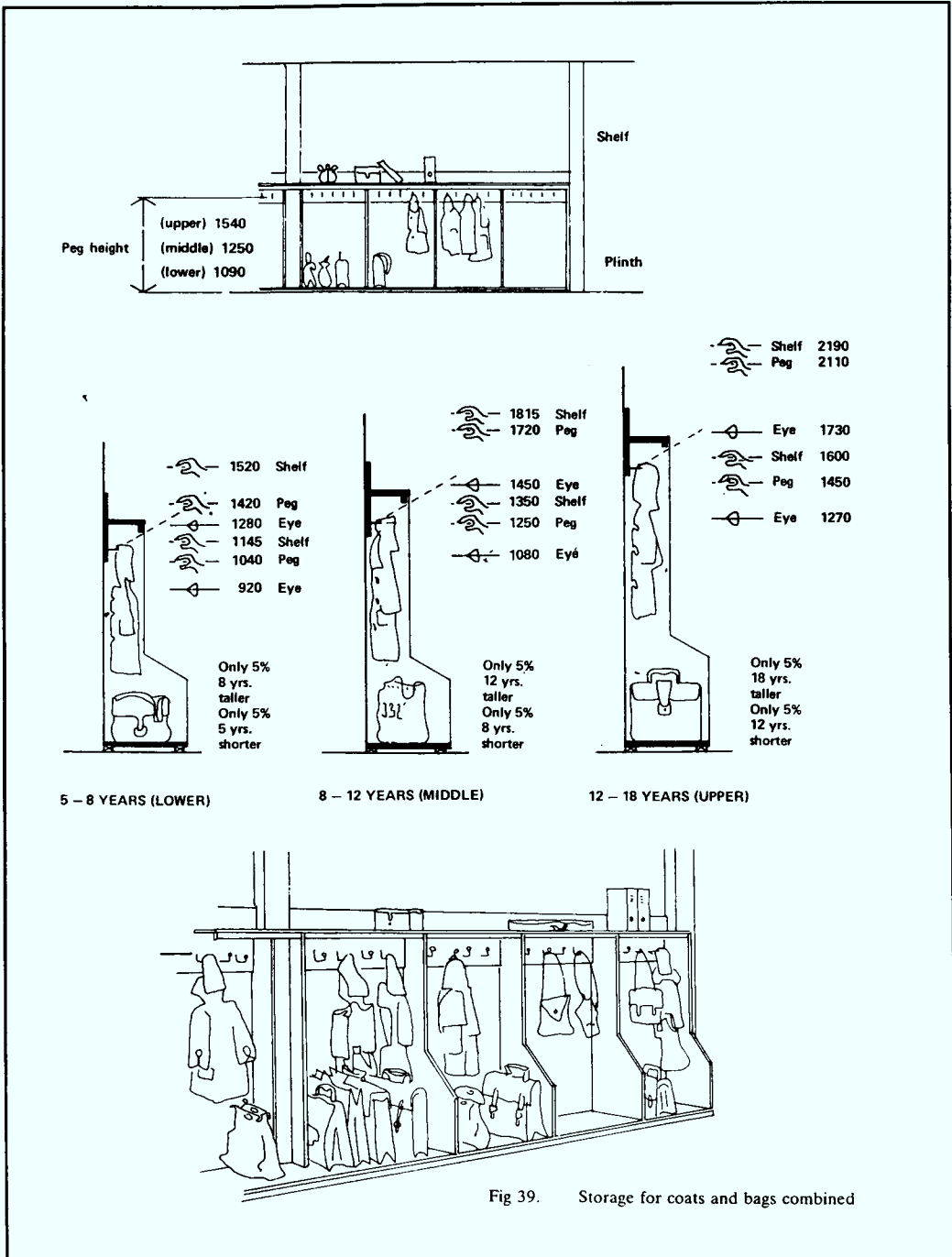


ILLUSTRATION D84 - DESIGN GUIDANCE FOR STORAGE OF COATS AND BAGS FROM DES BUILDING BULETIN 58

Reproduced from DES BB 58 (see DES, 1980.)

Age and size range

The differences in the physical size of the various age groups in a primary school are enormous, but despite this, there is very little difference in the space standards for furniture and equipment in the class bases for different age groups.

It is true that the current size of classbases for rising fives or the nursery unit are about 20% larger than the normal classbase, and storage is 100% larger, but this simply reflects the need for one or two larger items of equipment such as the sand and water trays, and larger play items such as the Wendy house. All other furniture is basically the same for all age groups.

It is also true that tables, benches and chairs are of different heights to suit different age groups, but the same range of items is provided for all age groups irrespective of need. This is now becoming a real problem with the 11+ pupils whose curriculum needs include more science and technology equipment to prepare them for secondary education, and they are of such a stature that they need adult size furniture and greater space standards.

Grouping

There has been a considerable shift in policy towards the size of the class group over the last 25 years, as attitudes about child centred teaching methods have matured and this has been reflected in the type of furniture and equipment provided. In the early days of the MCB open-plan schools, teachers arranged children in small and large groups to work on projects which required large tables and extensive practical areas. Recent changes towards more formal whole class teaching and individual study has led to the greater use of smaller individual tables and study bays.

Flexibility

It was thought during the early 1970s that project based teaching methods would require total flexibility within the classroom to re-arrange furniture into small and large groups from day to day, to reflect changing curriculum needs. The design of furniture reflected this need for mobility, being light and easily demounted.

In reality, most primary schools keep their furniture in one place for most of the academic year, with some movement during the summer holiday as teachers move classbase or try new projects and teaching methods, and some of the less successful mobile furniture has now been omitted from the range.

Sub-division of space

Many of the earlier schools had large open plan spaces and were reliant on the furniture to sub-divide them into working units for special activities such as a Wendy house, play area, story area, or individual study area. The furniture was designed to be capable of use as a divider, often with a pinboard back for the display of children's work. A large range of free standing and demountable screen systems was also developed to divide space (see illustration D89).

More recent cellular plans are now divided into activity areas with permanent walls or fixed amenities such as stores, toilets and coat spaces, and furniture is not so readily pressed into a dividing function.

Changing curriculum

The primary school curriculum changed very little during the first half of the study period, but the recent introduction of the National Curriculum has seen a need to keep pupils' work for assessment, and the introduction of science and technology. This has produced a corresponding need for increased storage cupboards in classbases throughout the school and the introduction of specialist equipment for science and technology. The increased use of computers throughout primary schools, with several in each classroom, has also created a need for specially designed benching and mobile workstations for VDUs, processors and printers.

9.3 FINISHES

The internal finishes of most Essex primary schools have to be hard wearing, but also create a comfortable, home-like ambience where young children, many who have led a sheltered domestic life before attending school, can learn in a non-threatening environment.

Ambience

Most Essex primary schools in the late 1960s were small scale, but still fairly institutional, with their matt, oil based painted plaster walls, vinyl floor tiles and painted plasterboard ceilings, even though the Plowden report had recommended that they should be domestic in character.

Several bold moves in furnishing primary schools were made in the early 1970s with the introduction of carpets for the first time, and greater use of curtains and hessian covered pinboard which gave a domestic feel to teaching spaces. This was complemented in the 1980s by a greater sub division of class bases into smaller scale spaces with bays for reading, quiet study and practical activities.

Colour

The use of bright colours in primary schools in the early 1970s was thought to be an important part of a stimulating environment, and several schemes were produced with complete walls painted in primary colours. Fashion changed in the 1980s with bright colours still in use, but restricted to stains on storage cupboards and doors.

During the last few years teachers have complained, however, that although stimulating when the building is first completed, the use of too much bright colour can fight with pupils work, and many children feel their own paintings are competing with the decor (French, C.P., 1994o). Recent colour schemes have, therefore, been much more muted with the use of pastel shades and very small splashes of colour on ironmongery and signs, etc. (see illustration D85).

Texture

It was fashionable in the 1960s to provide one or two feature walls of fairfaced brickwork inside the building in the entrance or main hall to introduce colour and texture to pupils. This fashion has been continued recently, to a greater or lesser extent, through the use of hessian to cover pinboards, fissured minaboard on ceilings and corded carpet.

It has also been argued that the use of fairfaced concrete blockwork for walls is also an interesting texture, but I suspect its use is more the result of budgetary pressures than any aesthetic consideration.

Walls

The most predominant wall materials used inside Essex primary schools during the past 25 years have been fairfaced MCB concrete panels, plaster and fairfaced concrete blockwork, decorated with a variety of finishes. Partition walls have generally been of concrete blockwork, fairfaced or plastered although some of the moveable partitions have been finished with plasterboard or hessian covered pinboard.

Wall finishes have varied throughout the period with the use of either sprayed fleck paint and/or emulsion paint in varying proportions. The spray or brush applied specialist paints such as Sigmulto or Portaflec have been used mainly in toilets, kitchens, and circulation spaces, with vinyl or matt emulsion in classrooms. There is considerable debate about the use of spray paint because although it is very hard wearing, mechanical damage from moving furniture and equipment or cleaning, is difficult to repair. Many schools prefer to have a less hard wearing emulsion paint which can easily be touched up or redecorated by the caretaker (French, C. P., 1994p).

Floors

The traditional floor finish used throughout most primary schools in the late 1960s was the thermoplastic or vinyl tile, perhaps with a hardwood strip floor in the hall and quarry tiles in the wet practical areas.

The past 25 years has seen a revolution in floor finishes, with vast areas of schools now carpeted, including corridors and classbases. The 1970s and 1980s saw the use of very cheap needle punch carpets stuck directly to the screed, but these had a rather flat appearance and did not wear well. Corded carpet was introduced in the mid 1980s to upgrade the internal environment and these have generally proved successful.

Quarry tiles have also been replaced by non-slip sheet vinyl such as Altro with welded joints and coved skirtings in kitchens and toilet areas. Unfortunately, these have proved to difficult to clean because of their abrasive surface.

The hardwood hall floor once seen as the schools' pride and joy has unfortunately been replaced, in many cases, with sheet vinyl with welded joints for reasons of economy and easy maintenance, although one or two project architects have managed to keep the strip hardwood floor in their halls through savings in other elements of construction.

Ceilings

The ceiling was seen as important element of the interior of the early MCB primary schools, with minaboard acoustic tiles fixed at an angle to the sides of the roof beams to produce a coffered effect in class bases. This not only produced good sound insulation, but also an interesting geometric pattern which helped reduce glare from fluorescent light fittings mounted in the coffers and relieved the plain flat surface.

The ceilings of some traditional buildings which followed MCB lost the sophisticated ceiling, unfortunately, with several having large areas of very basic Artex finished plasterboard.

Ceilings in today's primary school are more interesting with timber boarding or acoustic planks on the underside of sloping soffits over large span spaces, and minaboard suspended tiles over smaller spaces.

Users' views

Head teachers from schools visited as part of the research project rated finishes as below average with ceiling scoring 44%, walls 42%, and floors 43% (French, C. P., 1995g). It is difficult to understand, however, why the finishes scored so badly, as eleven of the seventeen schools visited said during discussion that finishes in their school were good and five said they were acceptable.

Schools particularly liked the use of fissured minaboard ceilings, hessian covered pinboard for the display of pupils work and corded carpets on the floor which they thought created a non-institutional ambience.

There were a few complaints of insufficient pinboard, and badly worn carpets, however, and two schools disliked the use of painted fairfaced brickwork and concrete blockwork.

Most of the schools liked their cheerful colour schemes, but five schools complained that the original schemes had been too bright and fought for attention with displays of children's work. Most of these schools had been redecorated with pastel or neutral colour schemes.

9.4 FIXED FURNITURE

Design of the fixed furniture in Essex primary schools has been the responsibility of individual project architects, following established precedent with advice from the department's Furniture Group on the application of certain items such as benching which are part of the standard range of furniture.

Benching

Most primary schools, even from the early 1970s, relied on either Counties Furniture Group (CFG) or Essex Range benching to provide work tops in practical areas and specialist areas for science, cookery and pottery. The bench tops were traditionally made from hardwoods such as teak and iroko with hardwood front rails and skirtings at the back. The movement of the timber, and manufacturing and delivery limitations led to the production of worktops in modular lengths up to 3 metres which were then joined on site with a special connecting plate (see illustration D86).

As the furniture range developed other bench top finishes became available, with the most popular primary school finish being post formed laminated plastic with a roll top front edge.

The bench tops were supported on powder coated steel leg frames, of two heights for different age pupils, screwed to the wall and floor, spaced to suit the width of mobile and static storage units which could be pushed under.

Sinks

Most sinks were glazed earthenware either fixed under the worktop with a cut out for access or stainless steel inset bowl and drainer. Hardwood worktops could be grooved to act as a draining board, but the plastic laminate surface drained poorly.

The early 1970s also saw the development of a special CFG glass fibre trough sink which gave good access, but very little draining board area. It was discontinued when the authority withdrew from CFG.

Many teachers felt that the sink located within a run of worktop restricted access to one or two children at the most. A better solution was thought to be the siting of a larger glazed earthenware sink on a brick base in front of the work top to allow two pupils either side (see illustration D87).

Partitions

The open plan nature of many of the MCB primary schools of the 1970s and early 1980s saw the introduction of several different relocatable partitioning systems (see illustration D9). These included a modular acoustic panel partition which locked together with gaskets and was jacked up under steel roof beams to form a sound proof seal, although few of these were used due to their excessive cost (see illustration D88).

A post and panel partition system was also developed for visual division, using square timber posts which were jacked up under steel beams to support double sided panels in a variety of finishes including hessian covered pinboard from knee to shoulder height (see illustration D88).

Probably the most popular partition system was the 'U' or 'H' shape panels consisting of timber frames lined with hessian covered pinboard screwed together to form a free standing structure, either 1.2 or 1.8 metres high. These structures were often used to provide storage areas with shelving, worktops and low cupboards standing within the enclosure formed (see illustration D89).

Coat storage

Storing pupils' outdoor coats, books, bags, shoes and sandwich boxes has always been a problem in Essex primary schools. Traditionally, until the 1960s, this was provided in large cloakrooms situated off corridors, with benches and coat rails, often unloved and unused for large parts of the year. The increased economic pressure to reduce the area of primary schools, and the trend towards more open plan forms of development saw architects experimenting with various types of more compact coat storage.

The early experiments saw the introduction of steel framed mobile coat trolleys, with coat hooks both sides and a tray for bags and shoes. These were stored in a cupboard or recess during the school day and wheeled out into the classbase at the beginning and end of the day to provide all round access for pupils. These trolleys were not very successful, however, due to their restricted access, limited capacity and the inconvenience of clearing a space in the classbase.

The second development was the provision of coat hooks and bench seat in a recess or cupboard within the classbase fitted with doors or a curtain. This arrangement also proved unpopular, however, due to its restricted access and limited capacity. Attempts to increase this by providing extra storage on the swing-out doors did not appear to make this arrangement any more acceptable. (see illustration D90)

More recent coat stores have been provided by fitting bays off circulation space or entrance lobbies with coat hooks, seats and shelving for bags. This arrangement appears to be more acceptable to teaching staff and pupils although the restricted space allowed for coat storage still appears to be a problem, with many coats and bags ending up on the corridor or lobby floor (see illustration D91).

It has also proved to be difficult to achieve the correct height of fittings in coat stores, especially for young children who often have difficulty in reaching the top shelf for the storage of bags and lunch boxes.

The spacing and type of coat hooks has also been very varied, with claims of insufficient space to hang bulky outdoor clothing ; many hooks of the wrong shape for children's coats (often without hanging loops), and of insufficient strength to withstand rough treatment from pupils.

The storage of wet coats in classrooms has also been a potential problem with a need for heating and mechanical ventilation to dry the clothes and extract damp air at source before it affects the teaching environment.

Materials and equipment storage

Traditionally materials, equipment and pupils' work was housed within fixed storage areas enclosed by partitions. The introduction of open plan types of development saw a reduction of fixed storage areas, and much more use of open shelving within the classroom for materials and pupils work.

This shelving was often supplied in a proprietary adjustable system such as Spur or Teebrax, with metal wall uprights and brackets with plastic laminate or plywood shelves, often placed above worktops or in recesses, sometimes screened with a curtain. Teachers have not liked the lack of security and potential clutter of this arrangement, however, and enclosed stores are now included within the brief.

Pinboard

The project based teaching methods in open plan primary schools saw the introduction of many more display areas for pupils' work and facilities were needed to pin up completed paper based material. These early display areas experimented with suitable pinboard materials including fibreboard, cork and hardboard, but the most successful appeared to be a medium density hardboard called Sundela which could withstand the constant use of drawing pins for years without breaking up. Sundela was used in large sheets screwed or glued to the class base walls painted with emulsion at first, but later covered with hessian wrapped around the edges, which provided an interesting texture and colour as well as covering the pinholes. Architects also had to remember the reduced stature of most primary pupils and pinboard was often provided from skirting to ceiling height to ensure full use by children.

Blinds and curtains

Blinds and curtains are often provided at windows in Essex primary schools to cut out glare from the sun or to dim out rooms for audio visual equipment such as televisions, video recorders and overhead projectors.

The very early schools in the 1970s used Venetian blinds which were cheap and effective, but unloved by teachers who found them difficult to keep clean. This was followed by a brief experiment with roller blinds which were also inexpensive, but difficult to use with their unreliable spring action. More recent schools have seen the introduction of more expensive vertical blinds often financed from the school budget, but these have also proved difficult to use when the window cill is used for display of pupils work.

Curtains have proved popular with schools due to their domestic character and the opportunity to introduce colour and texture into the school interior. Curtains have only been used for the main hall windows and as a screen to storage and coat bays, however, due to their excessive cost.

Marker and chalk boards

Traditionally every primary school classbase was provided with a fixed blackboard on which the teacher could illustrate various topics, using white and coloured chalk to pupils sitting at desks or tables. The introduction of open plan arrangements and carpets on floors made the fixed chalkboard difficult to use with children sitting around tables in groups and the chalk dust ruined carpets.

Teachers still need to explain various topics, however, to the whole class or smaller groups and the marker or white board with water or spirit based pens has replaced the chalkboard. A marker board was often provided on a mobile stand to allow it to be moved to where it was needed, but as space became restricted in the 1980s many of the mobile marker boards were replaced with fixed installations screwed to the wall, with pupils re-arranging themselves round the board when necessary.

Pottery

Many primary schools have a specialist area for pottery with hardwearing iroko benching for moulding clay, large earthenware sinks with special traps and mobile wheels for throwing pots. They also have a fixed kiln area in a recess or surrounded with a cage to keep pupils away from the hot surfaces after firing, often overnight.

The latest pottery areas, however, are now using more sophisticated modelling materials which do not require firing, but dry naturally to a very hard texture and many kilns have been abandoned. (see illustration D92)

Cookery

Many primary schools also have a small area for cookery with laminated plastic worktops, stainless steel sink and electric cooker and refrigerator, as well as domestic scale storage cupboards under the bench and fixed to walls. (see illustration D 92)

9.5 LOOSE FURNITURE

The design and quality of loose furniture and equipment provided for Essex primary schools is important to the success of the learning process as it must not only provide suitable surfaces for pupils to sit and work, but also provide storage for the many specialist items such as books, tools, art materials etc.

The loose furniture and equipment also needs to be of a consistent high quality which will stand up to the wear and tear of the average primary school class base, but available at a price which schools can afford. Fortunately, Essex County Council has sufficient buying power that it is able to purchase items designed to its own demanding specification direct from the manufacturers at very attractive prices.

Development of standard range

As mentioned in previous chapters the County Council has developed a complete range of educational furniture and equipment over the last 25 years through a partnership between the County Supplies Department, County Architect's Furniture Group, Education Department and various furniture manufacturers.

THE COUNTIES FURNITURE GROUP (CFG)

The DES initiative on furniture in the 1960s prompted several County Councils to re-examine the design of school furniture and their sources of supply. Several such counties decided to pool their resources and formed a central design and purchasing organisation called the Counties Furniture Group (CFG).

The main sponsors of the group and development group was Shropshire County Council with its Chief Furniture Designer, Doug Webb, acting as permanent chairman.

Up until 1967 Essex County Council had been purchasing school furniture from various sources, but when the new County Architect, Ralph Crowe, arrived from Shropshire he persuaded the Authority to become a full member of CFG, with its standard designs, preferred manufacturers and discounted purchasing arrangement.

Essex County Architect's Department then became very involved in the development of CFG, with their furniture designer, Peter Mulley, taking on responsibility for certain items such as coat storage and stools (see illustration D93). Unfortunately, the Education Department and County Supplies Officer received many complaints from schools about the quality of certain items, especially the tables which were not standing up to the wear and tear of the secondary school environment. They tried to get Doug Webb to change the design, but he refused and withdrew the development work from the County Architect's Department (French, C. P., 1995k.).

The County Supplies Officer (CSO) was also unhappy about the contractual arrangements for CFG with the major supplier the Educational Supply Association (ESA) who had a rolling contract renewable every three years. The CSO thought that the County Council's buying power at this time could be used to reduce costs and proposed that Essex developed their own furniture designs which could be purchased at better rates from alternative suppliers.

The County Council became increasingly disillusioned with CFG and withdrew from full membership in 1977 to become associate members, gradually replacing certain items of CFG furniture with its own designs manufactured by local suppliers.

THE ESSEX RANGE

Peter Mulley left the department at this time and was replaced by Roger Hughes who started to develop various parts of a completely new range of furniture, starting with benching and storage units, and then complementing these with tables, chairs, laboratory furniture, domestic science furniture etc. in close collaboration with the County Supplies Department.

The new range of furniture was completed by 1985 when it was launched as the "Essex Range", and a broad sheet published to help designers and users identify the various components for assembly and ordering (see illustration D94).

THE SPRINGFIELD RANGE

The Essex Range of furniture was manufactured by two main companies. Bench tops and storage cupboards were made by Mann Egerton of Norwich and tables, chairs and bench supports supplied by Steltube from Maldon.

The Essex Range proved to be so successful that the CSO decided to market it to other local authorities. It was repackaged under the less geographic name of the "Springfield collection" and successfully launched in 1989 and the County Supplies Officer now sells it to 18 different London Boroughs and Hertfordshire County Council (see illustration D95).

Unfortunately, the County Architect's Furniture Designers were not involved in developing the Springfield Range and the two major manufacturers now provide the little design work required to maintain development, and they also produce their own catalogues to market their own exclusive furniture countrywide.

Screens

Various types of moveable modular screens are available within the Essex range for subdividing open plan areas, mainly consisting of hessian or material covered boards with metal feet to make them free standing. They are available in three different heights and can be joined together with plastic 'H' section strip inserted into a vertical alignment channel fixed to the edge of each screen.

Tables

Most tables used in Essex primary schools over the past 25 years have been of a similar design with metal tubular leg frames and veneered or plastic laminate worktops. The traditional shape for tables has been a two pupil capacity oblong format replacing the earlier locker/desk, but the open plan nature of many schools with pupils working in groups on project work led to the introduction of large square or circular tables for six or eight pupils.

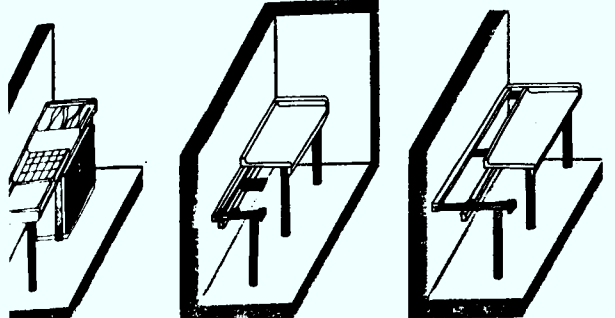
SSEX RANGE BROADSHEET

The Essex Range is a collection of furniture which is purchased, specified and designed by Essex County Council and is available for use by any client. Components have been independently subjected to FIRA tests and comply with BS/ISO standards and DES recommendations. Different items are dimensionally compatible for maximum space usage and the finishes give a visual co-ordination throughout the Range. Colour stains can be applied to doors during manufacture to meet special colour requirements.

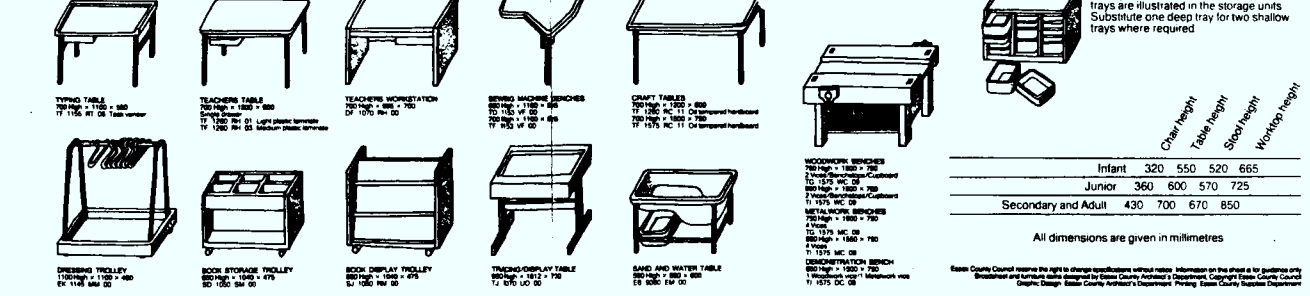
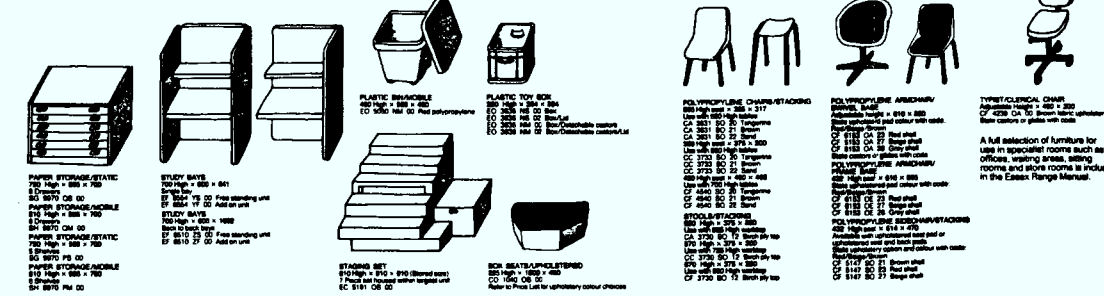
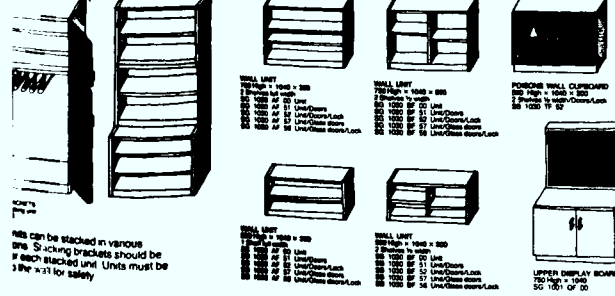
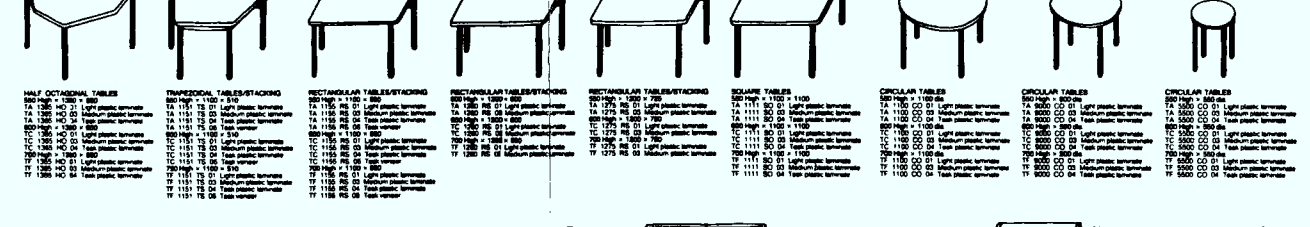
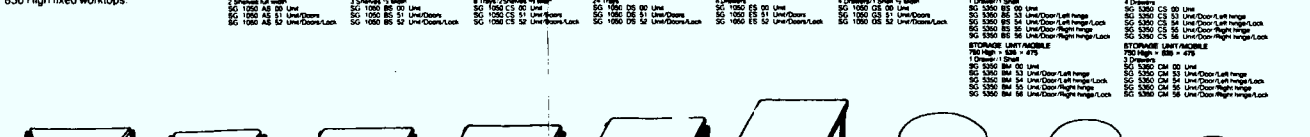
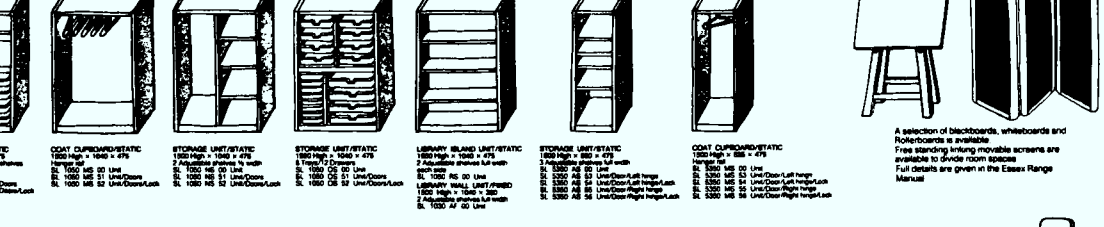
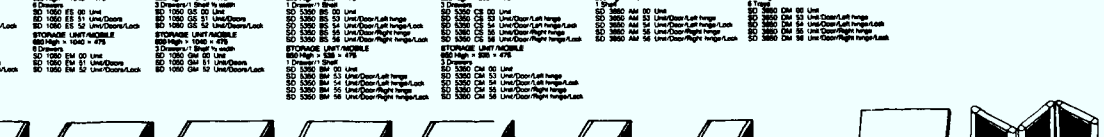
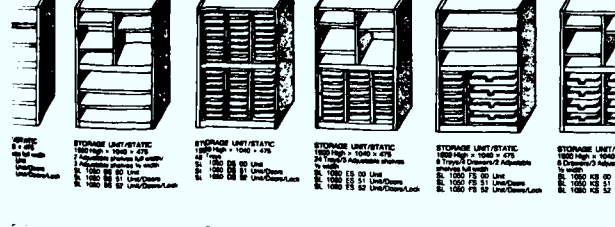
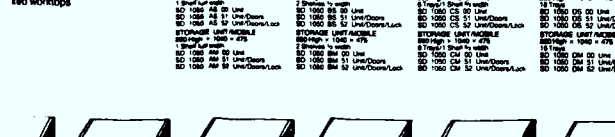
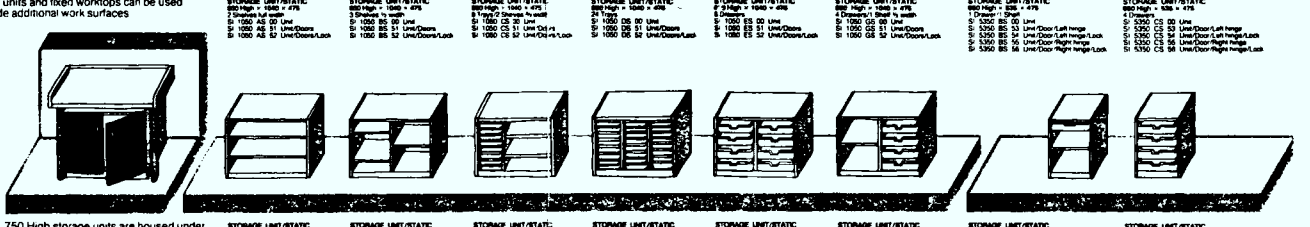
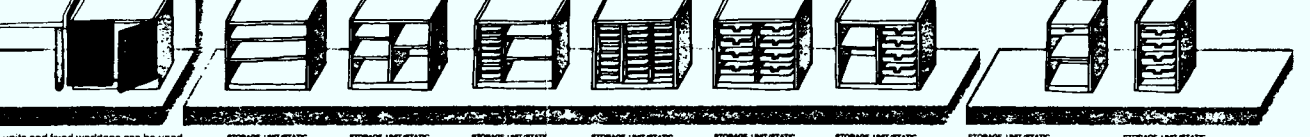
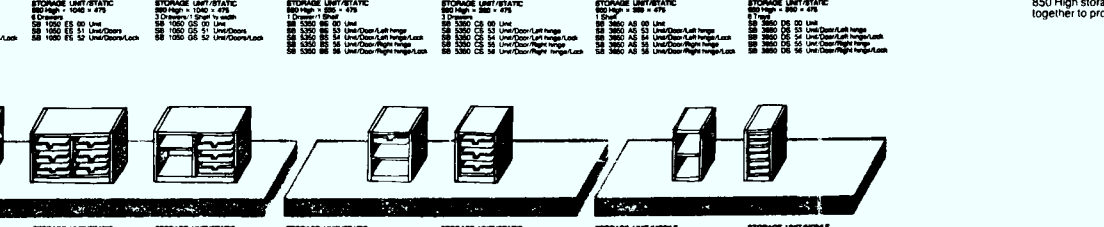
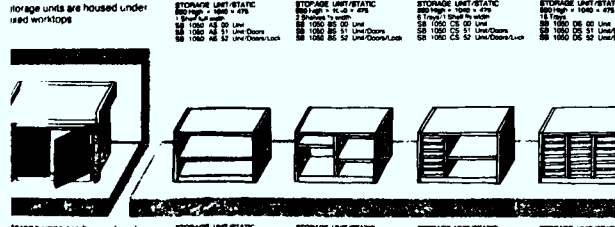
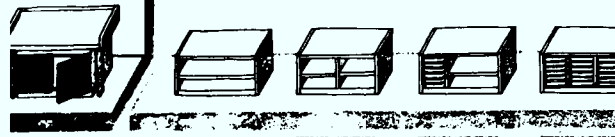
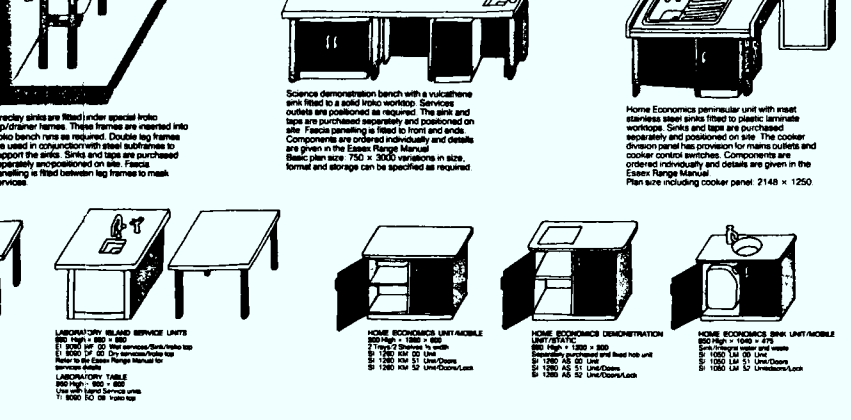
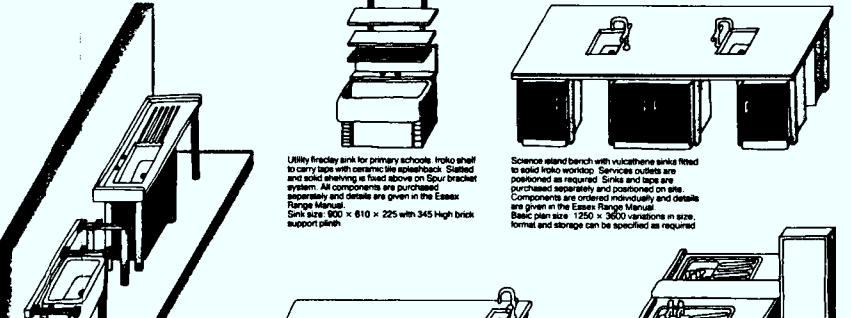
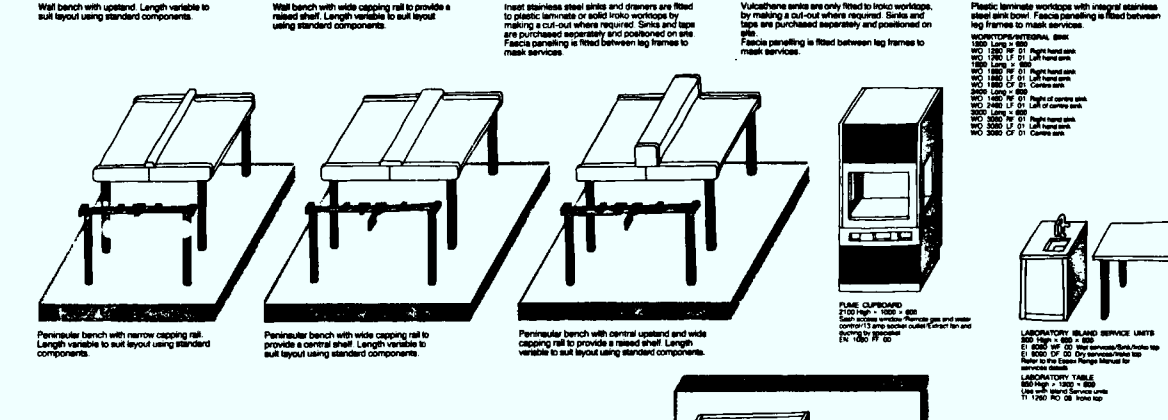
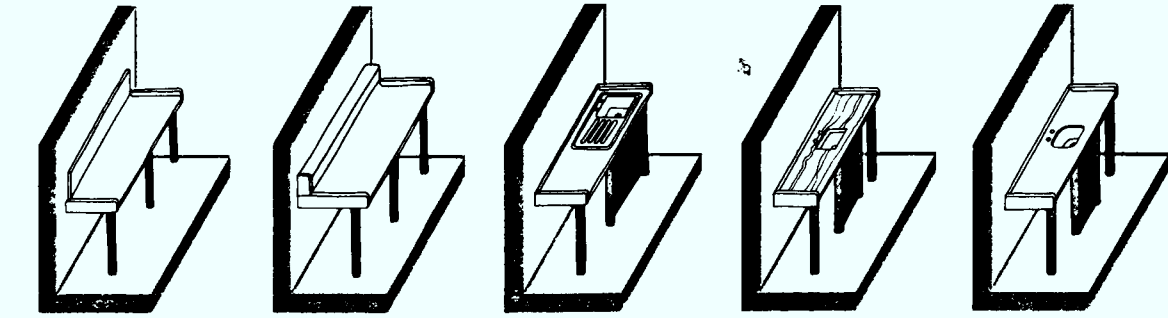
The benching and storage units are manufactured to controlled specifications to ensure consistent quality and good value. Carefully selected proprietary items are included within the Range and items have been designed as a result of research with specialist clients.

Design: Refer to the Essex Range Manual and contact Essex County Architect's Department, Furniture, Interior and Graphic Design Section, Tel. (0245) 67222.

Ordering: Refer to the Essex Range Price List and contact Essex County Supplies Department, Furniture Section, Tel. (0245) 468466.



- Components for constructing benches
- A BENCHTOP
 - B BENCH LEGS
 - C BENCH PANELS
 - D BENCH FASTENERS
 - E BENCH FINISHES
 - F WALL BATTERING
 - G WALL BATTERING
 - H WALL BATTERING
 - I WALL BATTERING
 - J WALL BATTERING
 - K WALL BATTERING
 - L WALL BATTERING
 - M WALL BATTERING
 - N WALL BATTERING
 - O WALL BATTERING
 - P WALL BATTERING
 - Q WALL BATTERING
 - R WALL BATTERING
 - S WALL BATTERING



Item	Code	Dimensions (mm)	Material
STORAGE UNIT	800	1200 x 450 x 1800	Steel
STORAGE UNIT	801	1200 x 450 x 1800	Steel
STORAGE UNIT	802	1200 x 450 x 1800	Steel
STORAGE UNIT	803	1200 x 450 x 1800	Steel
STORAGE UNIT	804	1200 x 450 x 1800	Steel
STORAGE UNIT	805	1200 x 450 x 1800	Steel
STORAGE UNIT	806	1200 x 450 x 1800	Steel
STORAGE UNIT	807	1200 x 450 x 1800	Steel
STORAGE UNIT	808	1200 x 450 x 1800	Steel
STORAGE UNIT	809	1200 x 450 x 1800	Steel
STORAGE UNIT	810	1200 x 450 x 1800	Steel
STORAGE UNIT	811	1200 x 450 x 1800	Steel
STORAGE UNIT	812	1200 x 450 x 1800	Steel
STORAGE UNIT	813	1200 x 450 x 1800	Steel
STORAGE UNIT	814	1200 x 450 x 1800	Steel
STORAGE UNIT	815	1200 x 450 x 1800	Steel
STORAGE UNIT	816	1200 x 450 x 1800	Steel
STORAGE UNIT	817	1200 x 450 x 1800	Steel
STORAGE UNIT	818	1200 x 450 x 1800	Steel
STORAGE UNIT	819	1200 x 450 x 1800	Steel
STORAGE UNIT	820	1200 x 450 x 1800	Steel
STORAGE UNIT	821	1200 x 450 x 1800	Steel
STORAGE UNIT	822	1200 x 450 x 1800	Steel
STORAGE UNIT	823	1200 x 450 x 1800	Steel
STORAGE UNIT	824	1200 x 450 x 1800	Steel
STORAGE UNIT	825	1200 x 450 x 1800	Steel
STORAGE UNIT	826	1200 x 450 x 1800	Steel
STORAGE UNIT	827	1200 x 450 x 1800	Steel
STORAGE UNIT	828	1200 x 450 x 1800	Steel
STORAGE UNIT	829	1200 x 450 x 1800	Steel
STORAGE UNIT	830	1200 x 450 x 1800	Steel
STORAGE UNIT	831	1200 x 450 x 1800	Steel
STORAGE UNIT	832	1200 x 450 x 1800	Steel
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STORAGE UNIT	835	1200 x 450 x 1800	Steel
STORAGE UNIT	836	1200 x 450 x 1800	Steel
STORAGE UNIT	837	1200 x 450 x 1800	Steel
STORAGE UNIT	838	1200 x 450 x 1800	Steel
STORAGE UNIT	839	1200 x 450 x 1800	Steel
STORAGE UNIT	840	1200 x 450 x 1800	Steel
STORAGE UNIT	841	1200 x 450 x 1800	Steel
STORAGE UNIT	842	1200 x 450 x 1800	Steel
STORAGE UNIT	843	1200 x 450 x 1800	Steel
STORAGE UNIT	844	1200 x 450 x 1800	Steel
STORAGE UNIT	845	1200 x 450 x 1800	Steel
STORAGE UNIT	846	1200 x 450 x 1800	Steel
STORAGE UNIT	847	1200 x 450 x 1800	Steel
STORAGE UNIT	848	1200 x 450 x 1800	Steel
STORAGE UNIT	849	1200 x 450 x 1800	Steel
STORAGE UNIT	850	1200 x 450 x 1800	Steel
STORAGE UNIT	851	1200 x 450 x 1800	Steel
STORAGE UNIT	852	1200 x 450 x 1800	Steel
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STORAGE UNIT	854	1200 x 450 x 1800	Steel
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STORAGE UNIT	861	1200 x 450 x 1800	Steel
STORAGE UNIT	862	1200 x 450 x 1800	Steel
STORAGE UNIT	863	1200 x 450 x 1800	Steel
STORAGE UNIT	864	1200 x 450 x 1800	Steel
STORAGE UNIT	865	1200 x 450 x 1800	Steel
STORAGE UNIT	866	1200 x 450 x 1800	Steel
STORAGE UNIT	867	1200 x 450 x 1800	Steel
STORAGE UNIT	868	1200 x 450 x 1800	Steel
STORAGE UNIT	869	1200 x 450 x 1800	Steel
STORAGE UNIT	870	1200 x 450 x 1800	Steel
STORAGE UNIT	871	1200 x 450 x 1800	Steel
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STORAGE UNIT	875	1200 x 450 x 1800	Steel
STORAGE UNIT	876	1200 x 450 x 1800	Steel
STORAGE UNIT	877	1200 x 450 x 1800	Steel
STORAGE UNIT	878	1200 x 450 x 1800	Steel
STORAGE UNIT	879	1200 x 450 x 1800	Steel
STORAGE UNIT	880	1200 x 450 x 1800	Steel
STORAGE UNIT	881	1200 x 450 x 1800	Steel
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STORAGE UNIT	883	1200 x 450 x 1800	Steel
STORAGE UNIT	884	1200 x 450 x 1800	Steel
STORAGE UNIT	885	1200 x 450 x 1800	Steel
STORAGE UNIT	886	1200 x 450 x 1800	Steel
STORAGE UNIT	887	1200 x 450 x 1800	Steel
STORAGE UNIT	888	1200 x 450 x 1800	Steel
STORAGE UNIT	889	1200 x 450 x 1800	Steel
STORAGE UNIT	890	1200 x 450 x 1800	Steel
STORAGE UNIT	891	1200 x 450 x 1800	Steel
STORAGE UNIT	892	1200 x 450 x 1800	Steel
STORAGE UNIT	893	1200 x 450 x 1800	Steel
STORAGE UNIT	894	1200 x 450 x 1800	Steel
STORAGE UNIT	895	1200 x 450 x 1800	Steel
STORAGE UNIT	896	1200 x 450 x 1800	Steel
STORAGE UNIT	897	1200 x 450 x 1800	Steel
STORAGE UNIT	898	1200 x 450 x 1800	Steel
STORAGE UNIT	899	1200 x 450 x 1800	Steel
STORAGE UNIT	900	1200 x 450 x 1800	Steel

Reproduced from Essex range broadsheet (see ECC Architects' Dept, 1985.)

Many teachers have realised recently, however, that a fair proportion of work in the primary school classroom is of a whole class or individual study nature, and 2-person trapezoidal tables have been introduced which can be used separately for personal study or rafted together to form a six sided table for group working (see illustration D96).

Mobile work stations

The lack of specialist bays in many Essex primary schools has led to the development of several specialist tubular steel mobile work stations for computer, technology, cookery equipment and veneered blockboard mobiles for books. These mobile work stations allow individual bases access to specialist facilities in a timetabled fashion by wheeling the units into the class base from a central storage area (see illustration D97).

Storage cupboards

A complete range of storage cupboards for primary schools has been developed to replace the CFG system over the past 25 years, first as the Essex and now the Springfield Range (see illustration D98).

Two traditional veneered blockboard cupboard units 1500 and 600mm high are available with doors, capable of stacking to form a wardrobe like storage unit for coats and equipment.

Another range of open fronted cupboards is available in the same heights as the wardrobe cupboards, with a variety of shelves, drawers or plastic tray storage racks to act as room dividers or wall storage units.

All other storage units are either 600 or 750 mm high designed to fit under the fixed bench tops and are available with solid or glass doors, or open fronts for display. The units are also fitted out for shelves, drawers or plastic trays. All under bench units are of the same 1050mm modular width to fit between the bench top leg frames.

Initially the CFG furniture range was only available in a beech veneered blockboard carcass and doors, but the new Essex and Springfield range have a melamine spray high density blockboard carcass with a colour stained beech veneer door or beech framed glazed doors.

Plastic storage tray inserts for the storage units are modular and available in two depths and a variety of colours for the storage of different materials and equipment.

Chairs

Most pupils' chairs used in Essex primary schools over the past 25 years have been stacking polypropylene with tubular steel powder coated leg frames. The early chairs had traditional legs, but these were found to damage floor finishes very easily and the skid frame tubular leg was found to be more successful (see illustration D96).

Several, more comfortable chairs, were also developed for use in staff areas etc. by attaching upholstered pads to the polypropylene shells, together with a range of typist chairs etc. for administrative areas.

A range of fully upholstered easy chairs has also been developed recently which can be rafted together to form bench seating in quiet areas etc., or upholstered boxes which can be also used for this purpose.

Specialist

Several specialist pieces of furniture and equipment have also been developed for primary school use, including a special sand and water table which can be wheeled outside in warm weather, and a range of plastic mobile bins and storage boxes for toys and similar equipment (see illustration D99). Several specialist items of equipment are provided in the hall including portable staging for drama, fold out climbing frames, benches, mats and boxes for physical education (see illustration D100).

Users' views

Head teachers from schools visited rated furniture and fittings above average at 51%, with most schools saying that fixed and loose furniture were good or adequate, with only one school claiming both were poor (French, C. P.,1995g).

The main disappointment with fixed furniture appeared to be a lack of pinboard for display, insufficient shelving, a preference for storage in cupboards

rather than on open display, position and detailing of sinks in practical areas and the detailing of coat storage fittings,

Any unhappiness with loose furniture and equipment centred on the lack of moveable screens to form cosy corners, insufficient user influence over the choice of furniture, and not enough variation in the size of furniture, particularly for the older 11+ children.

9.6 CONCLUSIONS

Certain conclusions can be drawn from the study of interior design in Essex primary schools over the past 25 years, which can be used for formulating design guidance for future developments:-

- The design of Essex Primary School interiors has been heavily influenced by the open plan, child centred principles contained in examples set by DES guidance notes issued in the late 1970s and early 1980s and this may have to be re-thought as teaching methods change and schools become more cellular.
- There has been very little recognition in the design of Essex primary school interiors of the differences between the various age groups in terms of the space needed, size and shape of furniture or specialist needs of younger and older sectors and more variation is needed in furniture ranges and type of furniture supplied to new schools.
- Despite the built in flexibility of most of the Essex Range of furniture, very few items get moved on a regular basis, apart from the tables and chairs and the use of more permanently fixed furniture may prove to be cheaper.
- The introduction of the National Curriculum has created specific furniture needs in terms of extra storage and specialist facilities and this needs to be built into the brief for new and remodelled schools.
- The introduction of the CFG range of furniture into Essex primary schools in the late 1960s set a quality standard which has been maintained by the Essex and Springfield Ranges of furniture which followed, providing hard wearing furniture at a very reasonable price. This level of quality needs to continue despite economic pressures to spend less on furniture and equipment.

- The choice of finishes in Essex primary schools over the last 25 years period has reflected a general desire to produce a comfortable non-institutional domestic scale ambience suitable for young children to learn. It is important to keep this ambience even though some of the liberal thinking which produced it is under threat from more traditional values.
- The use of bright colours to produce a stimulating environment for young people has been appreciated by the users of Essex primary schools, but the dangers of these strong colours fighting against displays of pupils' work is now recognised, and softer more neutral colour schemes are now the norm.
- There has been a difference of opinion between designers over the use of hardwearing wall finishes such as spray paint which is expensive, can be easily cleaned but is institutional and difficult to repair, and more domestic emulsion paint and hessian covered pinboard which are cheap, and need frequent but easier maintenance. It would appear that, although schools are now responsible for their own internal decorations, they are happy with wall finishes which can be easily redecorated.
- There has been a revolution in floor finishes since the 1960s with vinyl tiles and lino being replaced by extensive use of carpet throughout primary schools which has improved acoustics and given schools a more comfortable ambience which should continue in future schools.
- The Essex benching system has produced a good flexible work surface, but it is expensive, and doubt has been expressed recently about the need for storage units under the bench to be mobile as they are seldom moved and could be used to support the bench, thus reducing cost.
- The large number of demountable partitioning systems developed in the early part of the study period for open plan MCB schools were seldom moved, and many have been replaced with permanent walls. A range of free standing screens has also been developed to replace the demountable partition to divide the remaining open plan spaces in schools and it appears unlikely the complicated demountable partitioning systems will be needed in future.

- Coat storage cupboards or bays in classrooms have not been liked and arrangements where coats are stored in bays off circulation space or in entrance lobbies are preferred. Unfortunately, despite considerable experimentation the detailing of these coat stores is still often unworkable and further development is required.
- The use of hessian covered pinboard for display of pupils' work has expanded over the last 25 years to such an extent that many classbases now have entire walls covered with hessian from floor to ceiling and the need for ample display needs to be taken into account when considering the layout of a primary school interior.
- Specialist furniture has now been developed for pottery, cookery, technology and computers to compliment the Essex Range, and mobile work stations and trolleys have been produced, reflecting the need to move specialist equipment between classbases for shared use. There is some doubt about the effectiveness of such restricted mobile provision for older pupils, however, and groups visiting permanent specialist bases may be a better solution for this age group.
- The modular nature of the Essex Range storage furniture gives it enormous flexibility which allows it to be assembled in endless combinations to suit specific needs and this flexibility needs to be maintained as the range adapts and changes to accommodate new requirements.
- The polypropylene pupil chair has proved to be cheap, hardwearing and relatively comfortable. The addition of an upholstered squab has extended the range to make it suitable for staff areas. It is hoped that similar items of furniture will be developed for primary schools of the future.

The interior design of Essex primary schools over the past 25 years has been one of their greatest assets with good quality finishes and furniture and equipment which have, not only stood up to the wear and tear of a public building, but also created a non-institutional ambience conducive to learning. The interiors have also been sufficiently flexible to cope with changing teaching methods throughout the period. Future primary school design in Essex will need to continue this tradition if they are to meet the future aspirations of their users.

CHAPTER 10
EXTERNAL DESIGN

10.1 INTRODUCTION

Most people interviewed during the research project have commented that, apart from a few notable examples, Essex primary schools built during the past 25 years have a poor external environment, with few opportunities for pupils and staff to use outside spaces as an educational resource.

This Chapter will examine the reasons for this failure to develop school grounds to their full potential, and attempt to identify how outside spaces can be improved in future designs, and what can be done to improve the external environment in existing schools.

The Essex Landscape

The County of Essex has a mixed landscape from the urban neglect of the Thames corridor in the south, to the idyllic rural scenes of Constable country in the north, and from the wild beauty of the coast with its estuaries and mud flats in the east, to the gentle hills and meandering river Stort in the west.

Unfortunately, many of its school sites are situated within urban and suburban areas with poor landscapes and windswept areas of tarmac and grass. Some primary schools have recently identified the potential of their site and are attempting to make better use of their outside spaces, but the majority have accepted their barren nature, judging them suitable only for games and letting off steam at playtime.

Historical Background

The external spaces of today's Essex primary schools are partly the result of historical pressures, and it is important to understand where many of today's attitudes towards school grounds come from.

VICTORIAN INFLUENCE

Victorian schools were generally designed on very small sites, even in rural areas where land was plentiful. Outside spaces were restricted to paved yards where children were able to play at break times. The sexes were segregated at larger schools and they often had separate girls and boys playgrounds leading to separate entrances into the school (Seaborne, M. and Lowe, R., 1977). Toilet

areas were often detached from the main building, sited on the other side of the playground, with entry from outside. Very few schools had any grass area for games, which were generally not part of the curriculum. These urban and rural Victorian schools with their small sites have presented designers with a real challenge in recent years as expectations of outside spaces have grown, and they have tried to make better use of very restricted space.

POST WAR INFLUENCE

Two World Wars produced a nation which realised the value of health and fitness amongst its youth, and the boom of school building which followed the Second World War saw an emphasis on physical education and games in outside spaces. Post war schools had large hard play areas with netball courts and grass playing fields for football and cricket.

ACADEMIC EMPHASIS

Most primary schools until the early 1950s had an emphasis on disciplined rote learning, with pupils sitting at desks lined up facing a teacher who wrote for much of the time on the chalk board. Outside spaces, such as playgrounds, were seen as a place where children could run and shout between such lessons to let off steam, and were not considered to be part of the education process.

SOCIAL FACTORS

Attitudes affecting outside spaces within schools have changed dramatically throughout the last 100 years, particularly:-

- The sexes were kept separate in most primary schools until after the Second World War and this was reflected within outside spaces with separate entrances and playgrounds for boys and girls.

These divisions have now been abandoned, with both sexes allowed to mix in all parts of the school. It has been necessary to understand the difference in behaviour between the sexes, and provide separate spaces for robust games and quiet activities, which are enjoyed by different sexes and age groups.

- Many external environments of primary schools are sterile with little to occupy children who soon become bored, and some will commit minor acts of vandalism.
- Bullying of younger and weaker children has always been a problem in primary schools and unsupervised activities in external spaces can provide an ideal opportunity for such anti-social behaviour.
- Very few handicapped children have attended main stream primary schools until recently and their needs were not taken into account, with numerous changes of level and unsegregated playgrounds exposing such children to risk of accident. The recent move to bring those handicapped children who are able to cope with main stream schools out of special schools and into their local primary school, means that ramps at changes of level and sheltered areas are now required.

10.2 SITES

The development of primary school sites often depends on their basic characteristics such as location, natural features, levels, and soil type.

Location

Essex primary schools can be divided into three basic types, dependent on their catchment areas, which often influences the character of their external spaces (see illustration D101).

URBAN

These sites are usually situated amongst high density urban housing and are small with very limited outside space. The site is often defined by walls or fences which give a strong sense of enclosure but very little aspect. The outside spaces have a hard floorspace with asphalt, brick or concrete paving and little grass or shrubs and tree planting. Games are restricted to netball or five-a-side football on the hard play area, with no playing field available, other than a visit to a nearby park or shared playing field (see illustration D102).

SUBURBAN

These sites are generally over-large situated in the middle of large post-war housing estates surrounded with terraced or semi-detached housing. Most of the school boundaries are defined by chain link fencing backing onto the rear gardens of surrounding housing with very little sense of enclosure. The school usually has a large grass playing field with space for a full size football pitch and extensive asphalt hard play areas (see illustration D102).

Traditionally these schools have limited planting, with a few trees along the boundary and shrub beds next to the school building.

RURAL

Rural schools are usually situated in the centre or edge of a village, often on a small site if they were built more than 50 years ago. They are usually surrounded by, or back onto farm land and may be profusely planted with a number of mature trees. Many of the older schools have small hard play areas next to the building, and a detached playing field on farmland purchased many years after the school was built (see illustration D102).

Natural features

The majority of primary schools in Essex are built on sites which present a landscaping challenge:-

- Many sites are flat providing a featureless landscape which is prone to waterlog in the winter without proper land drainage.
- Most sites are devoid of any natural features such as mature trees, streams, ponds or earth banks.
- The majority of sites are suburban in nature without any sense of enclosure and are often surrounded with raw immature development.
- Many sites are either too small or too large for the activities needed in a modern primary school, with schools feeling either restricted or overwhelmed.

Unfortunately, even those sites which have good natural features such as a change of level, water course or mature woodland, have not always been exploited to advantage in the past 25 years.

Soils

Essex soils are generally clay based and do not provide the ideal horticultural medium. They are very wet in winter making planting difficult, and grass areas muddy easily in wet weather. Conversely, they dry out in the summer with a hard crust, stifling growth of certain types of trees and shrubs.

The only good use for Essex soil, according to Graham Gooch, the Essex County batsman, is as a cricket wicket, as it is "...the nearest thing to concrete on which you can grow grass".

Levels

Essex is generally a flat county, apart from one or two areas of gently rolling countryside at its centre and along the boundary with Suffolk and Hertfordshire. The majority of primary school sites are, therefore, flat without any opportunity to use a change of level to naturally divide the site into discreet areas, and they rely heavily on screen walls, fences and planting to achieve any sense of enclosure. A flat site does, of course, allow playing fields to be laid out without difficulty.

10.3 LEARNING THROUGH LANDSCAPE

As mentioned previously most primary schools immediately after the Second World War considered the external spaces of their schools to be mainly for sport and letting off steam, and gave very little thought to their educational potential, but over the last 10 years teachers have begun to appreciate the value of their school grounds as a learning resource.

Cross curricular projects

A small group of teachers in the mid 1980s saw that primary school grounds could be a valuable resource for cross-curriculum teaching, where many of the basic skills of literacy and numeracy, plus more specialist arts, technology and sciences could be combined into project-based learning opportunities. This

involved setting up nature areas where environmental education could be developed, small urban farms where children could keep animals and see demonstrations of rural activities, and adventure areas where they could climb and crawl through and over walls, frames and tunnels (Young, K., 1990).

Learning Through Landscape Trust

This initiative has grown into a movement known as Learning Through Landscape (LTL), with its own Hampshire based Trust founded in 1986 to promote and encourage schools to make better educational use of their external spaces (see illustration D103).

Certain Essex primary school headteachers have wanted to make better use of their sites in this way, and various LTL projects, mainly to create nature areas with ponds, meadows and wild areas to encourage local wild life, have been developed on existing school sites, using funds raised by parents from fetes and jumble sales.

The Learning Through Landscape movement has now grown to such an extent in Essex that the County Council is now officially affiliated to the Trust with reduced membership for every school throughout the County.

The Property Services Department landscape group have been working with existing schools since the mid 1980s to advise on the setting up of nature areas and adventure playgrounds, even producing their own advisory booklet:- *A Teachers guide to Nature Areas*. (Packer, A., 1991).

The increasing commitment by Essex education officers to the Learning Through Landscape movement has, however, led to the appointment of their own landscape designer to advise schools directly and the Department's landscape team have been discouraged from direct relationships with schools.

New Projects

Many new primary schools designed since the late 1980s have included nature areas with ponds, natural planting, and adventure areas provided as part of the building project, but recent budget restrictions have seen funds for external works reduced to such an extent that even these modest facilities are no longer possible (see illustration D104).

AIMS OF THE LEARNING THROUGH LANDSCAPE TRUST

The trust aims to stimulate improvements to the environmental quality and the educational use of school landscapes. These include :-

- Promoting the imaginative development of all environments in which learning takes place.
- Developing a variety of landscapes designed specifically to relate to the curriculum needs of schools.
- Helping teachers to promote environmental education as part of the National Curriculum.
- Encouraging the achievement of attainment targets in the National Curriculum through use of the external environment.
- Enhancing the image of schools with the surrounding community.
- Creating an appropriate scale of space within which children can play and grow up.
- Developing landscapes that offer children the facility for learning through experience, contact and enjoyment.
- Enhancing the visual richness and design of the school environment.
- Encouraging efficient and responsible use of resources.

The Learning Through Landscapes Trust aims to encourage good practice, share information and develop active involvement in the external environment of the nation's schools.

ILLUSTRATION D103 - THE OBJECTIVES OF THE LEARNING THROUGH LANDSCAPES TRUST

Development plans

It has also been realised, that in many ways, it is better to provide a basic infrastructure for Learning Through Landscape opportunities than the actual facilities themselves. This is partly due to the limited funds available, and partly due to increased ownership achieved by schools planning and funding such facilities from their own resources.

10.4 ACCESS AND PARKING

The access, delivery and parking arrangements for a primary school are often the first impression visitors, pupils and parents have of the school and its environment. Unfortunately, these have not always been particularly well designed at many Essex primary schools, with congested access, insufficient parking, and too much black asphalt and plain grass surfaces, where the use of brick and block paviors and good planting would have been so much more interesting.

I am sure, however, that most design teams would blame the lack of interesting materials on the budgetary constraints imposed upon them and not through any lack of imagination on their part.

Parents dropping off point

Most Essex primary schools suffer from a surge of visitors in cars at the beginning and end of the school day as parents attempt to drop off and collect their offspring. The Education Department has been adamant that, apart from difficulties in funding the cost of such facilities, they are not prepared to allow these cars on to the site as they fear the consequences of such a lethal mix of children and manoeuvring vehicles.

Access to the school site is restricted, therefore, to teachers' and visitors' cars and delivery vehicles, with schools often closing the gates at the beginning and end of the school day to avoid any misuse of school grounds by parents.

This policy results in the problem being transferred to the highway approaching the school, which is often a cul-de-sac in a residential area with considerable aggression and frustration amongst parents attempting to manoeuvre vehicles in a road not designed for such a purpose.

Several new school sites have attempted to resolve this problem by positioning the school entrance on a residential loop road. This does appear to help the problem by removing the need to reverse vehicles, but such roads are still heavily congested.

Unfortunately, neither this congestion nor the safety aspect appears to encourage parents to leave their cars at home and walk to school, especially during the winter.

Car parking

Car parking on Essex primary school sites has been severely restricted over the last 25 years mainly due to budgetary constraints. The Education Department has stuck rigidly to the DES ratio of parking for schools until recently, whereas the County Planner's calculations envisage much greater numbers (See Illustration D105). This led to considerable tension between planners and education officers until the mid 1980s which was only resolved by all new schools having sufficient space reserved for extra parking, up to the County Planner's ratio, when funds permit. Car parking ratios in recent briefs have recognised the reality of today's car owning society and are much nearer to the County Planner's standards.

The lack of on-site parking has created considerable problems for many existing primary schools, however, with teaching staff often not living locally and needing to park on site. The tendency has been for cars to be parked along access roads and in turning bays making deliveries difficult. Some primary schools have even used their own hard earned funds to provide extra car parking.

However much car parking is provided, it can never cope with the large event at the school such as the parents' evenings, Christmas play or summer fete, and many Essex primary schools use their largest regular shaped playground as an overflow parking area. The hard play area has to be sited next to an access road with a removable barrier to allow parents to park cars on this area. This arrangement has to be closely controlled, however, to prevent damage to the playground surface from heavy vehicles and oil deposits (see illustration D106).

DES PARKING STANDARDS FOR PRIMARY SCHOOLS

Number of Pupils	Number of Staff	Number of spaces
150	6	4
180	7	4
210	8	5
240	9	5
270	10	5
300	11	6
330	12	6
360	13	6
390	14	7
420	15	7

Based on the DES ' Notes on the Procedures for the approval of School Building Projects in England' (Oct 1973) where scale of provision is based on one space for the head teacher, plus one for every 3 teachers or part thereof. In addition space for visitors are allowed at a scale of one for every 25 teachers or part thereof (see Department of Education and Science, 1973).

COUNTY PLANNERS PARKING STANDARDS FOR PRIMARY SCHOOLS

Number of Pupils	Number of Staff	Number of spaces
150	6	11
180	7	13
210	8	15
240	9	17
270	10	19
300	11	21
330	12	22
360	13	23
390	14	24
420	15	25

Based on the Essex County Council 'Standards for car parking in Essex' prepared by the Car Parking Review Working Party, Essex Planning Officers Association in March 1987 representing County and District Council Planning Officers (see ECC Planning Department,1987).

COUNTY EDUCATION OFFICERS PARKING STANDARDS FOR PRIMARY SCHOOLS

Number of Pupils	Number of Staff	Number of spaces
150	6	9
180	7	10
210	8	11
240	9	12
270	10	15
300	11	16
330	12	17
360	13	18
390	14	19
420	15	20

Based upon C.E.O. new standards for all new primary schools dated August 1988 (see ECC Education Department, 1988).

ILLUSTRATION D105 - PARKING STANDARDS FOR ESSEX PRIMARY SCHOOLS

Delivery of goods

Access arrangements for deliveries to the school and the kitchen also need to be designed for large vehicles, and there have been many instances throughout the last 25 years of budget restraints reducing the width of access roads to such an extent that County Supplies and refuse collection vehicles have not been able to turn within the space available. This often leads to lorries mounting curbs, over-running shrub beds or simply reversing into the site between parked cars, with obvious danger to pupils and staff.

Pedestrian Access

The pedestrian routes into schools and from parking areas to the various entrances to the building also need to be safe and clearly delineated.

Unfortunately, this has not always been the case with all Essex primary schools and although most schools have a segregated vehicle and pedestrian access, some have not. New schools have even been built with layouts which are segregated at the site boundary, but then mix vehicles and pedestrians before they reach their destination.

It is also not always clear which of the external doors is the main entrance, with the enquiry office for visitors, and which are the subsidiary entrances to cloakrooms, toilets and classbases for pupils and parents (see illustration D107).

10.5 HARD PLAY AREAS

Every Essex primary school is required by statute to have a hard play area of a certain size depending on the number of pupils on role (see illustration D108). These play areas have traditionally been sited next to the school building with easy access to changing rooms, cloakrooms and toilets.

Function

They have several functions to perform:-

- They are used for letting off steam before the school day and during break time. To assist with this function, they are often marked out with informal games such as snakes and ladders, hop scotch and giant chess, as well as a wall for bouncing a ball or practice netball net.

Table 3 Playing fields and hard surface areas for schools with pupils who have not attained the age of 11 years.

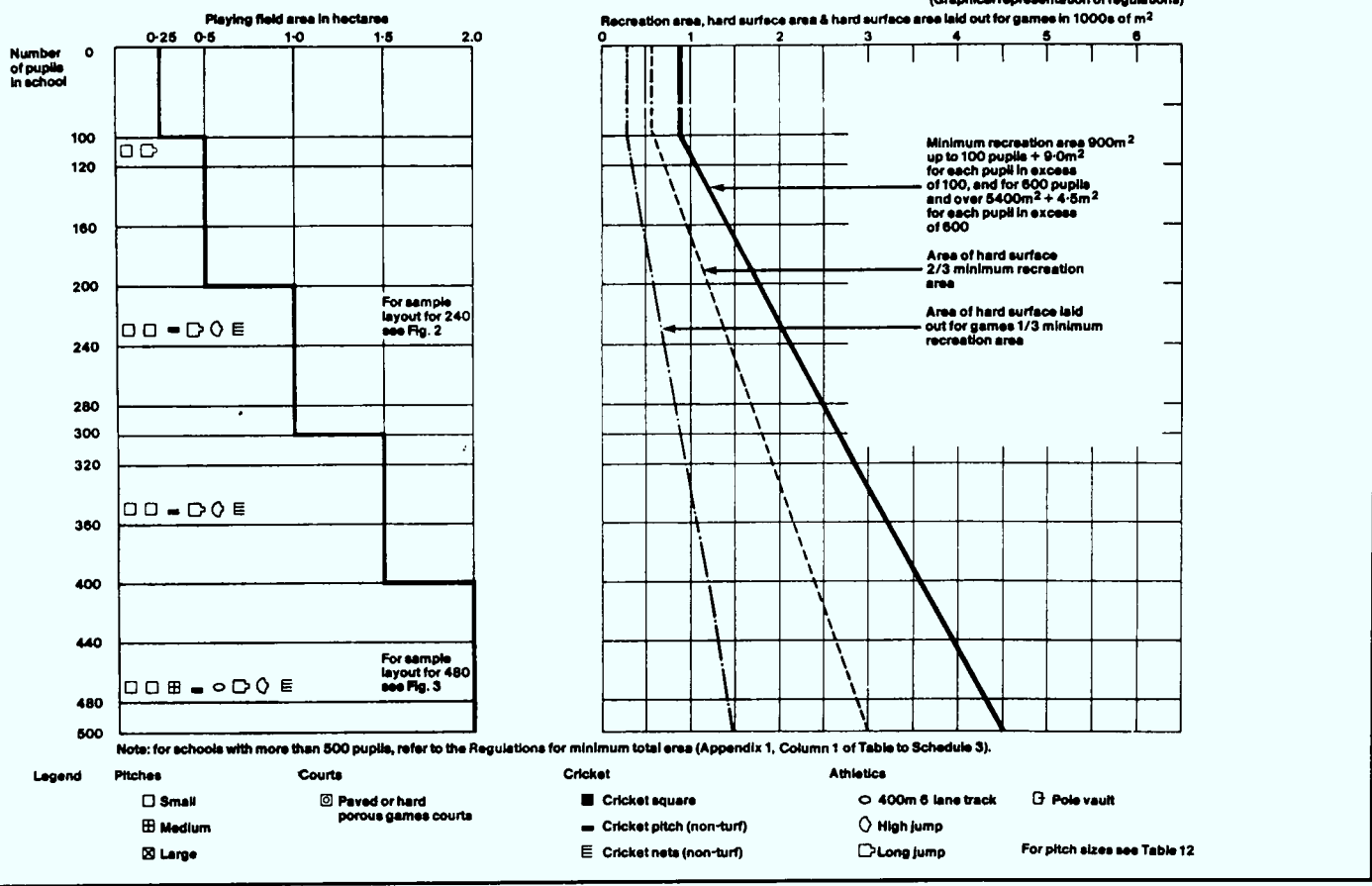


ILLUSTRATION D108 - D.E.S. STATUTORY AREAS FOR PRIMARY SCHOOL PLAYING FIELDS AND HARD PLAY AREAS.

Reproduced from Building Bulletin 28 (see DES, 1982)

- They are also used for formal outside physical education and games lessons, often with a netball court or five a side football pitch marked out on the larger areas.

Quiet Areas

Experience has shown that the lack of sheltered external quiet areas on exposed Essex primary school sites has proved to be a major disadvantage, with many pupils and parents feeling very uncomfortable at break times and at the beginning and end of the school day as they try to find shelter from the inclement Essex weather and marauding pupils running amock across the asphalt playground (see illustration D109).

Quiet areas are needed for:-

- Eating picnic lunches during warmer weather
- Outside teaching
- Parents waiting for younger children
- Children who want to sit and talk

It is necessary to segregate these quiet areas from the more rumbustuous activities in playgrounds, and give them shelter from the inclement Essex weather.

Traditionally this has been done by creating an internal courtyard within the building, also useful for supplying deep plan layouts with light and ventilation. Many of these courtyards have, however, been covered and turned into atria for practical activities, and new sheltered quiet areas have to be created around the perimeter using re-entrants in the building or screen walls.

The quiet area is also an opportunity to break away from the black asphalt environment by introducing different materials in the form of small scale paving, seating, screen walls, fencing and imaginative planting often in pots.

Slope

Most primary school sites in Essex are relatively flat, but it has been possible with the few gently sloping sites to separate different play areas with a change of level. Many teachers are naturally nervous, however, of the potential for accidents on flights of steps, especially with the younger infant children and such changes of level need to be carefully designed to remove any potential hazards.

Location

It has been difficult with the configuration of some sites to locate play areas with an ideal south, east or west aspect. Hard play areas with a northerly aspect can be overshadowed by the building and trees, causing damp, frosty and slippery conditions, especially during the winter, often rendering large areas of the playground unsafe for part or all of the day. Conversely, playgrounds with a sunny aspect but without any shelter from trees, fencing or mounding can also be extremely exposed on some Essex sites, and very uncomfortable in windy or wet weather.

Shape and separation

Most of the primary schools built in the last 25 years have acknowledged the need to provide a different playground environment for the various interest groups. This has led to the provision of two separate hard play areas in larger schools, with the biggest area having a regular shape suitable for formal games such as netball and also for use at break-time by the boys and older children for robust activities such as kicking a ball, tag, etc. A separate smaller free form play area is provided for the girls and younger children for quieter activities such as skipping, hop scotch, chatting, etc. (see illustration D110).

Materials

The majority of hard play areas are paved in black asphalt, and although this is an extremely hard wearing, cost effective material it can create a very dull floorscape surrounding the school. Architects and landscape designers have, therefore, been encouraged to break these large areas up by the use of planting, low walls and other small paved areas in brick or block setts.

Unfortunately, the financial restrictions imposed on many school contracts have prevented the inclusion of much of this additional work, and many schools still have a spartan external appearance created by the sea of asphalt which surrounds them (see illustration D111).

10.6 OUTSIDE TEACHING

The Department for Education guidance notes and the Essex primary school brief over the past 25 years have been clear about the need for external teaching areas, where certain activities such as playing with sand and water, building large models, growing plants, and keeping animals can take place adjacent to the class base at certain times of the year.

Unfortunately, the provision of external teaching spaces has been spasmodic throughout this period, depending on the enthusiasm of various head teachers, advisers, project architects and financial pressures. Very few successful outside teaching areas were provided at schools built in the early 1970s, but a large number of covered areas were provided during the late 1970s and early 1980s (11 in total) despite the vagaries of the English weather (French, C. P., 1995d).

This provision has almost disappeared during the last ten years, probably due to the excessive cost of provision during the MCB era, and has not been reinstated because of infrequent use. Several schools (20 in total) were, however, provided with paved but uncovered areas adjacent to classbases for external teaching during the summer.

Function

The primary function of the outside teaching area is as an extension of the classbase into the landscape for use during warmer weather, for practical activities which cannot easily take place inside through lack of space, such as playing with sand and water, gardening, keeping animals, etc.

Shelter

Unfortunately, the climate in Great Britain, and Essex in particular, is unreliable and if these spaces are to be used then they must be sheltered from inclement weather, including wind, rain and excessive sun.

This involves the provision of free standing screen walls or fences, or by using projections of the building with some form of roof, either solid, glazed or in the form of a pergola (see illustration D112).

Access

The external teaching area needs to be sited immediately outside the classbase with direct access through doors which can be left open in the summer. This space also needs to be provided with cold water, drainage, seating and access to a storage area for external equipment (see illustration D113).

Most primary schools built during the last 25 years gave good access from classbases, direct to the outside, although this has been criticised from an energy conservation aspect, and designers are now encouraged to provide winter access via a draft lobby, with the direct access reserved for summer use only.

Materials

The materials used for paving, seating and screen walls provide an ideal opportunity for architects to introduce different colours and textures through the use of bricks, setts and stained timber, although very few primary schools have such provision.

10.7 PLAYING FIELD

Every primary school in Essex, apart from independent infant schools, is required by statute to have a playing field of a specified size or access to a grass play area, even if this is detached from the main school site (Department of Education and Science, 1981.). A playing field has been provided at most schools built since 1973, and only those schools built before the Second World War have detached playing fields.

All of the primary schools studied during the research project had a playing field of sufficient size to lay out a football pitch in winter and a rounders pitch in summer. None of the plans indicated any other soft play opportunities such as climbing frames, slides, tunnels or swings, although 8 projects did have play mounds adjacent to hard play areas (French, C.P., 1995d).

Interestingly my visits revealed that many schools are now developing such facilities from their own funds, and ironically, some other schools have removed the play mound because grounds maintenance teams complained they were difficult to mow.

Function

The main function of the playing field is to provide the following:-

- An area which can be marked out and used for formal games, such as football in the winter and rounders in the summer.
- An area which can be marked out with grids for different types of physical exercise activity, such as dribbling a ball, etc.
- An area where children can "let off steam" in warmer dry weather.
- An area which can be marked out with a running track and jumping area for the annual sports day.
- An area which can be used for community events, such as the summer fete or PTA Barbeque.

All of these activities can put pressure on the playing field at certain times of the year when space is at a premium, especially during wet weather, when certain parts may not be usable through over-use.

Essex soils

As mentioned previously, Essex primary school sites have notoriously difficult soil conditions, and it is impossible, even with a good agricultural drainage system, to stop various areas of the playing field from muddying up in the winter. This is particularly true of heavily used areas around goal mouths, centre spots of pitches and access to the mains school building. This has led to some schools having to reduce the use of their playing field during wet weather. The problem is also exacerbated on very small sites which have only one position for a football pitch, where goal mouths etc., cannot be rotated or moved.

Drainage

Many Essex primary school playing fields are relatively flat with a heavy clay sub-soil and they have to be drained using a herring bone pattern of plastic or clay agricultural pipes in sand filled trenches, discharging into a nearby ditch or surface water drain to ensure that they can be used during the winter months.

Sand pitches

The County Architect's Department became aware in the early 1980s of various experiments using sand beds for the propagation of turf pitches to avoid the problem of worn grass grown on top soil (the most notable success being White Hart Lane football ground), and the Playing Fields Officer was keen to try them out in Essex (see illustration D114). He was nervous, however, of the poor relationship with the Chief Education Officer's Grounds Maintenance staff who would need to look after these pitches.

The first pitch constructed at Castle View Secondary School on Canvey Island was, therefore, a mixture of soil and sand which had a more traditional maintenance regime. This proved to be very successful after some initial teething problems, and a fully blown drained sand bed was used at the next project for Tabor High School in Braintree. This was less successful, however, due to insufficient maintenance. The sand bed pitches were also almost 3 to 4 times more expensive than the traditional agriculturally engineered pitch, and restricted playing field budgets have meant that very few have been constructed since.

Gradients

Most Essex primary school sites are relatively flat and their gradient has not created any difficulty in laying out playing fields to acceptable playing conditions. There have been one or two notable exceptions to this rule, however, where the gradient has exceeded normal slopes and cut and fill techniques have been used to provide flatter play areas.

The ideal solution to such sites is to carry out all the earth moving before the school is constructed, and the playing fields section attempted to get such sites constructed in advance of the main building contract.

They were successful in constructing one or two advanced projects in the early 1980s (such as Vange Primary School), but cutbacks in education funding has led to uncertainties over project timing and priorities, and this is now almost impossible.

10.8 SOFT LANDSCAPE

Generally soft landscaping in Essex schools during the last 25 years has been fairly basic, with a minimum of ground contouring and tree and shrub planting. Very little opportunity has been taken of making educational use of the landscaping with the provision of ponds and natural planting to attract wild life. Only three of the schemes built since 1973 showed such facilities on their design drawings (French, C. P., 1995d), although landscaping schemes have improved significantly in the past 5 years. Many schools have also created nature areas within their site using their own funds, and many have plans to do so in the near future.

The 1970s initiative

Planting around Essex primary schools in the 1950s and 60s was very basic, consisting of a few trees around the perimeter and shrubs in planting beds in front of the school. The new County Architect, Ralph Crowe who arrived in 1967 decided that this landscaping needed to be improved and took a party of architects and landscape designers from the department on a fact finding tour of Suffolk schools. The County Architect of Suffolk at that time was also a landscape architect, and everyone on the visit agreed that the standard of planting around Suffolk schools was far superior to Essex. The planting was generally more dense, more mature and much more interesting, with use of unusual shrubs and ground cover such as gorse, ivy and heathers.

This difference in standard was investigated by the Playing Field Officer, Roger Davies who concluded that:-

- Suffolk spent more on landscaping;
- They had access to low cost, high quality maintenance staff because of their rural economy;
- They were more imaginative in their choice of species.

He decided that the more urban nature of large parts of Essex would make high quality maintenance difficult due to a lack of suitable labour, but given a larger budget he would be more adventurous with planting schemes.

Greater variety

Roger Davies knew very little about planting because of his turf background, but he recruited a plant specialist and undertook a crash course in horticulture. The next five years saw more adventurous "designer" planting schemes at primary schools, with planting of species with exotic barks and colourful leaves.

Indigenous species

Unfortunately, many of these did not survive the Essex climate, soils and low maintenance regime, and after considerable failures the landscape group reverted to species of trees and shrubs which were more native to the County of Essex and this dramatically increased the survival rate.

Container or bare rooted

The landscape group has been aware for a number of years through the study of failed planting schemes, that certain types of planting survive better in the Essex soils and climate.

Bare rooted trees and shrubs do not fare well in Essex conditions and, although they are more expensive, container grown species have a much greater survival rate and are better value for money.

Although one or two standard or semi-mature trees may be needed in a planting scheme to give an instant effect and satisfy the building users aspirations, container grown immature trees or whips are a better investment on Essex soils. They often grow quickly and pass standard trees within 3 or 4 years to give a more dense and mature landscape at a lower cost (see illustration D115).

Planting period

Trees and shrubs planted after Christmas have a high mortality due to the dry spring and summer weather in Essex. At one time the landscape group felt so strongly about this issue that they offered to indemnify planting subcontractors against replanting failed species if they were planted between September and Christmas.

Planting next to buildings

Most architects were responsible for the landscaping schemes around their buildings until very recently, and tended to include shrubs and ground cover planting next to the building between footpaths and paved areas. Unfortunately, much of this planting was not maintained and often overrun by children until the beds became unsightly bare patches of weed strewn mud.

Shelter belts

The landscape group pursued a policy during the late 1980s of eliminating such planting beds next to the building, replacing them with hard paving, and restricting planting to belts of trees near the building, often a mixture of standard trees and whips which quickly mature into small copses of planting which shelter play areas and act as a transition between the school buildings and more open grassland of the playing field (see illustration D116).

Programming

The relationship between the building contractors and specialist landscaping contractors has also been a difficult issue due to the disparate nature of their work. Landscape contractors place great importance on the quality of the top soil surrounding the building site, as this is the medium which will influence the success or failure of their planting schemes. Unfortunately, building contractors tend to be rather careless with top soil, often mixing it with sub-soil excavated from service trenches and waste building materials such as cut bricks, blocks and tiles, as well as mortar, concrete and plaster thus destroying its horticultural properties.

The landscape group have resolved this problem by insisting that all top soil of a reasonable quality be stripped from the site and stored well away from building operations until the landscaping contractor can place it in position before planting.

Building contractors and design teams work to very tight programmes, whereas landscaping contractors who are entirely dependent on planting conditions, often have to adjust their programmes of work to suit the weather. This makes co-ordination of building work and planting very difficult, with building users often having to wait several months for planting schemes, but the landscape group have always felt that this is a small price to pay for a scheme planted in the right weather conditions which will survive and mature.

10.9 HARD LANDSCAPE

Until very recently the layout and detailing of site works has been the responsibility of the architect, with advice from the landscape designer on soft planting, which was usually organised as a separate contract by the landscape designer, often as part of the playing field provision.

The co-ordination of hard and soft landscape has varied depending on personalities, with some architects taking great care over the external spaces and working as a team with the landscape designer from initial concept to detail design to achieve good quality external spaces within the resources at their disposal. Other architects have been less imaginative leaving the detail of outside spaces too late in the design process, so that they often appear to be an afterthought, with the landscape designer left to do the best he can with limited resources.

The building surveyors, who have a considerable affect on external spaces when replacing pavings and fences or carrying out small extensions, have been particularly unsympathetic, and very few have seen the opportunities for improving the external environment of existing sites.

Furniture and Equipment

All external spaces in Essex primary schools, like their internal counterparts, require furniture and equipment.

Traditionally this has been rather basic, and restricted to items of sports equipment such as benches, nets and goals for various games and physical education.

Schools have been augmenting this equipment in recent years, however, with the purchase of:-

- Picnic tables arranged in a sheltered corner of the site for pupils to eat their sandwich lunch in warm weather or undertake private study.
- Proprietary "themed" adventure playground equipment, often in hardwood or stained softwood with swings, climbing frames, trains and tunnels arranged in a circuit, either in a corner of the playing field or playground with pupils moving between the pieces of equipment (see illustration D117).

The Property Services Department has responded to this increased demand for external furniture by providing more built-in seating around the school, and free standing walls and screens for bouncing balls etc.

They have also developed their own external furniture system which can be retro-fitted to and divide an existing hard play area to provide seating, climbing and screening facilities (see illustration D118).

Pavings

The choice of paving is an ideal opportunity to introduce colour and texture into the external environment with the use of brick and concrete paviors and setts, but most schools built during the last 25 years have paving of predominantly black asphalt which add little to the visual experience of pupils. The smaller scale paving materials are now being used in small quantities, usually as a trim to asphalt or to define a sitting area, but budgets do not allow their more general use.

Changes of level

As mentioned earlier very few school sites in Essex have any usable fall, but even minor changes of level are an ideal opportunity to introduce low walls, steps, and ramps which all add to the excitement of moving around the site.

Unfortunately, very few primary schools built in the last 25 years have been able to make use of this element of design to break up play areas and delineate activities.

Water features

Many schools are now appreciating the joy of water outside teaching areas in the form of ponds and fountains which are not only useful as a teaching aid when stocked with wild life, but also give pleasure from the sound and sight of moving water, and some schools are prepared to build and maintain such features using their own funds. Adequate guarding is required, of course, to ensure the water is not a safety hazard.

Space dividers

As mentioned earlier, Essex schools need the shelter provided by vertical space dividers in the external environment and these can be a vital ingredient in the visual stimuli for pupils and staff. Space dividers can be built of brick with its interesting colour and texture, timber trellis or fencing panels, with the opportunity for colourful stains or many other materials, such as metal mesh or decorative concrete blockwork. Unfortunately, very few of these materials have appeared in the external works of schools built during the last 25 years, no doubt due to the budget restrictions.

10.10 MAINTENANCE

The success or otherwise of landscaping around primary schools depends on good quality regular maintenance. Even an imaginative well-funded planting scheme can be rendered ineffective by poor maintenance within two or three years.

Communications

Unfortunately, maintenance of external works around Essex primary schools over the past 25 years has not been good due to poor communications, limited resources and commercial pressures on the Grounds Maintenance organisation.

Poor communications have affected relationships between design staff, the grounds maintenance teams, landscape sub-contractors and the schools, creating severe problems which have directly affected the success of landscaping schemes:-

- As mentioned previously, the responsibility for design and maintenance of landscaping has been split between the Education and Architect's Departments for nearly 30 years, and this has led to many misunderstandings about the designers' intentions regarding the maintenance of landscape features, fuelled by suspicions amongst Grounds Maintenance staff that designers do not consider the practical consequences of their design solutions. This has led to many features such as play mounds, naturalised planting and ponds being removed, mown or filled in to reduce future maintenance.
- There has also been some friction between the landscape contractors who create the landscaping, and grounds maintenance staff and schools over the programming of work, and liability for short term maintenance and replacement. Most contractors are responsible for maintaining planting schemes for 12 months after completion when the grounds maintenance team take over. Unfortunately, this maintenance has often not been of the standard expected by the school or the ground maintenance team before they are prepared to take the scheme over and some have deteriorated while such arguments continue.

Resources

It is important, however, to recognise that limited resources have been available from a central fund for maintaining landscaping throughout Essex, which is stretched over a very large number of schools. This central funding is used to finance Area Grounds Maintenance teams who move from school to school on a regular cycle, often finding it difficult to cope with grass cutting, let alone pruning shrubs, cleaning ponds, etc.

The problem of a low budget has been exacerbated in recent years by the compulsory competitive tendering of grounds maintenance, which has added a commercial element into the service, with increased pressure to use less staff and make fewer visits to schools.

Regular maintenance

Many primary schools have also been unhappy about the service provided by the grounds maintenance teams, especially as commercial pressures have reduced the time available for each school. They want the grounds maintenance team to look after special features such as ponds and planting beds, whereas the grounds maintenance are only contracted to cut the grass and mark out the pitch. Most schools now have their own funds through the LMS scheme to pay for these extra services, but there is very little evidence that grounds maintenance teams are interested in this extra work.

10.11 IMPROVEMENTS TO EXISTING SCHOOLS

The increased awareness amongst schools and designers of the importance of external spaces should ensure that all new schools have better outside facilities than in the past. There will be relatively few new primary schools built in Essex during the next decade, however, and generations of existing schools will still have a poor external environment, unless a programme of improvements is instituted.

Growing awareness

Fortunately, the staff of many Essex primary schools are demanding that better use is made of their site, and they are planning their own programmes of improvements using school funds including:-

- The building of wildlife ponds
- Patios outside classbases
- Adventure playgrounds
- Animal enclosures
- Meadows and copses

Hopefully these home-grown projects will make a substantial difference to school grounds, but they do need to be focused to ensure the work executed follows some kind of master plan and is of an acceptable quality.

Extensions And Alterations

The opportunity is also being taken when planning extensions and alterations to existing schools such as extra classrooms or a hall, to include improvements to adjacent external spaces. These have been severely constrained, however, by the lack of financial resources and the need to spend limited funds on other facilities with higher educational priority.

Maintenance

Certain maintenance work such as the resurfacing of playgrounds can also be a generator of improvement work, when large areas of asphalt can be broken up into smaller sheltered spaces for specific activities using low walls, seats, screen fencing, planting and a change of paving material.

10.12 CONCLUSIONS

A study of the external spaces around Essex primary schools built during the past 25 years shows that this part of their design is one of their least successful aspects and although teachers, educationalists, and designers have become more aware of the potential of the school site there are many lessons for future development:-

- It is important to remember how attitudes towards the use of outside spaces in primary schools have changed throughout history, from the Victorian belief that they were for release from academic study, to the post war concentration on sport and fitness, to today's use as an educational resource. Designers must, therefore, provide sufficient flexibility in site layouts to accommodate future changes of attitude.
- Most primary schools have a character influenced by their location, be it urban, suburban or rural, and this should be reflected in the character of its outside spaces. It is possible to provide a standard brief for outside spaces, but this may need to be modified to suit local circumstances.
- Many Essex primary school sites have a poor natural environment, often surrounded by featureless housing estates, with poor soils and drainage.

These sites present a real challenge for designers and schools to design and maintain an imaginative landscape, and proper resources are needed if good quality external works are to be created.

- The Learning Through Landscape movement involving the greater use of school sites for the education process has been steadily growing in Essex, from the early modest attempts at the creation of nature areas, to recent more adventurous plans for cross-curricular use of every part of the school site. Unfortunately, the Education Department sees this movement in terms of improvements to existing school sites using the schools own resources, and have yet to properly fund such initiatives as part of building contracts.
- Access and parking at Essex primary schools have generally been very mixed, with many examples of mayhem at the beginning and end of the school day as vehicles and children mix on highways which are not designed for such activity. Future school access needs to provide ample facilities for parents dropping off children by car, although there is some evidence that parents are beginning to see the benefits of walking to school, and this may eventually have some impact on the problem.
- Parking on site has also traditionally been inadequate for the greater part of the school day, although overflow car parks have helped schools cope with special occasions. Parking ratios in recently constructed schools have been improved, but many existing schools desperately need increased carparking.

Most schools attempt to segregate pedestrians and vehicles at the site boundary with clear routes to the main entrance, and this clearly should be the objective of any new design.

- The hard play areas surrounding a primary school need to be carefully designed for their function, constructed of sympathetic materials, and with a degree of separation to suit different groups of children and quiet or rumbustuous activities. They also need to be sheltered to make them comfortable on exposed Essex sites with their unpredictable weather conditions.
- All primary schools should be provided with outside teaching spaces next to classbases, so that practical activities can spill outside in warmer weather.

These spaces need to be sheltered, partly covered, provided with seating, and have an attractive hard and soft landscape if they are to be used throughout the year.

- Playing fields in Essex are a well used resource, but they have often been constructed on difficult sites with poor drainage and soils. There is a limit to the playability of such sites, but experiments using sand bed technology to overcome this problem are expensive, difficult to maintain and have generally not been well received. It would appear that a traditional grass pitch with a proper drainage system will normally satisfy most primary schools' needs.
- The primary school site is often the only large open green area serving a neighbourhood, and should be available for community events such as fetes, fairs and sports. Unfortunately, many schools wish to discourage such contact and surround themselves with chain link fencing which, apart from challenging dog walkers to find holes in the defences, also sends the wrong messages about the partnership required in education.

There is a conflict, however, between such an open and welcoming environment and the need to control access for security reasons, which will need to be resolved on an individual site basis.

- Planting around Essex primary schools has historically not been good, with minimal planting schemes which have failed through poor design or lack of maintenance. Efforts have been made to increase variety, quality and quantity, but native species of trees and shrubs understandably survive better in the Essex soil and climate. Container grown, younger material, planted in the autumn, in carefully prepared top soil, as shelter belts away from the building also appears to have a greater survival rate.
- More specially designed external furniture and equipment needs to be provided as part of the initial school design, otherwise schools will be forced to purchase proprietary products from their own budgets which are often not appropriate, and sometimes sited in unimaginative positions.
- The provision of good landscaping depends on a clear understanding of the users' needs, and a firm commitment to its maintenance.

Unfortunately, this has not always been achieved in Essex due to a lack of empathy between the parties involved including architects, landscape designers, education officers, schools and grounds maintenance teams. The split responsibility for design and maintenance between two departments, and the suspicion and hostility this has aroused, has clearly affected relationships and communications to the detriment of landscaping schemes.

Hopefully the transfer of budgets to individual schools and a greater awareness of their external environment will ensure that schools will now take the lead, and ensure that all their professional advisors and contractors work together to achieve the same objective.

- The majority of existing Essex primary schools have a poor external environment with few opportunities for educational use of outside spaces. A programme of improvements is required, using the schools own resources and the opportunities presented by extensions and maintenance work. It is also important that new schools and major improvements have fully funded external works to ensure that new problems are not built into the school stock.

It is fair to sum up by saying that given the proper resources, a clear brief and commitment from the schools users, design teams could make much better use of primary school sites in Essex to ensure that every educational opportunity is maximised, as well as improving the external environment and image of the school.

CHAPTER 11
SPACE, QUALITY AND COST

11.1 INTRODUCTION

The last 25 years have seen mixed economic fortunes for Great Britain, with the ravages of inflation, loss of industrial base and the bonanza of North Sea oil. The cyclic economic pressures described in Chapter 2 have dramatically affected the county of Essex and its school building programme, with periods of financial restraint followed by an easing of controls.

Most of the head teachers interviewed during the research visits stated that space standards and the quality of their teaching environment had varied according to these pressures, irrespective of its location, size or age, and this had affected the learning process.

This chapter will examine the relationship between space, quality and the cost of new primary school building in Essex over the last 25 years, set against a background of fluctuating economic fortunes, in an attempt to formulate advice for future building programmes.

11.2 SPACE STANDARDS

Space or the lack of it was one of the main pre-occupations of teaching staff interviewed during the research project.

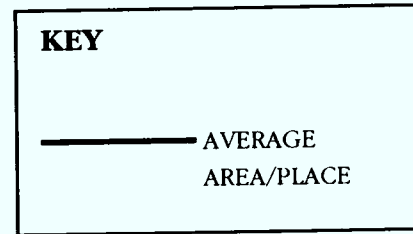
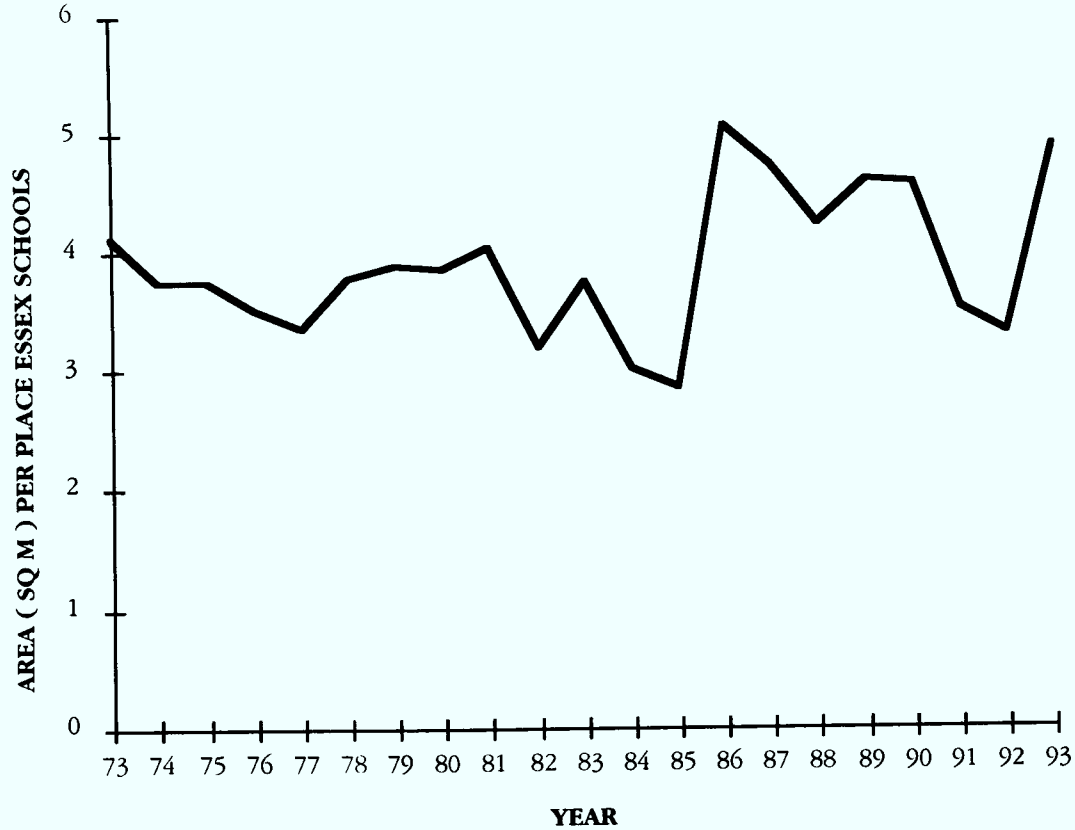
Overall space standards

Overall space standards over the last 25 years have averaged around 4 square metres per place, but this dropped to 3 square metres during the economic down turn of the early 1980s, and rose to a high of 5 square metres when budgets were relaxed to redress the balance (see illustration D119).

National Comparison

It is also interesting to compare Essex space standards (see illustration D121) with briefed areas from other comparable Local Education Authorities. Clearly Essex compares well with a county such as Cheshire and the Inner London Education Authority, whereas Hertfordshire has been more generous.

This graph shows the average area per place achieved in new Essex primary schools year by year.



NOTE

Areas based upon medians abstracted from major project committee brochures

ILLUSTRATION D119 - ANNUAL AVERAGE AREA PER PLACE IN ESSEX PRIMARY SCHOOLS

Based on an analysis of 147 new schools and extensions (see French, C. P., 1995d)

The most recent brief from Northern Ireland with its recommended teaching area of 60 square metres per class base (excluding storage) is also larger than Essex schools, but administration spaces are less generous.

Reduction in space

Space standards in primary schools of the 1950s and 1960s were extremely generous by today's levels, and it is not unusual to see classbases of between 60 and 70 square metres in Essex primary schools of this vintage, with exclusive circulation routes, larger halls and spaces reserved for dining. Most of these schools were built for greater pupil numbers at this time, however, with an average class size of 40 pupils.

Pressure, initially from the Department of Education and Science to reduce costs by removing extravagant circulation space, and later from Essex Education Officers in an attempt to respond to reducing budgets, gradually drove the areas of Essex primary schools down to ever reducing sizes in the early 1980s.

This was achieved by adopting plans where circulation shared space with practical areas, halls and resource areas, and by building smaller classbases and halls. The downward pressure on space reached its low point in the early 1980s when classbases were briefed at below 50 square metres (including storage) and pure circulation space had all but disappeared. This produced a reaction amongst teachers, governors and parents, however, who felt that such schools were overcrowded, affecting the quality of education offered to pupils.

Space standards in Essex schools have increased since this low point, however, with recent primary schools briefed to have classrooms of 57 square metres, plus 3 square metres of storage, although some of this space has been gained by omitting specialist group rooms from the brief and actual overall space improvements have been modest (see illustration D120).

Classrooms

Teachers have said during interviews, that classbases were too small during the 1980s, with insufficient room for furniture and space between for children to carry out all the varied activities of the curriculum comfortably.

ACCOMMODATION 1 F. E. PRIMARY SCHOOL WITH 7 BASES AND 210 PUPILS	SPACE STANDARDS (SQ METRES) BY LOCAL AUTHORITY BRIEF					
	CUMBRIA - 1983	INNER LONDON - 1985	HERTFORDSHIRE - 1987	CHESHIRE - 1987 *	NORTHERN IRELAND - 1992	ESSEX - 1993
CLASS BASE	NOT GIVEN	50	60	58	60	57
HALL	122	110	130	120	160	130
A.V.A./AMENITY ROOM	NOT GIVEN	40	18	45	NONE	30
LIBRARY/RESOURCE AREA	YES	24	18	4	80	15
MINIMUM TEACHING AREA	521	512	NOT GIVEN	598	610	518
DINING	68	IN HALL	88	IN HALL	IN HALL	IN HALL
KITCHEN	NOT GIVEN	63	53	50	NOT GIVEN	35
HEAD TEACHER	NOT GIVEN	12	12	12	SHARE WITH SEC	12
SECRETARY	NOT GIVEN	14	14	6	10	13
STAFF ROOM	NOT GIVEN	24	25	14	30	19
CIRCULATION	NOT GIVEN	10%	3.50%	10%	NOT GIVEN	17%
NOTES *35 PUPILS/CLASS. IFE = 245 PUPILS						

ILLUSTRATION D121 - COMPARISON BETWEEN ESSEX AND OTHER LEA BRIEFING AREAS.

Reproduced from Investigative Essay
(see French, C.P., 1995g)

This was a particular problem within reception classes with their larger equipment, and classes for rising secondary school pupils with their larger stature.

Storage

Teachers complained that classbases were provided with insufficient storage for the varied teaching equipment, apparatus and materials needed to satisfy the curriculum. They also felt that the provision of storage within items of furniture rather than purpose-built stores, was also very limiting.

Cloakrooms

Primary schools of the 1960s and 1970s had very generous cloakrooms, often next to the main entrance and/or toilets, with sufficient space for every pupil to store their outside coat and shoes. Most teachers questioned agreed that this space used exclusively for coat storage was unreasonably generous and under-used for large parts of the day and year, especially during the summer months, and many of these spaces have now been converted into teaching space.

Primary school plans also started to appear during the early 1970s without cloakrooms and with coats hung on mobile trolleys, which were stored in the corner of the classbase when not in use and pulled out into the classroom at the beginning and end of the day. Although this saved valuable space, the system was not particularly liked by teachers as it was very untidy and involved considerable time and effort moving the trolley around.

It was replaced by coat cupboards or bays within the classbase, which although more permanent, were also criticised because of the very tight space standards and difficulty experienced by pupils trying to access them at the beginning and end of the day.

Although coat storage in current briefs is now more generous and often situated in entrance lobbies rather than the classbase, teachers still feel more space is needed.

Circulation

The use of classbase, halls, etc., which were already of minimal space standards for circulation was also thought to be very disruptive, especially if a different group of pupils or staff had to make their way through the space when a class was in progress (see illustration D46b). More dedicated circulation space has appeared in primary school plans during the last 5 years, with sharing of space only expected between pairs of teaching bases.

Halls

Halls have also decreased in size during the last 25 years, and although this has not caused any particular problem in the smaller schools, some of the larger schools have had great difficulty in fitting all of the varied activities needed in the current curriculum within the timetable.

This is a particular problem for schools which are approaching a size when they are eligible for a second hall as they often have to arrange lunch in sittings which extends the period when the hall is out of use for other activities such as P.E, music and drama.

These schools also have great difficulty in fitting the whole school into the hall for an assembly, often having to split into year groups. Meetings and events for parents which are often well attended also have to be restricted, with tickets issued for entry or repeated over several evenings.

Resource areas

Room for shared resource areas such as libraries and specialist bays for science, cooking and craft-work have also been put under increasing pressure due to the lack of space, often having to take place in a recess in one corner of a classbase or entrance lobby. This is becoming a particular problem with the introduction of the National Curriculum which places great emphasis on such activities.

Secondary space

Design teams responded to the pressure on area in a variety of ways, with the more ingenious creating unheated secondary space by covering under-used courtyards, provided to light and ventilate deep plan building forms; thus providing cheap space for a variety of practical uses. These could, initially, only be used for part of the year, but are now increasingly heated and used throughout the year.

11.3 QUALITY STANDARDS

Most Essex primary school users interviewed during the research project expressed a general satisfaction with the quality standards of their school built during the past 25 years (French, C. P., 1995g). These standards were set by the system buildings of the 1970s and have continued into the more recent designs using traditional methods of building. Budget problems in the mid 1980s did, however, produce a number of schools with a quality threshold below an acceptable level and this has been recognised by the clients.

Client/Architect tension

The responsibility for the standards of new primary schools in Essex has traditionally been shared between the Chief Education Officer and the County Architect with the CEO determining space standards, furniture and equipment layouts and budget levels and the CA determining the appearance and quality of the building fabric and services.

There has been a constant tension, during the past 25 years, between the CEO's Project Officers and the CA's 'design of Essex' teams over the quality of new buildings.

Clients would like to spread their limited resources as far as possible to satisfy the demand from parents, governors and politicians for improvements to out-dated buildings throughout the county, and they have been prepared to reduce quality standards through the use of short life timber framed systems of construction and finishes, providing this produces more space or more projects.

The designers, who are also responsible for maintaining these buildings, have been attempting to withstand this pressure and maintain quality levels on the basis that a new building is a significant investment, intended to last for at least 50 years, and money spent on quality structures and finishes will be repaid through reduced maintenance through the life of the building.

The CEO has also maintained that the cost of new primary schools is excessive and have often suggested the use of procurement methods such as design and build or proprietary timber framed systems aimed at driving costs down. The CA has maintained that traditional methods give greater control over the final product and achieve good value for money.

The constant tension between client and designer over quality has increased as resources have diminished and the pendulum has swung between the over-lavish and below acceptable quality. It must be said, however, that such a tension is probably a good way of ensuring that a healthy balance is maintained between miserly and spendthrift attitudes amongst the whole project team.

System buildings

Generally the quality of Essex primary schools has improved throughout the study period from the early lightweight poorly insulated SEAC system building, through the better insulated MCB system buildings, to today's high quality traditional buildings.

SEAC (SOUTH EASTERN ARCHITECTS COLLABORATION)

The early SEAC schools had a standard specification (See Illustration D122) with a steel frame, flat asphalt covered roof deck, various lightweight claddings and steel framed curtain walling with colour coated asbestos cement infill panels. Internal finishes were painted plasterboard, vinyl sheet or tile flooring and suspended tile ceilings. These buildings, although fairly hard wearing, had a poor environmental performance, being hot in summer and cold in winter. They were also rather hard and institutional for primary school use.

MCB (MODULAR COMPONENT BUILDING)

MCB also had a standard specification (See Illustration D123) with lightweight reinforced concrete external wall panels, punched hole aluminium windows and doors, asphalt covered aerated concrete flat roof deck with better insulating properties and fewer under and over heating problems. The carpeted floor finishes, coffered ceilings and hessian covered pinboard partitions also gave a softer more domestic feel to the interior, more in keeping with the needs of a primary school.

Traditional buildings

The demise of MCB in the mid 1980s saw the exclusive use of more traditional construction methods with the introduction of the budget model for primary schools (See Illustration D124). At first the cost of providing pitched roofs over traditional deep plan primary schools put great pressures on budgets and levels of specification for certain elements were rather basic, with clay tiles or slates on the roof, a medium quality facing brick externally, but domestic quality single glazed aluminium windows, plastic rainwater goods, plasterboard ceilings, stained softwood internal joinery and needle punch carpet or sheet vinyl flooring.

These schools were thought to have an unacceptably low standard of finish internally and the level of specification over the last 10 years has been increased. The current budget model (See Illustration D125) has double glazing, insulated commercial quality windows, suspended minaboard ceilings, hardwood strip flooring in halls, and high levels of thermal insulation in walls, roofs and floors.

Lowering of standards

Although we have seen a gradual improvement in quality levels in Essex primary schools throughout the study period, the economic cycle and political pressures have created periods where a temporary lowering of standards has occurred in an attempt to contain inflationary pressures and/or ensure that scarce resources were spread as far as possible.

SUBSTRUCTURE	DRAINAGE
- Reinforced concrete raft with down stand edge beam 150 mm hard core	Vitrified clay pipe on concrete base Brick manholes - Vitrified gullies
ROOF	EXTERNAL WALLS
- 12 mm asphalt - 12 mm fibreboard insulation - Steel deck - Castellated steel beams bolted to Steel Universal columns	- Lightweight cladding panels or boarding - 50 mm fibreglass insulation - Plasterboard internal lining - Emulsion finish
WINDOWS & DOORS	PARTITIONS & DOORS
- Galvanised steel single glazed windows - Galvanised steel single glazed doors Colour coated asbestos cement panels under windows	Plasterboard on steel studding partitions - Hollow core flush doors
FLOOR FINISHES	CEILING FINISHES
- 50 mm screed - Vinyl asbestos tiles in classroom corridors etc. - H/w strip in hall., Quarry tiles in kitchen	Suspended minaboard tiles in lay in grid Plasterboard in kitchen and toilets
FITTINGS	SANITARY & WATER
- Chalkboards - Shelving in cupboards - Coat rail and bench in cloakrooms	V.C.. sanitary ware Copper Pipework Cold water storage in roof housing
HEATING	LIGHTING
- Cast iron radiators fed by LPHW - Steel pipes - Oil fired boiler	Fluorescent tubes in classrooms and admin. - Tungsten fittings in corridors and toilets
POWER	OTHER ELECTRICAL
Metal clad socket outlets One twin SSO in each classroom - Steel buried conduit	- Mechanical ventilation to kitchen - Fire alarm - Telephone to office and head
ROADS & PAVINGS	LANDSCAPE
- Asphalt road and car park - Asphalt playground - Asphalt paths - P.C. concrete paving slabs	Levelled seeded playing field Sapling planting
SITE ENCLOSURE & DIVISION	MAINS SERVICES
Chain link fencing Steel gates	- Gas - Electricity - Water - Telephone - Drainage connection to main sewer

**ILLUSTRATION D 122 -
STANDARD SPECIFICATION
FOR SEAC CONSTRUCTION**

Based on SEAC specification
(see SEAC,1970)

SUBSTRUCTURE	DRAINAGE
<ul style="list-style-type: none"> - Trench fill foundation 1 m deep - P.C. concrete perimeter plinth block - 150 mm hard-core - 125 mm R.C. slab reinforced with mesh - Conc pads under columns 	<ul style="list-style-type: none"> - Vitrified clay drain pipes - Flexible joints - Vitrified clay gullies etc. - Granular back fill - Brick manholes
ROOF	EXTERNAL WALLS
<ul style="list-style-type: none"> - 150 mm Siporex aerated conc pre stressed planks - 12 mm asphalt - 100 mm pea shingle - Castellated steel beams spanning from wall panels to P.C. columns 	<ul style="list-style-type: none"> - Exposed aggregated faced reinforced lightweight concrete panels emulsion finish internally. - Hall clad in lightweight cladding or boarding
WINDOWS & DOORS	PARTITIONS & DOORS
<ul style="list-style-type: none"> - Essex aluminium radius corner windows - Essex aluminium radius corner doors or Glazed hardwood doors in H/W frame 	<ul style="list-style-type: none"> - Fair faced. Lignacite concrete blockwork emulsion finish - Post and Panel pinboard partitions - Acoustic pinboard partitions
FLOOR FINISHES	CEILING FINISHES
<ul style="list-style-type: none"> - Nylfloor needlepunch carpet to teaching and admin. - Polyflor vinyl sheet in hall and practical - Altro in kitchen - 50 mm screed 	<ul style="list-style-type: none"> - Armstrong minaboard "coffered" ceiling in classrooms and hall - Armstrong minaboard suspended ceiling in lay in grid elsewhere
FITTINGS	SANITARY & WATER
<ul style="list-style-type: none"> - Spur shelving system - Sundeala pinboard - Venetian blinds - Blackboards 	<ul style="list-style-type: none"> - Cold water storage on roof in timber clad housing - Copper service pipe - PVC wastes and traps - Central calorifier and local electric W/H to isolated areas
HEATING	LIGHTING
<ul style="list-style-type: none"> - Gas fired warm heaters mounted on roof - Warm air distribution through coffered ceiling - Aluminium delivery grilles 	<ul style="list-style-type: none"> - Mainly fluorescent tubes between coffered ceiling - Spot lights over chalkboard and display
POWER	OTHER ELECTRICAL
<ul style="list-style-type: none"> - Switched plastic faced socket outlets - 2 twin outlets per room - PVC covered cables - Surface mounted PVC mini conduit 	<ul style="list-style-type: none"> - TV aerial installation - Mechanical ventilation to toilets and kitchen - Fire alarm
ROADS & PAVINGS	LANDSCAPE
<ul style="list-style-type: none"> - 150 lean mix + 80 mm asphalt + 250 x 150 PC kerbs to road - 75 lean mix + 60 mm asphalt + 250 x 150 + kerbs to carpark - 75 lean mix + 40 mm asphalt + 100 x 50 S/W kerbs to paths 	<ul style="list-style-type: none"> - 7 hour usable drained, levelled, seeded playing field - Play/Screen mounding top soiled and seeded
SITE ENCLOSURE & DIVISION	MAINS SERVICES
<ul style="list-style-type: none"> - Ranch style S/W fencing to frontage - Chain link fencing 1.8 m high to other boundaries - Gates to match fencing 	<ul style="list-style-type: none"> - Gas - Electricity - Water - Telephone - Drainage connection to main sewer

ILLUSTRATION D123 - MCB SPECIFICATION

Based on MCB specification
(see ECC Architects Dept, 1985)

SUBSTRUCTURE	DRAINAGE
<ul style="list-style-type: none"> - Trench fill concrete foundations 1 m deep - 150 mm hard-core - 125 mm R.C. slab reinforced with mesh - Foundations under LB partitions, mesh under non LB - 50 mm polystyrene edge insulation 	<ul style="list-style-type: none"> Vitrified clay drain pipes Flexible joints Granular back fill Brick manholes
ROOF	EXTERNAL WALLS
<ul style="list-style-type: none"> - S/W trussed rafters at 600 ccs 9m span - Plain clay tiles on battens 40° pitch - 100 mm fibreglass - Code 4 lead flashings - Self coloured plastic rainwater goods 	<ul style="list-style-type: none"> Half brick skin facing brick £223 (1000 P.C.) 65 mm cavity ss wall ties - 125 mm thermalite turbo concrete blockwork - 12 mm lightweight plaster + sigmulto - P.C. lintols, sill course, plinth stretcher
WINDOWS & DOORS	PARTITIONS & DOORS
<ul style="list-style-type: none"> - Single glazed aluminium windows (UBM series 2000) 25% gross wall area, 50% fixed - Aluminium glazed doors draught lobby to Main entrance single to classrooms 	<ul style="list-style-type: none"> - Fairfaced concrete blockwork - Plaster in kitchen and W.C.s - Sigmulto wall finish - 5% glazed screens - Plywood faced solid core flush doors
FLOOR FINISHES	CEILING FINISHES
<ul style="list-style-type: none"> - 50 mm screed - Rawson Magnum 3000 needle punch carpet in teaching and admin. Polyflor vinyl sheet in practical Flotex in hall. Altro in kitchen 	<ul style="list-style-type: none"> - Armstrong fissured minaboard suspended ceiling - Lay in grid
FITTINGS	SANITARY & WATER
<ul style="list-style-type: none"> - Spur shelving system - Sundeala pinboard 75% int. partitions - Roller blinds - Sign system - White boards 	<ul style="list-style-type: none"> Cold water storage 30 litres/pupil - Copper service pipes - PVC wastes & taps, copper where exposed - Central calorifier for kitchen etc Local Electric water heaters to isolated areas
HEATING	LIGHTING
<ul style="list-style-type: none"> - Steel panel radiators with LPHW - Single boiler normally gas - Heavyweight mild steel pipework - Selkirk metalbestos flue - Thermostats, optimisers and zoning 	<ul style="list-style-type: none"> Mainly fluorescent tubes (Alom) 250 lux on working plane Switching parallel to external wall
POWER	OTHER ELECTRICAL
<ul style="list-style-type: none"> Switched plastic faced socket outlets - 2 twin outlets per room - PVC covered cables - Mini conduit 	<ul style="list-style-type: none"> TV aerial installation Mechanical ventilation to toilets and kitchen Fire alarm Intruder alarm
ROADS & PAVINGS	LANDSCAPE
<ul style="list-style-type: none"> - 150 lean mix, 80 mm asphalt 250 x 150 kerbs road - 75% lean mix, 60 mm asphalt 250 x 150 kerbs, car park ditto surface 100 x 25 S/W kerb to playground - 40 mm asphalt 75 lean mix 100 x 25 S/W to paths 	<ul style="list-style-type: none"> 7 hr usable drained, levelled, seeded playing field - Play/screen mounds top soiled and seeded
SITE ENCLOSURE & DIVISION	MAINS SERVICES
<ul style="list-style-type: none"> - Close boarded fence to frontage - Chain link fencing 1.8 m high to other boundaries Gates to match fencing 	<ul style="list-style-type: none"> - Gas - Electricity - Water - Telephone - Drainage connection to main sewer

**ILLUSTRATION D124 -
TRAD CONSTRUCTION
SPECIFICATION - 1980s**

Based on 1985 Budget model
(see ECC Architects Dept, 1985)

SUBSTRUCTURE	DRAINAGE
<ul style="list-style-type: none"> - Trench fill concrete foundations 1 m deep - 150 mm hardcore - 125 mm concrete slab with mesh-reinfcment Founds under L.B. walls extr mesh under non 50 mm polystyrene edge insulation 	<ul style="list-style-type: none"> Vitrified clay drain pipes Flexible joints Brick manholes with Proprietary plastic inspection chambers & gullies where appropriate
ROOF	EXTERNAL WALLS
<ul style="list-style-type: none"> Interlocking clay tiles on battens 30° pitch - S/W trussed rafters - Code 4 lead flashings - 150 mm fibreglass insulation - Plastic rainwater goods 	<ul style="list-style-type: none"> - Half brick skin facing brick (£370/1000 P.C.) - 100 mm cavity - 75 mm cavity insulation fibre bat - 100 mm concrete block inner skin - 15 mm sand cement + plaster + vinyl emuls - Insulated steel lintols
WINDOWS & DOORS	PARTITIONS & DOORS
<ul style="list-style-type: none"> - Double glazed thermally broken aluminium polyester power coated window 30% of wall - Double glazed roof windows 6% roof area - Welded aluminium double glazed doors draught lobby main entrance 	<ul style="list-style-type: none"> - 100 mm conc blockwork plastered + emuls Sigmulto finish + tiles splash back kit & toilet 5% glazed screens Stained plywood faced solid core flush doors in sets
FLOOR FINISHES	CEILING FINISHES
<ul style="list-style-type: none"> 65 mm screed Needle punch carpet 3000 grade classrooms & admin - Vinyl sheet in practical - Altro in kitchen - Sealed H/W strip in hall 	<ul style="list-style-type: none"> Minaboard suspended tiles in concealed grid Kitchen/showers/toilets plasterboard+skim + eggshell paint
FITTINGS	SANITARY & WATER
<ul style="list-style-type: none"> - Cupboards & benching Essex Range - Spur shelving Marker boards - Roller blinds Rostrum - Safe Signs 	<ul style="list-style-type: none"> Cold water storage tanks in roof space - Copper service pipes serving W.C. san. appls - Copper wastes & traps exp PVC elsewhere - Hot water from calorifier with tempered water via local thermo mix valves
HEATING	LIGHTING
<ul style="list-style-type: none"> - Hudevad type radiators fed with LPHW - Multiple boiler installation (Gas) - Intelligent control system - Heavyweight steel pipes Thermostatic radiator valves 	<ul style="list-style-type: none"> - High frequency fluorescent tubes - Switching parallel to walls
POWER	OTHER ELECTRICAL
<ul style="list-style-type: none"> Switched plastic faced socket outlets - 6 twin outlets per room RCD to wet areas PVC/PVC cables PVC mini conduit - Supply to kiln 	<ul style="list-style-type: none"> - TV aerial installation - Mechanical ventilation to toilets, kitchen & amenity room - Fire alarms Intruder alarm - Security lighting Lighting to rood & footpath Telephones Lightning protection
ROADS & PAVINGS	LANDSCAPE
<ul style="list-style-type: none"> - 2 coat 100 mm asphalt on 250 sub base road- and car park - 2 coat 90 mm asphalt on 100 sub base playground and paths - Chamfered concrete 65 mm block for 40% paving 50 mm P.C. paving slabs for 60% paving 	<ul style="list-style-type: none"> Planting of saplings Forming mounds Brick planters, seats and play wall Environmental studies area Drained levelled seeded 7 hour playing field
SITE ENCLOSURE & DIVISION	MAINS SERVICES
<ul style="list-style-type: none"> Plastic coated chain link fencing Hedge to frontage Steel gates 	<ul style="list-style-type: none"> Gas) - Water) Infrastructure charges - Electricity) - Drainage connection to main sewer

**ILLUSTRATION D125 -
TRAD CONSTRUCTION
SPECIFICATION - 1990s**

Based on 1993 Budget model
(see ECC Architects Dept, 1993)

This temporary lowering of standards has shown itself in a number of ways:-

- The use of stained or painted softwood windows and doors.
- The use of artexed plasterboard ceilings.
- The extensive use of sheet vinyl floor finishes, particularly in halls.
- The use of a painted fair faced finish to the concrete blockwork inner skin of external walls and partitions throughout the school.
- A reduction in the amount and quality of external works by using asphalt and concrete slabs pavings rather than concrete block or brick paviers, few seats or play equipment and minimal planting.

Fortunately this temporary reduction of quality was recognised as short sighted by Education Officers and members of the Education Committee, and current budgets are sufficiently generous to avoid future penny pinching of this sort.

Timber framed systems

Although the Education Department have always defended the use of demountable classrooms on the grounds that they were a solution to the uncertainty over pupil numbers, they have grown to rely on them as a source of cheap accommodation when budgets for permanent accommodation have been under severe pressure.

The average cost of a 50 square metre relocatable classroom at November 1993 prices is £355 per square metre whereas the cost of a similar classroom in permanent accommodation is £630. Although relocatable classrooms have a low initial cost, they are expensive to maintain and heat due to their all electric heating systems, and it costs £5,000 on average to relocate them to another site (French, C. P., 1996).

The number of relocatable classrooms has now grown to such an extent it is difficult to see how the County Council could ever find the money to replace them given the continuous pressure on its capital resources and they are likely to remain a permanent feature on many sites.

It is also somewhat ironic that the Education Department has embarked on a programme of improvements to older primary schools with multiple deficiencies, where the number and proportion of relocatable classrooms is one of the prime factors in determining priorities for inclusion in this programme.

Budget model

The mid 1980s saw the introduction of the budget model for Essex primary schools giving design teams a clear idea of quality standards, but with considerable opportunity to vary them on individual projects. The main objective of the budget model is as a tool for planning the capital programme giving the education department and design team a clear statement of the quality standards on which future projects are based.

The budget model is not intended to be prescriptive, however, and is set at a median level slightly above what is considered to be an acceptable minimum. This allows design teams to increase specification levels on certain elements of construction providing they trade these off against corresponding reductions in quality in others, always ensuring that no element drops below an acceptable minimum.

Designers are able to respond to specific requirements of individual projects where, for instance, a building in a conservation area may require a real slate roof, or a school may prefer a hardwood strip floor in the hall at the expense of plastered wall finishes.

Unfortunately, this has been difficult to control during the recent deflationary period when keen tendering has allowed designers to constantly trade up quality standards without corresponding decreases in other elements. Clients' and users' expectations have risen as a result which may, however, result in anguish as the next period of inflation, caused by the economic cycle, raises costs beyond their fixed budget again.

Maintenance problems

The County Council is responsible for maintaining its own primary school buildings and the periodic lowering of quality standards has caused considerable maintenance problems such as:-

- The early replacement of poor quality softwood windows and doors.
- Replacement of cheap carpets unable to cope with normal wear and tear.
- Replacement of damaged plastic rainwater goods.
- Constant redecoration of emulsion painted surfaces.
- Redecoration of chipped and worn, stained softwood joinery.

Revenue funds for maintenance work have, in many ways, been under even greater pressure than capital funds as a result of the same political and economic factors, and inevitably, poor quality finishes in new buildings have added to the backlog in primary school maintenance work, producing a large number of shabby buildings which are an inappropriate environment in which to teach and learn.

11.4 LIFE CYCLE COSTING

Many commercial organisations with large property holdings have started to make decisions about the quality of new buildings and their maintenance funding on the basis of a life cycle cost rather than initial capital cost. This is the choice of a finish, component, structure or services system on the basis of the total cost throughout its life, including the initial cost, cost of replacement of failed components, and day to day maintenance. It is often cheaper when all the costs are taken into account to increase the initial quality of an element to give a longer life than replace it prematurely (Flanagan R. & Norman G., 1993).

Initial capital

Unfortunately, as mentioned previously, the County Council has had limited capital resources over the past 25 years, and arguments about the cost effectiveness of increasing the initial capital investment in primary schools to reduce the life cycle cost have often been lost on hard pressed Education Officers and politicians trying to cope with an insatiable demand for new buildings with diminishing resources.

Budget split capital/revenue

The County Council's traditional methods of accounting have also not helped the case for life cycle costing, with the capital (initial cost of construction) and revenue (maintenance) budgets entirely divorced from each other, making it extremely difficult to move money from one budget head to the other.

The constant pressure on the maintenance budget would also suggest that any projected savings from increased capital investment would be unlikely to be realised, as revenue funds would not be available to carry out the remedial work anyway. This is a circular argument, however, and the downward spiral could be broken given sufficient funds.

Refurbishment

An attempt was made in the late 1980s to combine revenue and capital funds for some of the major recladding projects aimed at extending the life of timber framed primary schools. Capital from the CEO's minor works fund was added to the considerable revenue monies, and several schools were refurbished throughout by comprehensively improving mechanical services, internal decorations, external cladding, sanitary ware and minor replanning to resolve problems such as underused cloakroom space, cramped office accommodation, etc.

Unfortunately, although very successful and good value for money, these refurbishment projects were expensive and the concentration of resources on relatively few properties dramatically reduced the number of schools in the programme and were not politically popular.

The refurbishment programme was, therefore, gradually starved of funds and after 2 or 3 years ran out of steam, with recladding reverting to piecemeal projects.

11.5 COSTS

The cost of every new Essex primary school is a product of its space standards and quality of construction with a direct correlation between these two factors and the budget. An increase or decrease in either of the space or quality factors can dramatically increase or decrease the budget and the design team must keep these in balance at all times.

It is amazing that client project officers do not always appear to appreciate the importance of this relationship, often expecting to be able to increase the briefed area of a school without accepting that quality will suffer if the budget is fixed.

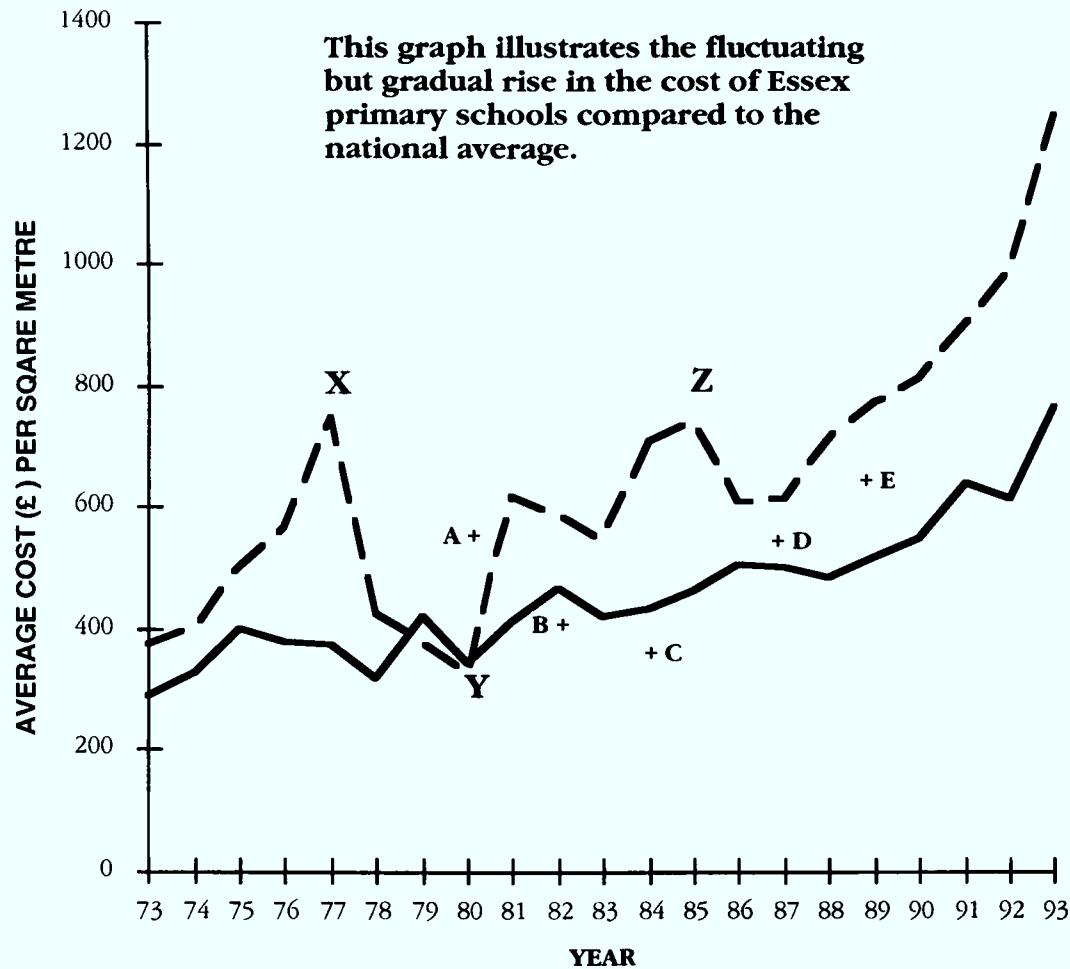
It is also interesting to note that despite enormous variations in the rate of inflation throughout the past 25 years, an analysis of various costs shows that the amount of money the County Council has been prepared to spend on primary schools has not varied dramatically.

Accuracy of costs

It is very difficult to draw reliable conclusions from cost data collected over a period of 25 years, particularly when details of individual projects are not available and costs are prepared on a variable basis. Such comparisons should only be used, therefore, to identify trends rather than draw conclusions in specific detail.

Cost per square metre

It can, however, be seen from a graph comparing costs in Essex and nationally (see illustration D126) that the trend has been for the median cost per square metre of Essex primary schools to rise gradually, following a similar pattern to the national average.



KEY

- COST £ /SQUARE METRE - NATIONAL
- - - COST £ /SQUARE METRE - ESSEX

KEY TO ESSEX SCHOOLS

- A = Ravenscroft CPS, Clacton £356/sq.m
- B = West Hockley CPS £399/sq. m
- C = St Peters C of E PS, Coggeshall £375/sq. m
- D = Highwoods CPS, Colchester £497/sq. m
- E = Whitecourts CIS, Braintree £610/sq.m

Based on BICS tender costs updated and adjusted for regional variation

NOTES

- 1) - National average cost/sq. m computed from a median of BICS tender costs adjusted for regional variation and updated to 3Q93
- 2) - Essex average cost/sq. m computed from the median of estimated costs adjusted for regional variations and updated to 3Q93
- 3) Variation from national trend in 1977 (X) due to cost of MCB, in 1980 (Y) due to economy drive and in 1985 (Z) due to rising quality standards

ILLUSTRATION D126- AVERAGE PRIMARY SCHOOL COSTS PER SQUARE METRE COMPARITIVE GRAPH

Based on print out of Building Indices Cost Service (see BICS, 1995)

It is also interesting to note that the costs of Essex primary schools have been consistently above the national average, even after adjustment for higher prices in the south east corner of the country.

The extreme high point of costs in 1976/77 was undoubtedly due to the rising costs of the MCB system of construction, and the extreme low point of 1979/80 was the result of political pressure to reduce quality and space standards.

Cost per place

An even cruder comparison of the cost per place based on updated scheme and estimate costs is also possible (see illustration D127) and this shows that the cost per place has risen gradually without dramatic variations from around £1,500 per place in 1973 to around £3,500 in 1992. This undoubtedly reflects a steady rise in the standard of primary school building in Essex, both in terms of specification and area.

It is also interesting to note the slight dip in the cost per place in 1979 when some of the staff interviewed claimed that our smallest and most tightly planned primary schools were built.

Relaxation of government controls

The most recent dramatic rise in costs in Essex and nationally, despite deflationary pressures within the construction industry, is probably related to a relaxation of Government controls and the desire by Local Authorities to increase the quality of primary schools in their area.

11.6 ELEMENTAL COSTINGS

A study of the different elements of construction within Essex primary schools such as constructional systems, engineering services, interior design and external works, illustrates specific lessons for future building programmes which are easily masked by overall trends.

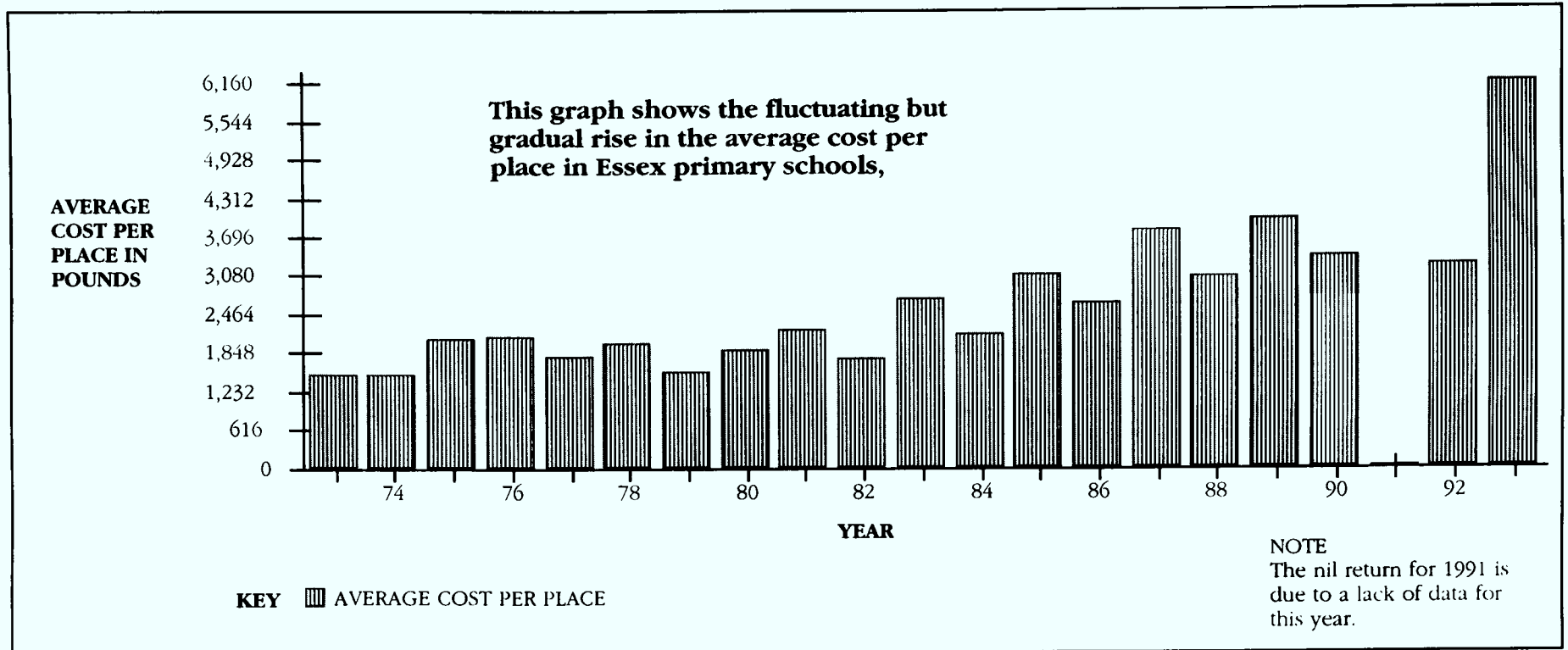


ILLUSTRATION D127 - ANNUAL AVERAGE COST PER PLACE

Based on an analysis of 147 new schools and extensions (see French, C. P., 1995d)

Constructional Systems

The choice of constructional system has had a major impact on the cost of Essex primary schools, with the high unit cost of systems such as MCB putting considerable pressure on budgets, particularly as diminishing capital programmes reduced the economies of scale needed to offset the cost of factory production of components. The system building with its fixed high quality specification also created problems as resources were squeezed in the 1980s when designers had no option other than reduce floor area to contain costs.

The use of timber framed systems and relocatable classrooms has also been seen by clients as an universal panacea when budgets are under pressure, but inevitably their use leads to greater expenditure in the long term as maintenance costs rise.

Engineering Services

It is interesting to note that, although levels of specification in the building fabric and external works have varied according to economic factors, engineering services have not. Apart from a disastrous period in the early 1970s, when warm air systems were used without proper ducting, the quality of engineering systems has been consistently high with steel radiators, steel pipes, stand-by boilers and pumps, dual hot water cylinders, etc.

I can remember a particularly caustic remark by one consultant Architect asked to reduce the quality of his project for the second time who said "Why can't your Engineers make a corresponding saving. Their problem is that most people when asked to save money on the purchase of a car would say, OK, I will buy a Vauxhall Cavalier rather than a Rolls Royce. Your Engineers simply ask how many Rolls Royce they should cut out."

The overall quality of engineering systems has also been steadily increasing throughout the last 25 years with the inclusion of warmed supply air to ventilation systems, sophisticated control systems, and greater space in plant rooms for maintenance.

Interior Design

The cost of equipping Essex primary schools with furniture and equipment over the last 25 years has followed its own trend independent of the building fabric.

ECONOMIC PRESSURES

It would appear from a study of budgets that although the furnishing and equipping of Essex primary schools has been subjected to the same economic cyclic pressures as the rest of the building, this does not appear to have had the same effect on the quality of the products supplied to schools.

The County Supplies Officer has said that he is able to trace periods of boom and bust by the increase or decrease in the quantity rather than quality of furniture and equipment ordered for primary schools.

The recent transfer of resources to locally managed schools and those opting for grant maintained status, has resulted in several schools enquiring about cheaper furniture such as the EMF range to stretch their resources further, but when they have experienced the quality of such products, they have soon reverted to the County Council's Springfield Range.

The economic cycle has affected the internal finishes of schools more dramatically as design teams have attempted to share limited resources amongst the various elements of construction, and various cheaper finishes including artex finished plasterboard ceilings, emulsion painted walls and needle punch carpets have been tried at various times, but all these materials were found to produce the wrong ambience or failed to stand up to the wear and tear of the primary school.

SPLITTING THE BUDGET

The budget for each new primary school consists of the construction cost and the provision of furniture and equipment both financed from the capital programme, but controlled by different people.

The construction cost is controlled by the design team and furniture and equipment fund by the Education Department.

Generally fixed furniture such as benching and sinks and equipment is funded from the construction budget, whereas loose furniture and equipment such as tables, chairs and mobile storage is funded by the furniture and equipment fund. Unfortunately, several items of furniture and equipment can legitimately be funded from either source depending on its classification, for example, is a storage cupboard which pushes under a bench top fixed or mobile, or is a kiln which has to be permanently connected to an electrical supply fixed or mobile?

Inevitably when budgets are under pressure either group controlling the separate budgets will attempt to claim that one piece of furniture or equipment should be transferred to the other budget. So much confusion has arisen around this issue that a standard list has been drawn up which shows who is responsible for what (see illustration D128).

CONTRACTUAL ARRANGEMENTS

The supply of much of the fixed furniture, which is part of the standard range, has traditionally been tendered on a term agreement to keep costs low. That is to say, a tender is let for a period of 3 or 5 years for the supply of a whole range of furniture, with unit rates applicable to each item wherever and whenever it is used. This takes full advantage of the County Council's buying power by offering a large contract over a fixed period and has resulted in some very keen prices. Unfortunately, it does not make allowance for changes in market conditions over the contract period and suppliers can be less co-operative about quality control and delivery issues when they think they have a guaranteed contract.

Individual project teams were traditionally responsible for ordering furniture such as benching etc. which had to be fixed by the contractor for each project. Unfortunately, this direct contract was not related to the main building contract and several primary school contracts have been delayed because of late delivery of such furniture during periods of intense economic activity, with all the consequences of claims from the main contractor for financial loss. This has now been rectified by instructing the main contractor to order fixed furniture against his own construction programme.

FURNITURE AND EQUIPMENT LIST FOR SCHOOLS

ITEM	PAID FROM	ORDERED BY	SUPPLIED BY	NOTES
Airers, pulley operated ceiling	B.C.	G.C.	G.C.	
Audio-typing - wiring	B.C.	G.C.	G.C.	
- equipment	E.A.	C.E.O.	Various	
Benches - brazing & scouring	B.C.	G.C.	G.C.	E.S.D. No. 60 E 22C
- clay wedging, freestanding	F.A.	C.E.O.	N.S.	
sand moulding	F.A.	C.E.O.	N.S.	
- soldering	B.C.	G.C.	G.C.	E.S.D. No. 60 E 22C
tops for art room	B.C.	G.C.	G.C.	E.S.D. No. 60 E 1B
- wall, fixed	B.C.	G.C.	G.C. or N.S.	CFG or various
- wall freestanding	B.C.	G.C.	N.S.	CFG or various
- wood & metal work	F.A.	C.E.O.	C.S.O. Contractor	

etcetera

Abbreviations:

B.C.	Building Contract
C.A.D.	County Architect's Department
C.E.O.	County Education Officer
C.S.O.	County Supplies Officer
E.A.	Equipment Account
E.S.D.	Essex Standard Detail
F.A.	Furniture Account
G.C.	General Contractor
N.S.	Nominated Supplier
S.M.E.A.	School Meals Equipment Account

ILLUSTRATION D128 - EXTRACT FROM COUNTY ARCHITECT'S OFFICE MANUAL CIRCULAR DEMONSTRATING 'WHO DOES WHAT' WITH FURNITURE AND EQUIPMENT.

Extract from Office circular 5 & 13
(see ECC Architect's Dept, 1976)

ARCHITECT'S
OFFICE

LIBRARY

External works

Essex County Council has traditionally underfunded the external works and landscape of primary schools and, although attempts have been made recently to increase the funding, this is from a very low base and it has not had much of an impact on the quality of schemes.

LEVELS OF FUNDING

Most playing fields during the early 1970s were costing an average £5,000 per acre for a basic agricultural engineered solution with turf, land drainage and fertiliser. The more experimental sand bed pitches constructed in the late 1980s were costing £20,000 per acre, but very few were constructed at primary schools (French, C. P., 1995m).

Planting schemes in the early 1970s were also very basic with some schools having budgets as low as £50. This has gradually been increased until the average budget for planting in recent new primary school projects is £5,000.

CUT BACKS

This gradual increase in budget has been fragmentary, however, with several projects cut back for different reasons:-

- Pressure from Members or poor economic circumstances often led to general reductions in budgets at times, and money was taken out of projects at the scheme and estimate stage to provide another project, or absorb the effects of inflation.
- Projects often exceeded their budgets because of inflation or unforeseen design problems and design teams raided the external works and landscaping budget to cover the short fall. Landscaping was often seen as the soft target for such cuts, being the last element of construction which could always be augmented at a later date (although it seldom was).

SELF HELP

The level of funding for external works has increased fitfully in real terms over the last ten years and has now reached a plateau. Current budgetary pressure makes further expenditure unlikely. The recent interest in Learning Through Landscape (LTL) has resulted in the Education Department encouraging many primary schools to spend their own money saved from the locally managed scheme (LMS), to fund improvements to existing sites. It is unfortunate that the low level of funding for capital schemes has continued, resulting in new schools and extensions perpetuating the poor landscape environment, presumably for improvement later under a LTL initiative by the school itself.

Extensions and Remodelling

The existing stock of Essex primary schools is constantly in need of upgrading, but the ability of the County Council to fund such schemes depends on the level of capital funds available each year, and they are getting further and further behind as their resources diminish. The effect of this backlog of work is explained in detail in Chapter 2, but the main impact is the creation of inequitable first and second class teaching environments, depending upon when the school was constructed or extended.

11.7 CONCLUSIONS

This examination of space and quality standards in Essex primary schools over the past 25 years has demonstrated certain phenonomen which could influence future primary school design :-

- Generally, space standards have remained remarkably steady over this period if viewed by the traditional area per pupil, but the number of pupils per class has been gradually falling and this measure may be misleading. The area of some schools built in the early 1980s undoubtedly fell to uncomfortable levels, as a result of economic pressures, before recovering later and this type of short term thinking must not be allowed to reduce the area of Essex primary schools in future.

- Space has been distributed differently throughout the period with smaller classrooms, and many specialist group rooms and bays in the early years, and larger classrooms and reduced specialist rooms provided more recently.
- Storage area was reduced during the 1980s with most classroom storage provided within furniture rather than in purpose built store rooms. This has recently been remedied with the provision of a generous store cupboard in each classbase, although teachers will always ask for more.
- Clearly the restricted size of hall can be a real problem with larger schools and the briefed area of hall needs to step up more evenly to avoid congestion.
- Over generous cloakroom space in schools built in the 1960s and 70s has been squeezed out of most primary school plans, but present coat bays or lobbies are still too small to cope with demand adequately.
- The exclusive circulation space in 1960s and 70s schools was also squeezed out of designs, but complaints from users about the disruptive effect of sharing teaching and circulation space has led to the reintroduction of some dedicated circulation space for heavily used routes between major facilities in most recent schools.
- Hard pressed designers of the early 1980s created very cheap secondary space through the covering of courtyards which became the accepted norm until teachers demanded that such space have full environmental standards and it would appear that today's budget will not stretch to include such areas.
- The last 25 years has seen a constant but healthy battle between the client and design team over the quality of and procurement methods for school building in Essex which looks like continuing in future as resources are reduced even further.
- Unfortunately, clients appear to be ready to repeat the mistakes of the past by resorting to initially cheaper timber framed buildings and relocatable classrooms in an attempt to stretch their resources further, even though they are aware of the penalty of higher maintenance costs.

- One of the greatest benefits of the 1970s system building was the introduction of good quality finishes in Essex primary schools which set a good level of specification for the traditional buildings which followed.
- Unfortunately, many of the traditional buildings which followed system building struggled, to maintain this level of specification, with budgets stretched to pay for complicated pitched roofs, expensive claddings, etc. Traditional construction systems will not, therefore, automatically produce such quality unless the design team fights for these standards.
- The introduction of the budget model for primary schools in the 1980s brought a degree of stability to specification levels ensuring that the client and design team were aware of the required quality levels through a period of considerable pressure from the economic cycle and this system should continue.
- Life cycle costing is recognised to be a better method of judging the true cost of quality in public buildings, but this has not impacted on Essex primary school budgets because of inflexible accounting systems and the political pressure to build more with less. Hopefully, recent reports by the Audit Commission into value for money in local government finance (The Audit Commission, 1995) will encourage a more flexible attitude amongst County Treasurers towards such initiatives.
- The cost per place and cost per metre of new Essex primary schools have risen in real terms over the past 25 years, remaining above the national average, but these averages disguise some individual projects and elements of construction which have been dramatically above or below the norm. These figures are bound to be unreliable, however, given the extended time scale and number of variables between projects and design teams will gain very little solace from knowing that costs in Essex are above the national average when they are struggling to build within a fixed budget.
- The high development costs of the various system buildings in use in the early 1980s ensured that they could not continue to be used when the capital programme dropped below a certain volume and it is unlikely that such systems will ever be used in Essex again.

- The quality of engineering systems in Essex primary schools appears to have been immune from the ravages of the economic pressures of the period with standards rising throughout and budgets for engineering in future projects are bound to come under considerable scrutiny.
- The quality of internal finishes was squeezed like other elements of the building fabric, but furniture and equipment appear to have been largely unaffected, although designers have always been happy to transfer fixed furniture onto the furniture and equipment budget when the building contract was under pressure. It would appear that, like engineering, this element of future primary school building projects could also benefit from closer attention.
- The level of external works and landscape budgets have been traditionally low throughout the last 25 years, with extra pressure from designers who often raided this element of the building contract to fund shortfalls in the main building.
- The Learning Through Landscape initiative has encouraged existing schools to spend their own budgets on improving their external environment, but budgets for external works are still inadequate for new buildings and extensions and need to be increased if the poor external environment of Essex primary schools is not to be perpetuated.

It is clear, therefore, that if the education of future generations of Essex children are not to be adversely affected by continuing restrictions on space and a poor quality environment, then design teams and administrators must encourage politicians to increase capital funding. They should give due regard to life cycle costing, and avoid the lasting affect of short term thinking on the quality of school buildings in Essex, otherwise the disastrous knee-jerk lowering of standards of the past may be repeated in future schools.

CHAPTER 12

ACCOMMODATION REQUIREMENTS
- INTERNAL

12.1 INTRODUCTION

Previous chapters have dealt with the background and planning of Essex primary schools in general terms. This chapter will examine the detailed requirements of the primary school, room by room with a commentary from users and designers gleaned from the current brief, during visits to schools and interviews with County Council staff, as part of the research process.

Various briefs produced over the last 25 years for the design of primary schools in Essex have been examined, and much of the data used in this chapter is based on the model brief produced by my development team in 1992, suitably amended using information gleaned during the research project.

Much of the information in this chapter covering the major spaces is presented as a series of data sheets, in a standard format, to allow easy comparisons to be made between spaces, including a recommended layout, list of activities, space requirements, and other performance criteria. There is obviously some variation in accommodation for different size schools and a 240 place school is used as the model to avoid too much repetition, with additional information on other sizes and layouts where appropriate.

A check list of desirable design features for each space, based on users' and designers' comments, is also included to help future design teams benefit from the experience gained by clients and designers over the last 25 years.

The views of users will be quoted when relevant and these are expressed as a percentage rating calculated from questionnaires returned by the staff of schools visited during the research project, as described in Chapter 1.

12.2 TEACHING

The teaching accommodation in any primary school is obviously the most important element and will include the individual teaching bases; shared areas such as the hall, library, and amenity room; specialist areas for art, craft, cookery, and science; and the more mundane, but equally important, coat storage, toilets, and changing accommodation.

Users rating

Teaching accommodation was generally rated as just above the median at 52%, by staff during visits to schools, but this average score masked some good and poor ratings at individual schools with St. Peters, Coggeshall; Nabbotts, Chelmsford; and Cann Hall, Clacton rated nearer 40% and Shelley, Ongar; Newlands Spring, Chelmsford; Highwoods, Colchester; and Feering all scoring more than 60%. (see illustration D129)

It is difficult to be absolutely sure why there is such a disparity between different schools, but the low scorers tend to be those built during the period of austerity when space standards were at their tightest, and the high scorers were built more recently when budgets were more relaxed.

Classbase

The brief suggests that classbases should be arranged in pairs to take advantage of shared facilities, with an opening in partitions joining adjacent practical areas and a direct link to shared external lobby, toilets and outside teaching space. It also recognises, however, that sharing has its limits and that most teachers will want their classrooms to be largely self-contained as explained earlier in Chapter 3.

This arrangement of classbases into pairs was universally supported by users and the degree of separation between bases was thought to be acceptable. One or two schools thought, however, that the partitions between their bases did not give sufficient visual or aural privacy, especially those using open storage racks or coat bays.

Generally, space standards were thought to be tight for many of the activities expected to take place within the classbase in today's primary school since the introduction of the National Curriculum. The current brief for the standard teaching base of 57 square metres is more generous than in most schools visited, however, and should be capable of housing all the activities of the National Curriculum for 30 pupils. It must also be capable of sub-division using the furniture to create more intimate spaces such as a quiet area for stories or Wendy house for younger pupils (see illustration D131).

The reception classbase and store has a similar requirement to a normal classbase, except that it is 60 square metres in area with a 6 square metre store to reflect the larger size play equipment for the younger children. It should also be located near the main entrance.

The shape of most classbases was thought to be acceptable, but one or two schools complained that their classbases were too narrow to accommodate certain arrangements of furniture. Others thought that more quiet corners were needed for group work, and those with bay windows with indoor seats said these were ideal for story time.

The recommended furniture layout suggests that the minimum width of the classbase should be 6 metres to give sufficient space between the six place work tables, the classroom store and the practical area with its sink at the rear of the room.

Access to the outside teaching areas was thought to be acceptable in most schools, although the few older Victorian schools visited complained about a lack of connection with the outside.

PRACTICAL

The current brief suggests that an area of 17 square metres of the classbase should be designed as a practical area, with a sink, fixed bench and space for specialist trolleys.

Practical areas in existing schools were generally thought to be acceptable, although some schools complained about their variable size. There was also considerable difference of opinion expressed about the ideal position for sinks in practical areas, with most schools preferring island sinks for better access, but with others stating that they preferred sinks positioned in the bench run as island sinks reduce flexibility by acting as a divider.

GROUP OR QUIET ROOM

About half of the schools visited had small quiet or group rooms sub-dividing classbases and these were thought to reduce flexibility. Some schools had removed walls to allow the classbase to flow into the quiet room space. Other

schools had converted them into specialist areas for science, libraries, cooking, storage or deputy head bases. Very few were still used for their original purpose of small group work and no such spaces appear in the current brief.

STORAGE

The classroom store within the model brief is required to be a 3 square metre walk-in store within the classbase, fitted with shelving and capable of housing a computer trolley for security out of school hours.

Almost all of the existing schools visited considered classbase storage to be insufficient and expressed a strong preference for enclosed walk-in stores. Teachers from schools with storage provided within furniture cupboards or on open shelves were concerned that their environment was constantly cluttered which reduced the impact of pupils' work on display.

Hall

New Essex primary schools are currently provided with a hall of between 100 square metres for 90 pupils and 130 square metres for up to 360 pupils. A second hall of 100 square metres is required for pupil numbers up to 480.

It is used for a huge range of activities including assembly, dining, physical education, drama, etc. as well as evening and weekend lettings, and its space and shape must allow for these different functions (see illustration D132).

Most of the schools visited rated the hall as just above the median, but when questioned said it was the best space within the school with an ample area and a good shape for most activities. One of the two schools who were under pressure from pupil numbers thought their hall was too small, and a few thought the shape of the hall was either too narrow for performances and meetings, or too square for indoor games.

It is interesting to note that the current brief suggests that the hall should be square, but interviews with users reveal that this relates to a general dissatisfaction with difficult shapes such as octagons or hexagons and some rather narrow gutted plans rather than a desire for an exact square plan.

Generally, the schools with slightly detached halls liked the sound insulation provided between the hall and classrooms and the ability to shut the hall off for community use out of school hours. The few schools visited which had centrally located halls surrounded by classrooms liked the direct access, but found that noise was intrusive and out of hours letting difficult.

Most schools liked the higher ceiling heights in halls, but the three schools with lowered portions of ceiling over dining or storage areas thought this a major disadvantage with potential danger during P.E. lessons. The one school with a sunken floor thought this to be very inflexible and a major disadvantage.

Several schools also pointed out that the hall was incapable of holding the whole school population for assemblies etc., with the need to have split events for different years. This was particularly difficult when parents attended events, and one school found such occasions so difficult to organise in their own hall that they hired the local secondary school hall instead.

HALL STORE

All of the schools visited thought there was insufficient storage space in the hall for P.E. equipment and dining tables and chairs, with the result that most of the larger items, such as mats and benches, were often stored around the perimeter of the hall reducing the space for activities and the risk of injury from collision with active children. (see illustration D137)

Amenity or AVA room

The current brief includes an amenity room of 30 square metres for groups of 30 children to watch television, practice music or to house small group teaching, etc. (see illustration D133). It may also be used for small staff or governors' meetings and if near the hall, as a green room.

The shape and area of most existing AVA rooms was thought to be acceptable by most users, although at least three schools visited have moved music activities into relocatable classrooms or the hall and now use the AVA room for T.V. viewing only. Conversely, four schools have combined the AVA room with other activities such as library and/or central resources area into a multi-purpose amenity room.

One school, however, has abandoned the AVA room completely, removed T.V. from the curriculum, moved music into the hall and converted the redundant space into a staffroom.

Several older schools complained about the dark, airless environment of their AVA room which was inappropriate for certain activities, although later designs now have outside windows and this is thought to be a considerable improvement.

AVA STORE

Most schools thought storage for the AVA room was inadequate, particularly for musical instruments, which are often stored on tables or shelves around the perimeter reducing the amount of useful area.

Library and resource area

A library/learning resource area of 15 square metres is required in present schemes for the storage and reference of books, etc. for the whole school. The brief suggests that this may be located centrally adjacent to the amenity room or broken into 2 or 3 smaller bases off quiet circulation routes to serve different parts of the school. (see illustration D134)

Most libraries in the schools visited were provided in a bay opening off a major circulation space, although more recent schools have this facility combined into a multi-purpose AVA/library room. Schools thought that the central position of their library bay gave easy access from most classrooms, but others complained that their proximity to major circulation routes reduced effective space through noise and disruption.

Three schools had provided a library within a central glazed courtyard or atrium shared with other activities. One of these was seen to be very successful, having its own natural space at one end of the atrium, but the other two suffered disturbance from circulation or other activities and were thought to have a poor environment for the printed resources, over-heating in summer and under-heating in winter.

One school had its own public branch library on the premises which it originally shared with adults, but the recent grant maintained status of the school has led to a charge for professional services and it has now set up its own library in one of the group rooms.

Arts and crafts

The current brief envisages most arts and crafts being carried out in the practical areas of individual classbases, with special materials and equipment brought on a trolley from a central store if necessary.

One or two existing schools have developed a specialist craft area around the pottery kiln, however, with a pottery wheel and carpentry bench. This area is used by small groups of pupils under close supervision often by a peripatetic teacher or interested parent.

KILN AREA

The current brief does include a kiln space of 3 square metres, however, for the firing of pottery by pupils of all ages, made within the classbase practical area. The brief states that it should be located centrally off the main circulation route, with good access from all classes except the reception class, although it is not clear why such a location is needed as most firing is done at night or over the weekend by teachers.

Most users were happy with their kiln, but over half said that they no longer used it because of the new non-fired moulding materials used for craftwork.

Science

Most of the schools visited during the research project taught science within the classbase by bringing a trolley with the necessary equipment for the basic experiments into the practical area. The trolley was normally stored in a central location and simply moved into the classbase to suit the timetable.

Two of the larger schools had recently converted one of their small group rooms into a science base, where small groups of children were able to experiment under supervision, and where equipment was stored centrally for

distribution around the school. This specialist provision was provided as a result of a particular interest in science by one or two members of staff. They claimed that such provision was necessary to deliver the National Curriculum, even though the current brief does not provide any specific space for science.

Cookery

Most of the schools visited had a small specialist area for cookery with a sink, worktop and Baby Belling cooker where basic cookery could be taught in hygienic conditions. This type of specialist space also fails to appear in the current brief.

Coats

The current brief for pupil coat storage envisages an area of 3 square metres per classbase to house the outdoor clothing, shoes, lunch boxes and sports bags, etc. for 30 children, located off a circulation space between the pupil entrance to the school and the classbase.

The furniture layout demonstrates how difficult it is to provide sufficient storage space for 30 pupils in 3 square metres with coat hooks at 100 mm centres and, I suspect, greater length and area are needed (see illustration D135).

Users rated coat storage at 53%, but they all complained that coat bays were too small to hold outside coats, bags and shoes for 30 pupils. These inevitably ended on the floor when pupils could not make room for their own possessions, giving an untidy appearance to the school.

They were also very critical of the detailing of coat bays with pegs too close, shelves too high and examples where windows clashed with peg rails and doors clashed with furniture.

Toilets

The current brief calls for two separate self-contained unisex toilets per classbase as an alternative to the traditional segregated boys and girls toilets with internal cubicles. These create a more domestic environment, and are subject to less intimidation and horse play by older children.

The majority of schools visited had toilets well distributed around the school, often shared amongst a pair of classbases with their own lobby from outside, which gave equal access from the classbase during lessons and outside during break times. The schools which had central blocks of pupil toilets rated them less highly than the distributed arrangement, and several of those with external access were said to be too small for break time use, with pupils coming inside classbases to use other toilets.

Toilets were generally thought to be of adequate size and shape with only two schools complaining that their toilets were inadequate.

Some schools with excessive numbers of pupils in relocatable classrooms complained, however, that their pupil toilets were inadequate when the children from "outside classrooms" used facilities such as the hall, library or AVA room in the main school.

One or two schools also complained of poor detailing which did not stand up to the rough treatment from pupils, and of a dark dingy environment.

Changing

Two changing rooms of 5 square metres are required in current designs for a class or team of pupils over the age of eight years to change for P.E., sport or drama in every primary school in excess of 120 pupils, together with two pupil changing WCs at 2.5 square metres each. The changing rooms are required to be located near the hall, with easy access to outside hard play and grass pitches.

I think the suggested layout with two banks of pegs and benches 3 metres long is acceptable, giving each pupil 200 mm of hanging space, but that 30 pupils trying to change their clothes in a space 2 x 3 metres including benches either side is unworkable (see illustration D136). In any case many schools are reluctant to use such changing rooms due to their restricted size, problems of supervision and a general lack of sensitivity amongst children of different sexes about the normal practice of changing in classrooms. As a result many are now used for storage.

12.3 ADMINISTRATION

The administration suite contains the main reception area, secretary and head teacher's office, and staffroom. This area is secondary to the main teaching function, but as most staff and visitors use these spaces as their base, the quality of this accommodation can colour their opinion of the school.

Users rating

The users of the various schools visited rated the administration accommodation as just above the median at 52%, with the head teacher's room scoring rather higher than other spaces (see illustration D130).

Reception

The current brief for an entrance foyer of 4 square metres is intended to act as the reception area for visitors to wait for appointments and see displays of pupils' work. (see illustration D138)

The furniture layout for this area demonstrates how minimal space standards are, with just about enough room for two adult visitors sitting down and a child playing on the floor. This area is often supplemented, however, with a generous contribution from the circulation allowance to provide a workable space.

The average score for administration masks a particularly low rating by at least half of the schools visited who thought their reception areas were too small, with insufficient space for visitors to wait or pupils to display their work.

At least four of the schools who expressed satisfaction with their reception area had recently enjoyed the benefit of a remodelling project, and two had received financial support from the community which had been used to provide a more generous reception space.

School office

The current school office has a briefed area of between 11 and 17 square metres, and is intended as the base for the school secretary and admin assistant(s), plus reception of visitors.

The brief states that it should be located so that it overlooks the car park and external approach to the building, and centrally positioned with easy access for pupils, teachers and visitors. It should also be adjacent to the head teacher's room and stock room.

Again I thought that the furniture layout for a medium size office at 15 square metres demonstrates how tight space standards are with three people working in the office (see illustration D139). I would also like to see a layout for the smallest office of 11 square metres to see if all the furniture and equipment will fit into such a small space.

The secretary's office obtained an above average rating, but this masked a deep-seated dissatisfaction in many schools, with over half of the schools visited saying that the secretary's office was too small for current administrative tasks. These now include running the school's finances on a computer and the employment of two or three admin staff, rather than the original single secretary with some part-time help.

At least five schools had recently remodelled their secretary's office and included extra space by linking to another room or moving out the MI/Sick Bay function into a corridor.

Most schools also complained of a general lack of space for the storage of extensive records now required under the National Curriculum.

Headteacher

The brief for the head teacher's room varies in size from 10 to 12 square metres depending on school size, and acts a base for the head with room for administration work, meetings and interviews.

I think the recommended furniture layout demonstrates that the space is adequate for most functions, but the need for good aural privacy and sound insulation between adjoining rooms to ensure confidentiality needs to be stressed (see illustration D140).

Again the head teacher's room was rated above average by users, but at least three schools thought theirs was too small and nearly all the schools were forced to use the staffroom or AVA room for larger meetings.

Several of the schools with under size rooms had enlarged the head teacher's office by stealing adjacent circulation space or moving the head into the staffroom after this function had been moved into another redundant space.

Staffroom

The staffroom brief varies considerably in size from 13 to 27 square metres depending on the size of the school and the number of teaching and ancillary staff, and is intended to be an area where staff can relax, store belongings, study privately and have meetings. The brief states that it should be near the school office, head teacher's office and adult toilets and should not be overlooked from external spaces.

I think that the furniture layout for a staffroom of 20 square metres which serves a school of 240 pupils demonstrates that seating for a minimum of 13 staff plus coat lockers is extremely tight (see illustration D141).

Staffrooms were also rated above average by users, but 9 of the 17 schools visited said that they were too small for all the staff and varied activities carried out in today's teaching environment. Most said that they were now mainly used for relaxation at break times and staff meetings, with work preparation exclusively carried out at home.

Several head teachers pointed out that their staffrooms had been provided for a school of a smaller size than its present capacity, and no allowance had been made for growth in numbers of teachers or ancillary staff. This includes parents who help with certain tasks and should be able to join other staff at break times.

KITCHENETTE

The staff kitchen bay of 2 square metres irrespective of size of school is intended for the preparation of drinks and snacks for staff to be located adjacent to the school office and staffroom.

The 1.8 metre run of worktop shown in the furniture layout will be insufficient for a school of 450 pupils which could have up to 25 staff all trying to access the sink and cooking facilities at the same time during breaks, and this space should be increased in size for the larger schools.

Several schools had experienced problems with the staffroom kitchenette which had proved to be too small with inadequate facilities, and at least 4 schools had refitted the kitchenette from their own funds.

Stockroom

The stockroom varies in area from 8 to 10 square metres in area depending on the size of school and is intended as secure storage for pupil records, books, materials and equipment, such as projectors and computers, and should be located near the school office. The furniture layout demonstrates that the room needs to be rectangular with double door access on the long side to remove equipment and materials with ease (see illustration D142).

Medical room

A medical room of 8 square metres is provided in every primary school of more than 210 pupils and is intended as a base for visiting dentists and nurses etc. to carry out inspections, tests etc. and act as the first aid room. It is also intended that this room should be available for interviews and meetings at other times (see illustration D143).

It is not clear from the brief where these activities should be carried out in smaller schools, but visits to such establishments revealed that the head teacher's room or school office are often used for sick children.

Adult toilets

The brief for adult cloakrooms envisage 3 separate unisex toilets of 3 square metres each and a disabled toilet and shower of 5 square metres. One of the w.c.s needs to be dedicated for kitchen staff use and the others allocated as required (see illustration D144). They should be located near the staffroom and administration area, but close to the hall so that they can be used by adults hiring the hall.

I doubt, however, if the kitchen staff w.c., located remote from the kitchen next to the other staff toilets, would be acceptable to environmental health officers in anything but the smallest of schools.

Generally most schools were satisfied with the area and shape of their staff toilets, but three schools felt they were of inadequate size for the number of staff, and had experienced some difficulties with availability during break times.

All of the schools were unhappy about the universal arrangement of visitors and disabled adults and children sharing the male staff toilet, which they felt should be separate.

One school was, not surprisingly, unhappy with the access to the caretaker's store through the female staff toilet and another expressed concern about the lack of aural privacy with an adjacent kitchen.

Several schools pointed out that the staff toilets were used by adults hiring the hall and had proved totally inadequate for larger events such as concerts, meetings, weddings and dances.

DISABLED TOILET

The disabled toilets in all of the schools visited were shared by male staff and other visitors. They were rated below average by users and were generally thought to be rather small for use by someone in a wheelchair (see illustration D130).

Their remote position next to other staff accommodation made use by disabled pupils difficult, and in one school the only means of access from the lower level classbases was outside via a ramp or inside by means of a flight of steps.

Access to the disabled toilet was often off a rather narrow corridor or lobby which made the turning of a wheelchair into the toilet almost impossible. Fortunately, none of these toilets has seen much use by the disabled as yet.

12.4 ANCILLARY

A primary school also needs various ancillary spaces such as the kitchen, caretaker's store, boiler room, etc. to function adequately. These spaces are not considered, by most clients and some designers, to be critical to the school's prime function, but if not adequately designed can cause continuing problems which will eventually hamper the educational process.

It was interesting to note the, less than enthusiastic, attitude of teaching staff to the school meals service, who generally considered it not to be part of the education service, which wasted much of their resources.

Users' rating

Most users were reluctant to comment on the performance of their ancillary spaces, apart from the kitchen and servery areas which were thought to be below average (see illustration D130).

Caretaker

The brief for the caretaker's store varies in size between 7–10 square metres depending on the size of school and is intended as secure storage of maintenance equipment and cleaning materials.

The furniture layout shows that a rectangular shape with two double door access on the long side and shelves at the back is the most efficient way of storing small and large articles (see illustration D145).

Schools over 210 pupils are also provided with a caretaker's office of 3 square metres as a base for his administration work, which just has room for a desk and shelving unit.

Cleaner

An additional cleaners' store of 3 square metres for the storage of cleaning materials and equipment and housing a specialist sink is needed for larger schools to be located centrally, but away from the caretaker's store to give greater cover for cleaning staff.

Kitchen

The kitchen brief including storage varies in size from 24 square metres to 50 square metres, depending upon the size of school. A small servery/kitchen of 14 square metres may also be used for schools which have pre-cooked meals delivered from another school in the area. (see illustration D146)

The three different furniture layouts show an acceptable arrangement of heated trolleys, but could make loading before lunch very difficult. Designers will need to give considerable thought to the preparation, cooking, serving and washing up process and different configurations of kitchen. Sizes of equipment and details of their service connections are also of considerable interest to engineers as this will affect pipe layouts and socket outlet positions.

The preparation and cooking areas of the kitchen were rated below average, with several schools experiencing difficulties, with three schools saying that their area was too small for the number of meals they had to prepare (see illustration D130).

Generally the layout of the kitchens were thought to be adequate, apart from one school which thought the layout was poor and had modified it considerably since the building had been completed.

Three of the schools visited did not have any preparation or cooking space as meals were delivered in hot boxes from nearby school kitchens.

STORAGE

Kitchen storage was rated above average, but over half of the kitchens which prepared and cooked food thought that storage areas were too small with insufficient shelving or worktop for equipment and food.

Servery

The brief for schools providing over 100 meals per day includes a room with access from kitchen and hall used to serve meals from heated trolleys which doubles up as table and chair store between meal times (see illustration D137). This arrangement appears to work well in the schools visited, apart from two which either now served meals in the corner of the hall or stored tables and chairs in the hall.

Five schools expressed some dissatisfaction with their servery, considering that it was either too small or had a poor layout for its function. One servery/dining furniture store had kitchen staff lockers in one corner which had proved to be very inconvenient.

Plant rooms

The boiler plant room varies in size from 25 to 42 square metres depending on the size of the school, and it is intended to be the location for the majority of mechanical services plant including the boilers, hot water cylinder, pumps and controls. Ideally it should be located at ground floor level near the centre of the distribution system on the leeward side of the building.

The layout of the 15 square metre boiler-room illustrated shows how much space is needed to maintain the equipment adequately (see illustration D147).

12.5 CONCLUSIONS

This detailed examination of the detailed requirements of the Essex primary school has revealed several general points which will be of interest to future design teams:-

- The users of Essex primary schools built throughout the last 25 years rated their accommodation as only just above median. This is clearly disappointing, as a better performance would be expected after such a concentrated period of building using the same design and client organisation who should be learning from their mistakes and improving the final product. There is some evidence that the most recent schools have achieved an above average rating, however, and it is hoped that future designers will take this lesson from the recent past as a challenge to perform better.
- The shared teaching base is generally thought to provide an acceptable teaching environment, but some teachers still think space standards are too low and the shape of the classbase too narrow to accommodate all the furniture and activities required by the National Curriculum.
- Storage of pupils' work, teaching aids, and materials has been a constant problem in Essex primary schools over the past 25 years and the use of storage shelves and free standing cupboards are thought to exacerbate this problem. Teachers universally prefer a large walk-in store for each classbase.
- Group or quiet rooms were a common feature of early primary school design, but they appear to be seen as a liability by many schools who think they inhibit flexibility and lock up space. Some schools have removed partitions to open them into the general teaching space and others now use them as specialist teaching bases. It is clear that very few such spaces will be included in future briefs.
- The hall in most schools is thought to be an acceptable space for most of its functions, apart from a lack of space for storing the many items of equipment which need to be cleared away before another activities can take place.
- The amenity or AVA room in most schools was thought to be acceptable, but some schools disliked its dark airless character and some had removed music to another location which was less disruptive.

- The library was thought to be acceptable in most schools, although some were concerned by the disruption caused by a major circulation route passing an open plan area preferring a more enclosed area which improved pupils' concentration.
- The current brief envisages most specialist activities such as arts, crafts, science and cookery taking place in the practical area of the classbase. Past experience, where these activities have been housed in specialist bays or rooms, demonstrates that more appropriate working conditions can be provided for activities requiring specific hygiene or dirty environment and such provision should be written back into the brief.
- The storage of pupils' coats has clearly created significant problems in Essex primary schools, and although recent designs have been attempting to rectify this problem, greater space and better detail design is required in this area.
- Toilet areas for pupils are generally thought to be acceptable but the recent provision of single unisex compartments located adjacent to individual classbases appears to be a better solution.
- The provision of two changing rooms of equal size does not appear to satisfy most schools' requirements as they are too small to accommodate two complete classes. It would appear that a better solution could be the acceptance that most pupils change in the classbase, apart from a small group of the older girls who could use a dual purpose space suitably located.
- The reception space in most Essex primary schools has traditionally been very modest, but this is now of great importance as it creates the first impression of the school to prospective parents and other visitors. It is difficult to see that the provision in the current brief is much of an improvement and designers will need to win extra space from the circulation allowance to satisfy most schools aspirations.
- The office has also grown in importance with the delegation of many administration tasks to individual schools through the LMS scheme.

Again, although space standards have improved in the latest briefing documents, they are far from generous given the number of staff to be housed and variety of tasks required to be carried out in this space.

- Staffrooms are generally thought by most schools to be too small although this relates mainly to the increase in numbers of staff, particularly ancillary, since the school was constructed. It is difficult to see how the space standards in the current brief will improve this situation. The separation of staff tea making facilities into a separate bay accessed off a circulation space should provide more wall space for furniture in the staffroom, but more space is required in the kitchenette for the larger school to avoid a time consuming crush at break times.
- Adult toilets were thought to be generally acceptable, but some schools thought more toilets were required for female staff to avoid the break time crush, and some disliked the practice of male staff sharing the disabled toilet with pupils. The provision of a bank of unisex toilets was thought to be a more flexible facility. The adult toilet provision was also thought to be inadequate in some schools for out of school use by the community and this could be eased if toilets for older pupils were located near the hall.
- Kitchen staff were generally satisfied with their accommodation with a few asking for more space and better layouts. Teaching staff were not supportive of these requests often stating that the School Meals Service had too much space that could be better used for teaching.

Discussion with the users of Essex primary schools reveals that most teachers are unaware of the finer points of layout and design and judge the success of their teaching environment by the specific detail of the accommodation they use most. It is most important, therefore, for design teams to concentrate on the detailed accommodation requirements of the primary school as well as the broader aspects of design if they are to produce satisfied clients.

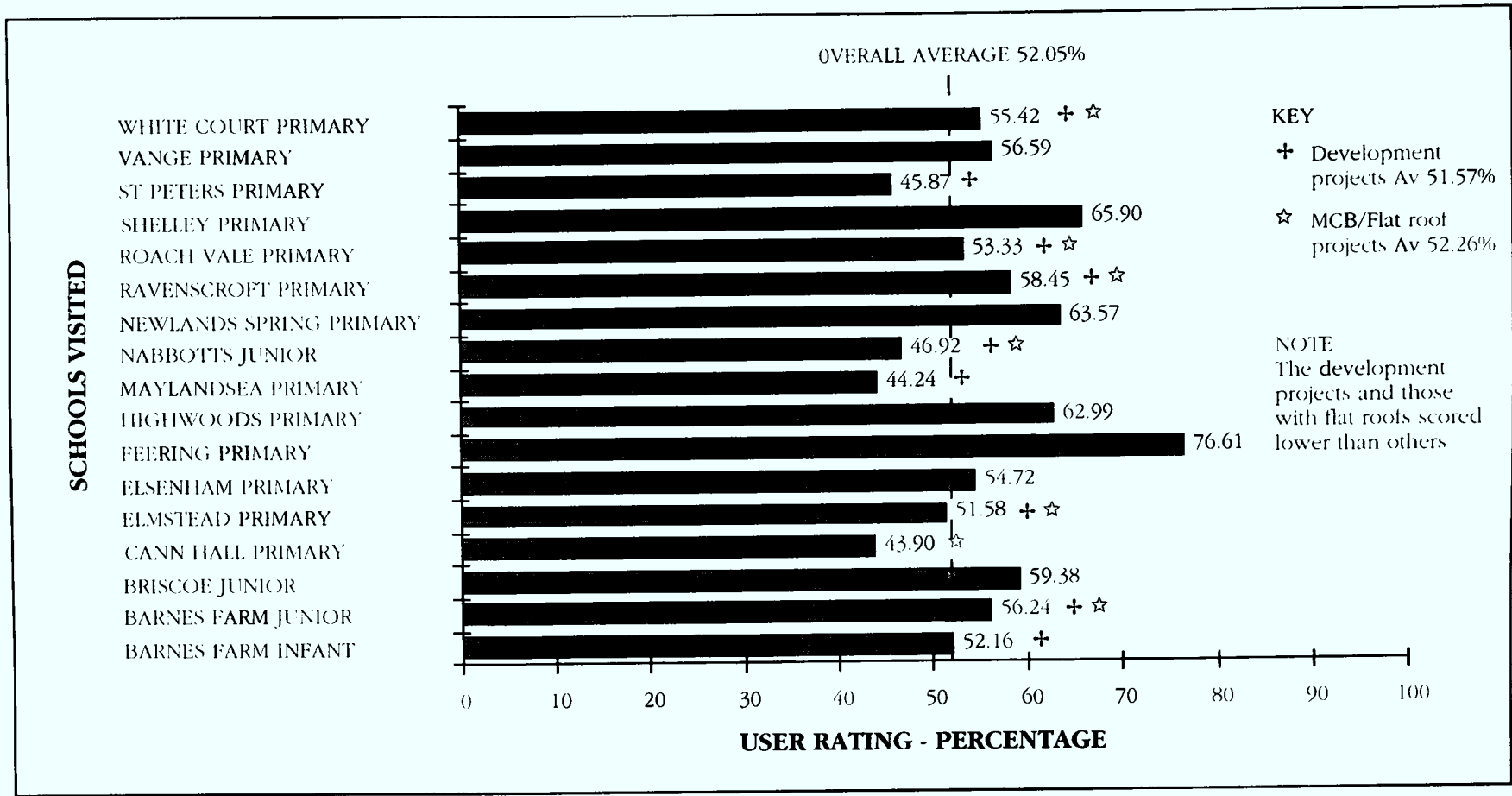


ILLUSTRATION D129 - USER RATING BY SCHOOL
 Showing the general level of satisfaction school by school over the complete range of questions

Based upon an analysis of questionnaires completed by the headteachers of Essex primary schools visited during the research project (see French, C. P 1995g)



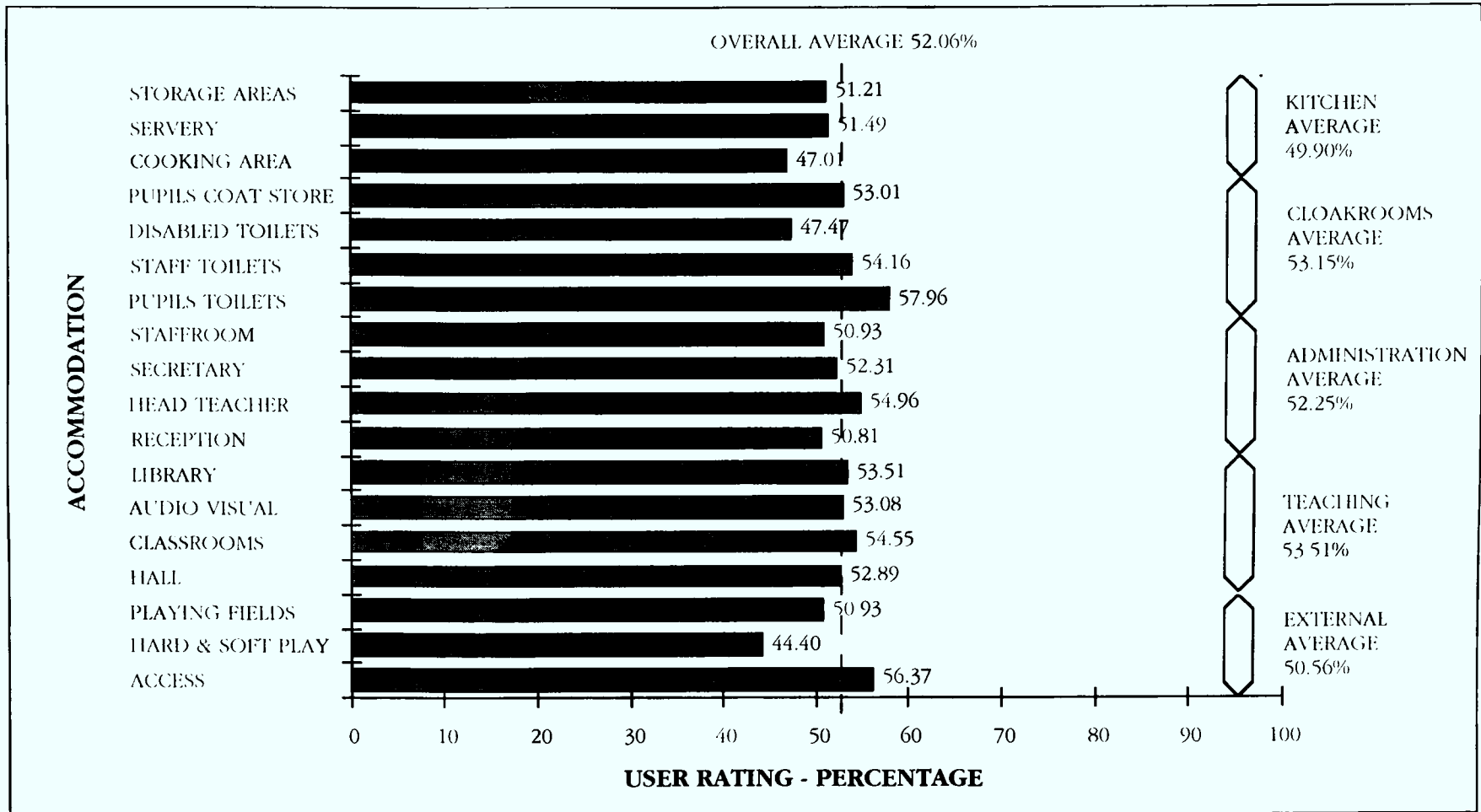


ILLUSTRATION D130 - USER RATING BY ACCOMMODATION
Showing all users rating of different elements of their accommodation

Based upon an analysis of questionnaires completed by the headteachers of Essex primary schools visited during the research project (see French, C P 1995g)

1	CLASS TEACHING BASE	AREA 57 sq.m.
Function		
<p>To be used for a whole class (30 pupils), a small group or individuals covering full range of National Curriculum activities. 'Regular' plan form preferred. Room may be sub-divided using furniture (e.g. to create 'quiet area'). Practical area of 17m², accommodating fixed benches and mobile subject trolleys.</p>		
Location		
<p>Bases to be in adjacent pairs, with min. 1.8m opening between at practical area. Direct access to main circulation (i.e. not through other bases). Direct link to external teaching space. Direct access to shared lobby/toilets.</p>		
Environment		
Lighting	Maximum natural (0.4 Av.D.F): orientation to ensure no glare/excessive solar gains. 350 lux.	
Heating	Radiators 18°C.	
Ventilation	2 air changes per hour (supplemented by openable windows in summer)	
Acoustics	Minimise sound transfer within and between class bases by design	
Services		
Gas	Not required.	
Water	Sink with drainer set in work bench 725 mm height in practical area with cold and tempered hot water : fixed cross-top taps at suitable height to avoid excessive splashing.	
Electricity	6 double socket outlets.	
Comms.	No requirements.	
Finishes		
Floor	Carpet. Non-slip vinyl sheet sinks.	
Walls	Pinboard on at least 2 walls. Cleanable. Tiled splashbacks to sinks and worktops. 'Dado chair rail' to reduce wear to walls.	
Ceilings	Acoustic plaster/tiles for noise reduction.	
Windows	Low cills. Views out. 20% glazing minimum.	
Doors	Solid core with full height glazed observation panel.	

**ILLUSTRATION D131A - CLASSBASE
ROOM DATA SHEET**

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

1	CLASS TEACHING BASE	CHECKED
Function		
Quiet Study	<ul style="list-style-type: none"> • Is there a discreetly separate area for quiet study ? 	
Group	<ul style="list-style-type: none"> • Can the classbase be rearranged into different size groups ? 	
Practical	<ul style="list-style-type: none"> • Can a group of children use the sink with ease ? 	
Location		
Storage	<ul style="list-style-type: none"> • Is the class store equally accessible from the teaching and practical areas ? 	
Toilets	<ul style="list-style-type: none"> • Can pupils use the toilets from the playground without passing through the classbase ? 	
Coats	<ul style="list-style-type: none"> • Can pupils hang their coat, bag and outdoor shoes in the coat store without assistance ? 	
Outside	<ul style="list-style-type: none"> • Can pupils gain direct access to the outside teaching area from the classbase ? 	
Furniture & Equip		
Loose	<ul style="list-style-type: none"> • Can all of the loose furniture and equipment be laid out with ample space for circulation ? 	
Fixed	<ul style="list-style-type: none"> • Are walls capable of accepting the largest load from the fixed equipment ? 	
Environment		
Lighting	<ul style="list-style-type: none"> • Can lighting be switched to supplement natural daylight without switching on all fittings ? 	
Heating	<ul style="list-style-type: none"> • Can heating temperatures be controlled by class teacher ? 	
Ventilation	<ul style="list-style-type: none"> • Can ventilation rate be controlled by class teacher ? 	
Acoustics	<ul style="list-style-type: none"> • Will pupils concentration be broken by intrusive noise from within or without the classbase? 	
Services		
Gas	<ul style="list-style-type: none"> • None. 	
Water	<ul style="list-style-type: none"> • Are sink taps in the correct position and height to allow filling of containers and avoid splashing ? 	
Electricity	<ul style="list-style-type: none"> • Are electrical sockets well spaced and at correct height to allow use of every piece of electrical equipment ? 	
Comms.	<ul style="list-style-type: none"> • No comments. 	
Finishes		
Floor	<ul style="list-style-type: none"> • Do areas of different floor finishes match the activities which will take place on them ? 	
Walls	<ul style="list-style-type: none"> • Is pinboard at a suitable height for the size of pupil using the classbase? 	
Ceilings	<ul style="list-style-type: none"> • Can pupils' completed work be hung from the ceiling ? 	
Windows	<ul style="list-style-type: none"> • Can windows be opened for ventilation without creating a hazard inside or outside the classbase ? 	
Doors	<ul style="list-style-type: none"> • Is vision panel in classbase door of a shape and height to allow pupils to see obstructions and teachers to supervise from outside the base ? 	

ILLUSTRATION D131D - CLASSBASE DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French. C.P.,1995)

2	HALL	AREA 130 sq.m. (Height 4.5m)
Function		
Daily school use for assembly, dining, physical education, drama, etc. External lettings at evenings, weekends, holidays for exhibitions, dances, jumble sales, sporting activities, etc. Establish whether school wishes to obtain Entertainment Licence (with consequent effects on ventilation and lighting). No projections/inward opening doors. Note that Education Department prefer square plan form for maximum flexibility.		
Location		
Convenient to all classes but not to be used as a circulation route. Adjacent to kitchen servery, external hard play, changing rooms. Close main entrance for letting use. Acoustic isolation from other areas. Allow for adequate Means of Escape in consultation with Fire Officer.		
Environment		
Lighting	Natural maximum (0.4 Av.D.F). Selective switching and presence detectors. Consider separate primary (450-500 lux) and secondary ('social') circuits. Light fittings to be recessed/guarded and not hanging, but should allow for ease of access for fitting replacement. Stage lighting to be supplied in agreed location.	
Heating	Radiators 18°C(recessed if used) and/or fan convectors. Allow for zoning for evening use.	
Ventilation	6 air changes per hour to be achieved by mechanical ventilation.	
Acoustics	Consider reverberation time taking account of usage and occupancy.	
Services		
Gas	Not required	
Water	Not required	
Electricity	6 double socket outlets located 1m from room corners. Consider audio provision. All fittings recessed.	
Comm.	Co-axial sockets in 2 corners with provision for FM and satellite reception.	
Finishes		
Floor	Sealed hardwood. or sheet vinyl. No matwells inside hall.	
Walls	One solid wall for gym equipment. All walls finished smooth to 2 m height minimum (Ball Games). Recessed hessian covered pinboard to one wall.	
Ceilings	Acoustic treatment. Light in colour. Apparatus fixing positions.	
Windows/Doors	Safety glazing (with PE in hall). Dim-out facility. Solidcore flush door with full height glazed observation panel.. No projecting ironmongery.	

ILLUSTRATION D132A - ROOM DATA SHEET FOR HALL

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

2 HALL	CHECKED
<p>Function</p> <ul style="list-style-type: none"> • Is the Hall high enough for P. E. and occasional badminton to recreational standard? • Can the Hall seat all of the school for an assembly and if not how can the school be split into groups for repeat assemblies? • Can the Hall seat all the school's pupils and their families for special assemblies and productions and, if not, how many repeat evenings are required? • Can the Hall seat all pupils requiring the mid-day meal and if not how many sittings are required and how long will the lunch break last? 	
<p>Location</p> <ul style="list-style-type: none"> • Can pupils from every classbase easily reach the hall without disturbing other classes? • Is the hall located near adult toilets and the main entrance for evening use? • Is the Hall located sufficiently away from classbases to avoid disturbance from music and noise? 	
<p>Furniture & Equip</p> <p>Loose</p> <ul style="list-style-type: none"> • Can the loose equipment such as tables and chairs be laid out in convenient patterns with sufficient space between for circulation? <p>Fixed</p> <ul style="list-style-type: none"> • Can the fixed P.E. equipment be stored against a wall without obstructing any windows or doors? 	
<p>Environment</p> <p>Lighting</p> <ul style="list-style-type: none"> • Can the drama lighting be easily adjusted and maintained without the use of step ladders or scaffolding? <p>Heating</p> <ul style="list-style-type: none"> • Will the heat emitters withstand the impact from robustuous ball games and other activities? <p>Ventilation</p> <ul style="list-style-type: none"> • Can the ventilation system be adjusted to suit different size groups, different activities, and different climatic conditions? <p>Acoustics</p> <ul style="list-style-type: none"> • Do the internal wall or ceiling finishes have sufficient absorbency to prevent the build up of sound? 	
<p>Services</p> <p>Gas</p> <ul style="list-style-type: none"> • None <p>Water</p> <ul style="list-style-type: none"> • None <p>Electricity</p> <ul style="list-style-type: none"> • Does the Hall have sufficient socket outlets to allow the school to use mobile drama lighting, sound equipment and cleaning equipment? <p>Comms.</p> <ul style="list-style-type: none"> • Can the mobile TV be used in the hall using a video or aerial jack point? 	
<p>Finishes</p> <p>Floor</p> <ul style="list-style-type: none"> • Is the floor finish non-slip after post lunch cleaning and will it show scuff marks from pupils and visitors shoes? <p>Walls</p> <ul style="list-style-type: none"> • Can scuff and finger marks from robustuous games be easily removed from the walls? <p>Ceilings</p> <ul style="list-style-type: none"> • Will the ceiling finish withstand the impact from the occasional mis-aimed ball or other object? <p>Windows</p> <ul style="list-style-type: none"> • Can the windows and rooflights be easily dimmed out using blinds to prevent glare and for AVA and drama? <p>Windows</p> <ul style="list-style-type: none"> • Are all glazed panels in windows and doors of safety glass sufficient to withstand the impact of children playing games? <p>Doors</p> <ul style="list-style-type: none"> • Can teachers observe activities in the hall from an adjacent space through the glass panel in the doors? 	

ILLUSTRATION D132D - HALL DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P., 1995)

3	AMENITY ROOM	AREA 36 sq.m.
Function		
Up to 30 children carrying out music practice, watching television/video, listening to radio/tapes, small group teaching, etc. Occasional use for meetings, including staff, governors, outside groups, etc. If adjoining hall, Room may be used as a 'stage' for performances.		
Location		
Convenient for all classes. Adjoining hall if possible. Not to be used as a circulation route. Noisy, so preferably not adjacent to teaching or administration areas. Consider link with library/learning resource area.		
Environment		
Lighting	Natural lighting desirable (0.2 Min. D.F). Dimmable artificial. 350 lux.	
Heating	Radiators 18°C	
Ventilation	6 air changes per hour: note difficulty in supplementing in summer if windows to have blinds tempered fresh air input therefore necessary, with push button timer control.	
Acoustics	Noise absorption. Maximum sound proofing. Consider plant noise.	
Services		
Gas	Not required	
Water	Not required	
Electricity	4 double socket outlets.	
Comm.	Co-axial socket - TV aerial + FM + satellite. Intruder alarm detector.	
Finishes		
Floor	Carpet	
Walls	Pinboard on at least 2 walls. Consider acoustic plaster for sound reduction.	
Ceilings	Consider acoustic plaster/tiles for sound reduction	
Windows/Doors	Solid core doors with full height vision panels Blinds/dim-out to windows, rooflights, vision panels. Location of windows important to avoid noise transfer when open.	

ILLUSTRATION D133A - ROOM DATA SHEET FOR AMENITY ROOM

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

3 AMENITY ROOM		CHECKED
Function	<ul style="list-style-type: none"> • Can a class of children sit comfortably and watch television? • Can a class of children use all the musical instruments with sufficient space for the teacher to see all pupils? • Can the room be used for occasional larger gatherings such as governors and staff meetings? 	
Location	<ul style="list-style-type: none"> • Is the amenity room located near enough to the hall to be used as a changing/green room for performances? • Is the amenity room located away from entrances to give natural security for expensive equipment stored in the room? • Is the room located near adult toilets and the main entrance for after school letting? 	
Furniture & Equip		
Loose	<ul style="list-style-type: none"> • Can large and small items of equipment be cleared away into an adjacent store to enable other activities to take place? 	
Fixed	<ul style="list-style-type: none"> • Is the wall lined with shelving for storage of small items of equipment? 	
Environment		
Lighting	<ul style="list-style-type: none"> • Can the lighting be dimmed for visual aids such as television, film projector and overhead projector? 	
Heating	<ul style="list-style-type: none"> • Does the heating system provide an even distribution of heat to allow pupils to sit comfortably on the floor? 	
Ventilation	<ul style="list-style-type: none"> • Will the ventilation system keep the room fresh when the room has 30 pupils watching a film with the blinds drawn? 	
Acoustics	<ul style="list-style-type: none"> • Is the wall, floor and ceiling sufficiently absorbent to prevent the build-up of sound? 	
Services		
Gas	<ul style="list-style-type: none"> • None 	
Water	<ul style="list-style-type: none"> • None. 	
Electricity	<ul style="list-style-type: none"> • Does the room have sufficient sockets in positions to allow for all electrical equipment to be used without trailing leads? 	
Comms.	<ul style="list-style-type: none"> • Does the room have a convenient TV aerial socket? 	
Finishes		
Floor	<ul style="list-style-type: none"> • Is the floor finish soft enough for pupils to sit comfortably? 	
Walls	<ul style="list-style-type: none"> • Is the wall lined with pinboard for displays of pupils work. 	
Ceilings	<ul style="list-style-type: none"> • No comment. 	
Windows	<ul style="list-style-type: none"> • Can the windows be easily dimmed out with blinds for visual aids? 	
Doors	<ul style="list-style-type: none"> • Are doors of sufficient width to allow trolleys with TVs and video recorders to be moved easily to other parts of the school.? 	

ILLUSTRATION D133C - AMENITY ROOM DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

4	LIBRARY/LEARNING RESOURCE AREA	AREA 15 sq.m.
Function		
<p>Central source for books, periodicals, etc., for use by all classes. Future computer terminals may be located in this area. Often a focal point within the school with display facilities. Area may be split to provide 2/3 smaller bases. Possible curriculum subject base area(s).</p>		
Location		
<p>On quiet circulation route. Central location preferred, with visual link to permit supervision from nearby office or class base. Consider link with Amenity Room.</p>		
Environment		
Lighting	Generally 400 lux, ensuring 100 lux on vertical surfaces. Display lighting.	
Heating	Radiators 18°C	
Ventilation	2 air changes per hour.	
Acoustics	Quiet for study/research.	
Services		
Gas	Not required	
Water	Not required	
Electricity	3 double socket outlets	
Comm.	Not required	
Finishes		
Floor	Carpet	
Walls	One wall open to circulation. Pin boarding to one wall.	
Ceilings	No special requirements	
Windows/Doors	<p>No special requirements for windows, but avoid glare. Solidcore flush door (if any) with full height glazed observation panel.</p>	

ILLUSTRATION D134A - ROOM DATA SHEET FOR LIBRARY

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

4 LIBRARY	CHECKED
Function <ul style="list-style-type: none"> • Can the school book stock be comfortably housed in this space? • Is there sufficient space for pupils to sit comfortably at a table to read a book, carry out some private study or use a computer? • Can other materials other than books such as magazines, cassette tapes, etc., be suitably displayed? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Location <ul style="list-style-type: none"> • Is the library located on a major circulation route to encourage browsers without disturbing more serious readers? • Can the library be easily supervised by teaching staff? • Can all classbases access the library equally? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Furniture & Equip Loose <ul style="list-style-type: none"> • Does the loose seating and table/worktop allow for children of all ages to sit quietly, read or access a computer? Fixed <ul style="list-style-type: none"> • Can pupils reach all of the book shelves irrespective of their age? 	<input type="checkbox"/> <input type="checkbox"/>
Environment Lighting <ul style="list-style-type: none"> • Are the book shelves and display areas lit with a suitable and adjustable task lighting system? Heating <ul style="list-style-type: none"> • Will the position of heat emitters affect the printed paper based materials? Ventilation <ul style="list-style-type: none"> • No comment. Acoustics <ul style="list-style-type: none"> • Do the acoustics produce a "quiet" environment suitable for personal study? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Services Gas <ul style="list-style-type: none"> • None. Water <ul style="list-style-type: none"> • None. Electricity <ul style="list-style-type: none"> • Are any of the socket outlets masked by book shelves? Comms. <ul style="list-style-type: none"> • None. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Finishes Floor <ul style="list-style-type: none"> • Is the floor finish suitable for some pupils to sit or lie on the floor and read? Walls <ul style="list-style-type: none"> • Can pupils see all of the material displayed on wall pinboards? Ceilings <ul style="list-style-type: none"> • No comment. Windows <ul style="list-style-type: none"> • Will position and size of windows allow printed material to fade in sun light? Doors <ul style="list-style-type: none"> • No comment. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

ILLUSTRATION D134C - LIBRARY DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

5	PUPIL COAT STORE	AREA 3 sq.m. x No. class bases
Function		
Up to 30 pupils taking off/putting on outdoor clothing, with adult assistance, particularly for younger pupils. Storage for coats, shoes, lunch boxes, sports bags, etc., for 30 pupils. Consider flow/procedures e.g. trolleys for lunch boxes, mobile racks for coats. Consider bay off circulation area for optimum use of space.		
Location		
To be situated on route between pupil entrance to school and class teaching base, but outside class teaching space.		
Environment		
Lighting	No special requirements. 150 lux minimum.	
Heating	15°C minimum. consider methods of clothes drying.	
Ventilation	Adequate for drying.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	Not required	
Comm.	Not required.	
Finishes		
Floor	Non-slip vinyl. Consider quarry tiles?	
Walls	Washable, hard wearing.	
Ceilings	No special requirements.	
Windows/Doors	Not necessary.	

ILLUSTRATION D135A - ROOM DATA SHEET FOR PUPIL COAT STORE

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

6	PUPIL TOILETS	AREA 5 sq m x No. of class bases
Function Lavatory accommodation for teaching class base of up to 30 pupils. 2 cubicles per class base. For girl/boy/mixed use as determined by school.		
Location Adjacent to class teaching base. Accessible from outside via coats area and common lobby.		
Environment Lighting Natural lighting if possible. 150 lux. Robust light fittings. Presence detector. Heating 14°C.. Ventilation 6 air changes per hour, achieved by mechanical extract. Presence detector with over-run. Acoustics No special requirements.		
Services Gas Not required. Water 2 WCs. 2 washbasins with tempered hot water. All pipework to be in ducts in this area. Electricity Not required. Comm. Not required.		
Finishes Floor Non-slip vinyl. Walls Washable, hard wearing. Tile splashbacks. Mirror at child height. Ceilings Plasterboard and skim. Windows/Doors High level windows, openable by caretaker. Obscure glazing. Solidcore flush door with full height glazed observation panel with fittings screened from view.		

ILLUSTRATION D135B - ROOM DATA SHEET FOR PUPILS TOILETS

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

5 PUPILS COAT STORE	CHECKED
Function <ul style="list-style-type: none"> • Is there sufficient space for entire class to remove or put on their outside coats within a reasonable time period? • Can parents easily accompany younger pupils into coat area to help with coat removal? • Can younger pupils hang their coats and bags up without assistance? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Location <ul style="list-style-type: none"> • Is the coat store within easy reach of the pupils toilet area? • Can pupils gain access to their coats at break time without entering the classbase? • Is the coat store naturally overlooked for surveillance by teaching staff? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Furniture & Equip <ul style="list-style-type: none"> Loose • Can sandwich box trolley be accommodated if this method of collection is adopted by the school? Fixed • Can all children reach the coat hooks and bag shelf without climbing on the fitting? Fixed • Are the coat hooks spaced to allow damp coats to hang and dry without falling on the floor, and the bag shelf long enough to accommodate all the pupils belongings without using the floor? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Environment <ul style="list-style-type: none"> Lighting • No comment. Heating • Will the heating dry wet coats before they are needed? Ventilation • Will the ventilation system remove damp air without creating condensation and mould on the building fabric? Acoustics • Is the ceiling sufficiently acoustically absorbent to avoid the build up of noise at busy times? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Services <ul style="list-style-type: none"> Gas • None. Water • None. Electricity • None. Comms. • None. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Finishes <ul style="list-style-type: none"> Floor • Can the floor finish be easily wiped down to remove wet and muddy patches from dripping coats and shoes in wet weather? Walls • Can dirty marks from damp coats be easily cleaned from the walls? Do the wall surfaces have any obstructions which could cause abrasions during busy periods? Ceilings • No comment. Windows • No comment. Doors • Do doors have observation slots to give natural surveillance from adjoining rooms and avoid collisions? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

ILLUSTRATION D135D- PUPILS COAT STORE DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

6 PUPILS TOILETS	CHECKED
Function <ul style="list-style-type: none"> • Can younger children reach all the fittings including reaching toilet paper from the WC pan? • Are there any opportunities for bullying or intimidation within the toilet areas? • Can teaching staff check the toilet areas without creating compromising situations? 	
Location <ul style="list-style-type: none"> • Can pupils access the toilet areas from the outside at break times without entering the class base? • Can the pupils access the toilets from teaching spaces without travelling excessive distances? • Can pupils access toilet areas from shared spaces such as the hall and amenity room without travelling excessive distances? • Do most pupils pass a toilet area on their way into or out of the hall when having lunch? 	
Furniture & Equip Loose <ul style="list-style-type: none"> • Is their sufficient space for free standing paper towel and rubbish bins? Fixed <ul style="list-style-type: none"> • Are sanitary fittings and their services robustly fixed or hidden to withstand vandalism? 	
Environment Lighting <ul style="list-style-type: none"> • Are light fittings vulnerable to vandalism? Heating <ul style="list-style-type: none"> • No comment. Ventilation <ul style="list-style-type: none"> • Will the ventilation system, including balancing air, ensure that smells do not penetrate teaching areas? Acoustics <ul style="list-style-type: none"> • Is their sufficient absorptive finishes to avoid the build-up of noise at busy periods? 	
Services Gas <ul style="list-style-type: none"> • No comment. Water <ul style="list-style-type: none"> • Are taps and cisterns fitted with devices to prevent the accidental or deliberate waste of water? Water <ul style="list-style-type: none"> • Can pupils accidentally scald themselves or others from hot water. Electricity <ul style="list-style-type: none"> • Are electrical outlets positioned to avoid any possible abuse by earthing to water? Comms. <ul style="list-style-type: none"> • None. 	
Finishes Floor <ul style="list-style-type: none"> • Is the floor finish non-slip when wet and will it withstand wet cleaning or accidental overflow? Walls <ul style="list-style-type: none"> • Can wall finishes withstand abuse from accidental overflow and cleaning of dirty marks or vandalism? Ceilings <ul style="list-style-type: none"> • Ditto. Windows <ul style="list-style-type: none"> • Can windows be easily opened for ventilation without causing hazard to pupils or staff? Doors <ul style="list-style-type: none"> • Do doors have glazed observation slots for surveillance from adjoining spaces to prevent collisions but avoid overlooking? 	

**ILLUSTRATION D135E - PUPILS TOILETS
DESIGN CHECK LIST**

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

7	PUPIL CHANGING ROOMS	AREA 6 sq.m. x 2
Function		
Class/team changing, for pupils aged 8 and above (under 8s change in classbase) Design team should note that changing areas required by DFE, but often used as stores. Consider possible need for showers in future (Not in model budget).		
Location		
Near hall with access to external play areas via lobby. Adjacent to toilets.		
Environment		
Lighting	Maximum natural. 150 lux.	
Heating	20°C..	
Ventilation	1.5 air changes per hour.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	Not required.	
Comm.	Not required.	
Finishes		
Floor	Non-slip vinyl. Warm to bare feet.	
Walls	Washable, hard wearing.	
Ceilings	Washable, hard wearing.	
WindowsDoors	High level windows, openable by caretaker. Obscure glazing. Solidcore flush door.	

ILLUSTRATION D136A - ROOM DATA SHEET FOR PUPIL CHANGING

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

7 PUPILS CHANGING ROOMS	CHECKED
Function <ul style="list-style-type: none"> • Will the changing rooms accommodate the required group size with sufficient space to sit, stand, and hang up clothes? • Can the changing rooms be secured when the class is in the hall or on the playing field? • Can teaching staff easily supervise pupils without creating compromising situations? 	
Location <ul style="list-style-type: none"> • Can the changing rooms be accessed easily from the hall? • Can the changing rooms be easily accessed from the playing field? • Can the changing rooms be easily accessed from the hard play area? • Can pupils use the toilets when partly dressed without leaving the changing suite? 	
Furniture & Equip <p>Loose</p> <ul style="list-style-type: none"> • Is there space for a rubbish bin or a container for team 'strip'? <p>Fixed</p> <ul style="list-style-type: none"> • Are changing benches sufficiently robust and fixed to withstand vandalism? <p>Fixed</p> <ul style="list-style-type: none"> • Are coat hooks spaced to accommodate clothes and foot wear from an entire class or team? 	
Environment <p>Lighting</p> <ul style="list-style-type: none"> • Is lighting vandal proof? <p>Heating</p> <ul style="list-style-type: none"> • Will heating produce comfort conditions appropriate to semiclad pupils? <p>Ventilation</p> <ul style="list-style-type: none"> • Will ventilation system cope with a class of pupils returning from a period of rapid exercise on a humid summer day? <p>Acoustics</p> <ul style="list-style-type: none"> • Are finishes sufficiently absorbent to prevent build-up of noise during busy periods? 	
Services <p>Gas</p> <ul style="list-style-type: none"> • None. <p>Water</p> <ul style="list-style-type: none"> • None. <p>Electricity</p> <ul style="list-style-type: none"> • No comment. <p>Comms.</p> <ul style="list-style-type: none"> • None. 	
Finishes <p>Floor</p> <ul style="list-style-type: none"> • Is floor non-slip when wet and can it be easily cleaned to remove wet or muddy foot prints from the outdoor games pitches? <p>Walls</p> <ul style="list-style-type: none"> • Can the walls be easily cleaned to remove dirty marks? <p>Ceilings</p> <ul style="list-style-type: none"> • See acoustics. <p>Windows</p> <ul style="list-style-type: none"> • Are windows of such a height or glazing material to avoid overlooking and can they be easily opened for supplementary ventilation? <p>Doors</p> <ul style="list-style-type: none"> • Can doors be restrained in windy weather if the open direct to the open air? 	

ILLUSTRATION D136C - PUPILS CHANGING ROOMS DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

8	DINING STORE	AREA 15 sq.m.
Function	To store tables and chairs for use in the hall. Area to become servery at lunch times, with heated trolleys moved out of kitchen.	
Location	Buffer between hall and kitchen and therefore adjacent to both.	
Environment		
Lighting	No special requirements. 150 lux minimum.	
Heating	18°C (for use as dining area).	
Ventilation	2 air changes per hour (to remove cooking smells).	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	3 double socket outlets.	
Comm.	Not required.	
Finishes		
Floor	Vinyl/lino.	
Walls	Hard wearing finish.	
Ceilings	No special requirements.	
Windows/Doors	No windows to this area. Solid core flush doors (if any).	

ILLUSTRATION D137A - ROOM DATA SHEET FOR DINING STORE

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

9	INDOOR P.E. STORE	AREA 10 sq.m.
Function	Accessible storage of P.E. equipment listed in schedule. Note fire regulations governing mat storage.	
Location	Adjacent to hall.	
Environment	<p>Lighting No special requirements. 150 lux minimum.</p> <p>Heating Not required.</p> <p>Ventilation To exterior for smoke in case of fire.</p> <p>Acoustics No special requirements.</p>	
Services	<p>Gas Not required.</p> <p>Water Not required.</p> <p>Electricity Hall audio and stage lighting controls at front of store.</p> <p>Comm. Smoke detector may be required.</p>	
Finishes	<p>Floor Vinyl/lino</p> <p>Walls Hard wearing finish</p> <p>Ceilings No special requirements</p> <p>Windows No windows. Doors solid core flush with 1 hour fire rating.</p>	

ILLUSTRATION D137B - ROOM DATA SHEET FOR INDOOR PE STORE

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

10	OUTDOOR PE STORE	AREA 5 sq.m.
Function		
Accessible storage of external games equipment listed in schedule.		
Location		
Close to hall and external formal play areas. Link to internal spaces if possible for flexibility.		
Environment		
Lighting	No special requirements. 150 lux minimum.	
Heating	Not required.	
Ventilation	Not required.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	Not required.	
Comm.	Not required.	
Finishes		
Floor	Concrete.	
Walls	Fairfaced block/brick.	
Ceilings	No special requirements.	
Windows/Doors	No windows to this area. Solid core flush doors, secure locking.	

ILLUSTRATION D137C - ROOM DATA SHEET FOR OUTDOOR PE STORE.

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

8 STORAGE	CHECKED
Function <ul style="list-style-type: none"> • Can all of the indoor PE equipment be put into the store to enable the hall to be completely cleared? • Can pupils remove and replace equipment easily without assistance from teaching staff? • Is the external PE store easily accessible but secure from intruders? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Location <ul style="list-style-type: none"> • Is the indoor PE store located off the hall which is used for games with good access for equipment? • Is the outdoor PE store located near the formal hard play area and playing field with good access for equipment? • Is the dining store located next to the hall used for dining and can it be used for serving meals when the furniture has been removed? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Furniture & Equip Loose <ul style="list-style-type: none"> • Can equipment be stacked comfortably in stores with floor space for larger items, but access maintained to smaller items? Fixed <ul style="list-style-type: none"> • Do all stores have shelves for smaller items at a height and position accessible to pupils and staff? 	<input type="checkbox"/> <input type="checkbox"/>
Environment Lighting <ul style="list-style-type: none"> • No comment. Heating <ul style="list-style-type: none"> • No comment. Ventilation <ul style="list-style-type: none"> • No comment. Acoustics <ul style="list-style-type: none"> • No comment. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Services Gas <ul style="list-style-type: none"> • None. Water <ul style="list-style-type: none"> • None. Electricity <ul style="list-style-type: none"> • Are the electrical sockets in the dining store in a position and height convenient for the heated serving trolleys? Comms. <ul style="list-style-type: none"> • None. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Finishes Floor <ul style="list-style-type: none"> • Can the floor finishes in the stores withstand scuffing from equipment removal and are they easily cleaned? Walls <ul style="list-style-type: none"> • Ditto. Ceilings <ul style="list-style-type: none"> • No comment. Windows <ul style="list-style-type: none"> • No comment. Doors <ul style="list-style-type: none"> • No comment. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

ILLUSTRATION D137E - STORAGE DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

11	ENTRANCE FOYER	AREA 4 sq. m.
Function		
Reception area for visitors to relax, wait for appointments and see pupils' work on display.		
Location		
Adjacent main draft lobby entrance and school office reception counter. Close to head teacher room, hall, adult WCs. Off main circulation route. Convenient for direct access from visitors' car parking area.		
Environment		
Lighting	Maximum natural. 1200 lux. Display lighting.	
Heating	15°C..	
Ventilation	2 air changes per hour.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	Double socket outlet.	
Comm.	Not required.	
Finishes		
Floor	Carpet.	
Walls	Hessian covered pin board one wall.	
Ceilings	No special requirements..	
Windows/Doors	Carefully consider views into school at this point as school's public face/shop. Doors fully glazed.	

ILLUSTRATION D138A - ROOM DATA SHEET FOR RECEPTION AREA

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

9	RECEPTION	CHECKED
Function	<ul style="list-style-type: none"> • Can a normal family group of mother, father and two children sit comfortably in the reception area? • Can visitors (including young children) stand to look at the display of pupils' work without blocking circulation routes? • Can the office staff see what is happening in the reception area and are visitors naturally guided to the reception hatch? • Are doors and locks arranged to prevent access to the school from reception without the office staff approval? 	
Location	<ul style="list-style-type: none"> • Is the reception area immediately adjacent to the main entrance? • Is the reception area adjacent to the office? • Is the reception area near the headteacher's room and rooms used for interviews and meetings? • Is the reception area near visitors' toilets? 	
Furniture & Equip	<ul style="list-style-type: none"> • Will seating withstand occasional rough treatment from young children? • Are displays of pupils work or topic displays by teachers protected from possible abuse by visitors? 	
Environment	<ul style="list-style-type: none"> • Are display wall boards and shelves illuminated to show off the shape, colour, and texture of exhibits? • Will visitors feel comfortable sitting next to the main entrance in winter? • Is the reception area subjected to draughts? • Are the surface finishes acoustically absorbent to prevent the build-up of noise during busy periods? 	
Services	<ul style="list-style-type: none"> • None. • None. • No comment. • None. 	
Finishes	<ul style="list-style-type: none"> • Can young children play comfortably on the floor with toys while waiting with their parents? • Can walls be used for displays at a height suitable for young children and adults? • No comment. • Can visitors get a view of the external landscape while waiting? • Can visitors see the entrance lobby/reception through glazed doors to reassure them that they have arrived at their destination? 	

ILLUSTRATION D138C - RECEPTION DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

12	SCHOOL OFFICE	AREA 16 sq. m.
Function		
<p>School admin base., school secretary, admin. assistant etc. Visitors' reception point. Counter link to entrance foyer usable by adults and pupils. School safe to be located here. Department head work station.</p>		
Location		
<p>Overlooking car park and external approach to main entrance. Central location for access by pupils, parents and staff. Counter link to entrance foyer. Adjacent to head teacher's room to allow physical link if required.</p>		
Environment		
Lighting	Maximum natural. 1400 lux with work station supplement. Category 3 fittings.	
Heating	Radiator 20°C..	
Ventilation	2 air changes per hour.	
Acoustics	Consider noise reduction (office equipment, confidential discussions, etc)..	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	5 double socket outlets in trunking at desk top level.	
Comm.	<p>2 telephones including switchboard link to head. Consider additional lines for (future) fax/modem links. Secure incoming post box. Intruder alarm detector. Front door bell</p>	
Finishes		
Floor	Carpet.	
Walls	Pinboard to two walls. Fire/security screen to close off counter.	
Ceilings	Acoustic plaster/tiles for noise reduction.	
Windows/Doors	<p>Window overlooking car park and main entrance.. Computer screen locations to be protected from glare. Consider privacy requirements. Openable window essential.. Solid core flush door full height glazed observation panel.</p>	

ILLUSTRATION D139A - ROOM DATA SHEET FOR SCHOOL OFFICE

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

10 SCHOOL OFFICE	CHECKED
Function <ul style="list-style-type: none"> • Can office staff deal with money without being observed? • Is there sufficient space and worktop in the office for staff to work on a large administrative task/project as a team? • Is there sufficient space for children to enter the office to speak to the office staff or must they talk over the reception counter? • Can office staff naturally avoid an abusive caller by withdrawing behind a secure door or screen? 	
Location <ul style="list-style-type: none"> • Is the office located for direct links with the headteacher? • Is the office easily accessed by teaching and ancillary staff? • Can the office staff oversee the carpark and main entrance path? 	
Furniture & Equip Loose <ul style="list-style-type: none"> • Can loose furniture and equipment be rearranged into different configurations to suit personal tastes or specific operational needs? Fixed <ul style="list-style-type: none"> • Is the post box accessible? 	
Environment Lighting <ul style="list-style-type: none"> • Is the lighting suitable for the use of VDUs? Heating <ul style="list-style-type: none"> • Will the heating provide suitable comfort conditions for office staff sitting at a desk for long periods? Ventilation <ul style="list-style-type: none"> • Will the ventilation cope with the effluent from reprographics equipment? Acoustics <ul style="list-style-type: none"> • Do surface finishes have acoustic absorbency to prevent the build up of noise? 	
Services Gas <ul style="list-style-type: none"> • None. Water <ul style="list-style-type: none"> • None. Electricity <ul style="list-style-type: none"> • Are there sufficient socket outlets to allow connection of all office equipment without using multigang adaptors? Comms. <ul style="list-style-type: none"> • Can the computer be easily connected to a modem for budget advice from County Hall? • Can telephone calls be transferred to the headteacher, deputy head, staffroom or kitchen from a central point in the office? 	
Finishes Floor <ul style="list-style-type: none"> • Is the floor finish non static and easily cleaned? Walls <ul style="list-style-type: none"> • No comment. Ceilings <ul style="list-style-type: none"> • No comment. Windows <ul style="list-style-type: none"> • Can the office staff see the main entrance through the window and can it be opened for ventilation without disturbing paperwork? Doors <ul style="list-style-type: none"> • Do doors maintain the sound insulation levels? 	

ILLUSTRATION D139C - SCHOOL OFFICE DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

13	HEAD TEACHER'S OFFICE	AREA 12 sq.m.
Function		
Headteacher's base. Room for pupil/staff/parent interview/discussion. Work area (administration, report writing, etc).		
Location		
Adjacent school office. Should not be overlooked by any external pupil play areas.		
Environment		
Lighting	Natural maximum. 200 lux with workstation supplement.	
Heating	Radiator. 20°C..	
Ventilation	2 air changes per hour.	
Acoustics	Sound proof for privacy.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	2 double socket outlets on opposite walls.	
Comm.	Telephone extension to school office.	
Finishes		
Floor	Carpet.	
Walls	Pinboard one wall.	
Ceilings	Acoustic plaster/tiles for noise reduction.	
Windows/Doors	Note privacy requirements to windows. Curtains or blinds required. Solid core flush door.	

ILLUSTRATION D140A - ROOM DATA SHEET FOR HEADTEACHER'S OFFICE

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

11	HEADTEACHER	CHECKED
Function	<ul style="list-style-type: none"> • Can the headteacher carryout small meetings and interviews without disturbing other work in progress on the desk etc.? • Is there sufficient space to operate a small personal computer? • Is there sufficient space and does the layout of doors and windows allow the furniture to be rearranged to suit personal preference? 	
Location	<ul style="list-style-type: none"> • Is the headteacher's office close to the school office for administrative support? • Is the headteacher's office centrally located with easy access for pupils, teachers and visitors? • Is the headteacher's office located to give natural privacy for confidential interviews? 	
Furniture & Equip	<ul style="list-style-type: none"> • Is the visitor seating comfortable but robust to withstand constant use? • Will position of fixed furniture inhibit future flexibility? 	
Environment	<ul style="list-style-type: none"> • Is lighting suitable for the use of a VDU? • No comment. • No comment. • Are finishes acoustically absorbent to reduce noise transmission? • Will partitions prevent the transmission of confidential conversations? 	
Services	<ul style="list-style-type: none"> • None. • None. • Are there sufficient socket outlets in convenient positions to serve every piece of office/IT equipment without trailing leads? • Can the telephone be used in different parts of the room? 	
Finishes	<ul style="list-style-type: none"> • Will the floor finish help visitors to feel at ease? • No comment. • No comment. • Can the headteacher be overlooked by pupils or visitors waiting outside in the schools grounds? • Will the doors maintain the noise transmission qualities of the partitions? 	

ILLUSTRATION D140C - HEADTEACHER DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

14	STAFF ROOM	AREA 23 sq.m.
Function		
Area for staff relaxation, private study, meetings, personal storage, etc.		
Location		
Close school office, headteacher's office, adult toilets, stockroom, staff kitchen. Should not be overlooked by any external pupil play areas. Should overlook staff car park if possible for security.		
Environment		
Lighting	Natural maximum. 200 lux with workstation supplement.	
Heating	Radiator. 20°C..	
Ventilation	2 air changes per hour. Consider supplementary mechanical extract for cigarette smoke, if smoking permitted.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	2 double socket outlets.	
Comm.	Intruder alarm detector.	
Finishes		
Floor	Carpet.	
Walls	Pinboard one wall.	
Ceilings	No special requirements.	
Windows	Curtains or blinds required. Solid core flushdoor with full height glazed observation panel.	

ILLUSTRATION D141A - ROOM DATA SHEET FOR STAFFROOM

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

12	STAFFROOM	CHECKED
Function	<ul style="list-style-type: none"> • Can teaching staff prepare lessons, mark work, etc. during non contact time? • Can staff meetings take place comfortably in the staffroom? • Can all the staff, including ancillary staff, congregate in the staffroom at break times? • Can staff store coats and valuables conveniently and securely in the staffroom? 	
Location	<ul style="list-style-type: none"> • Is the staffroom located adjacent to staff toilets? • Is the staffroom adjacent to the staff kitchenette? 	
Furniture & Equip	<ul style="list-style-type: none"> Loose <ul style="list-style-type: none"> • Can the loose furniture be easily rearranged to accommodate different activities and groupings? Fixed <ul style="list-style-type: none"> • Can all of the staff notices be adequately displayed on the staffroom notice board? 	
Environment	<ul style="list-style-type: none"> Lighting <ul style="list-style-type: none"> • Does the lighting produce a relaxed atmosphere and give adequate levels of illumination for preparation work? Heating <ul style="list-style-type: none"> • Can heating be adjusted to allow for varying levels of occupancy? Ventilation <ul style="list-style-type: none"> • Will the ventilation system cope with large numbers of staff at break times some who may wish to smoke? Acoustics <ul style="list-style-type: none"> • Do surface finishes have sufficient absorbency to prevent the build up of noise at busy times? 	
Services	<ul style="list-style-type: none"> Gas <ul style="list-style-type: none"> • None. Water <ul style="list-style-type: none"> • No comment. Electricity <ul style="list-style-type: none"> • Are there sufficient socket outlets to serve all electrical equipment particularly in the kitchenette? Comms. <ul style="list-style-type: none"> • None. 	
Finishes	<ul style="list-style-type: none"> Floor <ul style="list-style-type: none"> • Can the floor finish cope with the wear, tear and spillages in front of the kitchenette? Walls <ul style="list-style-type: none"> • No comment. Ceilings <ul style="list-style-type: none"> • No comment. Windows <ul style="list-style-type: none"> • Can teaching staff observe the main play area without being seen themselves? Doors <ul style="list-style-type: none"> • Can pupils or teachers see into the staffroom to check if the member of staff they need is present without having to enter the room? 	

ILLUSTRATION D141C - STAFFROOM DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

15	STOCK ROOM	AREA 10 sq.m.
Function		
Secure storage of pupil records, books, materials (paper, card, paint, etc.) equipment (computers, projectors, etc.) for use by head, staff and admin. Bench top.		
Location		
In or immediately adjacent to admin. area. Accessible to school service entrance for deliveries.		
Environment		
Lighting	No natural. Fluorescent 150 lux.	
Heating	Not required.	
Ventilation	Not required.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	Double socket outlet (for equipment testing).	
Comm.	Not required.	
Finishes		
Floor	Vinyl/lino.	
Walls	Hard wearing finish..	
Ceilings	No special requirements.	
Windows/Doors	No windows to this room. Solid core flush doors.	

ILLUSTRATION D142A - ROOM DATA SHEET FOR STOCK ROOM

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

13	STOCKROOM	CHECKED
Function	<ul style="list-style-type: none"> • Can the schools central stock of books and materials be accommodated between deliveries and consumption? • Can large valuable items of equipment such as computers and projectors be stored securely on the floor of the stockroom? • Can the office staff issue equipment and materials to teachers comfortably from the stock room? 	
Location	<ul style="list-style-type: none"> • Is the stock room located adjacent to the school office with natural surveillance? • Is the stockroom located in a secure area away from intruders? • Is the stock room located in a convenient position for deliveries of bulky materials? • Is the stock room located in a convenient position for teaching staff? 	
Furniture & Equip	<ul style="list-style-type: none"> • Can staff reach the shelving past any large items stored on the floor? • Can staff reach to the back of the top shelf without using steps? 	
Environment	<ul style="list-style-type: none"> • No comment. • No comment. • Will ventilation system prevent mildew on paper products? • No comment. 	
Services	<ul style="list-style-type: none"> • None. • None. • No comment. • None. 	
Finishes	<ul style="list-style-type: none"> • Will floor finish withstand scuffing from large items of equipment and boxes? • Ditto. • No comment. • No comment. • Are doors of sufficient width and in such a location to gain easy access to all storage areas? 	

ILLUSTRATION D142C - STOCKROOM DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

16	MEDICAL ROOM	AREA 12 sq.m.
Function		
Room for visiting doctors, dentists, nurses, health visitors, etc., to carry out inspections, injections, tests, etc. First aid room. May be used for interview/meetings at other times.		
Location		
Accessible to pupils. Close to school office for supervision purposes.		
Environment		
Lighting	350 lux. Medical lamp; avoid glare to couch.	
Heating	Radiator 20°C.	
Ventilation	2 air changes per hour.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Sink, hot, cold and mains drinking supplies. Lever armed taps.	
Electricity	2 Double socket outlets.	
Comm.	Not required.	
Finishes		
Floor	Non-slip vinyl.	
Walls	One wall display. Other walls washable.	
Ceilings	No special requirements.	
Windows/Doors	Windows not overlooked from outside. Solid core flush door with glazed observation panel and blind/shutter,	

ILLUSTRATION D143A - ROOM DATA SHEET FOR MEDICAL ROOM

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

14	MEDICAL ROOM	CHECKED
Function	<ul style="list-style-type: none"> • Can the school nurse arrange the room with one-way traffic for inoculations? • Can pupils comfortably wait outside the medical room for an appointment with medical staff without causing an obstruction? 	
Location	<ul style="list-style-type: none"> • Is the medical room located in a position with natural privacy for medical staff and pupils attending appointments? • Can the medical room be supervised from the school office? • Is the medical room in a quiet environment for pupils and staff who may be feeling unwell? • Can the medical room be accessed from the outside by pupils involved in accidents on the playing field or playground? 	
Furniture & Equip	<ul style="list-style-type: none"> • Can the couch or bed be moved into an alternative position to suit the needs of medical staff? • Can staff easily reach the first aid cupboard? 	
Environment	<ul style="list-style-type: none"> • Is the position and type of lighting suitable for medical staff to correctly diagnose most illnesses and carry out minor treatment? • Will the heating produce adequate comfort conditions for pupils who may be partially dressed? • Will ventilation system disperse smell of certain medical products without spreading to the rest of the school? • No comment. 	
Services	<ul style="list-style-type: none"> • None. • Can medical staff maintain adequate levels of hygiene around the sink/wash basin? • No comment. • No comment. 	
Finishes	<ul style="list-style-type: none"> • Can floor finish be easily cleaned of accidental spillage's, vomit etc.? • Ditto. • No comment. • Can window be easily screened to prevent overlooking and glare? • Can office staff easily observe sick pupils through an observation panel in the door which can be obscured during medical inspections? 	

ILLUSTRATION D143C - MEDICAL ROOM DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

17	ADULT TOILETS	AREA 9 sq.m.
Function		
<p>3 x separate WCs, for use by adults (staff, visitors, etc.) One WC to be allocated for kitchen staff use. Use of other toilets (eg unisex/female/male) to be determined by school. May also be used by public in association with hall lettings. Roller towels assumed.</p>		
Location		
<p>Close to main admin area. Close to lettable areas for public use. Adjacent to disabled WC. Kitchen staff WC to be adjacent to kitchen.</p>		
Environment		
Lighting	Natural lighting if possible. 150 lux.	
Heating	Radiator 14°C..	
Ventilation	3 air changes per hour, achieved by mechanical extract.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	3 WCs. 3 washbasins with tempered hot water.	
Electricity	Not required.	
Comm.	Not required.	
Finishes		
Floor	Non-slip vinyl.	
Walls	Washable, hard wearing. Tile splashbacks. Mirrors.	
Ceilings	Plasterboard and skim.	
Windows/Doors	High level, openable windows. Solid core flush door.	

ILLUSTRATION D144A - ROOM DATA SHEET FOR ADULT TOILETS

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

18	DISABLED WC AND SHOWER	AREA 5 sq.m.
Function		
<p>WC for use by people with disabilities. May also be used by others (eg male staff or kitchen staff) as determined by school. Shower for staff use or in association with medical room. Room may also be used by others in association with hall lettings.</p>		
Location		
<p>Close to main admin area. Adjacent to medical room if possible. Adjacent to adult WC. Close to lettable areas for public use.</p>		
Environment		
Lighting	Natural lighting if possible. 150 lux.	
Heating	Radiator 14°C..	
Ventilation	3 air changes per hour, achieved by mechanical extract.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	WCs. Washbasins with hot and cold water and lever armed taps.	
Electricity	Not required.	
Comm.	Not required.	
Finishes		
Floor	Non-slip vinyl.	
Walls	Washable, hard wearing. Tile splashbacks. Mirror at wheelchair and able-bodied heights. Grab rails to suit varying disabilities.	
Ceilings	Plasterboard and skim.	
Windows/Doors	High level, obscure glazing. Solid core flush door opening out.	

ILLUSTRATION D144B - ROOM DATA SHEET FOR DISABLED TOILET

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

15	ADULT TOILETS	CHECKED
Function	<ul style="list-style-type: none"> • Are there sufficient facilities for all the female staff to use the toilets within the break time? • Are there sufficient facilities for adults using the hall out of school hours? • Can disabled pupils, members of staff, and visitors use the specialist facilities whatever their handicap? • Can teachers change into sportswear within the toilet area? 	
Location	<ul style="list-style-type: none"> • Are the toilets located near to the staffroom? • Are the adult toilets located near to the hall? • Can teachers access the toilet area from the external play facilities? • Can kitchen staff access their toilet area without leaving the vicinity of the kitchen? 	
Furniture & Equip		
Loose	<ul style="list-style-type: none"> • Is there space for paper and sanitary towel waste bins. 	
Fixed	<ul style="list-style-type: none"> • Can disabled users reach all of the fittings and manoeuvre a wheel chair without assistance? 	
Environment		
Lighting	<ul style="list-style-type: none"> • No Comment. 	
Heating	<ul style="list-style-type: none"> • No Comment. 	
Ventilation	<ul style="list-style-type: none"> • Is the ventilation system able to remove unpleasant smells and steam from the disabled shower without affecting other areas of the school? 	
Acoustics	<ul style="list-style-type: none"> • Will specification of partitions and doors prevent embarrassing noise transmission to adjoining rooms? 	
Services		
Gas	<ul style="list-style-type: none"> • None. 	
Water	<ul style="list-style-type: none"> • Are hot and cold water and drainage pipes protected from vandalism? 	
Electricity	<ul style="list-style-type: none"> • No Comment. 	
Comms.	<ul style="list-style-type: none"> • No Comment. 	
Finishes		
Floor	<ul style="list-style-type: none"> • Is floor finish non-slip when wet and can it be easily cleaned? 	
Walls	<ul style="list-style-type: none"> • Can wall finishes be easily cleaned and are they impervious to high levels of humidity? 	
Ceilings	<ul style="list-style-type: none"> • Ditto. 	
Windows	<ul style="list-style-type: none"> • Can windows when provided be opened for ventilation without using steps and in such a position or obscured to prevent overlooking? 	
Doors	<ul style="list-style-type: none"> • Are doors to disabled toilet of sufficient width and in such a position that wheel chairs can easily enter and leave without assistance? 	

ILLUSTRATION D144D - ADULT TOILETS DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

19	CARETAKER'S OFFICE & STORE	AREA 10+3 sq.m.
Function		
Secure storage for maintenance equipment, cleaning materials etc. and paperwork.		
Location		
Central location. Close service entrance for deliveries.		
Environment		
Lighting	Natural lighting not required. 150 lux.	
Heating	Radiator 14 °C	
Ventilation	3 Air changes	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Bucket sink: hot and cold.	
Electricity	2 Double socket outlet for possible workshop activities and computer.	
Comm.	Not required.	
Finishes		
Floor	Non-slip vinyl.	
Walls	Hard wearing finish.	
Ceilings	No special requirements.	
Windows/Doors	No windows to this area. Solid core flush door.	

ILLUSTRATION D145A - ROOM DATA SHEET FOR CARETAKERS STORE

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

20	CLEANING STORE	AREA 3 sq.m.
Function		
Storage of cleaning materials and equipment. Accessible for use of cleaning equipment at all times, but secure storage of chemicals. Storage of kitchen cleaning materials.		
Location		
Central location, but preferably not adjacent to caretaker's store. Adjacent to kitchen.		
Environment		
Lighting	No natural lighting required. 150 lux.	
Heating	Not required.	
Ventilation	Not required.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Bucket sink: hot and cold: own electric water heater with timer.	
Electricity	See water.	
Comm.	Not required.	
Finishes		
Floor	Non-slip vinyl.	
Walls	Hard wearing finish.	
Ceilings	No special requirements.	
Windows/Doors	No windows to this area. Solid core flush door.	

ILLUSTRATION D145B - ROOM DATA SHEET FOR CLEANERS STORE

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

16 CARETAKER AND CLEANER	CHECKED
<p>Function</p> <ul style="list-style-type: none"> • Can all the large and small cleaning equipment, materials and small scale maintenance tools and equipment be stored and accessed? • Can the caretaker in a large primary school carry out a limited amount of ordering of materials, etc? • Can cleaning staff obtain and dispose of water for cleaning without using toilets or the kitchen sinks? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Location</p> <ul style="list-style-type: none"> • Is the caretaker's store near the main entrance for deliveries? • Are the caretakes/cleaners' stores located to give even access to all parts of the school? 	<input type="checkbox"/> <input type="checkbox"/>
<p>Furniture & Equip</p> <p>Loose</p> <ul style="list-style-type: none"> • Can large items of equipment be stored on the floor without blocking access to smaller items on shelves? <p>Fixed</p> <ul style="list-style-type: none"> • Can cleaning staff reach the back of shelving without using steps? 	<input type="checkbox"/> <input type="checkbox"/>
<p>Environment</p> <p>Lighting</p> <ul style="list-style-type: none"> • No Comment. <p>Heating</p> <ul style="list-style-type: none"> • No Comment. <p>Ventilation</p> <ul style="list-style-type: none"> • Will ventilation system remove unpleasant smells without affecting the rest of the school? <p>Acoustics</p> <ul style="list-style-type: none"> • No Comment. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Services</p> <p>Gas</p> <ul style="list-style-type: none"> • None. <p>Water</p> <ul style="list-style-type: none"> • Can buckets and floor washers easily be filled and emptied? <p>Electricity</p> <ul style="list-style-type: none"> • No Comment. <p>Comms.</p> <ul style="list-style-type: none"> • No Comment. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Finishes</p> <p>Floor</p> <ul style="list-style-type: none"> • Is floor finish non-slip when wet, scuff resistant, and can it be easily cleaned? <p>Walls</p> <ul style="list-style-type: none"> • Are walls scuff resistant and can they be cleaned easily? <p>Ceilings</p> <ul style="list-style-type: none"> • No comment. <p>Windows</p> <ul style="list-style-type: none"> • No comment. <p>Doors</p> <ul style="list-style-type: none"> • Are doors of sufficient width to allow the largest piece of equipment to be removed and replaced with ease? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

ILLUSTRATION D145D - CARETAKER DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

21	KITCHEN	AREA 35 sq.m.
Function	Facilities to prepare freshly cooked meals for pupils and staff. Should have capacity for upto 120 meals (for 240 place school) for consumption on the premises. Kitchen area to include supervisors area and storage.	
Location	Close to service area for deliveries/unloading and waste disposal, but remote from main entrance/reception area. Close to kitchen staff wc. Adjacent to dining store for servery access.	
Environment	<p>Lighting Maximum natural lighting. High standard diffused artificial lighting. 350 lux.</p> <p>Heating 16°C.</p> <p>Ventilation 2 air changes per hour with mechanical extract.</p> <p>Acoustics No specific requirements.</p>	
Services	<p>Gas Supply to convection ovens, steaming oven, grill; emergency cut off.</p> <p>Water Hot and cold water supply to 3 sinks and 1 wash basin. Drinking water to food preparation sink.</p> <p>Electricity Minimum 6 double sockets appropriately positioned. Electrical supplies to all equipment; independent supply to freezers; emergency knock off.</p> <p>Comm. Break glass fire alarm point and bell. Phone point at supervisor's desk with own outside line.</p>	
Finishes	<p>Floor Non-slip vinyl. Quarry tiles under cookers and fryer.</p> <p>Walls Tiled to 2m height; remaining walls washable; no timber surfaces (finishes or equipment).</p> <p>Ceilings Washable.</p> <p>Windows/Doors Solar protection to windows other than north facing to prevent over heating. Fly screens to all opening windows and external doors direct into kitchen.</p>	

ILLUSTRATION D146A - ROOM DATA SHEET FOR KITCHEN

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

17	KITCHEN	CHECKED
Function		
Location		
Furniture & Equip		
Environment		
Lighting		
Heating		
Ventilation		
Acoustics		
Services		
Gas		
Water		
Electricity		
Comms.		
Finishes		
Floor		
Walls		
Ceilings		
Windows		
Doors		

ILLUSTRATION D146F - KITCHEN DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

22	BOILER ROOM	AREA 25 sq.m.
Function		
Accommodation for mechanical engineering plant.		
Location		
Preferably at ground level, with access door(s) direct to outside. Near centre of services distribution load. Close cold water storage tank. Preferably on leeward side of building. Sited to allow safe access for cleaning, maintenance and future replacement.		
Environment		
Lighting	150 lux. Low voltage inspection lamp.	
Heating	Not required.	
Ventilation	Maximum natural. Air required for combustion/ventilation intake.	
Acoustics	Adequate sound insulation between plant and adjacent rooms.	
Services		
Gas	As required for boilers.	
Water	As required for boilers.	
Electricity	As required for controls + double socket outlet.	
Comm.	Break glass fire alarm point and bell.	
Finishes		
Floor	Screed laid to fall towards trapped gully.	
Walls	No special requirements.	
Ceilings	No special requirements.	
Windows/Doors	No special requirements for windows. Hour fire rating to internal doors. External doors louvered.	

ILLUSTRATION D147A - ROOM DATA SHEET FOR BOILER ROOM

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

23	ELECTRICAL SWITCH AREA.	AREA 2 sq.m.
Function		
Accommodation for electrical intake and main distribution board.		
Location		
At ground level in central situation. Sited to allow safe access for meter reading, maintenance and future replacement.		
Environment		
Lighting	For maintenance as necessary. Emergency light fitting.	
Heating	Not required.	
Ventilation	Not required.	
Acoustics	No special requirements.	
Services		
Gas	Not required.	
Water	Not required.	
Electricity	Mains intake and distribution board, with surge suppression against lightning.	
Comm.	Not required.	
Finishes		
Floor	No special requirements.	
Walls	No special requirements.	
Ceilings	No special requirements.	
Windows/ Doors	No windows required. Solid core flush internal door with half hour fire resistance.	

ILLUSTRATION D147B - ROOM DATA SHEET FOR ELECTRICAL SWITCH ROOM

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

24	GAS INTAKE ROOM.	AREA 1sq.m.
Function		
Housing for gas intake.		
Location		
At ground level close to/adjacent to boiler plant room. Sited to allow safe access for meter reading, maintenance and future replacement. Preferred location on site boundary.		
Environment		
Lighting	For maintenance as necessary.	
Heating	Not required.	
Ventilation	Maximum natural.	
Acoustics	No special requirements.	
Services		
Gas	Mains intake.	
Water	Not required.	
Electricity	Not required.	
Comm.	Not required.	
Finishes		
Floor	No special requirements.	
Walls	No special requirements.	
Ceilings	No special requirements.	
Windows/Doors	No windows required. Consider louvred door for ventilation.	

ILLUSTRATION D147C - ROOM DATA SHEET FOR GAS INTAKE ROOM

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

18	PLANTROOM	CHECKED
Function <ul style="list-style-type: none"> • Can all items of equipment be safely maintained, or replaced when necessary? • Can caretaker reach any controls necessary for the efficient and safe operation of the plant? 		
Location <ul style="list-style-type: none"> • Is the plant room located near the geographic centre of the school to minimise pipe runs/heat loss? • Is the plant room located in a position convenient for fuel deliveries? • Is the plant room located near the main water storage area? 		
Furniture & Equip <p>Loose</p> <ul style="list-style-type: none"> • No comment. <p>Fixed</p> <ul style="list-style-type: none"> • Is equipment fixed in such a way to avoid unnecessary noise or vibration to the structure of the school? 		
Environment <p>Lighting</p> <ul style="list-style-type: none"> • Can engineers see every part of the equipment to carry out maintenance work? <p>Heating</p> <ul style="list-style-type: none"> • No comment. <p>Ventilation</p> <ul style="list-style-type: none"> • Do the boilers have sufficient combustion air? <p>Acoustics</p> <ul style="list-style-type: none"> • Is the plant room located in such a position to avoid noise transfer to teaching or administration rooms? 		
Services <p>Gas</p> <ul style="list-style-type: none"> • Can the gas services be disconnected in an emergency? <p>Water</p> <ul style="list-style-type: none"> • Can any spillage or overflow be easily drained from the floor? <p>Electricity</p> <ul style="list-style-type: none"> • No comment. <p>Comms.</p> <ul style="list-style-type: none"> • Does the plant room have a data link for remote control/monitoring of the equipment? 		
Finishes <p>Floor</p> <ul style="list-style-type: none"> • Can the floor finish be easily cleaned? <p>Walls</p> <ul style="list-style-type: none"> • No comment. <p>Ceilings</p> <ul style="list-style-type: none"> • No comment. <p>Windows</p> <ul style="list-style-type: none"> • No comment. <p>Doors</p> <ul style="list-style-type: none"> • Are the doors of sufficient width to remove /replace large items of equipment? 		

ILLUSTRATION D147E - PLANT ROOM DESIGN CHECK LIST

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

CHAPTER 13

**ACCOMMODATION
REQUIREMENTS - EXTERNAL**

13.1 INTRODUCTION

Previous chapters have dealt with the background and planning of primary school external design in general terms. This chapter will examine the detailed requirements of its external spaces in a similar fashion to the previous chapter, "room by room", with a commentary gleaned from interviews with users, County Council Officers and design teams.

Much of the information in this chapter has, again, been interpolated from the current Essex primary school model brief and is presented in a similar format to Chapter 12 with data sheets, recommended layouts, and design check lists.

The comparative views of users are also quoted, where relevant, using a chart of percentage ratings calculated from completed questionnaires as explained in Chapter 1 (see illustration D130).

Generally the relationships between external spaces were rated highly by most schools scoring an average of 56%, with most schools commenting favourably on the position of car parking, hard play areas and playing fields.

The actual shape and area of these facilities were rated rather less highly, however, with a score of 46%. This lower rating was clearly related to a general dissatisfaction with the arrangements for parents delivering children to school by car, lack of car parking, and poor landscaping with few opportunities for Learning Through Landscape.

13.2 ACCESS

Access to a primary school is often under considerable pressure at the beginning and end of the school day, as explained in Chapter 10. It is important, therefore, that these facilities are well designed and able to respond to demand within the constraints of the existing site access point and budget.

User rating

The user questionnaire contained a page on access with specific questions on the planning and layout of vehicular access for visitors, staff, the disabled, delivery and, emergency vehicles and car parking, as well as access for pedestrians. These aspects were rated above average with a score of 56%, but

most schools experienced some difficulty with parents dropping off children in the morning and picking up in the afternoon, blocking the access road with their cars and creating a hazard when pulling out and reversing. About one half of the schools visited had been provided with a loop road access to avoid the need to reverse, and this appeared to be rated higher than those with cul-de-sac access.

Most of the schools had a separate access for pedestrians segregated from the vehicular entrance leading to the main and pupil entrances, with only two schools experiencing difficulty with vehicles and pedestrians mixing on site, and this segregation was thought, by most, to be essential.

Generally every school, apart from three, felt that their car parks were too small, and had experienced difficulty with staff and visitors blocking the access with parked cars. The only schools which said they had adequate car parking had larger car parks because of community use, or had access to adjacent public car parks.

Vehicular

The current brief requires entrances to the school to be clearly defined, with pedestrian and vehicular entrances segregated. It also mentions the need to have an appropriate dropping off point for pupils delivered by car if on-street parking is restricted, and the need for routes to appropriate entrances for visitors from the car park to be obvious (see illustration D149).

As a rule, parents of pupils are not allowed to park on the school site at the beginning or end of the school day, and many schools close the main entrance gates to deny access to parents. Teachers normally arrive and park well before the pupils and leave after pupils have left. Deliveries and visitors usually arrive between the start and finish of the school day.

Pedestrian

The brief states that pupil collection point(s) are required for parents to congregate whilst waiting for children. It does not specify any particular area, but asks that they be attractive, welcoming and clearly identified space(s) located between the main site entrance and pupil entrances to the building.

The brief also acknowledges that these areas may need to be shared with other functions, such as pupil outdoor work areas, but states that they need seating, outdoor lighting with well drained, hard wearing surfaces and partial enclosure to provide shade and shelter (see illustration D149).

Security

Recent security problems at schools have led many Local Education Authorities and individual schools to reflect on the open, welcoming appearance of their entrances, and many are now insisting that boundary fencing and gates are designed to ensure that staff can lock gates after children have arrived, with the only access leading visitors to the main entrance which can be controlled and supervised. It is particularly important that security is not breached by visitors using the car park or deliveries from the service area, and these areas need to be outside the security fence if access is to be maintained throughout the day.

13.3 CAR PARKING

Clearly car parking provision for Essex primary schools in the past has been totally inadequate as explained in Chapter 10, and the current brief now includes a more realistic provision related to actual need (see illustration D150).

Staff

The size and layout of the car and vehicle parking area relies on the number of cars to be parked which varies from between 8 and 25 spaces depending on the number of staff expected on site, including a minimum of one disabled bay per school up to 450 pupils.

Visitors

Clearly most primary schools can expect some visitors during the school day including peripatetic teachers, medical staff, specialists from the Local Education Department, governors, parents, maintenance staff, etc. It is important that some space is reserved for visitors, otherwise they may be forced to park in a dangerous or inconvenient fashion blocking access to delivery or emergency vehicles.

Overflow

The brief acknowledges that the standard provision will not be sufficient for certain sites, with restricted off-site parking, and states that space should be allowed for extra parking for large events such as parent evenings and concerts etc. It suggests that these extra spaces can be accommodated on the hard play area with access through an appropriate gated entrance from an adjacent road or the main car park.

13.4 SERVICE AREA

Service areas have been restricted in the past due to budgetary pressures leading to dangerous reversing of delivery vehicles onto site, over-running kerbs and manhandling of goods through the school from the main entrance. It is important that proper provision is made for servicing new schools with space for modern emergency and delivery vehicles to manoeuvre safely on site.

Delivery of Goods

The service area for vehicular access to delivery point is required to be located adjacent to the service entrance, away from the main entrance with sufficient space, away from pupil areas, to turn normal size delivery vehicles safely so they can leave the site in forward gear. External lighting is needed with proper wash down facilities to cope with any spillages (see illustration D151).

Rubbish collection

A screened area is required adjacent to the kitchen and/or service entrance for the storage of rubbish in large Paladins or Wheely bins awaiting collection once a week by the refuse cart. It is important to provide sufficient space in this area for several bins for the collection of recycled materials such as paper, glass, tin cans and clothing, as ecology is now an important part of the curriculum in many Essex primary schools. A turning facility for the refuse cart is also needed.

Emergency vehicles

Unfortunately, as the recent tragedy at Dunblane illustrates, it is necessary to ensure that emergency vehicles can approach the building quickly and safely. Ambulances must be able to back up to the main entrance or a convenient service entrance near the school office and/or medical room, and turn safely to leave the site in forward gear.

Fire appliances must also be able to approach the school, park near the fire alarm panel to ascertain the seat of any fire, and reach all parts of the building with hoses and ladders from the parked vehicle. This may involve the provision of a fire path around the building with a turning area on certain sites with restricted access.

13.5 HARDPLAY

Every primary school in Essex is provided with a statutory recreation area, part of which is grass and the other part is hard playground for formal and informal games and play activities as described in Chapter 10.

The spatial requirements for hard play areas vary from 600 to 2,880 square metres depending on the size of school. The example used in the model brief for a 240 place school envisages a paved area of 1440 square metres split between formal team games, informal play, and outdoor work/quiet sitting.

User rating

The questionnaire completed by primary schools visited included a page on hard and soft play areas, with specific questions on the planning and layout of hard play areas for team games, informal recreation, play activities, quiet play, sitting and outside teaching, as well as ease of supervision by staff.

Generally the performance of these areas was judged to be below average, with a score of 44%.

At least eleven schools, however, thought that their hard play areas were adequate and well planned, with a large area for rumbustious play and ball games, and a smaller area for sitting and quieter activities.

The other six schools felt that the hard play area was either too small or had a specific problem with levels or no division between activities.

Generally outside teaching spaces were thought to be poor, with only five schools saying that they had adequate paved outside teaching areas, sheltered from extremes of weather, adjacent to the school with direct access from classbases.

Landscaping around the school buildings was also very varied, with six schools saying it was adequate and at least four schools saying it was totally inadequate.

Formal games

Part of the hard play area is required to have a regular shape which is marked out with a 30 x 15 metre court for netball or five-a-side football and other individual or small group activities, which takes up approx. 960 square metres of the recreation area with appropriate over-runs (see illustration D152). The brief suggests that this should be located near but not immediately adjacent to the school and away from vehicle parking or access.

The surface is required to be well drained, hard wearing and non-slip. No particular material is specified, but would normally be asphalt to comply with the budget model. Fencing on all sides is also recommended to avoid ball escape, but planting is needed around the perimeter to soften the appearance of such a large expanse of hard surface.

Informal games

The informal play area uses the remainder of the recreation allowance and is used for recreational activities before school, at breaks and lunch time, and for informal non-team activities generally. It is often of a free-form shape and mainly used by younger children wishing to avoid the more boisterous games on the formal games area. The spatial requirement of such an area for a 240 place school is 275 sq.m. and this is normally divided into different areas for various quieter activities such as sitting, playground games marked on the surface or even a climbing frame (see illustration D153).

The brief recommends that it should be located adjacent to the school building, but away from vehicles and in a sheltered, sunny position.

The surface has to be non-slip, hard wearing, and varied in colour and texture. A rubber or bark surface is suggested to avoid the use of large areas of asphalt, but this is rarely achieved because of the cost and spread of loose material respectively.

Changes of level and partial screening with walls or pergolas for sitting are also suggested, as is the need for buffer planting to break up space and create shelter.

Reception class

The 234 square metre play area for the reception class is required to be enclosed with exclusive access from the reception class. The brief does not indicate what this space is to be used for, stating that this will vary from school to school. A cold water supply is needed for outdoor work and half the area should be paved in a variety of finishes including paviers, asphalt or rubber. The brief also asks that this area should be capable of being fenced in if the unit is to be used for nursery age children. It also envisages the siting of several items of play equipment and structures including Wendy houses, logs, tyres, seats and sand pit (see illustration D154).

13.6 OUTSIDE TEACHING

The outside teaching areas in Essex primary schools have been neglected over the last 25 years as explained in Chapter 10, but the Learning Through Landscape Trust movement has encouraged teachers to make much greater use of these spaces which is reflected in the current brief.

Paved area

Outdoor work and quiet sitting areas for each classbase are normally included as part of the statutory hard paved area and are intended to be used for project work outside the classbase including outdoor projects, looking after domestic pets or designing and building items too big for the classroom. The brief envisages an area of 25 square metres per classbase located in a sunny position adjacent to and with direct access from the classbase. Cold water and drainage are required, and the surfaces should be hard wearing and non-slip avoiding the use of asphalt. The space is required to be partly covered by a canopy or pergola and sheltered by a screen wall, fence or planting.

The typical area allocated for such activities in a 240 place primary school is 200 sq.m. including the paved area in the reception class compound (see illustration D155).

Soft areas

The soft outdoor work and quiet sitting areas are similar small scale areas to the paved, but are shared by the whole school and are specifically aimed at the school curriculum with ponds, vegetable gardens and animal enclosures, etc. They should be located to suit the site development plan, linked together with a footpath or trail, but not too distant from the school building for ease of supervision. They should also be supplied with water and safe electrical point for ponds and watering gardens etc., with a surface of grass and with planting to give enclosure (see illustration D156).

Pond

Many primary schools have built small ponds in their grounds to encourage wild life and provide a natural habitat which can be studied by pupils throughout the year. It is, however, quiet difficult to develop a successful wetland area with the correct environment for a variety of plants and aquatic creatures, and the Property Services Department have published guidance notes for schools on how to achieve success (Packer, A., 1991.). These notes cover such items as creating a safe environment for pupil access, choosing appropriate plants, future maintenance and cleaning etc.

Play equipment

Several schools have purchased considerable quantities of proprietary play equipment such as slides, swings, climbing frames, roundabouts and tunnels, etc. using their own funds in recent years to form an adventure playground area in a corner of the school playing field. It is important that the design of any new primary school recognises this need and provides space for such facilities which may be provided later through school fund raising. The Learning Through Landscapes Trust has demonstrated the benefit of grouping such equipment into activity centres linked by a path or trail circumnavigating the school site.

13.7 PLAYING FIELDS

Every Essex primary school has a statutory area of soft grass and landscape for informal play during break times and the playing of formal team games in addition to the paved recreation area.

The area of the playing field is the subject of the D.F.E. School Premises Regulations and varies in size from 0.5 to 2.0 hectares depending on the number of pupils at the school and their age (Department of Education and Science, 1981.). The example used in the model brief is 0.5 hectares for a primary school of 240 places and is intended to provide sport and recreation facilities for the older junior aged children only, with part or all of the playing field marked out for seasonal games designed in accordance with D.F.E. Building Bulletin 28 (Department for Education and Science, 1982).

User rating

The user questionnaire contained questions about the planning and layout of playing fields with specific questions about team games, community activities, changing rooms, storage of outside equipment and playability. Again this section was rated as average by users with a score of 51% (see illustration D130).

Generally most schools felt they had adequate space for team games, apart from two schools who said space was limited. Most schools felt playability was adequate, apart from two schools which experience problems of poor drainage.

Unfortunately, most schools questioned said that the landscaping of their playing field was poor with insufficient planting and little opportunity for Learning Through Landscape activities. The only exceptions were those schools which had inherited existing mature landscaping already growing on the site.

Several schools had intended sharing their playing fields for community use, but most had discouraged this due to abuse of one form or another.

Formal games

The normal provision for most Essex primary schools is one football or hockey pitch in winter, the largest being for football at 73 x 40 metres which almost fills the smaller site after allowance for run off. Bigger schools with larger playing fields usually have a second smaller pitch for younger children, whereas the very small schools have a reduced size pitch to suit their modest site. Most schools also have various box markings around the margin for small group activities such as ball control, etc. (see illustration D157)

Most primary schools have their playing field marked out with a cricket square, rounders pitch, and running track for athletics during the summer term.

The brief suggests that the playing field should be located adjacent to the hard play area for ease of supervision, but away from the main building.

The brief also specifies that the surface finish should be designed to support 7 hours of use for team games per week, and be relatively level, but this can be problematic on some Essex soils as explained in Chapter 10. It does not specify what surface the pitch should be, but most primary school budgets are based upon grass. The need for protective fencing near site boundaries is mentioned, as is the need for surrounding planting to break up spaces and give shelter. It also mentions the need for seating and litter bins for spectators.

Informal games

The informal play area is also part of the statutory playing field provision and is used before school, at breaks and lunch time for informal non-team activities.

The brief suggests that individual schools should develop this area to suit their own interests and priorities. It also suggests that this space may well be split up and located in several areas around the school to suit the overall site development plan.

The surface finish can be grass, paving or safety surface such as rubber or bark with some screening from walls, fencing and planting to give shelter/enclosure. The school may also wish to purchase play equipment or seats for these areas.

13.8 CONCLUSIONS

The detailed examination of accommodation requirements for external spaces in existing schools reveals that some of the users' dissatisfaction with present facilities have been corrected in the current brief, but many lessons for future design teams can still be usefully promulgated:-

- The arrangement of access road is critical to the success of the primary school, and a loop road usually works better than a cul-de-sac, as parents are able to drop children off by car without dangerous reversing. County Council Officers negotiating the purchase of new primary school sites need to avoid cul-de-sac access wherever possible.
- Primary schools should segregate vehicles and pedestrians at the main site entrance and maintain safe pedestrian routes to playgrounds and pupil entrances.
- All primary schools need a sheltered area(s) for parents to wait for pupils at the beginning and end of the day, with seating well away from vehicular traffic without breaching security.
- The entrance to a primary school is often the first impression received by visitors including prospective parents and pupils and must be attractive and welcoming.
- Car parking has improved in recent years and sufficient spaces are now provided to park most teachers, visitors and ancillary staff cars, but some form of overflow car park, perhaps on a hard play area, is needed for large events if parents are unable to park in adjacent roads.
- Service areas need to be generous to allow for the turning of large delivery vehicles and refuse carts well away from pupils, with convenient parking for the off-loading of goods.
- Many schools are now collecting recycled refuse and sufficient screened space is needed for the collection bins.

- Medical or security incidents are rare at primary schools, but they can be very emotive when young children are involved, and proper access is needed for emergency services to quickly and efficiently deal with incidents.
- Conversely, access to the site and buildings needs to be restricted to those with legitimate business, to avoid the threat to pupils and staff from violent or abusive visitors.
- Hard play areas are important spaces for young people to let off steam, but they need to be carefully designed to suit a variety of active and non-active pursuits, with appropriate shelter and surface finish.
- The reception class with the youngest most vulnerable children needs a separate recreation area fenced off from the rougher activities of older children.
- Outside teaching areas adjacent to classbases need to be sheltered and partially covered, with seats, tables and lighting if they are to be fully utilised for teaching.
- Other more informal sheltered outside teaching areas distributed around the site, are needed for specific activities such as a pond, sitting, picnicking and adventure playground. These areas will be more fully used if they are connected with a footpath or trail to keep feet dry in wet weather.
- There has been a greater emphasis on team games in primary schools recently, and sufficient space is needed to mark out football and hockey pitches in the winter, and cricket and athletics track in the summer, although smaller schools may still have to make do with reduced facilities due to the restricted nature of their site.

The users of Essex primary schools are now demanding that greater care is taken over the design of their outside spaces and design teams in the future will need to put as much effort into the design of outside spaces as accommodation within the school building.

1	MAIN ENTRANCE TO SITE	AREA variable.
Function		
	<p>Welcoming, attractive area, clearly identified and well signposted. Sunny, sheltered sitting areas for parent congregation away from vehicle access. Clear view of entrance from gate for arriving visitors. All suitable for full disabled access. Sitting areas may be combined with other functions. Consider scale (e.g. child sized entrance). In conjunction with school, exploit any opportunities for learning/curriculum input arising from the design/building process (e.g. applying Art, Technology, Science, etc.).</p>	
Location		
	<p>Between site boundary and building entrances; collection points situated away from site entrance.</p>	
Environment		
Lighting	<p>30 lux (Note that bollard lights are vulnerable to traffic damage and can be dangerous obstructions).</p>	
Services		
Water	<p>None.</p>	
Electricity	<p>None.</p>	
Finishes		
Surfaces	<p>Well drained, hard wearing, avoiding large areas of tarmac.</p>	
Enclosure	<p>Secure but non-intimidating entrance gates. Partial screening to 'contain' spaces and provide shade/shelter, but ensure that supervision sight lines are maintained. Avoid sharp edges.</p>	
Landscape	<p>Landscape can form screen/boundary marker.</p>	
Furniture & Equipment		
	<p>Entrance/direction signs Litter bins. Seats. Notice board.</p>	

ILLUSTRATION D149A - ROOM DATA SHEET FOR MAIN ENTRANCE

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

2	ROADS, FOOTPATHS	AREA variable
Function		
	Pedestrian and vehicle routes to be segregated as far as possible where practicable. All to be suitable for full disabled access. In conjunction with school, exploit any opportunities for learning/curriculum input arising from the design/building process (e.g. applying Art, Technology, Science, etc.).	
Location		
	Pedestrian routes to follow desire lines. Direct access for visitors from site entrance to car park to building entrance.	
Environment		
Lighting	30 lux (Note that bollard lights are vulnerable to traffic damage and can be dangerous obstructions).	
Services		
Water	None.	
Electricity	None.	
Finishes		
Surfaces	Pedestrian surfaces to be non-slip, with ramps (1:20 max gradient + handrails) at all changes of level. Dropped kerbs and 'dimpled' paving (for visually handicapped) at all road crossing points. Speed humps + warning signs	
Enclosure	None.	
Landscape	Adjacent planting will require protection by fence or landscape buffer.	
Furniture & Equipment		
	Entrance/direction signs. Litter bins. Seats.	

ILLUSTRATION D149B - ROOM DATA SHEET FOR ROADS & FOOTPATHS

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

MAIN ENTRANCE

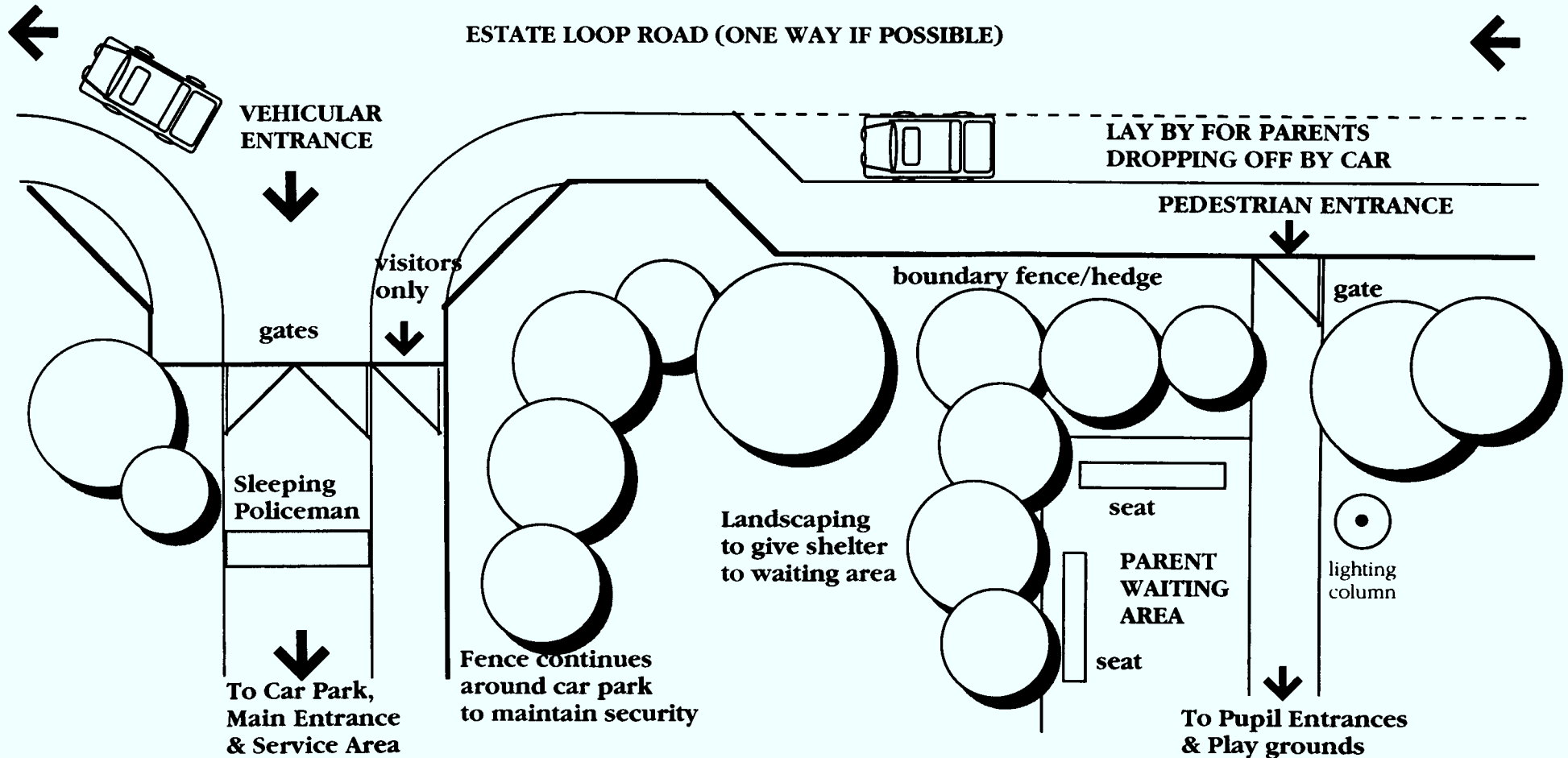
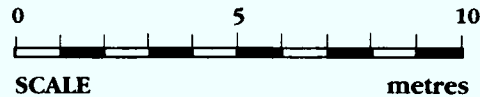


ILLUSTRATION D149C - RECOMMENDED LAYOUT FOR MAIN ENTRANCE



Based on data from Essex County Council Highways Development control standards (see ECC Highways, 1986)

1	CHECKED
<p>Function</p> <ul style="list-style-type: none"> • Can parents wait comfortably and safely for pupils at the end of the school day in a sheltered environment? • Is it clear how to reach the main entrance from the site boundary with adequate signposting? • Is it clear how parents with young pupils reach the pupil playgrounds and entrances from the site boundary? • Are footpaths fully segregated from vehicular routes and is speed on roads controlled near intersections? • Do footpaths allow two pushchairs or buggies to pass each other without leaving the footpath or cutting up the surrounding landscape? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Location</p> <ul style="list-style-type: none"> • Does the relationship between the main site entrance and building entrances provide natural surveillance of pupils? • Is the parent collection point situated in a position which give natural surveillance to activities? • Do footpaths follow natural desire lines to avoid cut off corners? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Environment Lighting</p> <ul style="list-style-type: none"> • Are footpaths, roads, and waiting areas adequately lit for dark winter afternoon and evening use without annoying neighbours with stray light? 	<input type="checkbox"/>
<p>Services Water</p> <ul style="list-style-type: none"> • None. <p>Electricity</p> <ul style="list-style-type: none"> • None. 	<input type="checkbox"/> <input type="checkbox"/>
<p>Finishes</p> <p>Surfaces</p> <ul style="list-style-type: none"> • Are pavings non-slip and free from surface water especially where parents and pupils congregate? <p>Enclosure</p> <ul style="list-style-type: none"> • Is the parent waiting area protected from inclement weather by screen fencing, wall, or planting? <p>Landscape</p> <ul style="list-style-type: none"> • Do footpath routes pass areas of landscaping with an interesting display throughout all seasons. but protected from abuse? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Furniture & Equip</p> <p>Fixed</p> <ul style="list-style-type: none"> • Will informal seating for parents weather well and resist vandalism? • Are litter bins positioned near areas where parents and pupils congregate naturally? 	<input type="checkbox"/> <input type="checkbox"/>

ILLUSTRATION D149D - DESIGN CHECK LIST FOR MAIN SITE ENTRANCE, FOOTPATHS AND ROADS.

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

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3	CAR AND VEHICLE PARKING AREA	AREA variable
Function		
Parking for staff (teaching and ancillary) and visitors (these areas are to be defined). Number of bays to be agreed with Client and Planners, but generally one space for each member of teaching staff plus places for casual users. Minimum of 1 disabled bay/school, up to 450 pupils. Consider location of overflow parking for functions etc.		
Location		
Between site entrance and main building entrance. Within view of school administration areas for security purposes. Separate from pedestrian routes, but with clear, direct footpath for visitors to main entrance.		
Environment		
Lighting	30 lux (Note that bollard lights are vulnerable to traffic damage and can be dangerous obstructions).	
Services		
Water	None.	
Electricity	None.	
Finishes		
Surfaces	Asphalt (consider coloured). Clearly define individual bays and circulation route if necessary to ensure maximum parking. Consider surface water drainage collection points. Consider kerbs/bollards to protect surrounding ground.	
Enclosure	Vehicles should be screened from teaching/play areas, but visible from office.	
Landscape	Trees and hedges to screen cars and to provide shade: appropriate 'non-dropping' species to be selected and note trees may need to be planted away from building to prevent structural damage.	
Furniture & Equipment		
Signs to main entrance and litter bins.		

ILLUSTRATION D150A - ROOM DATA SHEET FOR CAR PARK

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

CAR PARK (240 PUPILS)

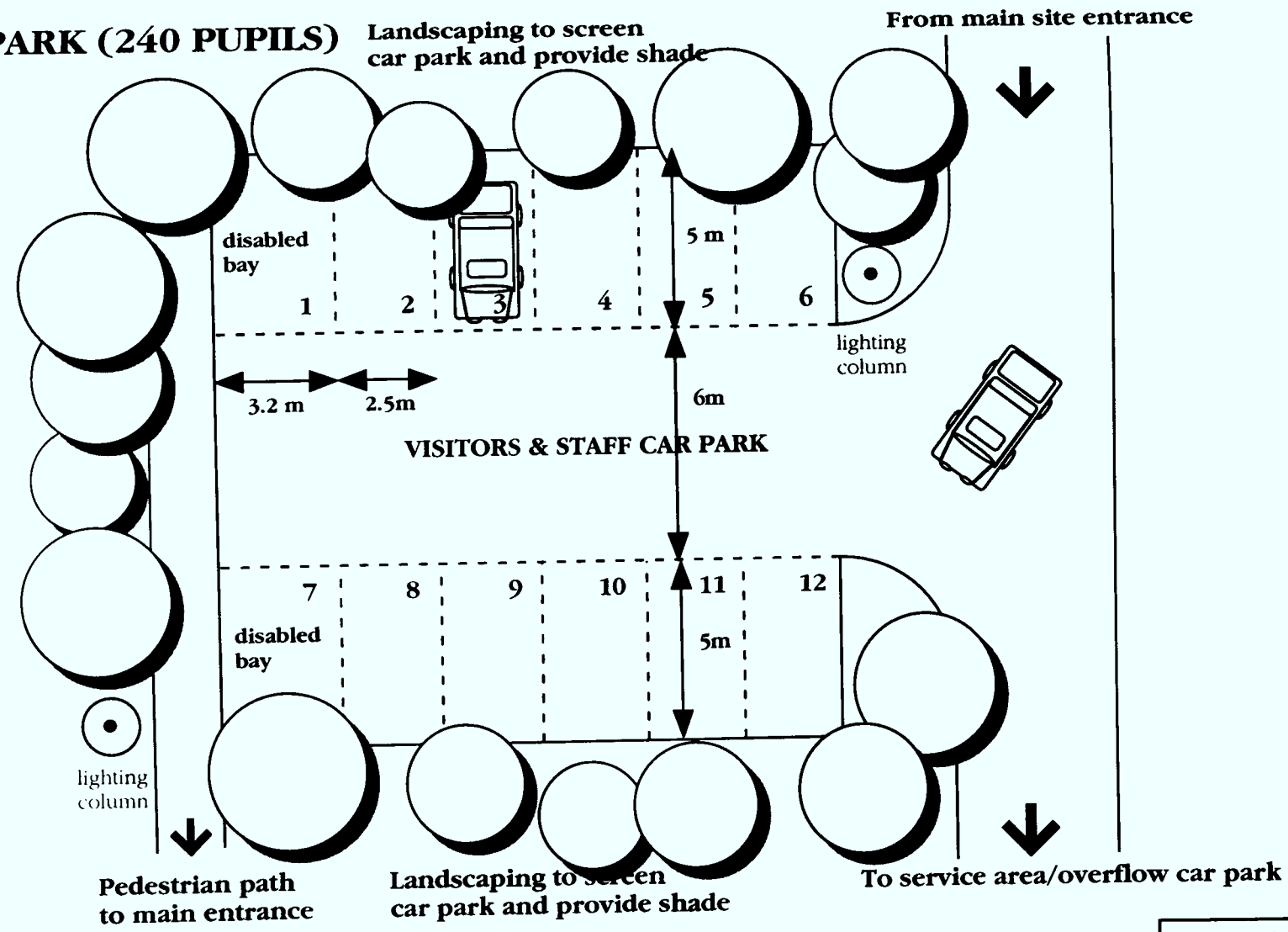
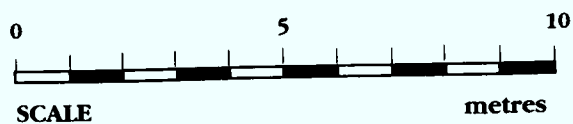


ILLUSTRATION D150B - RECOMMENDED LAYOUT FOR CAR PARK



Based on data from Essex County Council Highways Development control standards see ECC Highways Dept, 1986)

2 CAR PARK	CHECKED
<p>Function</p> <ul style="list-style-type: none"> • Can drivers reverse out of the last bay(s) comfortably? • Are there sufficient parking bays for visitors as well as staff parked for the whole school day? • Has the opportunity for on-street parking been taken into account when determining the car park capacity? 	
<p>Location</p> <ul style="list-style-type: none"> • Is the car park located in a position which can be supervised by admin staff? • Is the car park located in a position where it can be extended at a later date if funds permit? • Can visitors reach the overflow car park easily if the main car park is full during large events? • Is the car park well away from areas with pupil access? 	
<p>Environment</p> <p>Lighting</p> <ul style="list-style-type: none"> • Will street lighting provide adequate levels of illumination without dark areas or annoy neighbours? 	
<p>Services</p> <p>Water</p> <ul style="list-style-type: none"> • None. <p>Electricity</p> <ul style="list-style-type: none"> • None. 	
<p>Finishes</p> <p>Surfaces</p> <ul style="list-style-type: none"> • Are road and foot path surfaces non-slip and self draining with drop kerbs for disabled visitors, pupils or staff. <p>Enclosure</p> <ul style="list-style-type: none"> • Are parked cars screened from view without sacrificing security? <p>Landscape</p> <ul style="list-style-type: none"> • Are parking areas shaded with trees in leaf during the summer without marking paintwork with sticky deposits from fruit or leaves? 	
<p>Furniture and Equipment</p> <p>Fixed</p> <ul style="list-style-type: none"> • Are signs provide to guide visitors to the main entrance? 	

ILLUSTRATION D150C - DESIGN CHECK LIST FOR CAR PARK

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

4	SERVICE AREA	AREA variable
Function		
<p>Vehicle access to service entrance(s) for deliveries. Refuse storage and collection, including recycling of materials. Hard standing for service and emergency vehicles with turning arrangements. Note that if hard surface has to double-up as play area, clear management strategy will be needed to restrict vehicle access by notice/gates.</p>		
Location		
<p>Adjacent to service entrance(s). Separate from all pupil areas. Should not be located on/adjacent to main entry/visitor route.</p>		
Environment		
Lighting	30 lux (Note that bollard lights are vulnerable to traffic damage and can be dangerous obstructions).	
Services		
Water	Cold water point for wash down: controlled from inside building, vandal resistant, insulated supply.	
Electricity	None.	
Finishes		
Surfaces	Asphalt. Clearly define turning areas as 'no parking'.	
Enclosure	Fencing/screen planting to bins area.	
Landscape	Can be used as screening.	
Furniture & Equipment		
Mobile bins for rubbish and recycled materials.		

ILLUSTRATION D151A - ROOM DATA SHEET FOR SERVICE AREA

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

SERVICE AREA

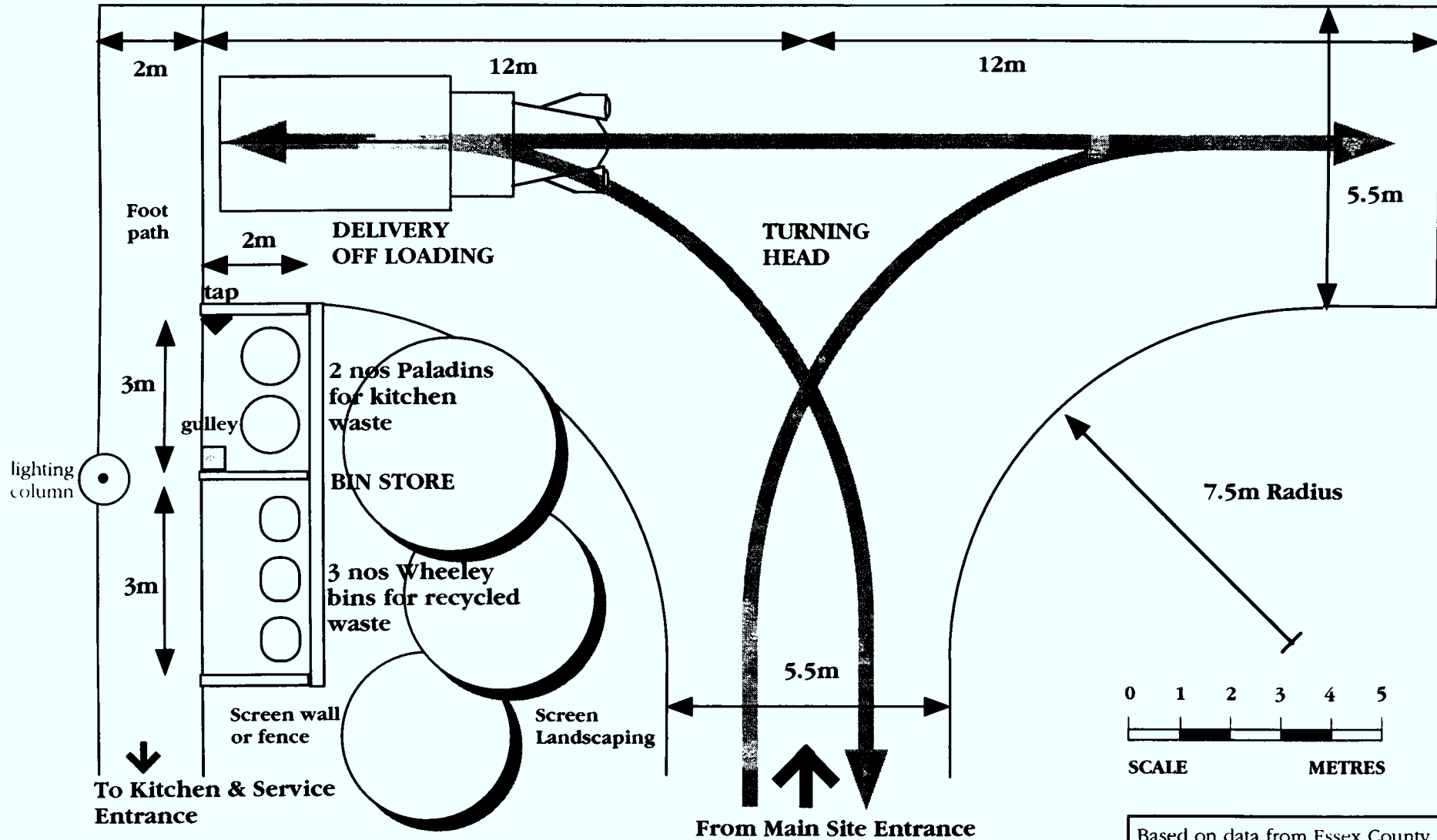


ILLUSTRATION D151B - RECOMMENDED LAYOUT FOR SERVICE AREA

Based on data from Essex County Council Highways Development control standards see ECC Highways Dept, 1986.)

3 SERVICE AREA	CHECKED
Function <ul style="list-style-type: none"> • Is there sufficient space for one service vehicle to wait while another off loads? • Can a County Supplies lorry, refuse cart, ambulance, and fire appliance turn without mounting the kerbs or footpath? • Is it clear that the service area is a no parking area for cars? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Location <ul style="list-style-type: none"> • Can a fire appliance gain access to the fire alarm panel and any fire path easily? • Can the refuse cart and recycling collection vehicles gain access to the bin storage area? • Can kitchen staff gain access to the refuse bin store easily? • Can an ambulance reverse up to an entrance for stretcher transfer into the vehicle? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Environment Lighting <ul style="list-style-type: none"> • Will the whole of the service area be adequately lit during the hours of darkness without annoying neighbours? 	<input type="checkbox"/>
Services Water <ul style="list-style-type: none"> • Can the off-loading and bin store areas be washed down after spillage's? Electricity <ul style="list-style-type: none"> • None. 	<input type="checkbox"/> <input type="checkbox"/>
Finishes Surfaces <ul style="list-style-type: none"> • Are road, hard standing, and footpath areas non-slip and self draining? Enclosure <ul style="list-style-type: none"> • Is the refuse and recycled material store screened from view? Landscape <ul style="list-style-type: none"> • Does the landscaping around the service area help screening and give shade in summer? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Furniture and Equipment Loose <ul style="list-style-type: none"> • Can ancillary staff reach and operate the loading doors to refuse and recycling bins? • Can refuse and recycling bins be fixed in position or locked away after school hours to avoid vandalism? 	<input type="checkbox"/> <input type="checkbox"/>

ILLUSTRATION D151C - DESIGN CHECK LIST FOR SERVICE AREA

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)



5	HARD PLAY - FORMAL	AREA 950 sq.m.
Function	<p>Hard play area for recreational use before school, at breaks and lunch and during school time for physical education team and individual pursuits. Netball court, 5-a-side football and other markings. Provide partial enclosure to prevent balls and children disrupting informal play. Consider use for overflow parking, but note that this is exceptional only if no on-street parking is available (conflict with vehicle access, oil markings, etc.) and Model Specification will require enhancement.</p>	
Location	<p>Not immediately adjacent to school, to prevent distraction of games noise to building users and broken windows/balls on roofs, etc. Close to playing field for ease of lesson supervision. Close to other play areas for ease of recreation supervision. Separate from vehicle access routes and site entrance. Avoid location directly on site boundary to avoid losing balls. Sunny aspect required.</p>	
Environment	<p>Lighting 30 lux if used as overflow car park. Consider flood lighting if community use.</p>	
Services	<p>Water None.</p> <p>Electricity None.</p>	
Finishes	<p>Surfaces Level, well drained, hard wearing, non-slip. Lines for netball and 5-a-side (sketch plans supplied by client). Avoid effect of large expanse of tarmac, by 'softening' edges (irregular shapes, planted fringes, etc.). May need to take vehicles (see above).</p> <p>Enclosure Provide enclosure fencing (1.4m high board fence) to prevent ball escape. Provide fencing if pitch edge close to site boundary (3m height required).</p>	
Furniture & Equipment	<p>Litter bins. Suitably placed kicking board for ball skill practice. Consider viewing seating location.</p>	

ILLUSTRATION D152A - ROOM DATA SHEET FOR HARD PAVED AREA FOR TEAM GAMES

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

FORMAL HARD PLAY FOR 240 PUPILS (950 sq.m.)

3.0 m high chain link fence against boundary or road

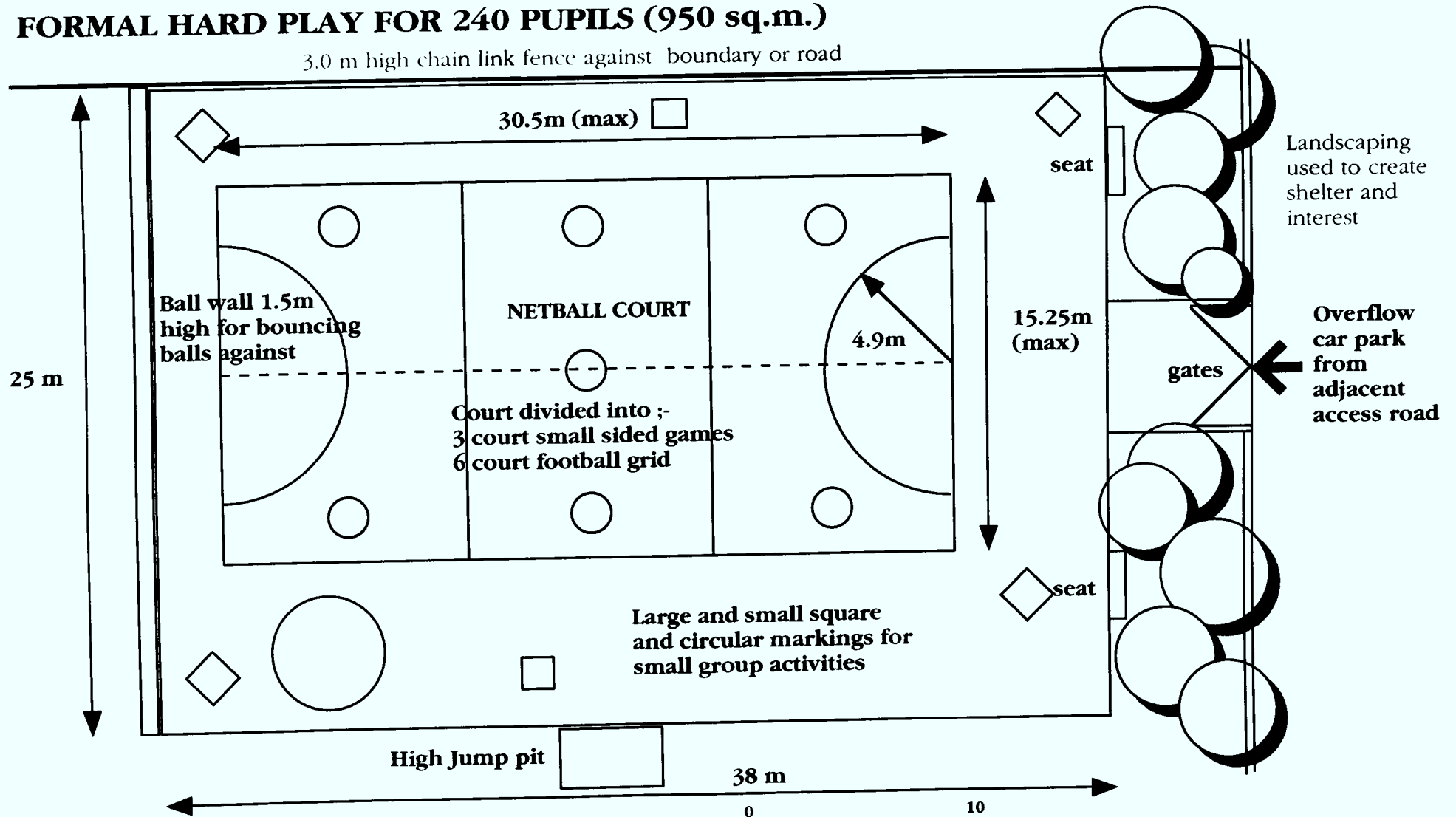


ILLUSTRATION D152B - RECOMMENDED LAYOUT FOR FORMAL HARD PLAY AREA

Based on data from DES Building Bulletin 28 (see DES, 1982)

4 HARD PLAY - FORMAL	CHECKED
<p>Function</p> <ul style="list-style-type: none"> • Can a netball court with appropriate side and end run offs be marked on the hard play area with room for other activities? • Is a suitable surface for the bouncing of balls provided adjacent to the hard play area? • Is the layout suitable for the occasional parking of visitors cars as an overflow car park for parents' evenings etc.? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Location</p> <ul style="list-style-type: none"> • Is the hard play area close to any boundaries leading to nuisance to neighbours from noise and lost balls? • Can the formal hard play area be easily supervised with other hard play areas? • Is the hard play area near to access road for overflow parking, but away from the daily traffic flow? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Environment</p> <p>Lighting</p> <ul style="list-style-type: none"> • Is the hard play area artificially lit for use as an occasional overflow car park or community use out of school hours? 	<input type="checkbox"/>
<p>Services</p> <p>Water</p> <ul style="list-style-type: none"> • None. <p>Electricity</p> <ul style="list-style-type: none"> • None. 	<input type="checkbox"/> <input type="checkbox"/>
<p>Finishes</p> <p>Surfaces</p> <ul style="list-style-type: none"> • Are the surface materials level, non-slip and well drained? <p>Enclosure</p> <ul style="list-style-type: none"> • Is the area fenced to prevent the escape of balls? <p>Landscape</p> <ul style="list-style-type: none"> • Does landscaping break up large paved area, provide shelter and shade in summer? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Furniture and Equipment</p> <p>Fixed</p> <ul style="list-style-type: none"> • Is spectator seating located away from dangerous run off positions? • Can high jump sand pit be covered when not in use to avoid fouling by animals? 	<input type="checkbox"/> <input type="checkbox"/>

ILLUSTRATION D152C - DESIGN CHECK LIST FOR FORMAL HARDPLAY AREA

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

6	HARD PLAY - INFORMAL	AREA 275 sq.m.
Function		
<p>Hard play area for recreational use before school, at breaks and lunchtime for informal non-team activities and individual pursuits. Free running, creative play. Quiet/sitting areas.</p>		
Location		
<p>Close to other play areas for ease of recreation supervision. Separate from vehicle access routes and site entrance. Protected from wind: may be immediately adjacent to school, to take advantage of shelter, enclosure, etc. Sunny aspect required. In conjunction with school, exploit any opportunities for learning/curriculum input arising from the design/building process (e.g. applying Art, Technology, Science. etc.).</p>		
Environment		
Lighting	None.	
Services		
Water	None.	
Electricity	None.	
Finishes		
Surfaces	<p>Hard wearing, non-slip, consider rubber/bark, varied, avoiding large areas of tarmac; imaginative line markings; changes of level (with ramps), taking advantage of existing ground level.</p>	
Enclosure	<p>Enclosure/partial screening to 'contain' spaces, but keep supervision sight lines. Provide partial shelter to seating (pergola, canopy etc.). Avoid sharp edges.</p>	
Landscape	<p>'Buffer' planting between soft and hard team play areas to break up space and provide shelter/containment/definition.</p>	
Furniture & Equipment		
<p>Seating. Play equipment - climbing frames, tunnels, fort, slide etc. Litter bins. Planting - maximum 450mm height. Design-in opportunities for walling that can be sat upon, e.g. 600mm height.</p>		

ILLUSTRATION D153A - ROOM DATA SHEET FOR HARD PAVED INFORMAL PLAY AREA

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

HARD PLAY - INFORMAL
240 pupils (275 sq.m.)

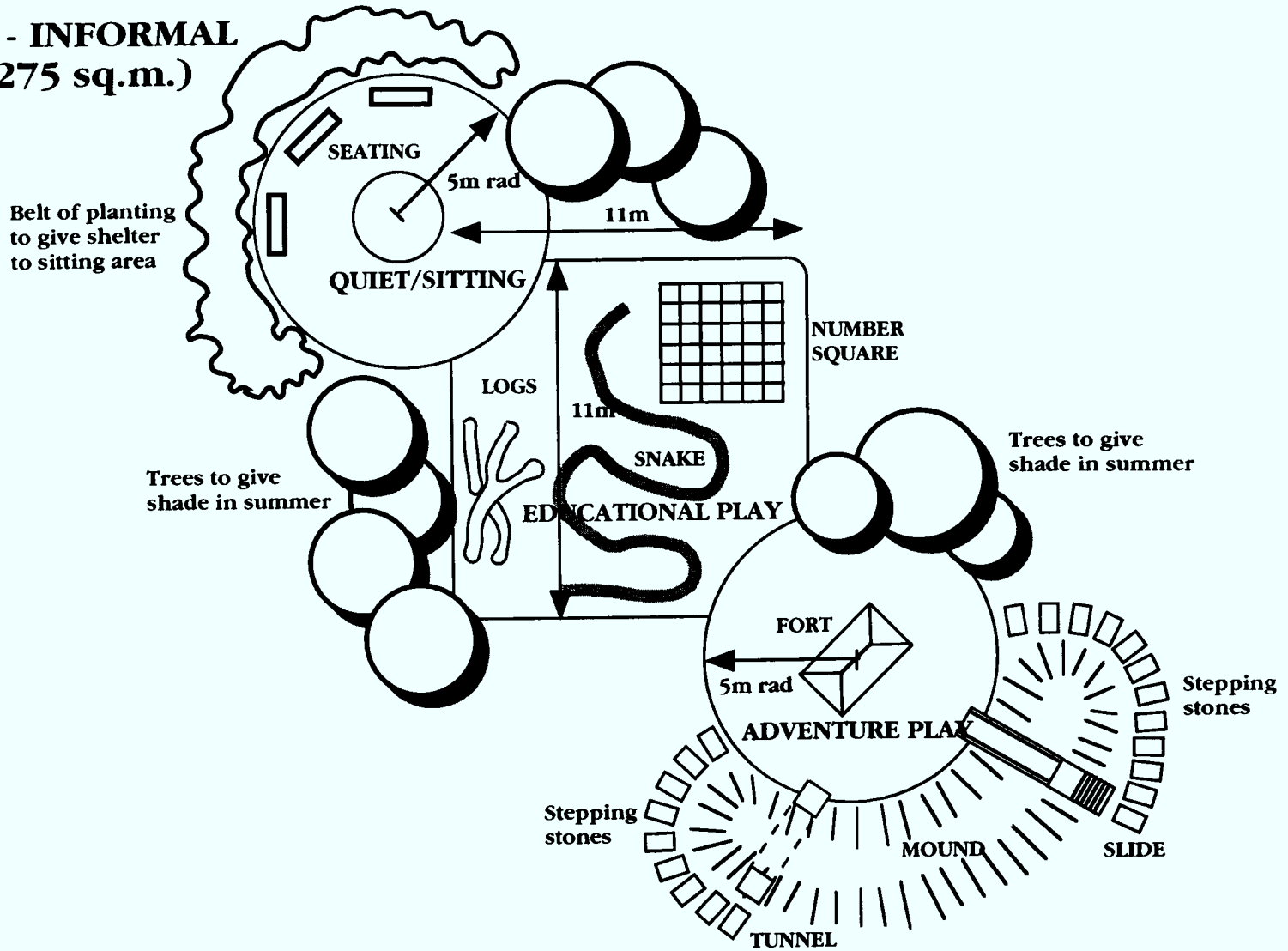
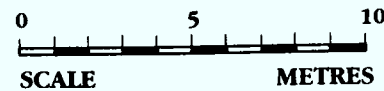


ILLUSTRATION D153B - RECOMENDED LAYOUT FOR INFORMAL PLAY AREA.



Based on data from DES Building Bulletin 71 (see DES, 1990.)

5 HARD PLAY - INFORMAL	CHECKED
<p>Function</p> <ul style="list-style-type: none"> • Can small groups of children sit comfortably and naturally for quiet periods of discussion without being disturbed by other activities? • Do pupils have access to adventure play equipment which will channel their natural energy to good effect? • Do playground markings encourage the playing of informal games of educational benefit? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Location</p> <ul style="list-style-type: none"> • Is the informal hard play area located in a position which will allow the area to be extended at a later date? • Can the area be easily supervised by teaching staff responsible for other areas? • Is the informal hard play area naturally separated from the other play areas? • Will the hard play area receive plenty of sun during the winter but have areas of shade in the summer? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Environment</p> <p>Lighting</p> <ul style="list-style-type: none"> • None. 	<input type="checkbox"/>
<p>Services</p> <p>Water</p> <ul style="list-style-type: none"> • None. <p>Electricity</p> <ul style="list-style-type: none"> • None. 	<input type="checkbox"/> <input type="checkbox"/>
<p>Finishes</p> <p>Surfaces</p> <ul style="list-style-type: none"> • Are surfaces under items of climbing equipment of a softer safety material unlikely to injure children? <p>Enclosure</p> <ul style="list-style-type: none"> • Are sitting areas screened with fencing, walls, or planting to give shelter during inclement weather? <p>Landscape</p> <ul style="list-style-type: none"> • Does the landscaping give interest from colour texture, and smell as well as giving some shade in summer? 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>Furniture & Equip</p> <p>Fixed</p> <ul style="list-style-type: none"> • Will seating weather well and withstand vandalism? • Will adventure playground equipment weather well and withstand vandalism? 	<input type="checkbox"/> <input type="checkbox"/>

ILLUSTRATION D153C - DESIGN CHECKLIST FOR INFORMAL HARD PLAY AREA.

Based on data gleaned from interviews with teachers and ECC officers (French, C.P..1995)

7	RECEPTION PLAY	AREA 234 sq.m.
Function	<p>Play area for exclusive use of Reception Class. Protected space; sheltered from wind. No set pattern; variety from school to school to be encouraged. In conjunction with school, exploit any opportunities for learning/curriculum input arising from the design/building process (e.g. applying Art, etc.). Scheme should provide framework for subsequent LTL work for which starter budget should be allowed.</p>	
Location	Adjacent to Reception Classbase.	
Environment		
Lighting	30 Lux controlled from Reception Classbase.	
Services		
Water	Cold water for outdoor work. controlled from inside building, vandal resistant, insulated supply.	
Electricity	Weather resistant 13 amp socket outlet.	
Finishes		
Surfaces	<p>Half area to be paved in variety of finishes. Half area to be grass and planting, both areas should be well drained. Avoid steps. Tarmac and rubber used if possible.</p>	
Enclosure	<p>Capable of future fencing if base used for nursery class in future. Wooden fencing - avoid brick walls on any boundaries.</p>	
Landscape	<p>Buffer planting between areas to break up space and provide shelter/containment/definition. Scope of planting to be discussed in liaison with head, staff, pupils. to take full educational advantage of growing activities.</p>	
Furniture & Equipment	<p>Play structures - houses, logs, tyres, low posts, seats with low tables, sand pit with cover. No sharp edges. Bright colours.</p>	

ILLUSTRATION D154A - ROOM DATA SHEET FOR RECEPTION PLAY

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

**RECEPTION CLASS PLAY AREA
(234 sq.m.)**

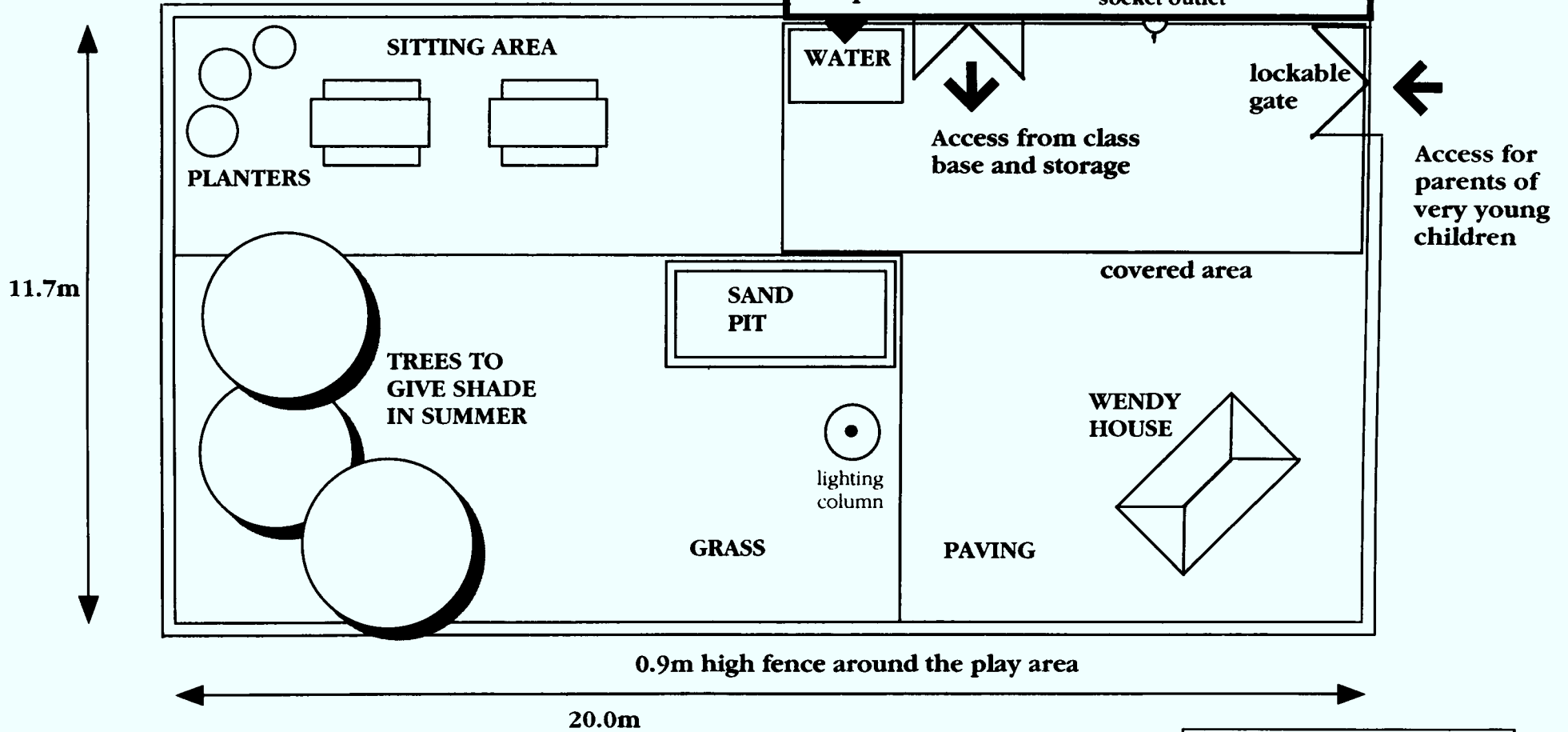
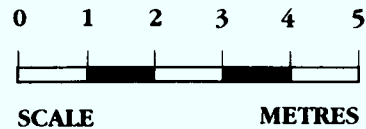


ILLUSTRATION D154B - RECOMMENDED LAYOUT FOR RECEPTION CLASS PLAY AREA



Based on data from Essex County Council primary school brief (see ECC Prop Services & Education Depts, 1994)

6	RECEPTION CLASS PLAY AREA	CHECKED
Function	<ul style="list-style-type: none"> • Can pupils sit outside at tables to play with small toys and puzzles? • Can pupils ride small toys around the compound safely? • Do pupils have access to water under supervision? • Can pupils bring large toys out of the classroom or store and play with them outside? • Do pupils have access to a sand pit? 	
Location	<ul style="list-style-type: none"> • Can pupils access the play area directly from their class base? • Can pupils and their parents gain access to the play area from outside at the beginning and end of the school day? • Can the play area be extended at a later date if funds permit? 	
Environment		
Lighting	<ul style="list-style-type: none"> • Is external lighting provided for security and dark winter afternoons? 	
Services		
Water	<ul style="list-style-type: none"> • Can the water tap be controlled from within the classbase by the teacher? 	
Electricity	<ul style="list-style-type: none"> • Is the weatherproof socket outlet tamper proof and located in a convenient position? 	
Finishes		
Surfaces	<ul style="list-style-type: none"> • Are surface finishes safe, non-slip, well drained, and of an interesting colour and texture? 	
Enclosure	<ul style="list-style-type: none"> • Is the play area provided with a non-climbable fence or wall with an access gate to the school grounds which can be locked when appropriate? 	
Landscape	<ul style="list-style-type: none"> • Does landscaping give shade in summer and interest from the colour and texture of its foliage, bark, and fruit? 	
Furniture & Equip		
Loose	<ul style="list-style-type: none"> • Can seating and tables be moved to different locations to suit activities and weather conditions, but secured/stored out of school hours to prevent vandalism? 	
Fixed	<ul style="list-style-type: none"> • Can sand pit be covered when not in use to prevent fouling by animals? 	

ILLUSTRATION D154C - DESIGN CHECK LIST FOR RECEPTION CLASS PLAY AREA

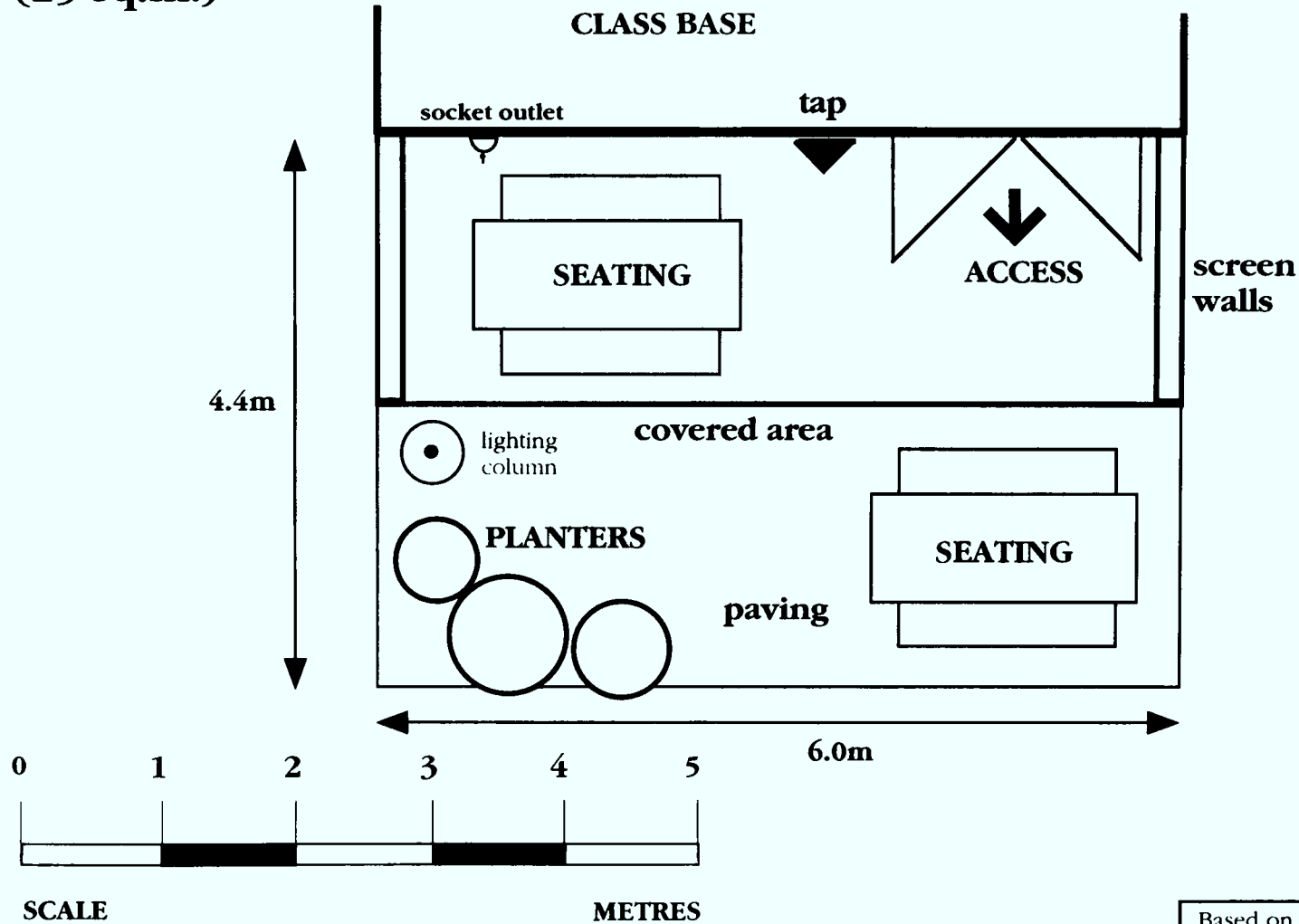
Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

8	OUTSIDE TEACHING - HARD	AREA 200 sq.m.
Function	<p>Sheltered, partially covered, outside work areas where projects can be taken from classbase and worked on outside.</p> <p>Area must have element of security, particularly for outdoor projects, & animals. May be used for quiet/sitting before school, at breaks and lunch.</p> <p>Area 25m² per class base of which half should be covered.</p> <p>Adjacent to garden area.</p> <p>In conjunction with school, exploit any opportunities for learning/curriculum input arising from the design/building process (e.g. applying Art, Technology, Science, etc.).</p> <p>Scheme should provide framework for subsequent LTL work for which starter budget should be allowed</p>	
Location	<p>Area required adjacent to <u>each</u> classbase.</p> <p>Sunny aspect required, so should not located on northerly elevation.</p> <p>Close to informal play areas if possible for ease of supervision but protected from them.</p>	
Environment		
Lighting	30 Lux controlled from classbase.	
Services		
Water	Cold water for outdoor work, controlled from inside building, vandal resistant, insulated supply.	
Electricity	Weatherproof 13 amp socket outlet.	
Finishes		
Surfaces	Hard wearing non-slip, varied, avoiding large areas of tarmac; e.g. 600x600 paving slabs with brick divisions; changes of level where possible to differentiate areas (with ramps if necessary).	
Enclosure	At least partial cover to provide protection and shelter: may be canopy projecting from building or free-standing pergola type structure - but beware of possible security issues. Avoid sharp edges.	
Landscape	<p>Buffer planting between areas to break up space and provide shelter/containment/definition.</p> <p>Scope of planting to be discussed in liaison with head, staff, pupils. to take full educational advantage of growing activities.</p>	
Furniture & Equipment	Weather proof seating and table(s), litter bin and planters.	

ILLUSTRATION D155A - ROOM DATA SHEET FOR PAVED OUTSIDE TEACHING AREA

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

**OUTSIDE TEACHING AREA - HARD
(25 sq.m.)**



**ILLUSTRATION D155B - RECOMMENDED LAYOUT FOR
HARD OUTSIDE TEACHING AREA**

Based on data from Essex County Council primary school brief (see ECC Prop Services & Education Depts, 1994)

7 OUTSIDE TEACHING HARD	CHECKED
<p>Function</p> <ul style="list-style-type: none"> • Can a small group of pupils sit comfortably outside at a table in warm weather to work on individual or group projects? • Can large projects be moved from the class base or constructed outside on a paved area? • Is there space for a small sheltered, secure, animal enclosure? 	
<p>Location</p> <ul style="list-style-type: none"> • Can pupils gain access directly to the area from the classbase? • Is the area located with a naturally sunny aspect, but with a shaded area for the summer? • Can parents gain access to this area at the beginning and end of the day to wait for pupils if appropriate? 	
<p>Environment</p> <p>Lighting</p> <ul style="list-style-type: none"> • Is the area artificially lit for security and dark winter evening use? 	
<p>Services</p> <p>Water</p> <ul style="list-style-type: none"> • Do pupils have access to an outside water tap under supervision with control by the teacher from within the class base? <p>Electricity</p> <ul style="list-style-type: none"> • Is the weatherproof outside socket outlet tamperproof and located in a convenient position? 	
<p>Finishes</p> <p>Surfaces</p> <ul style="list-style-type: none"> • Are surface finishes non-slip with interesting colours and textures and changes of level for older children? <p>Enclosure</p> <ul style="list-style-type: none"> • Is the area partially enclosed by screen walls or fencing to give shelter from inclement weather without giving access to intruders? <p>Landscape</p> <ul style="list-style-type: none"> • Does landscaping provide interesting colour, texture and smell as well as shelter and shade? 	
<p>Furniture and Equipment</p> <p>Loose</p> <ul style="list-style-type: none"> • Can tables and chairs resist the weather and vandalism? <p>Fixed</p> <ul style="list-style-type: none"> • Can litter bins be easily emptied, but not vandalised? 	

ILLUSTRATION D155C - DESIGN CHECK LIST FOR HARD OUTSIDE TEACHING AREA

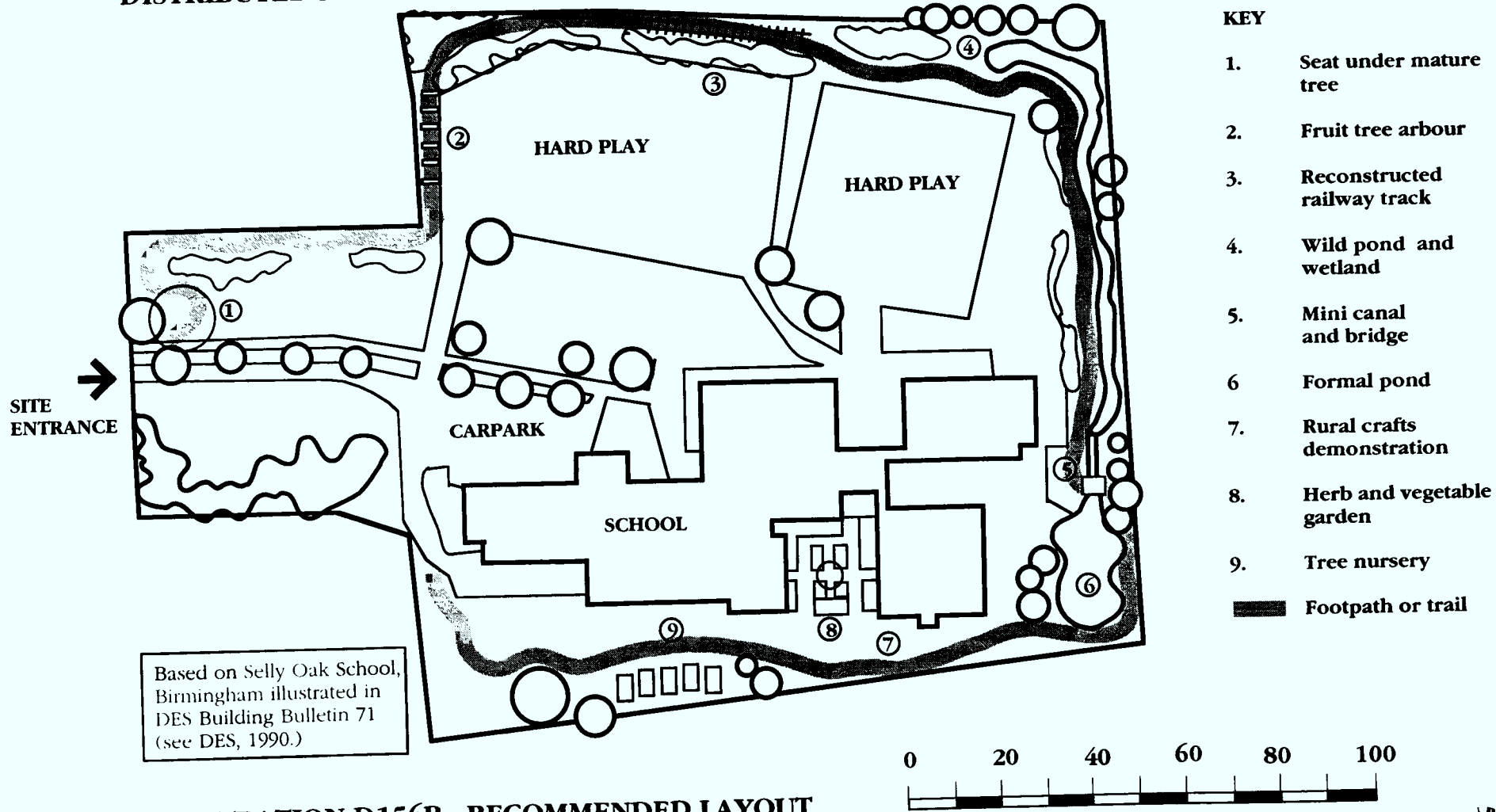
Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

9	OUTSIDE TEACHING - SOFT	AREA part of 0.5 Ha
Function		
<p>Quiet sitting, reading, chatting at break and lunch times. Outdoor work: to be developed by school in LTL activities: pond, marsh, vegetable gardens, animal areas, etc. In conjunction with school, exploit any opportunities for learning/curriculum input arising from the design/building process (e.g. applying Art, Technology, Science, etc.). Scheme should provide framework for subsequent LTL work for which starter budget should be allowed.</p>		
Location		
<p>Situations around school grounds. Not too distant from main building.</p>		
Environment		
Lighting	None.	
Services		
Water	Cold water for outdoor work, pond, plant watering, etc.: controlled from inside building, vandal resistant, insulated supply.	
Electricity	Supply for pond pump/filtration system.	
Finishes		
Surfaces	Grass. Some 'natural' areas. Mounds.	
Enclosure	Provided by planting.	
Landscape	Site specific initial structure planting. 'Buffer' planting between areas to break up space and provide shelter/containment/definition.	
Furniture & Equipment		
Litter bins. Informal seating.		

ILLUSTRATION D156A - ROOM DATA SHEET FOR SOFT OUTSIDE TEACHING AREAS

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

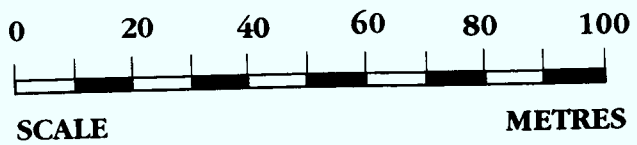
OUTSIDE TEACHING AREAS - SOFT DISTRIBUTED AROUND THE SCHOOL GROUNDS AND CONNECTED BY A TRAIL



- KEY**
- 1. Seat under mature tree
 - 2. Fruit tree arbour
 - 3. Reconstructed railway track
 - 4. Wild pond and wetland
 - 5. Mini canal and bridge
 - 6. Formal pond
 - 7. Rural crafts demonstration
 - 8. Herb and vegetable garden
 - 9. Tree nursery
 - Footpath or trail

Based on Selly Oak School, Birmingham illustrated in DES Building Bulletin 71 (see DES, 1990.)

ILLUSTRATION D156B - RECOMMENDED LAYOUT FOR SOFT OUTSIDE TEACHING AREAS



8	OUTSIDE TEACHING - SOFT	CHECKED
Function <ul style="list-style-type: none"> • Can pupils move easily between the outside teaching areas? • Are any features which use water entirely safe if used without supervision and totally enclosed with locked access otherwise? • Does each area have a specific educational purpose? 		
Location <ul style="list-style-type: none"> • Can the outside teaching areas be easily supervised by admin or teaching staff? • Can these areas be supplemented or expanded at a later date if finances allow? • Can disabled pupils or staff gain access to all areas? 		
Environment Lighting	<ul style="list-style-type: none"> • None. 	
Services Water Electricity	<ul style="list-style-type: none"> • Can the water supply to the pond etc. be controlled from within the building? 	
	<ul style="list-style-type: none"> • Is the electrical supply to the pond motor etc. completely weather resistant and tamper proof? 	
Finishes Surfaces Enclosure Landscape	<ul style="list-style-type: none"> • Can footpaths etc. be used in wet weather without special footwear? 	
	<ul style="list-style-type: none"> • Are potentially dangerous or easily vandalised areas, such as ponds or animal enclosures, enclosed with fencing? 	
	<ul style="list-style-type: none"> • Can planting be used as an educational resource and provide interesting colour, texture, shade and shelter around the activity areas? 	
Furniture and Equipment Fixed	<ul style="list-style-type: none"> • Is seating weather and vandal proof? 	

ILLUSTRATION D156C - DESIGN CHECK LIST FOR SOFT OUTSIDE TEACHING AREA

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

10	PLAYING FIELD - FORMAL	AREA 0.5 Ha
Function		
<p>Sport and recreation. Seasonal team games on marked pitches. Designed in accordance with DES Bulletin 28, including orientation, slope, etc. Pitch size 73 x 40m plus 10m run-off at ends, 6m at sides. Second pitch (i.e. on larger schools only) can be smaller (min 68.5 x 27.5m). Handover procedure by Contractor to School/Grounds Maintenance must be clearly established.</p>		
Location		
<p>Close to Hard Paved (Team Games) Area if possible for ease of supervision. Not immediately adjacent to school, to prevent distraction of mowing/games noise to building users and broken windows/balls on roofs, etc. Mowing access required.</p>		
Environment		
Lighting	None.	
Services		
Water	Hose point for sprinkler.	
Electricity	NONE	
Finishes		
Surfaces	<p>Surface - To be designed for seven hours per week team games use. 'Level', well drained in accordance with DES Bulletin 28. Specification to be agreed with Principal Landscape Officer and County Grounds Service Adviser.</p>	
Enclosure	<p>Ball fence where needed if pitch near boundary to stop balls straying onto neighbouring land. Particular problem if near highway.</p>	
Landscaping	<p>Planting - 'Buffer' planting between playing field and hard team play areas to break up space and provide shelter/containment/definition.</p>	
Furniture & Equipment		
<p>Litter bins if no nearby alternative provision - to be appropriately located for ease of emptying. Consider viewing seating location.</p>		

ILLUSTRATION D157A - ROOM DATA SHEET FOR PLAYING FIELD - FORMAL GAMES

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)



11	PLAYING FIELD - INFORMAL	AREA part of 0.5 Ha
Function	<p>Soft play area for recreational use before school, at breaks and lunch for informal, non-team activities and individual pursuits. No set pattern; variety from school to school to be encouraged. In conjunction with school, exploit any opportunities for learning/curriculum input arising from the design/building process (e.g. applying Art, Technology, Science, etc.). Scheme should provide framework for subsequent LTL work for which starter budget should be allowed. Handover procedure by Contractor to School/Grounds Maintenance must be clearly established.</p>	
Location	Around school and grounds but capable of supervision.	
Environment		
Lighting	NONE	
Services		
Water	NONE	
Electricity	NONE	
Finishes		
Surfaces	Grass, bark, varied, with changes in levels (ramps for disabled access) and finishes.	
Enclosure	Partial screening. Avoid sharp edges.	
Planting	<p>'Buffer' planting between areas to break up space and provide shelter/containment/definition. Site specific initial structure planting. Block planting of native trees.</p>	
Furniture & Equipment	<p>Play equipment. Seating. Litter bins.</p>	

ILLUSTRATION D157B - ROOM DATA SHEET FOR PLAYING FIELD INFORMAL PLAY.

Based upon the Essex primary school model brief (see ECC Prop Services & Education Depts, 1994)

9	PLAYING FIELD - FORMAL & INFORMAL	CHECKED
Function	<ul style="list-style-type: none"> • Can the National Curriculum for sporting activities be delivered for all year groups in all seasons whatever the weather? • Is it possible to mark out pitches in different positions to avoid badly worn areas of grass in goal mouths etc.? • Can small group games/activities take place in the margins while pitches are in use? • Can informal play activities take place in break times without affecting pitches? 	
Location	<ul style="list-style-type: none"> • Can all sporting activities be easily supervised by a limited number of teachers? • Can all informal games and activities be observed by playtime supervisory staff? • Will loose balls, grounds maintenance, etc. cause any nuisance to other teaching activities, damage to the building, or neighbours? • Can pupils reach pitches quickly and easily from changing rooms and outdoor equipment stores? 	
Environment		
Lighting	<ul style="list-style-type: none"> • None. 	
Services		
Water	<ul style="list-style-type: none"> • Can the grass pitches be easily watered during dry weather? 	
Electricity	<ul style="list-style-type: none"> • None. 	
Finishes		
Surfaces	<ul style="list-style-type: none"> • Can grass surfaces be maintained without disturbing other activities? 	
Enclosure	<ul style="list-style-type: none"> • Does planting provide enclosure & shelter to playing pitches? 	
Landscape	<ul style="list-style-type: none"> • Does planting in the margins provide educational opportunities? 	
Furniture & Equip		
Loose	<ul style="list-style-type: none"> • Can football and hockey goal posts, cricket nets, etc. be stored securely when not in use? 	
Fixed	<ul style="list-style-type: none"> • Can long jump sand pit be covered when not in use to prevent fouling by animals? 	

ILLUSTRATION D157F - DESIGN CHECK LIST FOR PLAYING FIELD

Based on data gleaned from interviews with teachers and ECC officers (French, C.P.,1995)

CHAPTER 14

CONCLUSIONS

The previous chapters of this thesis conclude with a summary of the main issues raised within them, but it is necessary to re-examine the more significant points within the context of primary school design as a whole, and list the clear lessons that can be learned for the design of new primary schools and major extensions to existing schools in Essex, following the same order as they appear in the main thesis.

14.1 POST WAR EDUCATION IN GREAT BRITAIN

Essex primary schools have been subjected to the same pressures from the rapidly changing education system in Great Britain as schools in other parts of the country, but they have responded slightly differently reflecting local circumstances.

Political pressures

The political climate affecting the education system has changed dramatically during the last 25 years, from the socially aware post-war period which spawned progressive teaching methods and open plan layouts for primary schools, to today's more independent and competitive climate, leading towards more traditional teaching methods and cellular plan layouts nationally. These changes have been less marked in Essex, however, because the county did not adopt the new liberal thinking as wholeheartedly as other parts of the country, largely as a result of its Conservative politics and a natural resistance from teachers.

The greatest political pressure on school building in Essex during the past 25 years has been the desire by Conservative politicians at both national and local level to reduce public expenditure, and this has impacted on space and quality standards.

Clearly the change of political power at a local level in 1990 had some beneficial effect on the level of investment in primary school construction, but this has been very limited because of Central Government controls on loan sanction and overall budget levels with their ultimate sanction of capping used to bring errant local authorities into line.

Economic pressures

Central Government controls and the variable economic climate in Great Britain, with its boom and bust economy, have created very real problems for local education authorities both attempting to build new schools in areas of growth and to improve their older existing schools. Conditions in Essex have been exacerbated by its geographical position in the south east corner of the country, close to the capital where the ravages of inflation within the construction industry over the last 25 years have made the financing of school building very difficult and unpredictable.

Strict Central Government control over public expenditure has, also, given local authorities very little freedom to determine their own priorities or standards until recently, and despite subsidies from other parts of their budget, Essex County Council have found it impossible to keep the number and quality of primary school construction projects up to levels that satisfy demand.

Inevitably this pressure has resulted in high levels of frustration amongst schools awaiting urgently needed improvements, as projects are postponed for year after year, and this undoubtedly explains some of the pressure to opt for grant maintained status with its initial promise of capital grants for such work.

Clearly the most recent period of deflation in the construction industry has helped stabilise the cost of building primary schools in Essex and limited public funds have been stretched further, but there are already signs that even a modest increase in economic activity will spark off another period of inflation in the industry as shortages of labour and materials increase costs.

Education policy

The present Government has pursued a policy of promoting traditional values within the education system, with an emphasis on pupils obtaining certain basic skills by a specific age. They have discouraged progressive teaching methods which they claim are unfocused and politically suspect. Despite this new agenda, however, most Essex primary schools still adhere to the basic principles of child-centred teaching by means of project work.

The National Curriculum has, of course, impacted on Essex primary schools in the last few years, restricting local choice, with little time for some practical subjects and a greater emphasis on more academic activities.

Many Essex teachers have said that this change of emphasis has caused difficulty in their largely open plan schools, with teachers and pupils both finding it difficult to concentrate on the more academic activities, and it is likely the future primary schools may need to be more cellular to match the new education policy.

The open plan movement

The open plan movement of the 1960s and 70s had a profound influence on the development of the British primary school which is still evident in current designs. This is particularly true of Essex primary schools which, although more cellular than in other parts of the country, still exhibit many of the characteristics of the open plan schools, including shared resource areas, shared circulation and linked teaching bases.

Clearly there must have been some advantages in using this form of plan in terms of the close relationships between teaching bases, shared resources and efficient circulation, for these layouts to have dominated primary school design for so long, and future schools are likely to continue to use some of these features.

Some recent Essex primary school designs have more cellular plan forms, however, with pairs of classbases forming pavilions linked together by corridors reminiscent of plans produced in the 1950s. It will be interesting to see if these schools have sufficient flexibility to cope with ever changing teaching methods and pupil numbers.

14.2 THE ESSEX PRIMARY EDUCATION SYSTEM

The primary school system in Essex is far from unique and follows a similar pattern to that of many other shire counties, but it has been moulded over many years to reflect local demands and circumstances.

Growth in the county of Essex

The population of Essex, like many counties in South East England, has grown dramatically since the Second World War, but this has not been consistent in all areas, with large variations between its urban, suburban and rural communities, with the major growth occurring around the large conurbations and new towns.

This population growth produced large numbers of primary school pupils, and significant programmes of new schools and extensions following the war which continued into the early part of the study period.

Although the rise in numbers has slowed in recent years, there is still pressure to build new and extend existing schools in those parts of the county still experiencing growth. It is unlikely, however, that the county will ever again see the levels of growth experienced in the post war years and new primary schools will be rare with perhaps only one or two constructed each year.

Reduced levels of growth would suggest that most design teams in the future are likely to be dealing with the existing building stock, and future design guidance should concentrate on extending and remodelling existing buildings rather than constructing new schools.

Structure of the primary school system

Unlike the immediate neighbouring county of Suffolk which introduced the middle school concept in the 1970s, Essex has stuck to the more traditional structure of infant, junior and primary schools for the 5 to 11 age group.

Nursery school provision throughout the county is minimal and has only grown fitfully during the last 25 years. The present County Council members appear to be committed to the growth of this sector, however, and a large programme of nursery unit construction at Essex primary schools could be possible if funding is available.

Church schools have also played an important role in primary school education in Essex in the past. but as in other parts of the country many church schools have taken the opportunities presented by grant maintained status and are now independent of County Council control.

The last ten years have seen an increasing number of local primary schools educating children with special needs within the mainstream system, and this is beginning to have some impact on the design of Essex primary schools, including full wheelchair access to all parts of the school and proper toilet and changing facilities for the disabled. It has proved to be quite difficult, however, to adapt some existing buildings due to numerous changes of level within the school.

Size of schools

Sizes of primary school vary throughout Essex, from the small, rural, half a form of entry primary with 100 pupils on role, to the large, suburban, two forms of entry primary with 480 pupils on role, and this is reflected in their organisation, character and architecture.

Many of the smallest rural schools were thought to be non-viable in the 1960s and 70s and were closed, with children bussed into the larger suburban schools. Small rural schools have enjoyed a revival recently, however, with parents opting for the more traditional education they offer, often transporting children long distances from their suburban homes to the rural schools.

Ironically many of these same suburban areas have seen a natural diminution of pupil numbers, as the population has aged, and some have been closed or amalgamated with neighbouring schools.

Teachers attitudes

Teachers in Essex primary schools are naturally conservative and they have had a modifying influence on the extremes of progressive teaching throughout the county and the architectural forms which flowed from them. As a result Essex has developed its own particular education house style incorporating some of the better features of progressive teaching, but avoiding some of the worst. Hopefully, as the pendulum swings towards traditional values in education, the conservative nature and common sense of Essex teachers will, once again, prevent the worst excesses of a potentially regressive system.

Community use

Community involvement in Essex primary schools has operated at many levels during the last 25 years with some very ambitious joint-use schemes appearing during the 1980s. The County Education Department are still committed to joint provision and every new scheme is examined to ensure that local communities are given an opportunity to partake in a joint scheme if they wish, but very few community associations or parish councils appear to have the money at present to invest in such projects. The recent success of some National Lottery bids suggests that the financial situation may change in the near future, however, if the strict funding formulae can be met.

14.3 THE DESIGN TEAM

The interaction between various members of the design team over the last 25 years has impacted on primary school design in Essex, with each pursuing their own particular agenda, sometimes to the school's benefit and sometimes to its detriment.

The Architect's Department

The County Architect's Department has seen many changes during the last 25 years from its dominant position as a large, powerful department in the early 1970s, designing the majority of an extensive programme of mainly new primary schools, organised in separate, but co-operative, professional disciplines, to the small multi-disciplinary core group of today supervising the design of mainly extension and remodelling projects carried out by consultants, albeit employing mainly past members of staff.

This new arrangement has proved to be a real challenge to the remaining core of professional staff who have the task of ensuring that design briefs and quality standards for new primary schools are achieved within budget and on programme, without complete control over the resources for the task.

Although officially committed to multi-disciplinary working, the Architect's and latterly the Property Services Department, fell prey to the many professional prejudices which beset the construction industry, and true multi-disciplinary

working where individual prejudice is put aside in favour of the needs of the team and project, has been rare.

The Architect's Department has also been responsible for a considerable number of innovative primary school designs, especially in the field of environmental design through its programme of development projects.

The success and failure of development projects affecting primary schools were not properly recorded or fed back into mainstream design, partly as a result of a desire by the development group to move onto the next problem, and partly from a lack of interest by the practice group who felt that development work was an expensive luxury carried out by an elite group of designers under hot house conditions, and was of little relevance to day-to-day project work.

Such development work is now very restricted, however, because of the limited resources at its disposal and the Development Group has been disbanded. It is only really possible to promote development projects through the new consultants which makes control and monitoring of these projects very difficult.

The Architect's Department was led for much of the last 25 years by a County Architect who believed in team work, raising quality across as many projects as possible, and not just a few award winning schemes as happened in another notorious County in the South East . This resulted in a large group of committed individuals complementing and feeding off each other rather than one strong, talented designer who surrounded himself with a small group of acolytes, moulded in his own image, to achieve greatness, and dismissive of others who could not achieve such perfection.

The Education Department

The Education Department has been subjected to the same pressures for change as the Architect's with a fragmentation of expertise on primary school design, as various advisors and specialists have been transferred to business units or retired.

Individual schools now have a considerable influence over their own destiny through the Grant Maintained and Locally Managed schemes, but the Education Committee still provide the financial resources to build new or extend existing primary schools and it requires considerable skill and diplomacy by education premises managers to provide schools with their requirements within the resources available.

Many head teachers and governors have attempted to use their new found freedom to pressurise the Education Department into funding what they consider to be urgently needed building works, with threats of adopting grant maintained status if funds are not forthcoming. It will be some time before the new rapport between schools and the Education Department settles down into a more realistic relationship, as schools realise that the GM threat will not in itself provide more resources.

The town planners

The Architect's and Education Departments have both experienced a difficult relationship with the town planners over the design of new primary schools, with many disagreements around the use of relocatable classrooms, system building and the form of certain developments.

Unfortunately, some of this antipathy stems from past disagreements over the insensitive use of MCB and the blind application of design guide principles to the character and form of primary schools without any understanding of the function of the building, with certain individuals unwilling to bury the hatchet.

It has been shown recently, however, that the town planners will listen to reasoned argument about the merits of a particular design if they are involved early in the design period and a compromise can often be reached, even though this may dilute the purity of an original design concept in some cases.

Other organisations

The role of certain other County Council departments in the design of primary schools in the past has also not always been helpful. The recent changes in the Council's structure has, however, reduced the power of such departments who now have to attract customers to survive, and this has made them more amenable to certain design solutions and contractual arrangements.

Past tensions between various personalities and organisations involved in the design of Essex primary schools has at times created a healthy debate about the nature of primary school design. It has also, however, prevented the design team working together at times to resolve many of the problems besetting the modern primary school.

The current period of change in Local Government, loss of experienced in-house design capability, and greater use of consultants and contractors is bound to interfere with design continuity, team work, good communications and continue the present sense of uncertainty and lack of direction. Hopefully the conclusion of the forthcoming reorganisation of Local Government will herald a period of relative stability in the field of education when some of these issues can be resolved.

14.5 PRIMARY SCHOOL PLANNING

The study of primary school planning in Essex over the past 25 years shows several very clear patterns of development and principles in primary school planning which can be applied to future projects.

Generic types

A study of generic plan types and the pattern of provision since 1973 reveals a definite evolutionary pattern of planning in response to the financial pressures and educational philosophies of the day.

It is important that, although many of the factors which fashioned the generic plans of the past are no longer relevant, current primary school design does not attempt to redesign the wheel, but learns from past experience and starts from a deep understanding of what is possible and the far-reaching consequences of certain strategic design decisions.

Conversely, it is difficult to categorise the addition of missing facilities to existing schools into neat generic solutions as much is dictated by the layout of individual schools, sites and buildings, and new thinking will always be required for such projects. Essex does have a limited range of existing buildings, however, and some generic solutions to the extension and upgrading of common plans are starting to emerge.

Growth

Whatever the generic form of a primary school, it is clear that all new schools in Essex need to have a layout which allows the school to grow often to an indeterminate size depending on the needs of its catchment area. It will also need to be able grow in small increments if the county is to move away from the current easy fix solution of using relocatable classrooms.

The classbase

The paired classbase has become a firm feature of the Essex primary school, liked by teaching staff, which appears to have worked well for 25 years, giving opportunities for sharing without reducing the sanctity of the individual teacher's sphere of influence. The paired classbase also appears as a feature in many open plan primary schools in other counties, but not necessarily as consistently as in Essex.

Practical areas

Most primary schools built in Essex during the last 25 years have practical areas provided for each classbase.

The location of these practical areas has varied from school to school, but it appears that there are certain advantages in locating practical areas, serving adjoining bases, together so that facilities can be shared and this has now become an almost universal arrangement.

Group or quiet rooms

Group or quiet rooms were provided as an integral part of Essex primary schools for many years to provide withdrawal space from the noise and distraction of open plan layouts. These rooms have often been shared by two classbases and located between them as dividers, or grouped together as a central resource. As schools became more cellular, group rooms were omitted from the brief and the space saved added to the self-contained classbases to satisfy complaints of lack of space from class teachers.

Hall

Many primary schools built in the 1970s had centrally located halls to provide direct access to classbases, but a perimeter or detached location appears to have become more popular recently, no doubt owing to the increasing problem of noise disturbance to classbases generated by such a central position and the ability to isolate it for out of hours use. The location of the hall is a major strategic decision in the design of any primary school and design teams need to take heed of past experience.

Halls have also decreased in size during the study period, and although this has not caused any particular problems in the smaller schools, some of the larger schools have great difficulty in fitting all the varied activities needed within the timetable. This is a particular problem for schools which are approaching a size when the whole school cannot fit into one hall and they are eligible for a second hall. They are often forced to have lunch time meals in separate sittings which extends the period when the hall is out of use for other activities such as P.E. music, and drama. They also have to arrange assemblies and parent meetings spread over several sessions.

It would appear that the size of primary school halls in Essex schools of a certain size should be re-examined.

Library/resources area

The library or resources area needs to be located centrally with equal access to all pupils. It appears that the usual arrangement of a bay off a major circulation route is an effective use of space, but pupils can be easily distracted and combining the library with a more self-contained amenity room may provide a more focused environment. Larger schools will also need to consider the dispersal of library facilities, however, to improve access and allow specialisation for different age groups of pupils.

Cloakrooms

It appears that there are only two acceptable locations for coat storage in modern primary schools either in the classbase or in an access lobby/secondary space, with the latter being more favoured recently. Whatever the pros and cons of each arrangement, most users agree that greater space is needed for the storage of the myriad of coats, bags and footwear of today's pupils.

Pupil toilets

The location of pupil toilets has been limited throughout the study period, with the perimeter siting with its good access from outside appearing to be the favoured solution.

Users of Essex primary schools appear to be relatively satisfied with their design, but it is interesting to note the general enthusiasm for the use of self-contained, unisex cubicles adjacent to classbases which they consider will reduce the occurrence of unruly behaviour.

Administration

Generally administration facilities in existing schools were thought to be well located together in a suite near the main entrance, although some teachers can see a benefit from the head teacher and staffroom being more centrally positioned closer to classbases. Schools would also like to see greater space in offices and staffrooms to cater for the increasing administrative workload and numbers of ancillary staff.

Secondary spaces

The pressure to reduce the area of Essex primary schools over the last 25 years has encouraged designers to create cheap unheated secondary space by covering internal courtyards, light wells and circulation with glazed roofs, for practical activities. The Education Department insist, however, that any further provision of this nature should be to full environmental standards, and it looks likely that such space will have to be won from circulation space and is likely to appear as no more than a narrow street, enlarged lobby or specialist bay.

Circulation

The circulation pattern in a primary school is critical to its success as a functioning building. The various elements of accommodation must, therefore, be arranged in a configuration which suits the natural movement patterns between spaces and the life of the school and allow the school to expand and change without undue disruption of existing relationships. Such spaces have been considerably reduced in area over the past 25 years, with some sharing introduced, but recent projects have recognised the importance of a hierarchy in circulation and some space is now dedicated to moving large numbers of children between certain major elements of accommodation in new schools.

Existing schools

Much of the building work at Essex primary schools since 1973 has been concerned with the provision of new and major extensions to existing schools to provide extra places to suit a growing population. The slowing of demographic growth and limited budgets mean that most new building work in future is likely to involve small extensions and remodelling of existing schools and examples of the most effective way in which existing building types could be modified will be very useful.

14.5 CONSTRUCTIONAL SYSTEMS

Public building in Great Britain since the Second World War has been heavily influenced by the system building movement which is only just relinquishing its

hold on Essex schools as a new generation of architects design the majority of new primary schools using traditional construction.

System building

The legacy of building systems used to construct Essex primary schools in the 1970s such as SEAC, with its lightweight structural frame, cladding panels, and flat roof, and MCB with its heavier insulated roof and wall panels created a discipline based on a structural grid which led to simple, repetitive, deep plans which suited the fashion for open plan layouts with roof or clerestory lighting at that time.

S.E.A.C.

Essex still belonged to the SEAC consortium in the early 1970s. The system was developed by the neighbouring county of Hertfordshire producing some fine International style architecture in the 1950s which reflected the spirit of renewal following the War, and was generally accepted by the residents of the consortium authorities of Hertfordshire, Kent and Essex.

Essex at this time had a large building programme and worked very closely with the other members of the consortium taking advantage of standard detailing from the development group and the economies of scale of the central purchasing arrangements.

M.C.B.

The County Council's decision to leave SEAC in the 1970s and develop a heavyweight alternative using a structural concrete panel system called MCB, also had a dramatic effect on its school architecture.

The system had a much coarser grid and layouts became even more regular and deep plan with the most efficient configuration being a square, as it used the least number of expensive external wall panels.

Unfortunately, the wall panels with their restricted choice of aggregate finish, parapet eaves and punch hole windows produced a hard architecture alien to

the brick, tile slate and timber clad Essex vernacular, which was disliked by planners, teachers and general public alike.

It was also a mistake, given the reducing number of school pupils and school building in the mid 1970s, to attempt to develop the MCB system of building to serve a single county, as there could never be sufficient demand to cover the cost of supplying the components, and the system like so many others, including SEAC, ceased to be viable.

Some architects produced a very good environment for teaching using MCB, but unfortunately this was the exception and most lost, or were unable to produce, the sense of place necessary for a primary school to successfully serve its local community.

It is true to say, however, that the system did have some virtues, with its high quality, flexible interiors which were lost for a time as designers grappled with the cost of building with traditional construction methods.

Traditional pitched roof construction

The exclusive use of MCB for the construction of primary schools over many years created problems with the use of pitched roof forms, however, as designers, who had accepted the relative freedom of the flat roof over deep plans, had to relearn the relationship between plan and section. At first they produced designs which were multiple pitched roofs over flat roof plans, but later produced more exciting designs as their confidence grew which made better use of the volume produced within the height of exposed pitched roofs.

The discipline of the pitch roof span also led to layouts becoming less flexible, open and deep plan, and more cellular, sinuous and narrow plan which had a dramatic effect on the relationships between the various component parts of the primary school creating greater travel time between them and more clearly defined circulation patterns.

The renaissance of pitched roof building forms using vernacular materials was not restricted to Essex schools, however, and it was repeated throughout the whole of the country leading to a greater affection for primary school buildings by their users and the general public.

Short life structures

Essex County Council Education Department have created a tradition of short life buildings in Essex, starting with the complete timber framed schools of the 1950s and 1960s which are now being replaced, through to today's relocatable classrooms.

The main justification for the continued use of relocatable classrooms has been to cope with short term bulges in the school population at minimal cost, but numbers have risen to such an extent that they are now a permanent part of many schools' environment. Children using relocatable classrooms will, however, always be at a disadvantage without access to support facilities such as the hall, library etc., and many of the older style classrooms have a poor internal environment without toilets or practical areas, being hot in summer and cold in winter.

It is also interesting to note that, despite the use of several different manufacturers, the basic design of the relocatable has not changed dramatically since 1973. The only real change to the flat roof, square box form has been the use of lower maintenance, better insulated cladding and smaller aluminium framed windows. The experiment with a more expensive pitched roof format was clearly not successful.

Several of the large shire counties in the South East also have large stocks of relocatable classrooms, but Essex leads the field with most schools having some relocatables. It would appear that without a significant injection of finance these relocatables will continue to provide a large proportion of primary school accommodation in Essex.

Other counties such as Devon have recently adopted the timber frame method of construction for their school building programme on the basis of reduced unit costs relating to innovative design and construct arrangements, and despite the unfortunate past experience of such systems, Essex may be forced to consider a similar initiative.

14.6 AESTHETICS

The appearance of public buildings in Great Britain including schools, has been the subject of much debate over the last few years, partly due to the intervention by public figures like the Prince of Wales, and partly as a result of growing awareness by the general public about sensitive design issues. This increased appreciation of the importance of good design in the built environment should ensure that the poor aesthetic quality of some past primary schools is not repeated.

Delight

Every primary school design should achieve the Vitruvian virtues of firmness and commodity within its design to ensure the school can operate efficiently, but it should also create a sense of delight within its users and raise their spirits on every visit to the school.

Clearly Essex went through a period in the 1970s and 80s when their system built schools failed to delight users or the surrounding community. Other counties, notably Hampshire who also used system building in the 1960s, recognised the poor environment they created earlier than Essex and set about the generation of fine architecture using the best designers supported by a crusading County Architect and enlightened chairman of the County Council who was prepared to devote the required resources to such projects.

Fortunately, public opinion generally has followed the Hampshire lead and the people of Essex are starting to demand better designed public buildings. Design teams are responding well to this challenge, but unfortunately, as resources continue to diminish, such initiatives become increasingly difficult to fund.

Enclosure

It is important to make the right strategic decisions when placing a new school on the site, to create sheltered external spaces which will add character to the building design. Clearly many Essex primary schools constructed in the last 25 years have not placed the building on site in this way, with many examples of poor positioning leading to bland, wasted external spaces which cannot be used effectively. often without any shelter from the elements.

Sense of place

Every new or extended primary school should respect its environment and design teams should attempt to define the prevailing character of the area before deciding how much this should affect the style of the new building. Again, many early system built Essex primary schools with the external appearance predetermined by a limited palette of materials have not been able to reflect the character of their setting. Fortunately the return to traditional methods of construction over the last ten years has provided greater opportunities for designers to produce buildings which fit their locality.

Character

Clearly primary school design is subject to the same pressures of fashion as any other art form and even when designers were freed from the system building yoke in the early 1980s, they stuck to certain design styles throughout the county, including the use of glazed streets, profiled steel sheet roofs and more recently barrel vaulted roofs. Much of this fashionable styling can be traced back to the trend setting designs of Hampshire County Architect's Department who have clearly taken the lead in innovative primary school design. Essex designers obviously need to be aware of such precedents, but it is unwise to follow this fashion slavishly if it is not appropriate for a particular site, as such architecture can be just as alien as the system building it replaces.

Form and scale

The return to traditional pitched roof primary schools in Essex has created a dilemma amongst designers trying to produce buildings with an appropriate scale for both children and adults. The pitching of a roof, using the traditional steep angles preferred by planners, over the large spans encountered in most primary school plans is bound to create very high ridge lines and massive roof voids expensive to construct and heat and with an inappropriate scale for young children.

Designers have as a result tended to use low pitches covered with sheet materials much favoured by the industrial sheds in out of town commercial centres which, although much reduced in height, can still produce dominant forms creating scale problems with neighbouring domestic properties.

Clearly there is a case for primary schools to have a slightly more monumental scale than surrounding housing, in keeping with their role as public buildings, but this needs to be strictly controlled with the detail design of eaves, doors and windows etc. introducing an appropriate scale for children.

Materials

Much depends on the materials chosen for roofs, walls, windows, doors and external works which should have a human scale with warm colours and interesting textures, if the building is to be treated with affection by its users.

Clearly some of these principles have not always been applied to Essex primary schools during the last 25 years and some of the system built MCB schools have been disliked by their users because of their cold austere external appearance, but a new architectural confidence is emerging in school design in Essex which hopefully will avoid many of the errors of the past.

14.7 ENVIRONMENTAL DESIGN AND ENGINEERING SERVICES

There is evidence that the internal environment of Essex primary schools has undergone considerable experimentation during the last 25 years in an attempt to reduce energy use, create greater comfort conditions, and provide flexible, efficient building services. Some of this experimentation has led to acknowledged improvements to the school's environment, whereas others have been less successful, but much has been learned which can be applied to future primary school design, putting the County Council in a position as one of the leading authorities on environmental design in primary schools.

Personalities

Much of this development work was driven by certain personalities within the Architect's Department in both the architectural and engineering professions, often working together on projects, but also disagreeing on certain priorities and policy, and sometimes creating unhelpful tensions. It is important that such strong commitment is channelled into creative effort aimed at improving the performance of primary schools in future and personality clashes avoided if possible.

Balancing conflicting pressures

Controlling the internal environment of a primary school involves balancing many different and often conflicting pressures such as orientation, insulation, ventilation rates, weight of the structure etc. Unfortunately, there is no one correct solution to all of these conflicts and designers must attempt to reach a balanced design with comfortable environmental conditions throughout the year at reasonable construction and running costs.

Multi disciplinary teamwork

Some of the development work over the past 25 years has been driven by a desire by certain personalities to design in a holistic fashion where members of the design team work together as a multi-disciplinary team from the very outset, fashioning the internal environment of the school from first principles through to detailed considerations. Unfortunately, this multi-disciplinary zeal has not always been shared by all professions in the department and the greater proportion of primary schools were designed in the traditional fashion, with environmental problems often engineered out at the detailed design stage.

Clearly recent Government research into the problems within the construction industry, such as the Latham Report, has demonstrated the potential of such team work in avoiding conflict within the industry, and greater effort is needed to get the multi-disciplinary message across to future primary school design teams.

Energy conservation

The oil crisis of the mid 1970s created an undue emphasis on energy conservation in Essex, often at the expense of other design factors. It brought about certain improvements to the school environment such as greater levels of insulation, better sealing of buildings and a less reactive heavier weight structure, but it also created problems such as lower levels of daylight from smaller windows and fewer roof lights, and poor heating and ventilation from warm air heating systems in sealed buildings. It is important, therefore, that future initiatives of this kind are kept in perspective, always maintaining a proper balance between various design pressures.

Green Issues

The emphasis on energy conservation within primary schools has subtly changed over the last 25 years, from reducing consumption of fossil fuels and the County Council's fuel bills to a wider concern for the Earth's global environment. Present policy concentrates instead on reducing CO₂ emissions, the release of CFC's and an over reliance on the consumption of scarce natural resources for building materials. Future primary schools will be judged on their impact on the Earth's ecology and will need to make a genuine attempt at sustainable development, providing this does not increase costs disproportionately.

Heat pumps

The belief in the mid 1970s that most fossil fuels would run out by the end of the century encouraged the department's development team to experiment with the more efficient use of electricity, through the use of heat pumps, etc. Although these experiments improved our knowledge of such technology, the heating systems were plagued with operating and control problems and are now acknowledged to have been unsuccessful, often leaving the school with unresolved heating problems. Future use of experimental technology of this type must accept the inherent risks of using such untried systems and a budget provided to rectify residual problems if necessary.

Solar passive design

The development of solar passive primary schools has been more successful, especially the use of solar heated secondary space such as covered courtyards, atria and streets which have become an indispensable addition to the teaching environment. Unfortunately, not all of these spaces have comfortable environments, with considerable overheating in summer and under heating in winter, and many schools have complained about their restricted use.

Future secondary space should, therefore, have an acceptable environment throughout the school year to ensure it can be fully utilised, even if this means it has to be heated in the winter. The Education Department appear to be actively discouraging such developments, however, as they are not part of the brief or budget.

Experiments aimed at controlling the internal environment by the correct orientation of schools and the shielding of its facades from cooling winds has had an unexpected bonus, where local micro-climates have been created adjacent to teaching spaces using screen mounding and planting providing sheltered external spaces ideal for outside teaching activities, and such double value features should be encouraged.

Generally the various attempts at collecting the beneficial heat from the sun via thermo-siphoning panels, conservatories and roof mounted solar panels to supplement space heating or heat water, has been less successful, with energy savings not covering the cost of their installation.

Future use of such technology looks unlikely unless the cost of the panels is reduced and automatic controls can be provided cheaply.

Thermal insulation and mass

The introduction of a greater mass into Essex primary schools through the use of traditional heavyweight external walls and partitions has made them less susceptible to violent swings in temperature, and careful programming of heating times, making good use of the fly wheel effect of heat stored by the structure and released when the heating is off, helped to reduce energy costs. This environmental research suggests that heavyweight construction should be encouraged for future school design, but recent developments in the use of timber framed systems to reduce construction costs may create a conflict with this policy with a return to lightweight structures.

Insulation standards have increased to such an extent that heat gain in today's primary school is more of a problem than heat loss, and designers may need to find ways of naturally cooling future schools in summer.

Daylighting

Enormous changes in the daylighting of Essex primary schools have taken place during the past 25 years.

The lightweight schools of the 1960s were overglazed, but light and airy, whereas the underglazed heavyweight schools of the 1980s were dingy, with small areas of glazing, poor daylighting and almost permanent artificial lighting.

Fortunately the schools of the last decade have achieved a better balance between insulation and illumination, using sophisticated prediction techniques producing designs with daylight factors good enough for artificial lighting to be restricted to the dark winter mornings and evenings. The greater use of balanced natural daylight schemes should be encouraged in the future generation of primary school design.

The careful monitoring of actual daylighting levels against computer models has also allowed design teams to tune prediction techniques to greater levels of accuracy.

Noise

The change from cellular to open plan forms and back again during 25 years of primary school design has created significant aural problems with design teams failing to understand the consequences of poor sound insulation and absorption. Efforts were made in MCB schools to provide sound absorbents, but this was not done on a scientific basis and proved to be largely ineffective.

Strategic Design

Primary school design teams must make better use of computer generated environmental prediction techniques at the strategic design stage to gain a better understanding of how their building will perform throughout the day and year, to avoid unexpected problems when the school is occupied.

The current fashion for more cellular plans and the grouping of noisy activities together, surrounded with dense partitioning has improved the situation, but designers must use the many science based prediction techniques available in future to avoid intrusive noise affecting the teaching environment.

Ventilation

Generally teachers and pupils did not like the sealed buildings of the 1970s with their non-openable windows and warm air heating and ventilation systems, preferring the local control affected by opening windows for fresh air. Clearly opening windows and natural ventilation is the preferred option for future primary schools in Essex, supplemented by mechanical extract systems for kitchens and toilet areas, with balancing air warmed in winter.

Heating systems

Users have also clearly preferred simple but efficient low pressure hot water heating systems feeding radiators, with thermostatic radiator valves which they can adjust in their own teaching spaces, to centrally controlled warm air or under floor heating systems. Similarly, users have not liked the energy efficient Building Energy Management Systems linked to computers at the Area Building Surveyors' Office, preferring to have local controls which they can override if necessary. The message for the future design teams appears to be "keep it simple and keep it local for satisfied users".

Artificial lighting

Central control of light fittings has helped save energy in the past, but users have not liked the loss of localised control in their teaching environment, and future energy saving devices must give some degree of local control if they are not to be disabled or ignored by disgruntled users.

Electrical power

There has been a dramatic increase in the amount and type of electrical equipment in primary schools during the past 25 years, with the importation of audio visual aids and computers into every teaching and administrative space, and designers are now providing generous numbers of socket outlets in most spaces to avoid overloading and trailing leads. There is a risk during periods of financial stringency, however, that such provision will be seen to be extravagant, but clients need to be reminded of the growth in electrical equipment and the cost of adding socket outlets at a later date to meet demand.

Fire and security

Security in primary schools has become a major problem throughout Great Britain during the last five years, with some tragic incidents such as the Dunblane massacre which have heightened public concern about the spread of vandalism and violence within our society. This used to be a problem restricted to urban areas, but the increased use of electric security equipment in schools including close circuit television, alarms and electronic locks is now likely in every part of Essex.

Communications

The growth in electric and electronic communications equipment in schools appears as though it will continue, and future schools will need increasingly sophisticated and extensive electrical, telecommunication and data transmission circuits if they are to share in the global network and not to fall behind current technology.

The Users

Communication between the design team and users about the environmental performance of their school has been poor in the past despite teachers stating on numerous occasions that this aspect of design is of prime importance to the teaching environment. Design teams must, therefore, make greater effort to explain the basis of, and constraints upon, their design to users and how engineering systems can be operated to produce the required environmental conditions, as well as listening and responding to their comments.

14.8 INTERIOR DESIGN

Most users of Essex primary schools have commented favourably when questioned about their interiors and this aspect of school design must count as one of the county's successes over the last 25 years.

Education and general design issues

The design of Essex primary school interiors and furniture has been heavily influenced by the DES guidance notes issued in the late 1970s and early 1980s aimed at producing flexible, open plan, child centred layouts.

Despite the built in flexibility of most of the Essex Range of furniture, very few items get moved on a regular basis, however, apart from tables and chairs and it is doubtful if such total flexibility is actually needed.

There has been very little recognition in the design of Essex primary school interiors of the differences between the various age groups in terms of the space needed, size and shape of furniture or specialist needs of younger and older pupils. Further development work is needed looking at the specific needs of these groups and extending the range of furniture to include larger items of furniture and specialist items.

The introduction of the National Curriculum has created specific furniture needs in terms of extra storage and new specialist activities, and time is needed to monitor the growing need for more storage for pupils' work, materials, work books and records.

The introduction of the CFG range of furniture into Essex primary schools in the late 1960s set a quality standard which has been maintained by the Essex and Springfield standard range of furniture which followed, providing hard wearing furniture at a very reasonable price. This high standard is envied by neighbouring LEAs who have been happy to take advantage of central purchasing arrangements, to use the Essex range in their own primary schools.

Finishes

The choice of finishes in Essex primary schools over the last 25 years has reflected a general desire to produce a comfortable non-institutional domestic ambience suitable for young children to learn and this trend looks set to continue.

The use of bright colours to produce a stimulating environment for young people has been appreciated by most users of Essex primary schools, but the dangers of these strong colours fighting against displays of pupils' work is now recognised, and softer more neutral colour schemes are now the norm.

The selection of materials for surface finishes should be hardwearing, but also suitable for simple redecoration by the school caretaker

There has been a revolution in floor finishes since the 1960s with vinyl tiles and lino being replaced by extensive use of carpet throughout classbases which has improved acoustics and given schools a more comfortable ambience.

Fixed furniture

The Essex benching system has produced a good flexible work surface, but is expensive, and doubt has been expressed recently about the need for storage units under the bench to be mobile as they are seldom moved and could be used to support the bench, thus reducing cost.

The large number of demountable partitioning systems developed in the early part of the study period for open plan MCB schools were seldom moved, and many have now been replaced with permanent walls. The present range of free standing screens appears to be more than adequate to divide the remaining open plan spaces in current more cellular layouts.

Coat storage in classrooms has not been liked and arrangements where coats are stored in bays off circulation spaces or in entrance lobbies are preferred. Unfortunately, despite considerable experimentation, the detailed functioning of coat stores is still not adequate and it appears that further space is required to obtain a layout which will satisfy operational needs.

14.9 EXTERIOR DESIGN

A survey of the external spaces around Essex primary schools built during the past 25 years shows that this part of their design is one of their least successful aspects and as teachers and educationalists become more aware of the potential of the school site designers will need to do better.

Historical background

It is important to remember how attitudes towards the use of outside spaces in primary schools have changed throughout history, from the Victorian belief that they were for release from academic study, to the post war concentration on sport and fitness, to today's use as an educational resource. Designers must , therefore, provide sufficient flexibility in site layout to accommodate future changes of attitude.

Sites

Many Essex primary school sites have a poor natural environment, often surrounded by featureless housing estates, with poor soils and drainage. These sites present a real challenge for designers and schools to create and maintain an imaginative landscape, and proper resources are needed if good quality external works are to be provided.

Communications and maintenance

The provision of good landscaping depends on a clear understanding of the client's needs, and a commitment to its future maintenance. Unfortunately, this has not always been achieved in Essex due to a lack of empathy between the parties involved including architects, landscape designers, education officers, individual schools and grounds maintenance teams. The split responsibility for design and maintenance between two departments, and the suspicion and hostility this has aroused, has clearly affected relationships and communications to the detriment of landscaping schemes which still continues at present.

Hopefully the transfer of budget control to individual schools and a greater awareness of their external environment will ensure that schools take the initiative with landscaping, and ensure that all their professional advisors and contractors work together to achieve a satisfactory product.

Community use

The primary school site is often the only large open green area serving a neighbourhood, and should be available for community events such as fetes, fairs and sports. Unfortunately, many schools wish to discourage such contact and surround themselves with chain link fencing which, apart from challenging dog walkers to find holes in the defences, also sends the wrong messages about the partnership required in education.

There is a conflict, however, between an open and welcoming environment and the need to control access for security reasons, which has to be resolved on an individual basis depending on local site conditions, risks and relationships. It would be helpful if a few pilot schemes were carried out to show how these conflicting requirements are best balanced to achieve a pleasing visual solution with pupils and staff feeling safe and secure.

Hard play areas

The hard play areas surrounding Essex primary schools have often been vast characterless areas of asphalt with an indeterminate function. Future areas need to be carefully designed for their function, constructed of sympathetic materials, and with a degree of separation to suit different groups of children and quiet or rumbustious activities. They also need to be sheltered to make them comfortable on exposed Essex sites with their unpredictable weather conditions.

Outside teaching

Some primary schools in Essex have been provided with outside teaching spaces, but they have been largely underused for much of the time because of their position and the variable weather conditions in Essex. New schools should be provided with outside teaching spaces next to classbases, however, so that practical activities can spill outside in warmer weather. These spaces need to be sheltered, partly covered and provided with seating, and have a stimulating hard and soft landscape if they are to be used throughout the year.

Playing field

Playing fields in Essex are a well used resource, but they have often been constructed on difficult sites with poor drainage and heavy clay soils. There is a limit to the playability of such sites, but experiments using sand bed technology to overcome this problem have proved expensive, difficult to maintain and have generally not been well received. It would appear that a traditional grass pitch with a proper drainage system will normally satisfy most primary school requirements.

Soft landscape and the Essex environment

Planting around Essex primary schools has historically not been good, with minimal planting schemes which have failed through poor design or lack of maintenance. Efforts were made to increase variety, quality and quantity, but a high failure rate led to the use of native species of trees and shrubs only, which understandably survive better in the Essex soil and climate. Container grown, younger material, planted in the autumn, in carefully prepared top soil, as shelter belts away from the building, also appears to have a greater survival rate and designers ignore the hostile Essex climate and soils at their peril.

Learning through landscape

The Learning Through Landscape movement involving the greater use of school sites for the education process has been steadily growing in Essex, from the early modest attempts at the creation of nature areas, to the current more adventurous plans for cross-curricular use of every part of the school site. Unfortunately, the Education Department see this movement in terms of improvements to existing school sites using the schools' own resources, and have yet to properly fund such initiatives as part of building contracts. Greater resources are needed for new projects, however, if the underfunding problems of the past are not to be perpetuated.

Hard landscape and furniture

More specially designed external furniture and equipment should be provided as part of the initial school design, otherwise schools will be forced to purchase proprietary products from their own budgets which are often not appropriate.

and sometimes sited in unimaginative positions. A range of well designed cheap external furniture available through the Commercial Services Department to Essex schools would also give access to a guaranteed source of equipment which could be obtained over a period of time as and when the school could afford it.

Access and parking

Access to and parking on Essex primary schools has generally been very mixed over the last 25 years, with many examples of mayhem at the beginning and end of the school day as vehicles and children mix on highways which are not designed for such activity. Future school access needs to provide ample facilities for parents dropping off children. There is some evidence, however, that parents are beginning to see the benefits of walking to school, and this may eventually have some impact on the problem.

Many school site layouts attempt to segregate pedestrians and vehicles at the site boundary with clearly designated pedestrian routes to the main entrance, and this undoubtedly should be the objective of any new design.

Parking on site has also traditionally been inadequate for the greater part of the school day, although overflow car parks have helped schools cope with special occasions. Recent improvements to parking ratios in new projects constructed since 1986 have improved the situation, but many existing schools are still coping with inadequate facilities and funds are needed to extend the parking facilities.

Improvements to existing schools

The majority of existing Essex primary schools have a poor external environment with few opportunities for educational use of outside spaces. A programme of improvements is required, using the schools own resources and the opportunities presented by extensions and maintenance work. It is also important that new schools and major improvements have fully funded external works to ensure that new problems are not built into the school stock.

It is fair to sum up by saying that given the proper resources, a clear brief and commitment from the schools' users, design teams could make much better use of primary school sites in Essex to ensure that every educational opportunity is maximised, as well as improving the external environment and image of the school.

14.10 SPACE, QUALITY AND COST

The examination of space and quality standards in Essex primary schools over the past 25 years demonstrates certain trends which, if repeated, could influence future primary school design.

Space standards

Many teachers stated, during research interviews, that sufficient space was the most important criteria for a successful teaching environment.

Sufficient space has been a moveable feast throughout the history of primary school design, however, as class sizes have fallen.

Space in late Victorian and Edwardian school classbases is very tight for today's average of 30 pupils, even though class sizes have halved, whereas many Essex primary schools built between 1950 and 1970 appear to have generous space standards. This is due to a further fall in class size and the difficulty of removing surplus area from cellular layouts, however, rather than any generosity in their original provision.

The area of some schools built in the early 1980s undoubtedly fell to uncomfortable levels, as a result of economic pressures, before recovering to more reasonable levels in the last five years, and most users agree that this type of short term thinking must not be allowed to reduce the area of Essex primary schools in future.

Space has also been distributed differently throughout the period with smaller classrooms, and many specialist group rooms and bays in the early years, and larger classrooms and reduced specialist rooms more recently.

Storage area was also reduced during the 1980s with most classroom storage provided within furniture rather than in purpose built store rooms. This has recently been remedied with the provision of a generous store cupboard in each classbase, although these may still not satisfy the increasing demands generated by the National Curriculum.

Over-generous cloakroom space in schools built in the 1960s and 70s has now been squeezed out of most primary school plans, but the present coat bays or lobbies which have replaced them are too small to adequately cope with demand and these areas need to be enlarged.

The dedicated circulation space of the 1960s and 1970s schools was also removed from designs in the 1980s, but complaints from users about the disruptive effect of sharing teaching space and circulation have led to the reintroduction of some dedicated circulation space for heavily used routes between major facilities in the most recent schools, and this will undoubtedly be a feature of future primary school planning in Essex.

Essex space standards also compare well with counties such as Cheshire and the Inner London Education Authority, whereas the neighbouring county of Hertfordshire has been consistently more generous.

Quality standards

The last 25 years have seen a constant but healthy battle between the client and design team over the quality of school building in Essex, which looks like continuing into the future as resources are reduced even further.

Unfortunately, clients faced with reducing resources appear to be ready to repeat the mistakes of the past by resorting to initially cheaper timber framed buildings and relocatable classrooms in an attempt to stretch funds further, even though they are aware of the penalty of higher maintenance costs.

It is impossible to ignore the pressure to build more cheaply, however, and design teams will need to modify structural systems and contractual arrangements to reduce costs whilst reminding clients of the dangers of such short term economies, otherwise they will simply be cut out of the design process as has already happened in many of the shire counties.

One of the greatest benefits of the 1970s system building was the introduction of high quality finishes into Essex primary schools which set a good level of specification for the traditional buildings which followed. Unfortunately, many of these traditional buildings struggled to maintain this level of specification, with budgets stretched to pay for complicated pitched roofs, expensive claddings, etc. Traditional construction systems will not, therefore, automatically produce such quality unless the design team fights for these standards.

The introduction of the budget model for primary schools in the 1980s also brought a degree of stability to specification levels, ensuring that the client and design team were aware of acceptable quality levels throughout a period of considerable pressure from the economic cycle. This historical bench mark has proved invaluable during recent debates with clients about reductions in the cost of building, with a clear statement of what is an acceptable level of quality. Discussions with design teams from neighbouring counties reveal that a lack of clarity in their own standards has caused considerable confusion during similar discussions with clients.

Life cycle costing

Life cycle costing is recognised to be a better method of judging the true cost of quality in public buildings, but this has not impacted on Essex primary school budgets during the last 25 years despite continuing efforts by building economists because of inflexible accounting systems and the political pressure to build more with less.

Hopefully, recent reports by the Audit Commission into value for money in local government finance will encourage a more flexible attitude amongst County Treasurers towards such initiatives, and the politicians may be persuaded to take a longer view of their investment in primary school buildings.

Costs

An examination of project budgets suggests that the cost per place and cost per metre of new Essex primary schools have risen in real terms over the past 25 years, remaining well above the national average, but these averages disguise the cost of some individual projects which have been dramatically above or

below the norm. These figures are also bound to be unreliable, given the extended time scale and number of variables between projects, and design teams will gain very little solace from knowing that average costs in Essex are above the national average when they are struggling to build within a fixed budget.

System building

The high development costs of the various system buildings in use in the early 1980s ensured that they could not continue to be used when the capital programme shrank below a certain volume, and it is unlikely that such systems will ever be used in Essex again, except in exceptional circumstances.

Elemental costings

The overall trends in costing also mask certain abnormalities in specific elements of construction in Essex primary schools.

In many ways the quality of engineering systems in Essex primary schools appears to have been unaffected by the economic pressures of the period with standards rising throughout. Other Local Authorities do not appear to spend the same proportion of their budget on such services, however, and budgets for engineering in future projects are bound to come under considerable scrutiny.

The quality of internal finishes were squeezed in the 1980s like other elements of the building fabric, but loose furniture and fittings appear to have been largely unaffected. It would appear that, like engineering services, this element of future primary school building projects may also be the subject of closer attention.

The level of external works and landscape budgets in Essex has been traditionally low throughout the last 25 years, with extra pressure from designers who often raided the external works elements of the building contract to fund shortfalls in the main building. If the quality of primary schools external spaces is to be improved, this element of construction will require a larger ring-fenced share of the budget.

14.11 ACCOMMODATION REQUIREMENTS - INTERNAL

The users of Essex primary schools built throughout the last 25 years rated their accommodation as only just above average. This is clearly disappointing, as a better performance should be expected after such a concentrated period of building using the same design and client organisation. Design teams should be learning from their mistakes, improving the final product and achieving a high user satisfaction. There is some evidence that the most recent schools are achieving an above average rating, however, and it is hoped that future designers will accept the verdict of their users as a challenge to perform better than in the recent past.

Teaching

The shared teaching base is generally thought to provide an acceptable teaching environment, but some teachers still think space standards are too low and the shape of the classbase too convoluted to accommodate all the furniture and activities required by the National Curriculum.

The lack of storage for pupils' work, teaching aids, and materials has been a constant problem in Essex primary schools over the past 25 years and the use of open shelves and free standing cupboards is thought to exacerbate this problem. Teachers universally prefer a large walk-in store for each classbase.

Shared group or quiet rooms are a common feature of primary school design in the 1970s and 1980s, but they appear to be seen as a liability by many schools who think that they inhibit flexibility and lock up space. Some schools have removed partitions to open them into the general teaching space and others now use them as specialist teaching bases. It is clear that very few such spaces will be included in future briefs, and those that are, will be located so that they do not inhibit reorganisation of space.

The hall in most schools is thought to be an acceptable space for most of its functions, apart from the lack of space for storing the many items of equipment which need to be cleared away before another activity can take place.

The amenity or AVA room in most schools is also thought to be acceptable, but some schools dislike its dark airless character and the multi-purpose amenity room often amalgamated with a library, with natural daylighting and ventilation, is a preferred arrangement.

The current brief envisages that most specialist activities such as arts, crafts, science and cookery will take place in the classbase practical area using a mobile trolley. Past experience demonstrates, however, that more appropriate working conditions can be provided for such activities which require specific hygiene or messy conditions in rooms specially designed for them, even though such a room has to be shared by several classes. It can be argued, therefore, that such shared specialist provision should be written back into the brief, although it is doubtful that teachers would be willing to sacrifice any of their classbase area by way of a contribution.

Toilet areas for pupils are generally thought to be acceptable, but the recent provision of self-contained unisex compartments located adjacent to individual classbases is thought to be a better solution, reducing discipline problems and congestion at break times.

The provision of two changing rooms of equal size does not appear to satisfy most schools requirements as they are too small to accommodate two complete classes. It would appear that a better solution would be the acceptance that most pupils are happy to change in their classbase apart from a small group of the older girls who could use a dual purpose space located near toilets and a shower.

Administration

The reception space in most Essex primary schools has traditionally been very modest, but this is now of great importance as it creates the first impression of the school to prospective parents and other visitors. It is difficult to see that the provision within the current brief is much of an improvement, however, and designers will need to win extra space from the circulation allowance to satisfy most schools aspirations.

The office has also grown in importance, with the delegation of many administration tasks to individual schools through the LMS scheme.

Again, although space standards have improved in the latest briefing documents, they are far from generous, given the number of staff to be housed and variety of tasks required to be carried out in this space.

Staffrooms are generally thought by most schools to be too small, although this relates mainly to the increase in numbers of staff, particularly ancillary, since many schools were constructed. It is difficult to see how the space standards in the current brief will improve this situation. The separation of staff tea making facilities into a separate bay accessed off a circulation space may help by providing more wall space for furniture in the staffroom, but more space is also required in the tea bay of larger schools to avoid a time consuming crush at break times.

Adult toilets were thought to be acceptable in most schools, but some thought more toilets were required for female staff to avoid the break time crush, and some disliked the practice of male staff sharing the disabled toilet with pupils. The provision of a bank of unisex toilets rather like the recent development for pupils was thought to be a more flexible facility. The adult toilet provision in some schools was also thought to be inadequate for out-of-school use by the community, and this could be eased if some toilets for older pupils were designed to adult standards and located nearer to the hall for dual use.

Ancillary

Kitchen staff were generally satisfied with their accommodation with a few asking for more space and better layouts. Teaching staff were not supportive of these requests, however, stating that the school meals service already had too much space that could be better used for teaching.

Discussion with the users of Essex primary schools reveal that most teachers are unaware of the finer points of layout and design, and judge the success of their teaching environment through the specific detail of the accommodation they use most. It is most important, therefore, for design teams to concentrate on getting the detailed accommodation requirements of the primary school right as well as the broader aspects of design if they are to produce satisfied clients.

14.12 ACCOMMODATION REQUIREMENTS - EXTERNAL

The detailed examination of external spaces in existing schools reveals that users are generally unhappy with present facilities and certain lessons for future design teams can be promulgated.

Access

The arrangement of access roads is critical to the success of the primary school, and a loop road usually works better than a cul-de-sac, as parents are able to drop children off by car without dangerous reversing. It is often difficult for design teams to influence this arrangement, however, as the estate road layout and access point to the site have often been set several years before they start design work. It is important, therefore, that developers and County Council staff negotiating to purchase sites ensure that suitable access arrangements are provided.

The main entrance to a primary school is often the first impression received by prospective parents and children and must be attractive and welcoming, with sheltered areas for parents to wait for pupils and clearly marked segregated footpaths to the pupil and main entrance.

Car parking

Car parking has improved in recent years and sufficient spaces are now provided to park most teachers', visitors' and ancillary staff cars. Some form of overflow car park, perhaps on to a hard play area, is still needed, however, for large events if parents are unable to park in adjacent roads. Major extensions to primary schools should also aim to enlarge the carpark if it is seriously under size as part of the associated external works, otherwise parking problems at existing schools will never be resolved.

Service area

Service areas need to be generous to allow for the turning of large delivery vehicles well away from pupils, and provide convenient parking for the off-loading of goods and secure storage of refuse and recycling materials.

Medical or security incidents are rare at primary schools, but they can be very emotive when young children are involved, and proper access is needed at the primary school for emergency services to be able to quickly and efficiently deal with incidents.

Conversely, access to the site and buildings needs to be restricted to those with legitimate business, to avoid the threat to pupils and staff from violent or abusive visitors.

Hardplay

Hard play areas are important spaces for organised sport and for young people to let off steam, but they need to be carefully designed to suit a variety of active and non-active pursuits, with appropriate shelter and surface finish. These spaces need to have a high quality design with subdivisions, seating, and planting as large areas of asphalt are not acceptable to teachers trying to make the best educational use of outside spaces.

The reception and nursery classes with the youngest most vulnerable children need a separate secure recreation area fenced off from the rougher activities of older children, accessible to parents at the beginning and end of the school day.

Outside teaching

Outside teaching areas provided at Essex primary schools in the past have not been well used and future areas located adjacent to classbases need to be sheltered and partially covered, with seats, tables and lighting if they are to be fully utilised for teaching.

Other more informal sheltered outside teaching areas distributed around the site, are also needed for specific Learning Through Landscape activities such as a pond, sitting area, picnic area and adventure playground. These areas will be more fully used if they are connected with a footpath or trail.

A development plan is also needed for all outside teaching and play areas to allow the school to build on the basic facilities provided, with a new school over a period of time using their own funds.

Playing fields

There has been a greater emphasis on team games in primary schools recently, and sufficient space is needed to mark out football and hockey pitches in the winter, and cricket and an athletics track in the summer, although smaller schools may have to make do with reduced facilities.

The users of Essex primary schools are now demanding that greater care is taken over the design of their outside spaces and it is clear that future design teams will need to put as much effort into the design of outside spaces as they have in spaces within the school building in the past.

14.13 RELATIONSHIPS BETWEEN THE ELEMENTS OF DESIGN

I have tried to divide this appraisal into an easily understood series of logical, interlinking elements of design ranging from the broad, such as external political and economic influences, to the specific, such as detailed accommodation requirements. Although this was necessary for clarity it is important to examine some of the not so obvious but equally important relationships between the elements revealed by the study.

Planning and form

The planning emphasis during the early part of the study period was on flexible, open plan design solutions and this produced buildings with corresponding deep, long span formats usually single storey with a structural frame and flat roof. The more cellular form of current and possibly future primary schools suggests that other less flexible building forms may now be more appropriate.

Teaching methods and shapes of space

The progressive teaching methods of the 1960s and 70s placed great emphasis on group work and classbases. practical spaces and quiet rooms were sized and shaped to accommodate groups of 6 or 8 pupils around tables working on project work.

The recent change of emphasis to whole class teaching and individual study would suggest that classbases should be more regular in shape to enable all pupils to see the teacher with furniture layouts which allow pupils to work individually at times.

Inside/Outside

The lack of awareness of the educational potential and uncertain weather conditions in Essex primary schools over the last 25 years have produced many buildings with a poor interface between inside and outside. The increased appreciation of the school site and development of external educational facilities would suggest that the boundary between inside and outside needs to be further blurred so that pupils and teaching staff can move from inside to outside the classroom with ease when weather conditions permit. It is important, however, that the dissolving of barriers is not allowed to reduce the security, real or imagined, of pupils and staff.

It is important, therefore, for future design teams to think beyond the immediate, obvious and logical sequence of links between the elements of design and try to understand some of the more subtle relationships and their possible impact of the success of the school.

14.14 THE FUTURE

The past 25 years has undoubtedly been a difficult time for designers of Essex primary schools as many tenets of primary education became subject to change, slowly at first, but with ever-increasing speed.

The role of the Architect

The role of the architect has also changed radically over this period as he or she has gradually lost control of the design process to project managers and accountants, often as a result of accusations by clients of failing to deliver new schools on time and within budget. The school architect, however, is probably the only design professional with the vision and experience to guide clients towards an appropriate building form able to cope with the changing needs of future Essex primary schools.

The architect must demonstrate, therefore, that he is able to deliver such a vision, on time, and within budget if he is to regain his place as leader of the design team.

Radical Solutions

The confidence of the public architect following the growth of school building following the war, encouraged some designers in Essex to experiment with radical solutions to primary school design, using system building, open plan barns and energy efficient servicing systems. These solutions had an appeal to many designers and a few of the more enlightened education officers, but unfortunately many were proved to be flawed, and Essex has inherited some schools which are still suffering the aftermath of such experimentation. Ironically the most popular type of primary school with Essex teachers is the spacious traditionally serviced cellular school built in the 1950s.

Conflict and teamwork

The design of the Essex primary school over two decades has demonstrated many conflicting views amongst teachers, educationalists and designers, including :-

- open versus cellular plans;
- system versus traditional construction;
- radical versus traditional environmental control systems; etc.,

but a study of this period demonstrates that a more holistic and pragmatic approach to the design of the primary school is likely to have a greater chance of success than the single minded radical approach of the past. Inter-disciplinary design is also more likely to produce an acceptable educational environment. It is important, however, that someone within the design team, usually the architect, has a vision of the final building to ensure it delights its users in every part, and to focus the team's efforts towards this goal.

The last 25 years of primary school development throughout Great Britain has seen the number of new schools diminish from the huge programmes of the heady post war period. It has been a period of considerable experimentation, however, with many new ideas in the field of education and related built environment with many lessons for the future.

As we pass into the next millennium several basic questions arise about the future number and form of primary schools including :-

- Will any new schools be needed as the birth rate falls and the population stabilises?
- Will the education system continue its current retrenchment into the teaching methods and values of the past or will a new generation of teachers, politicians, and administrators press for change to reflect future fashion?
- Will the electronic age with its' global communication networks render the school building redundant as pupils learn from home using their personal computer?

It is certain, however, that despite these unresolved questions some new schools will be needed and existing schools remodelled and extended to cope with demographic change in society as families split into smaller one parent units and the urbanisation of the English countryside continues. New generations of designers will, therefore, need information about the successes and failures of the past and I hope that this study will help to provide some insight into primary school development of the recent past and inspiration to designers for the next 25 years.

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ABBREVIATIONS

AJ	Architects Journal.
BD	Building Design.
DES	Department for Education and Science.
DFE	Department for Education.
DFEE	Department for Education and Employment.
ECC	Essex County Council.
HMSO	Her Majesty's Stationery Office.
ILEA	Inner London Education Authority.
NFER	National Foundation for Educational Research.
OECD	Organisation for Economic Development and Cooperation.
RIBAJ	Royal Institute of British Architects Journal.
RICS	Royal Institute of Chartered Surveyors.
SCOLA	Second Consortium of Local Authorities.

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