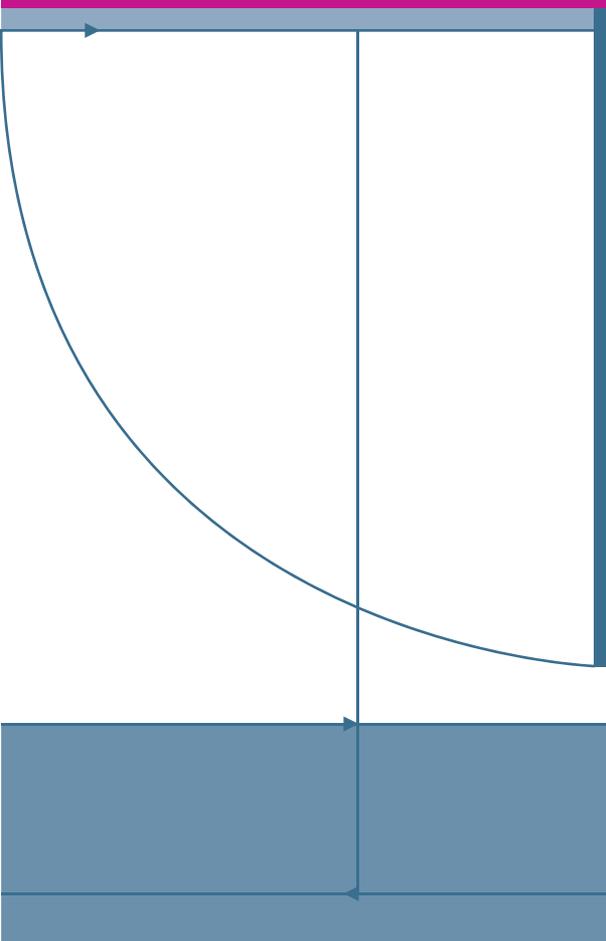


Standard specifications, layouts and dimensions

ONE



Partitions in schools

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Introduction

This guidance is one of a series of **Standard Specifications, Layouts and Dimensions (SSLD)** guidance notes produced to inform the **Building Schools for the Future (BSF)** programme.

Who this guidance is for

- Teachers and governors acting as clients for school capital projects
- Local authority officers responsible for procuring school capital projects
- Diocesan building officers
- Local authority and private sector school designers and specifiers
- Manufacturers and suppliers
- Contractors

How the guidance should be used

This guidance sets out the standards of performance for internal partitions in schools in the Building Schools for the Future (BSF) programme and shows how they might be delivered through some design examples. The aim is to disseminate best practice and avoid 'reinventing the wheel' every time a school building is designed, so that consistently high quality environments can be delivered, offering best whole-life value for money.

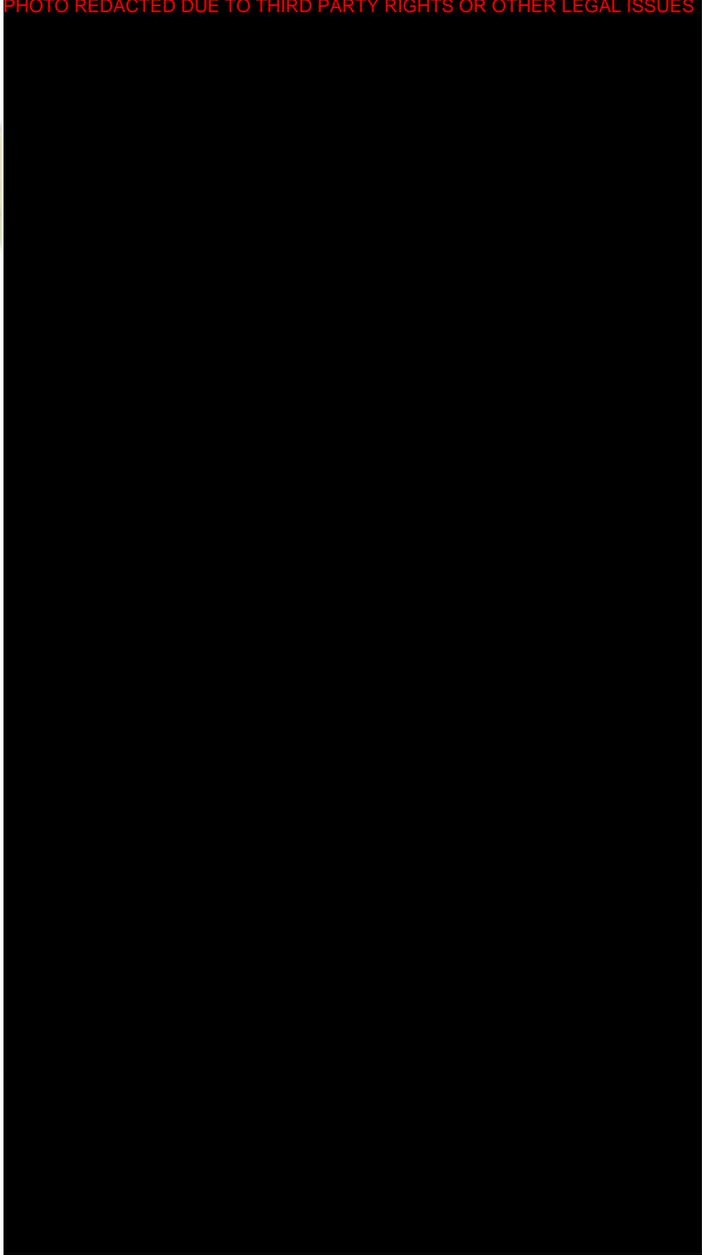


School building clients, their professional advisers, contractors and their supply chains should use the guidance to inform their decisions on internal partitions and specification standards at the early stages of a project's development – whether that be new build, extension or refurbishment – at RIBA Stages A-F.

To help encourage the take up of these performance specifications and design examples, this guidance will become the standard in BSF programme documentation and the Government will expect it to be adopted in the majority of situations, where it is reasonable and appropriate to do so. While we would expect projects to comply with the standards, other solutions – possibly based on new products or technologies, or reflecting local factors – may equally comply with the performance specification and could be used. We do not want to stifle innovation by being too prescriptive.

It is for users to exercise their own skill and expertise in deciding whether a solution shown in this publication is reasonable and appropriate for their circumstances. The guidance here does not affect obligations and liabilities under the law relating to construction and building.

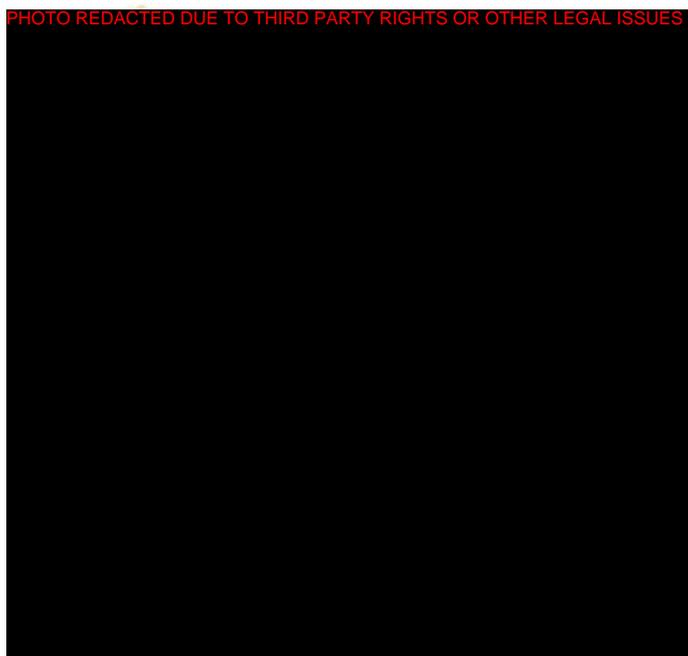
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Though principally aimed at secondary school building projects delivered through the BSF programme, the specifications and solutions may also apply to other educational buildings.

We will keep this guidance under review and update it as necessary to reflect the development of new products, processes, and regulations. A web-based version is available at: www.teachernet.gov.uk/management/resource/sfinanceandbuilding/schoolbuildings/

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Background to Standard Specifications, Layouts and Dimensions (SSLD)

The BSF programme offers a unique opportunity over the next 10-15 years to transform our secondary schools, providing innovative learning environments that will inspire pupils to achieve more. High quality, modern school buildings will help to raise standards and play a crucial part in the Government's programme of educational reform.

With the huge increases in funding associated with this programme, there is considerable scope for using standardised specifications, layouts and dimensions to speed up design and construction, reduce whole-life costs and deliver consistently high quality and better value school buildings. Standardisation will support the use of more off-site fabrication and modern methods of construction, which should help to improve health and safety performance, reduce waste and deliver more sustainable solutions. For the supply industry, being involved in standardisation will help to demonstrate market leadership – and help firms reduce risk and increase sales, profitability, and market size.

The solutions presented in this publication and the others in the SSLD series have been developed based on extensive consultation under the auspices of the SSLD Forum. Set up by the Department for Education and Skills (DfES), this forum represents key stakeholders in the building, design, research, contracting, and supply communities, as well as local authority construction clients.

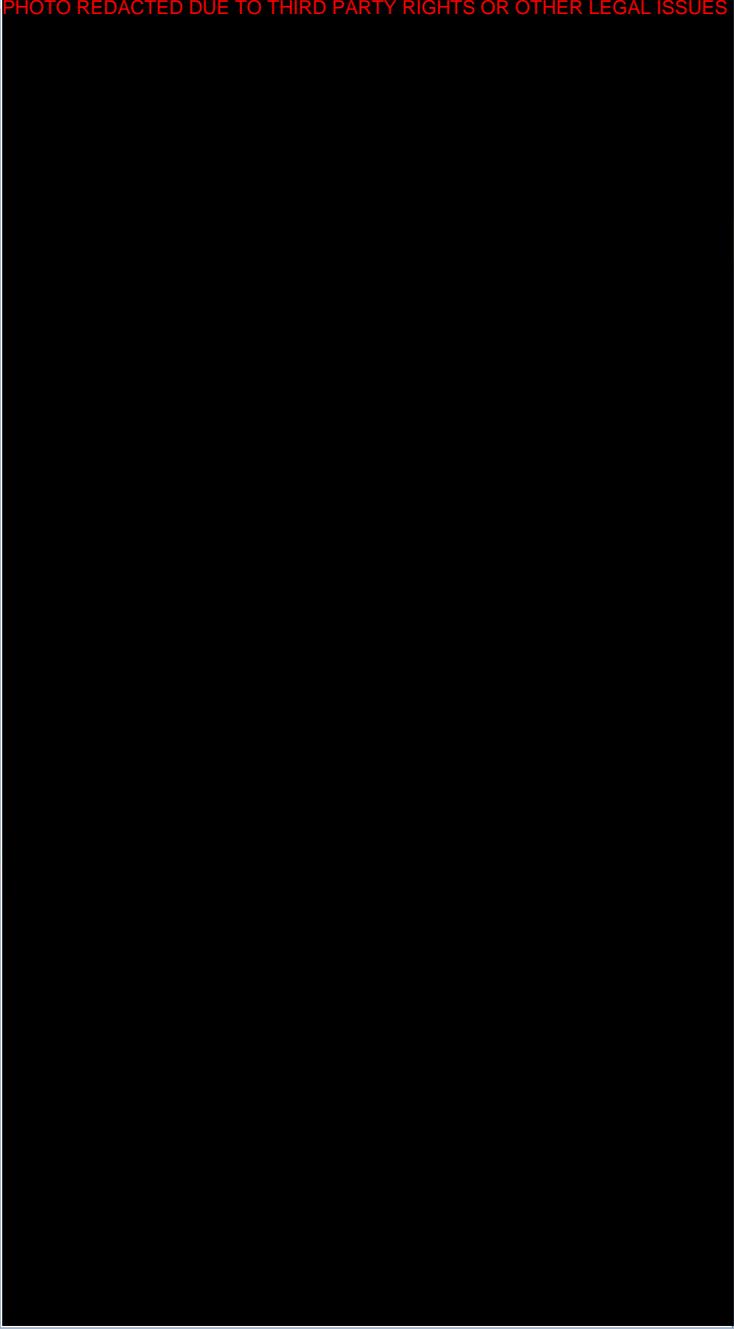
Aims and scope of this guidance

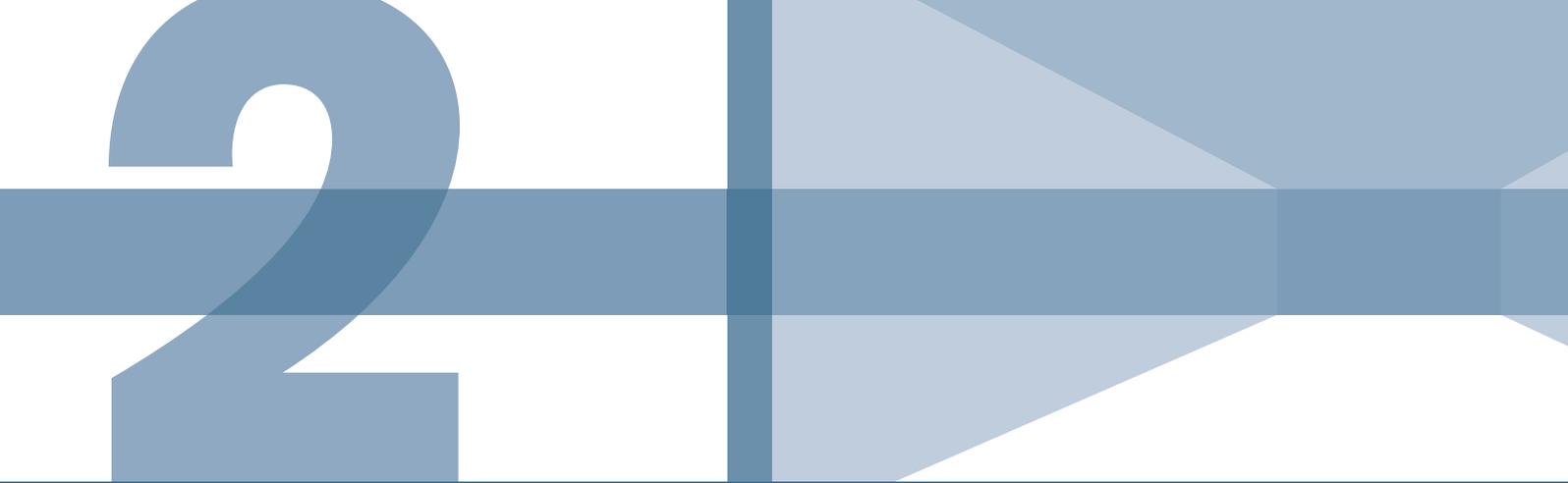
This publication provides a standard performance specification and some design examples for non load-bearing internal partitions, including their components, assemblies and finishes. It offers design guidance for project designers formulating the technical specifications, specifically setting out minimum standards of performance and quality expected by the DfES. It standardises partition types so that efficiencies and economies of scale can be generated within the supply chain. It aims to make it easier for caretakers and facilities managers to maintain, repair and replace components correctly.

This publication is structured as follows:

- **Section 2:** The generic performance characteristics of internal partitions and their finishes in secondary schools.
- **Section 3:** Performance specifications for partitions and their finishes in different locations within a building, together with a number of design examples that meet the performance requirements.
- **Section 4:** References to relevant British Standards, DfES and other design guidance.

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Key performance requirements

The primary function of a non load-bearing partition is to divide an internal area into a series of spaces, which can be used for different purposes. The following key performance requirements set the minimum standards that DfES would expect to be adopted in BSF, wherever it is reasonable and appropriate. Section 3 suggests some design examples that address these requirements.

For further information on partitions in toilet areas, see SSLD guidance, *Toilets in schools*.

Structural performance

General stability and structural resistance

A partition or lining should be adequately secure and capable of withstanding all undue vibration, incidental static, dynamic and impact forces under normal conditions of use.

Only 'severe duty' partitions are acceptable as defined by BS 5234-2: Table 1. This includes masonry partitions that conform to BS 5628.

To achieve 'severe duty', the door detail for stud partitions needs to be reinforced as recommended by the partition manufacturer, so that the requirements of the door-slamming test required in BS 5234-2 can be achieved.

Support of fixtures and fittings

A partition or lining should have the minimum capability to support the following applied loads:

- Pull out requirement – 100N
- Pull down requirement – 250N

Each room should also be assessed for fixtures and fittings and the following provision made for attaching fixtures to partitions:

- Light weight fixtures up to 8kg:
 - Plasterboard – metal self-drive screws
 - Fibreboard – 5mm diameter screws with continuous thread
 - Blockwork (7N/mm²) – 3mm screws with 5mm nylon plug
- Medium weight fixtures up to 30kg:
 - Plasterboard – No 10 self-tapping screws into metal stud or plywood
 - Fibreboard – 5mm diameter screws with continuous thread
 - Blockwork (7N/mm²) – 5mm screws with 6mm nylon plug
- Medium/Heavyweight fixtures up to 50kg:
 - Plasterboard – M5 x 40 steel cavity fixing or No 10 self-tapping screws fixed through plasterboard into metal stud or 12mm plywood
 - Fibreboard – M6 or M8 toggle bolts
 - Blockwork (7N/mm²) – 6mm screws with 8mm nylon plugs
- Heavy weight fixtures up to 100kg:
 - Plasterboard – No 12 woodscrews fixed through plasterboard into timber noggins
 - Fibreboard – No 12 woodscrews fixed through plasterboard into timber noggins
 - Blockwork (7N/mm²) – M6 expanding sleeve anchors

When fixings are specified, the following should be taken into account:

- The partition and fixing manufacturers' details should always be followed, particularly relating to spacing and the maximum permissible cantilevered distance off fixings.
- Resilient bars should never be bridged with fixings.
- Timber noggins should always be supplied for sanitary equipment and grab rails. All timber noggins should be fixed through the web of metal studs into the end of timber noggins using the screws recommended by the partition manufacturer (minimum timber dimensions 150x50mm).
- When wash basins, wash troughs, wall cupboards and shelves are installed, the wall should have the minimum capability to support the following applied loads:
 - Wash basin or wash troughs – 500N minimum (max deflection 5mm)
 - Person sitting on edge of washbasin – 1000 to 1500N (max deflection 20mm)
 - Wall cupboard/shelf – 2000 to 4000N (max deflection 5mm)
- Plywood pattresses should be installed in the following areas when plasterboard or fibreboard is used:
 - Toilets/showers (unless integrated plumbing systems are used)
 - Kitchens
 - Plantrooms
 - Classrooms where a high density of fixtures and fittings is envisaged

- Pattresses should be provided as a minimum between 600 to 1800mm off the finished floor level. It is important always to find out manufacturers' recommendations before fixing ply pattresses, to ensure the fire and sound integrity are not breached and the guarantee is not affected.

Maximum partition heights

The height of a partition is critical to its structural performance. Manufacturers' data should always be consulted to establish the maximum height of a particular partition, especially in relation to fire resistance. If blockwork is used, a structural engineer should be consulted to establish maximum panel heights and lengths.

Movement joints

Partitions should be considered in association with the adjacent construction:

- Deflections of upper floors or roof slabs need to be accommodated.
- Movement joints in a structural floor or roof slab should be carried through the partition, and be capable of the same range of movement as the floor or the roof joint.
- Maximum masonry panel sizes – 7m long.

Reference should be made to manufacturers' details for partition fixings and junction details. Opposite are some typical movement details.

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Diagram key

Typical 25mm deflection head detail providing good acoustic finish

For fire rated partitions refer to manufacturer's certified details which may require additional precautions.

1. Acrylic sealant
2. Uppermost board fixing
3. 50mm timber head plate equivalent to channel width
4. Steel angle

Fire safety

Fire resistance

The main objective of compartmentation in schools is to reduce the potential for fire and smoke to develop and spread from the room where the fire started. A fire strategy should be developed at an early stage and agreed with Building Control to identify compartment walls and hazard rooms.

Any compartmentation must be maintained throughout the life of the school. So, before any alterations are made to existing partitions, it is essential to consult the fire strategy plans.

Diagram key

Typical movement joint

For fire rated partitions refer to manufacturer's certified details which may require additional precautions.

1. Mineral wool minimum density 23kg/m³
2. Control joint
3. Metal stud

The partition fire ratings in Section 3 for each particular room type should not be taken in isolation. If the adjoining room has a fire resistance or is a protected stair/fire escape route, or the partition forms a fire compartment, then the partition must be appropriately fire rated. In all cases, the most onerous fire rating must be applied to the partition.

A number of fire hazard rooms (or rooms of significant value to the school if the contents were lost due to fire) have been identified in Section 3. These rooms, together with fire escape routes, have a performance requirement of either 30 or 60 minute fire protection from both sides and should be taken full height to the underside of floor slabs or roof soffits.

All partitions enclosing fire escape stairs and fire escape routes require appropriate degrees of fire protection as agreed with Building Control.

Libraries, media rooms and administrative offices should also be considered in relation to risk of fire, depending on their contents.

Where primary structural frame elements are enclosed within a partition, additional fire protection may be required to the structural frame. The requirement for protection of structural frame elements within the cavity of a partition, when tested from either side, is usually for a minimum 60 minutes' fire resistance. This may increase to 90 minutes or 120 minutes if the school has a basement or height over 18 metres as detailed in Approved Document B table A2 of the Buildings Regulations.

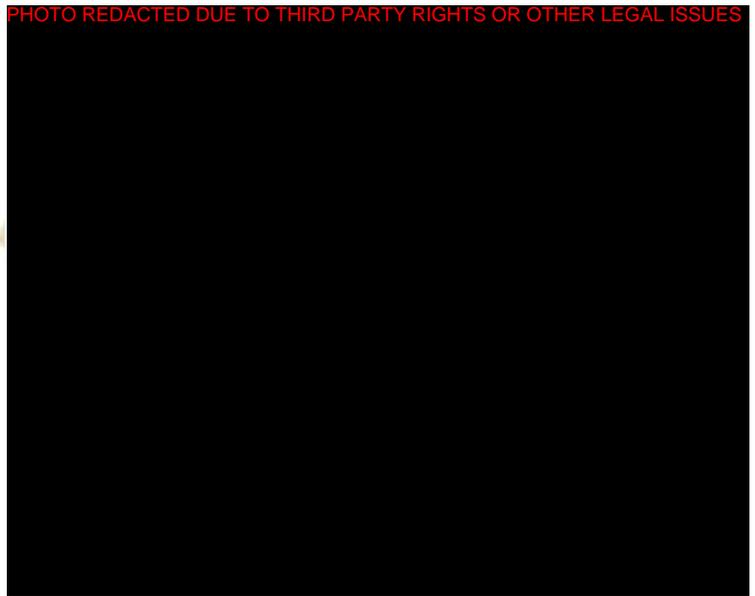
Reaction to fire (ignitability, combustibility, and fire propagation)

None of the materials used in the partition, including linings and finished surfaces, should contribute to the spread of fire, or give off toxic fumes when ignited.

Surface linings of partitions should meet the following surface spread of flame:

- General school accommodation – Class 1 (European Class C-s3, d2)
- Escape routes in schools – Class 0 (European Class B-s3, d2)

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The building insurers should always be consulted about fire resistance, to establish whether they have any requirements over and above the Building Regulations. Generally, products that have Loss Prevention Certification Board (LPCB) approval will be acceptable to insurers. There is more information on LPCB/BRE Certification approved products and services through the Red Book Live at www.brecertification.com

Fire barriers and fire stopping requirements

The abutment of a partition to adjacent walls, floors, suspended ceilings or structural soffits should not reduce its fire performance – nor should thermal movement and deflection of structural soffits.

(See the manufacturers' literature for details on maintaining the fire resistance of the partition.)

Where other items of construction breach a fire rated partition, they should have the same fire resistance as the partition.

Specific detail on items penetrating fire rated partitions:

- All glass used in the construction of fire walls should be class A or B in accordance with BS 6206 for impact strength, rising to minimum class A in pedestrian routes. Glass should be fire resistant to British Standards and Building Regulations.
- Monolithic, unwired fire resisting glass should not be used unless it can accept an edge cover of not less than 15mm in metal or timber glazing systems and is suitable for its intended location.
- Ductwork that is not fire rated must be fitted with a fire-resistant damper. If the duct is fire rated, a fire penetration seal must be incorporated to both faces of the partition, between the duct and the partition, to comply with BS 476-24. If the ductwork is supported independently to the partition, no deflection or movement should transfer to the partition in a fire.
- Flexible electrical and data cables need to be sealed into the partition by a fire penetration seal compatible with both the cables and the partition. Socket outlets within fire rated partitions should have fire rated back boxes.
- If the partition forms a fire compartment wall, pipes will need to be sealed or sleeved in accordance with Section 11 of Approved Document B of the Building Regulations.

Hygrothermal performance

Resistance to changes/extremes of temperature and humidity

Every area within a school should be designated 'normal', 'humid' or 'wet' in terms of its hygrothermal rating. Section 3 (page 23) includes guidance on the ratings of each school area and examples that should achieve the required rating.

The maximum deformation of a partition should not exceed height/500, with no local deformation exceeding 5mm when measured under a straight edge of 1.2m length.

Within these limits, there should be no splitting, delaminating, or other form of deterioration that might affect the overall performance of the partition when each side is exposed to the following hygrothermal conditions:

	One side	Opposite side
a. Normal	25% RH at 10°C	65% RH at 25°C
b. Humid	25% RH at 10°C	85% RH at 25°C
c. Wet	25% RH at 10°C	98% RH at 25°C

A partition may be required to meet wet or humid conditions on one side or part of one side, with dry conditions on the opposite side. The component materials will need to withstand the corrosive or degrading effects of atmospheric humidity within the range 25% to 98% RH, as designated above.

Resistance to water and water vapour

Generally, the surface finishes of components should withstand any surface condensation or local splashing of water.

A further requirement is applicable in shower rooms, laundries, kitchens, and similar wet areas, where floors are liable to be washed with water. A partition or lining of 'wet' category should be impervious to standing water up to a depth of 30mm on the adjacent floor surface. This may be achieved by adding a treatment to the surface of the partition or lining, or by using a skirting integral with the floor finish.

Thermal transmittance

Where there is a temperature difference between two spaces on either side of the partition – for example, where the partition divides a heated and unheated room – the partition should have the capability to achieve a minimum improved 'U' value of 0.35 W/m²K. However, this should be taken into account with the total building carbon model as part of compliance to Part L of the Building Regulations.

Acoustic performance

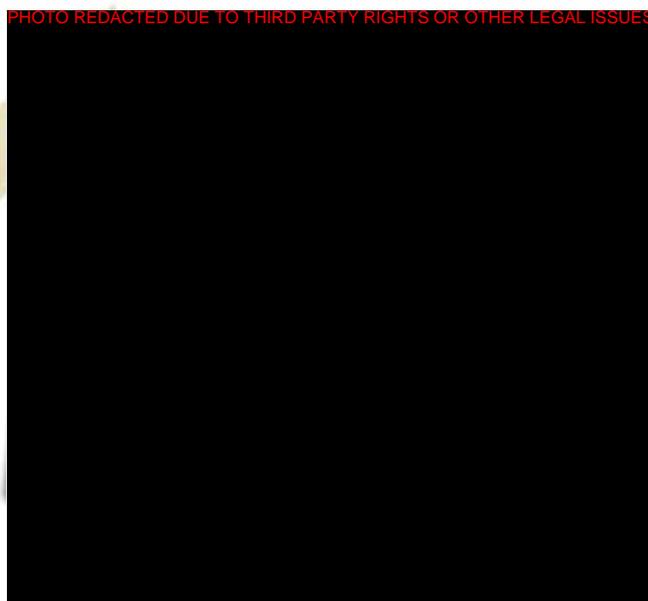
Airborne sound insulation between spaces

Good acoustic performance within schools is essential for learning – it helps teachers and students communicate clearly and improves study activities. The sound insulation between rooms should be calculated in accordance with Section 1 of Building Bulletin 93¹ (BB 93) as required for Building Control approval.

Section 3 (page 23) gives some guidance on minimum acoustic reduction values for partitions in a variety of Building Bulletin 98² (BB 98) rooms, together with design examples that should achieve the minimum acoustic ratings.

NB However, calculations will still need to be provided to Building Control, as stated above.

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1 www.teachernet.gov.uk/management/resourcesfinanceandbuilding/schoolbuildings/designguidance/sbenvironmentalhs/acoustics/

2 www.teachernet.gov.uk/management/resourcesfinanceandbuilding/schoolbuildings/designguidance/sbareaguidelines/bb98/

The minimum acoustic performance requirements in Section 3 should only be applied in conjunction with the following:

- Where possible, teaching areas should not be located next to rooms with very high activity noise – this scenario has been excluded from this guide. (It is advisable to seek advice from an acoustics expert in these situations.)
- The acoustic values only apply to average room areas as identified in BB 98 Appendix 1, with an allowance of +/- 10%. For non-standard room sizes, please refer to BB 93 and an acoustics expert.
- Rooms are deemed as square to within +/- 15%. For non-standard room sizes, please refer to BB 93 and an acoustics expert.
- Adjoining rooms are of similar size and share common walls.
- When partition requirements are assessed between two different rooms, the most onerous acoustic value should be taken.
- The figures stated are R_w values laboratory tested with an allowance for site workmanship.
- The acoustic figures given are deemed to be satisfied if the partition system has been laboratory tested to BS EN ISO 140-3:1995 and is installed according to manufacturers' recommendations to achieve the acoustic ratings as tested. The acoustic figures are not to be used as site checks as they have been enhanced to allow for site workmanship.

- No allowance has been made for anything penetrating the partition (doors or windows), as these significantly reduce the partition's effectiveness. Generally, any penetrations should:
 - be a minimum 30 R_w (dB) between rooms and circulation spaces (excluding music rooms)
 - be a minimum of 35 R_w (dB) between music rooms and circulation spaces
 - where they are between-room penetrations, be kept to a minimum. If required, an acoustics expert's advice must be sought. (Between-room penetrations are excluded from this guide.)

In all cases partitions should be taken full height to the underside of the structural slab or roof soffit to maintain the partition's acoustic integrity. If the partition needs to finish at ceiling level, an acoustic detail to the same acoustic requirements as the partition will be required along the line of the partition, to close the sound transmission route over the top.

Reverberation in teaching and study spaces (sound absorption)

The objective is to provide suitable reverberation times for speech to be heard clearly in teaching and study spaces, and in music teaching and performance.

Reference should be made to BB 93 Table 1.5, which gives performance standards for reverberation in teaching and study spaces.

Once the design is complete, an acoustics expert will need to provide calculations for the overall reverberation time, taking into account all surface finishes and the room's volume. Appendices 6 and 10 of BB 93 have examples of reverberation calculations. From these calculations, the acoustician may recommend additional acoustic adjustments in various areas of a room to improve reverberation times. For partitions in large volume rooms, this might include installing perforated gypsum boards high up in the room.

Speech intelligibility in open-plan spaces (Speech Transmission Index)

Open-plan spaces are generally designed to be highly flexible in terms of teaching and learning activities. They are more complex acoustically and require extra specification.

The open-plan layout and activity plan should be established with the client at an early stage, including all considerations listed in BB 93 paragraph 1.1.7, and agreed as the basis for demonstrating compliance with BB 93 to Building Control.

The performance standard for speech intelligibility in open-plan spaces is described in terms of the Speech Transmission Index (STI). The calculated value of STI should be between 0.60 and 1.00, which gives an STI rating of either 'good' or 'excellent'. A computer prediction model should be used to calculate the STI in an open-plan space. Please refer to the guidance on computer prediction models on the DfES acoustics website³.

Due to the complex nature of open-plan spaces, an acoustics expert's advice should be sought – detail on such spaces is therefore outside the scope of this guide.

³ www.teachernet.gov.uk/acoustics

Flanking transmission

There should be no weakness in the partition wall, including abutments to other walls, ceilings and floors. Flanking transmission is critical in determining the actual performance of partitions, so junctions should be carefully designed.

Partitions should be well sealed, as small gaps and holes can significantly reduce sound insulation. Services should be well sealed and boarding/insulation provided behind back boxes to maintain the sound insulation of the partition. Back-to-back electrical boxes and conduit/service chases should be avoided at all times.

Where partitions abut floating floors, they should be constructed off the structural floor and the floating floor dressed up to the partition. The detailing up to a profiled metal roof deck or a profiled concrete soffit should be designed to prevent flanking sound transmission. These details should be checked by an acoustics expert to ensure they maintain the acoustic properties of the partition.

Openings and junctions in music rooms require specialist acoustic approaches. For more information, please see BB 93.

Surface finishes

Surface detail

The requirement for surface finishes is that they should be suitably robust and perform their necessary protective and decorative functions. Section 3 (page 35) has a matrix of surface finishes in various BB 98 school areas.

Modelled or textured surfaces and profiles of framing, skirtings and trim should meet the requirements for minimising dirt retention and providing easy cleaning.

The light reflectance of the partition or lining surfaces should not be less than 55%, except in certain specialist areas such as drama studios. Under DDA regulations, the partition should contrast visually with the floor and doors and not have a high sheen (so that the reflection does not confuse people with visual impairment) unless the function of the room calls for a hygienic finish.

There is further guidance on recommended surface reflectance in Building Bulletin 90⁴.

4 www.teachernet.gov.uk/lighting

Hygiene

Partitions or linings should not contain materials that could be detrimental to the health and safety of users – by direct contact or otherwise.

They should be designed and constructed to avoid accumulations of dirt, attack or infestation by micro-organisms, fungi or insects.

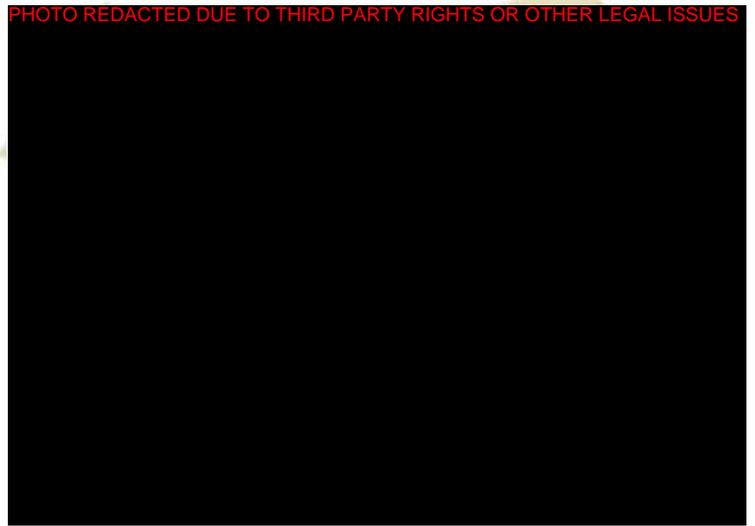
Exposed surfaces should be capable of withstanding routine wet cleaning with mild detergents or disinfectants, without deteriorating or discolouring.

Durability and adaptability

Durability

Permanent partitions and linings are required to perform 'satisfactorily' under the conditions appropriate to their specific use (given reasonable use and the expected standards of maintenance) for a period of 60 years.

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Adaptability

Wherever possible between rooms, partitions should be designed to be adaptable – therefore, demountable head and base details should be considered. In general, adaptable partitions are required to perform 'satisfactorily', given no more than two occasions on which this capability is used, for a period of 30 years. It is accepted that some builders' work will be required to the head and base to enable the partitions to be moved.

Maintenance

Recommended cleaning and maintenance instructions for exposed surfaces of partitions and linings should be provided in the school's Operational and Maintenance Manual/Health and Safety File.

Partitions should always be maintained in accordance with the manufacturers' recommendations contained in the Operations and Maintenance Files. Please also see Health and Safety recommendations on page 17.

Provision for engineering services

Generally, services within partitions should be kept to a minimum to maintain adaptability in the future. But where services are run within or through a partition, the performance of the partition should not fall below the level required for sound insulation, fire resistance, and any other performance requirements. (Manufacturers' literature must be consulted.)

The following requirements are also necessary:

- IEE Regulations and Building Regulation Approved Documents for services should be followed.
- Fixings and chases for services in masonry partitions should comply with BS 5628-3. Non load-bearing masonry walls should not have back-to-back chases within 300mm of each other. The depth of chases should be calculated by the structural engineer when the length and height of masonry panels are factored.
- Access panels should be provided to service all maintainable mechanical and electrical items. In washrooms/toilets it is recommended that all walls have integrated plumbing system (IPS) linings where services are present.
- Grilles for natural ventilation cut into the partition should not lower its acoustic or fire rating.

Health and safety

Non load-bearing partitions are not designed to support body weight. Fixers must work from an independent support system.

Masonry and board weights should be taken into account. Under no circumstances should any material heavier than 20kg be handled manually.

Personal protective equipment must always be used when materials are cut or power/hand tools are used.

Sanding and dust generation should be kept to a minimum and suitable face protection (including goggles and mask) should always be worn, in a well ventilated area.

When insulation is being handled – or products such as boards containing glass fibre – mask and gloves should be worn.

Facing boards should be carried on edge, with two people per board. Boards should always be put down on their long edge before being turned flat.

A check for services should always be made before walls are drilled. On stud partitions 100mm thick or less, the reverse of the partition should always be checked for electrical services, as cables within the cavity may be less than 50mm from the face being drilled.

Partitions and linings that include metal components should be designed for earth bonding in accordance with the current IEE Regulations.

Where a partition can be relocated or has moving parts, it should incorporate adequate means to prevent unauthorised people casually dismantling or tampering with it.

Sustainability

The Building Research Establishment Environmental Assessment Method for Schools (BREEAM Schools) is the standard tool for assessing the environmental impact of a school⁵. The BREEAM Schools assessment rates construction elements in the proposed building using information from the BRE Green Guide to Specification⁶. The ratings for components are A, B, C etc with A being the most environmentally friendly.

Wherever possible, all partitions should achieve an 'A' summary rating.

NB Always check a product's environmental rating.

Moveable partitions

School environments over time are required to perform a multitude of activities, which often means that some spaces need to be transformational. There are numerous proprietary moveable wall products in the market place that will help achieve this. Detailed specifications and design advice on moveable partitions are outside the scope of this publication. However, the following general points should be adhered to when a moveable partition is chosen:

- The wall must not be a fire compartment, nor need any fire rating.
- The surface spread of flame rating should meet class 1 or class O if the wall forms part of an escape route.
- The partition should meet the key performance properties for the partition wall type required in the room where it is being installed.
- The Speech Transmission Index (see page 14) should not be exceeded for any open-plan space.
- The acoustic rating of a partition after it has been installed and in use for some time is often much lower than that stated by the manufacturer, due to the standard of workmanship and wear and tear on the seals. This should be discussed with the school before a moveable partition is specified.

5 www.breeam.org/page.jsp?id=20

6 www.breeam.org/page.jsp?id=33

- The partition must have removable key locks to prevent unauthorised people from casually dismantling or tampering with it.
- Glazed moveable partitions should be class A or B impact strength in accordance with BS 6206, except in pedestrian areas where they should be class A only. Manifestation strips should be provided to glazed partitions in accordance with Building Regulations Approved Document M.

Material sizes

Co-ordinated/standard sizes for partitions

Standard sizes for linings should be used wherever possible. 1200 x 2400mm plasterboards/fibreboards and 440 x 215 x 140mm blocks have advantages because they:

- are widely and readily available
- support manual handling/site delivery
- are economic
- co-ordinate with the preferred classroom sizes

However, depending on the height of the rooms, it may be more economical to provide plasterboard/fibreboard sizes of 1200 x 3000mm to co-ordinate with ceiling heights.

The preferred floor-to-floor height for schools is 3.6m, with approximately 3.15m to soffit (see SSLD guidance, *Classrooms*).

These heights coordinate with the preferred board and block sizes above – for example, approximately 1½ boards per 1.2m strip (four boards per 3.6m wall length) – thus minimising waste.

Cost comment

Capital costs

The internal partitions element represents a significant cost driver in school buildings owing to the highly cellular nature of the accommodation. In a typical secondary school, the internal division ratio will be approximately 80% of the gross floor area. Recent changes in Building Regulations and new design guidance in the form of Building Bulletin 93 now demand higher standards of acoustic separation and absorption that need to be balanced with the educational requirements for natural daylight and good ventilation. The importance of reconciling these sometimes conflicting requirements has led to greater focus over recent years on the appropriate design, specification and procurement of partitions installations.

General partitions of the type exemplified in Section 3 will comprise around 4% to 5% of the total construction cost, or around £55m² – 100m² of gross internal floor area (based on 4th quarter 2006 tender prices).

Costs will be higher where:

- there is a client need for a high degree of flexibility and adaptability, requiring spaces to be regularly reconfigured using relocatable, demountable or sliding-folding partitions. These may cost between £400-600m². The flexibility of such systems should be weighted against the high initial capital costs. Flexible room sizes can however add significant educational value and create opportunities for greater variety in the utilisation of space.
- there is a need for large amounts of internal glazed partition. Costs may range from £250-500m².
- spaces back onto atrium with internal glazing. In such cases the glazing may need to be both acoustic and fire rated. Costs may range from £350-800m².

It may not be possible to afford large expanses of such partitioning within available funding limits unless compensating savings are made elsewhere.

Whole-life costs

Whole-life cost considerations are crucial to the design, procurement, selection and maintenance of partition installations in schools. Whichever specification is chosen, an holistic approach to decision making will deliver maximum benefits, as opposed to selection purely on grounds of capital cost criteria alone.

The overall equation to be evaluated when selecting a partition type should factor in the following issues if a balanced scorecard of advantages and disadvantages is to be understood:

- initial installation costs and affordability targets
- durability issues and repairs and reactive maintenance
- degree of flexibility required and likely frequency of remodelling
- frequency of re-decoration
- replacement costs including disposal
- consequential costs (e.g. depending on ventilation and acoustic performance)
- site programming and buildability
- disruption costs/opportunity (operational continuity in high use areas)
- environmental costs (re-cycling, toxicity, embodied carbon dioxide)
- taxation, VAT and capital allowance

Clients should ensure that their professional advisors take due regard of these factors and carry out appropriate option appraisals in developing project budgets, including discounting procedures⁷.

Over the lifetime of a typical 30-year PFI concession for a new school, the total discounted costs of partitions can be around £120m-250m².

⁷ Further information on option appraisal is available in Finding the Right Solution at: www.teachernet.gov.uk/docbank/index.cfm?id=4730. A whole-life cost model, including a discounting procedure, is available at: www.teachernet.gov.uk/docbank/index.cfm?id=3352

3

Performance specifications and some design examples

This section provides performance specifications and some design examples for five wall types and three finish types, along with the locations where they may be used.

The summary tables show the majority of secondary school spaces as defined in Building Bulletin 98. These tables can be used to identify the wall or finish type required for a particular space (e.g. type A or F1). It is then possible to look up the key performance requirements from the wall/finish type tables and a corresponding design example.

This approach does not mean that the designer cannot use another partition or finish type to achieve a particular aesthetic effect – but the alternative would need to conform to the key performance requirements for that particular room.

The design examples detailed below simply offer guidelines – it is for the people involved to use their own skill and expertise in deciding what will be a reasonable and appropriate final design solution in their particular situation.

Partition wall types: summary

Key	
Partition type A	A
Partition type B	B
Partition type C	C
Partition type D	D
Partition type E	E
No fire rating	00
30 minute fire rated	30
60 minute fire rated	60
Normal hygrothermal performance	n
Humid hygrothermal performance	h
Wet hygrothermal performance	w
Activity noise – Normal	
Activity noise – High	
Activity noise – Very high	

For example C30n means a type C partition with 30 minutes fire resistance and a normal hygrothermal performance.

Notes	
Hygrothermal performance	The recommendations shown in this table should be read in conjunction with Section 2 – Key performance requirements of this guide.
Acoustics	The minimum acoustic performance requirements shall only be applied when following the notes contained in Section 2 of this guide. Applicable standard: BS EN ISO 140-3: 1995
Robustness	Applicable standard: BS 5234
Fixtures and fittings	Each room must be assessed for fixtures and fittings follow the recommendations in Section 2 of this guide. Applicable standard: BS 5234
Fire resistance	The partition fire ratings stated for each particular room type should not be taken in isolation. If the adjoining room has a fire resistance or is a protected stair/fire escape route, or the partition forms a fire compartment then the partition must be appropriately fire rated. In all cases the most onerous fire rating must be applied to the partition. Applicable standard: BS 476-7
Surface spread of flame	Applicable standard: BS 476-7
Hygrothermal performance	Applicable standard: DD171 test 10 and 11
Sustainability	Applicable standard: BRE green guide
Area	The room areas stated are typical for a 900 pupil school

The table opposite defines the partition types for the rooms listed. The type will vary depending on the noise level in the adjoining room.

	Area m ²	Activity noise in adjoining source room	
		Normal	High
General teaching			
Seminar room	43	C00n	D00n
Classroom (including open plan and small lecture)	56	B00n	D00n
Small group/interview room (FLA etc)	10	C00n	E00n
Light practical			
IT room	77	A30n	C30n
Science laboratory	90	A30n	C30n
Large (textiles or 3D) and general (2D) art rooms	105	A30n	C30n
Kiln room	4	B30n	C30n
Darkroom	12	A30h	C30h
Electronics and control systems	90	A30n	C30n
Constructional textiles	90	A30n	C30n
Graphics room	77	A30n	C30n
Art/design resource area	52	A30n	C30n
Heavy practical			
Food room	101	A30h	C30h
Resistant materials (including CAD/CAM)	112	A30n	B30n
Performance			
Music recital	90	D00n	E00n
Music classroom	67	C00n	D00n
Music group/practice rooms	7	C00n	E00n
Music ensemble rooms	20	D00n	E00n
Recording studio	20	D00n	E00n
Recording studio control room	12	C00n	E00n
Drama studio	90	C00n	D00n
AV studio (incl video-conferencing)	90	C00n	D00n
Halls			
4-court sports hall	594	A00n	C00n
Activity studio (incl gymnasium)	150	B00n	D00n
Main assembly/multi-purpose hall	270	A00n	C00n
Lecture theatre (over 50 people)	100	C00n	D00n
Learning resource areas			
SEN resource base	20	B00n	D00n
Small group room (SEN etc)	16	C00n	E00n
Library resource centre & careers	170	A00n	C00n
Study areas (incl sixth form)	90	B00n	D00n

	Area m ²	Activity noise in adjoining source room	
		Normal	High
Staff and administration			
Meeting room (incl interview)	20	C00n	E00n
SEN therapy/counselling/MI room	18	C00n	E00n
Offices, general office	8	B00n	D00n
Staff rooms	65	B00n	C00n
Entrance/reception	18	B00n	D00n
Storage			
All walk-in stores for basic teaching areas	–	A30n	A30n
Science prep room	–	A30n	A30n
Chemical store	–	A60h	A60h
Multi-materials prep room	–	A30n	A30n
PE store	–	A30n	A30n
Non-teaching stores	–	A30n	A30n
Wheelchair laybys and locker areas	75	A30n	C30n
Chair store	–	A30n	A30n
Maintenance and cleaners' stores	–	A30h	A30h
Dining/social areas			
Dining and sandwich/vending areas	240	A00n	B00n
Social and common rooms (including sixth form)	90	B00n	D00n
Catering facilities			
Kitchen preparation areas	80	A60h	C60h
Kitchen staff and store rooms	40	B30h	D30h
Toilets (personal care)			
Pupil and staff changing	75	A00h	C00h
Pupils and staff showers	8	B00w	D00w
Pupil, staff and visitors toilets	3	B00h	D00h
Circulation			
Atria and circulation areas used by pupils during lessons	–	B00n	D00n
Corridors to general and practical teaching and non-teaching areas	–	A00n	A00n
Corridors to performance areas and halls	–	B00n	B00n
Plant			
Plant rooms	–	B60h	D60h
Electrical cupboards and ducts	–	A60n	A60n
Server rooms	–	A60n	A60n

Partition wall type A

General summary of wall type A

Partition generally suitable for non-acoustic sensitive areas such as stores, large practical areas and corridors.

Note: This is a general statement – each room/adjacency must be assessed and the exact partition type determined from the 'summary of types' matrix.

Key performance attributes

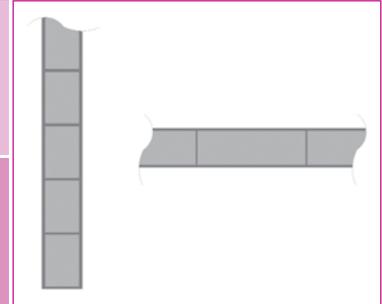
Acoustic performance (R_w dB)	43
Robustness duty rating	SD
Minimum support for fixtures and fittings – pull out (N)	100
Minimum support for fixtures and fittings – pull down (N)	250
Fire resistance (minutes) Code 00 = 00 Mins, Code 30 = 30 mins, Code 60 = 60mins	See summary table
Surface spread of flame class	1
Hygrothermal performance Code n = Normal, Code h = Humid, Code w = Wet	See summary table
Sustainability rating	[A]

Type A examples

Lightweight block

100 or 140mm lightweight solid concrete blocks
Compressive strength = 7N/mm^2 /Dry density = 1450kg/m^3
Fire rating = 60 mins

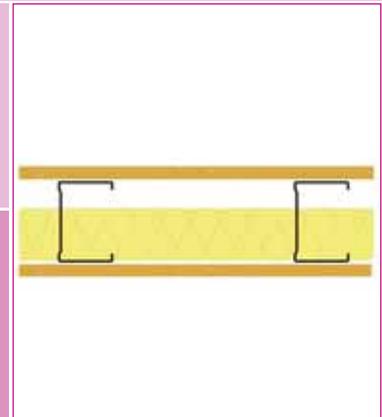
Notes: No blocks above 20kg should be specified for manual handling. Consideration of service chasing depths should be taken into account particularly in 100mm blocks and a structural engineer's advice sought for wall heights. Not a particularly adaptable solution. Always consult manufacturers' data.



Gypsum fibreboard

Boards = One layer of 12.5mm gypsum fibreboard each side of partition
Studs = 75mm metal C studs
Insulation = 40mm thick (density: 45kg/m^3) in cavity
Fire Rating = 60 mins

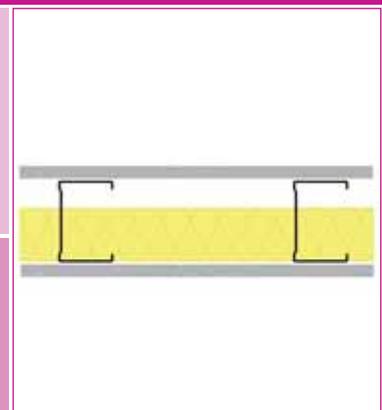
Notes: Maximum partition height = 4.5m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas apply surface treatment to boards as recommended by manufacturer. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Plasterboard

Boards = One layer of 15mm high density plasterboard with glass fibre additives each side of partition
Studs = 70mm metal C studs
Insulation = 50mm thick (density: 12.9kg/m^3)
Fire Rating = 60 mins

Notes: Maximum partition height = 4.0m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas specify moisture resistant boards. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Partition wall type B

General summary of wall type B

Partition generally suitable for classrooms and circulation used during lesson times.

Note: This is a general statement – each room/adjacency must be assessed and the exact partition type determined from the ‘summary of types’ matrix.

Key performance attributes

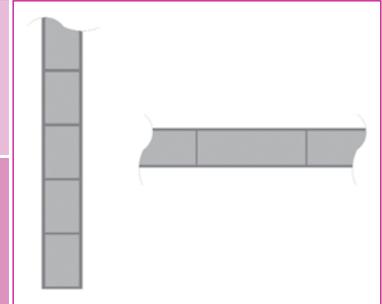
Acoustic performance (R_w dB)	48
Robustness duty rating	SD
Minimum support for fixtures and fittings – pull out (N)	100
Minimum support for fixtures and fittings – pull down (N)	250
Fire resistance (minutes) Code 00 = 00 Mins, Code 30 = 30 mins, Code 60 = 60mins	See summary table
Surface spread of flame class	1
Hygrothermal performance Code n = Normal, Code h = Humid, Code w = Wet	See summary table
Sustainability rating	[A]

Type B examples

Lightweight block

140mm Lightweight solid concrete blocks
Compressive strength = 7N/mm^2 /Dry density = 1450kg/m^3
Fire rating = 60 mins

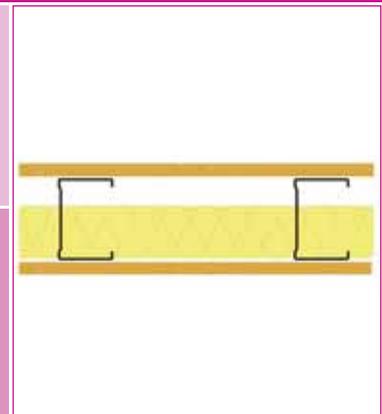
Notes: No blocks above 20kg should be specified for manual handling. Consideration of service chasing depths should be taken into account particularly in 100mm blocks and a structural engineer's advice sought for wall heights. Not a particularly adaptable solution. Always consult manufacturers' data.



Gypsum fibreboard

Boards = One layer of 12.5mm gypsum fibreboard each side of partition
Studs = 75mm metal C studs
Insulation = 60mm thick (density: 35kg/m^3) in cavity
Fire rating = 60 mins

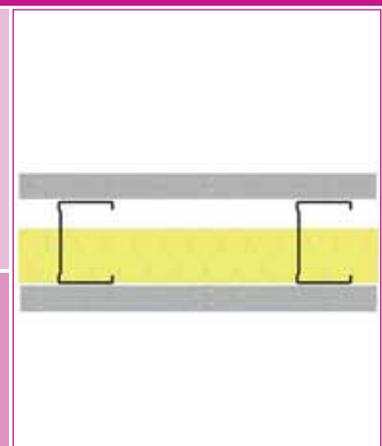
Notes: Maximum partition height = 4.5m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas, apply surface treatment to boards as recommended by manufacturer. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Plasterboard

Boards = Two layers each side of partition, consisting of outer 13mm high density board with glassfibre additives and inner 15mm sound absorbing high density board
Studs = 70mm metal C studs
Insulation = 50mm thick (density: 12.9kg/m^3)
Fire rating = 60 mins

Notes: Maximum partition height = 4.0m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas, specify moisture resistant boards. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Partition wall type C

General summary of wall type C

Partition generally suitable for small meeting/group rooms, which would be sensitive to noise intrusion.

Note: This is a general statement – each room/adjacency must be assessed and the exact partition type determined from the ‘summary of types’ matrix.

Key performance attributes

Acoustic performance (R_w dB)	53
Robustness duty rating	SD
Minimum support for fixtures and fittings – pull out (N)	100
Minimum support for fixtures and fittings – pull down (N)	250
Fire resistance (minutes) Code 00 = 00 Mins, Code 30 = 30 mins, Code 60 = 60mins	See summary table
Surface spread of flame class	1
Hygrothermal performance Code n = Normal, Code h = Humid, Code w = Wet	See summary table
Sustainability rating	[A]

Type C examples

Lightweight block and lining

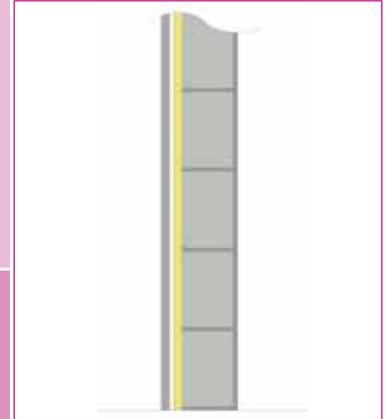
140mm Lightweight solid concrete blocks

Compressive strength = 7N/mm^2 /Dry density = 1450kg/m^3

Metal lining system to one side of blockwork to give 35mm cavity filled with 25mm insulation (15.2kg/m^3), with two layers of 12.5mm sound absorbing high density plasterboards

Fire rating = 60 mins

Notes: No blocks above 20kg should be specified for manual handling. Consideration of service chasing depths should be taken into account particularly in 100mm blocks and a structural engineer's advice sought for wall heights. Not an adaptable solution. Always consult manufacturers' data.



Gypsum fibreboard

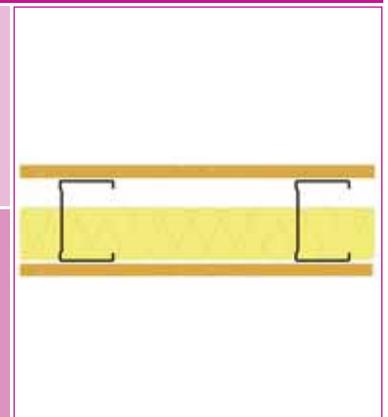
Boards = One layer of 12.5mm gypsum fibreboard each side of partition

Studs = 75mm metal C studs

Insulation = 60mm thick (density: 35kg/m^3) in cavity

Fire rating = 60 mins

Notes: Maximum partition height = 4.5m. Consideration should be given to the use of standard board sizes. 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas, apply surface treatment to boards as recommended by manufacturer. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Plasterboard

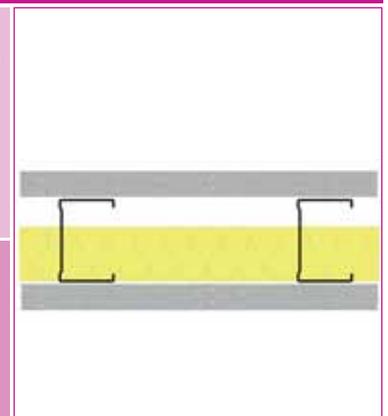
Boards = Two layers each side of partition, consisting of outer 13mm high density board with glassfibre additives and inner 15mm sound absorbing high density board

Studs = 70mm metal C studs

Insulation = 50mm thick (density: 12.9kg/m^3)

Fire rating = 60 mins

Notes: Maximum partition height = 4.0m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas, specify moisture resistant boards. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Partition wall type D

General summary of wall type D

Partition generally suitable for acoustic sensitive rooms such as performance/music rooms.

Note: This is a general statement – each room/adjacency must be assessed and the exact partition type determined from the 'summary of types' matrix.

Key performance attributes

Acoustic performance (R_w dB)	58
Robustness duty rating	SD
Minimum support for fixtures and fittings – pull out (N)	100
Minimum support for fixtures and fittings – pull down (N)	250
Fire resistance (minutes) Code 00 = 00 Mins, Code 30 = 30 mins, Code 60 = 60mins	See summary table
Surface spread of flame class	1
Hygrothermal performance Code n = Normal, Code h = Humid, Code w = Wet	See summary table
Sustainability rating	[A]

Type D examples

Lightweight block and lining

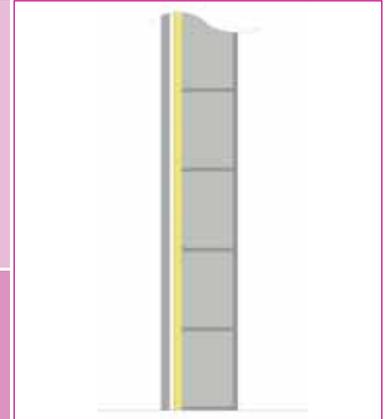
140mm Lightweight solid concrete blocks

Compressive strength = 7N/mm^2 /Dry density = 1450kg/m^3

Metal lining system to one side of blockwork to give 35mm cavity filled with 25mm insulation (15.2kg/m^3), with two layers of 12.5mm sound absorbing high density plasterboards

Fire rating = 60 mins

Notes: No blocks above 20kg should be specified for manual handling. Consideration of service chasing depths should be taken into account particularly in 100mm blocks and a structural engineer's advice sought for wall heights. Not a particularly adaptable solution. Always consult manufacturers' data.



Gypsum fibreboard

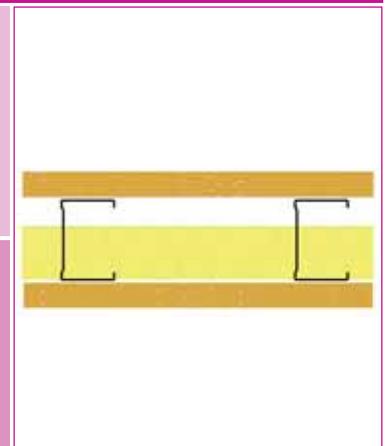
Boards = Two layers each side of partition, consisting of outer 10mm gypsum fibreboard and inner 12.5mm gypsum fibreboard

Studs = 75mm metal C studs

Insulation = 60mm thick (density: 50kg/m^3) in cavity

Fire rating = 60 mins

Notes: Maximum partition height = 4.5m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas, apply surface treatment to boards as recommended by manufacturer. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Plasterboard

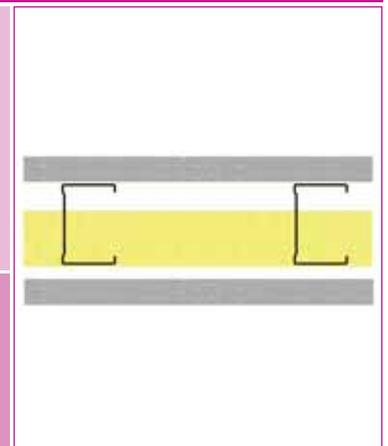
Boards = Two layers each side of partition, consisting of outer 13mm high density board with glassfibre additives and inner 15mm sound absorbing high density board

Studs = 70mm metal C studs & resilient bar on one side

Insulation = 50mm thick (density: 12.9kg/m^3)

Fire rating = 60 mins

Notes: Maximum partition height = 4.0m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas, specify moisture resistant boards. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Partition wall type E

General summary of wall type E

Partition generally suitable for acoustic sensitive rooms adjoining rooms with a high activity noise.

Note: This is a general statement – each room/adjacency must be assessed and the exact partition type determined from the ‘summary of types’ matrix.

Key performance attributes

Acoustic performance (R_w dB)	63
Robustness duty rating	SD
Minimum support for fixtures and fittings – pull out (N)	100
Minimum support for fixtures and fittings – pull down (N)	250
Fire resistance (minutes) Code 00 = 00 Mins, Code 30 = 30 mins, Code 60 = 60mins	See summary table
Surface spread of flame class	1
Hygrothermal performance Code n = Normal, Code h = Humid, Code w = Wet	See summary table
Sustainability rating	[A]

Type E examples

Lightweight block

Not recommended

Gypsum fibreboard

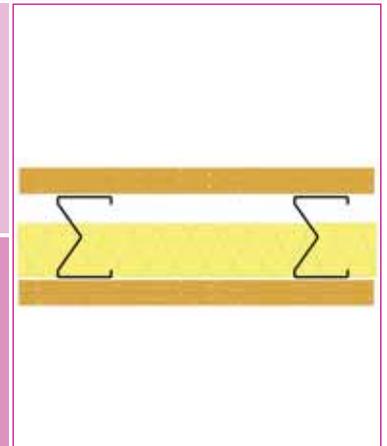
Boards = Two layers each side of partition, consisting of outer 10mm gypsum fibreboard and inner 12.5mm gypsum fibreboard

Studs = 75mm acoustic metal studs

Insulation = 60mm thick (density: 50kg/m³) in cavity

Fire rating = 60 mins

Notes: Maximum partition height = 4.5m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas, apply surface treatment to boards, as recommended by manufacturer. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Plasterboard

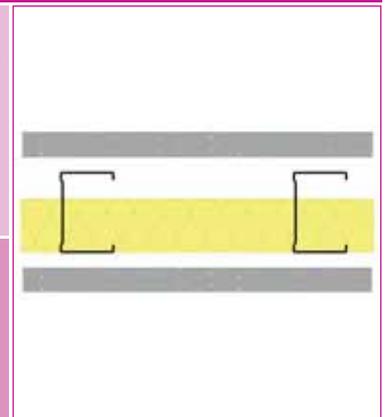
Boards = Two layers each side of partition, consisting of outer 13mm high density board with glassfibre additives and inner 15mm sound absorbing high density board

Studs = 70mm metal C studs & resilient bar on both sides

Insulation = 50mm thick (density: 12.9kg/m³)

Fire rating = 60 mins

Notes: Maximum partition height = 4.0m. Consideration should be given to the use of standard board sizes: 1200x2400mm or 3000mm boards are recommended for economy and manual handling. For wet and humid hygrothermal areas, specify moisture resistant boards. See fixtures and fittings recommendations in common attributes section. Always consult manufacturers' data.



Partition finishes: summary

Key	
Finish type F1	
Finish type F2	
Finish type F3	
Normal hygrothermal performance	n
Humid hygrothermal performance	h
Wet hygrothermal performance	w
Acoustic wall finish may be required	s

For example an F3h partition finish means a type F3 finish with humid hygrothermal performance.

Notes	
General	The recommendations shown in this table should be read in conjunction with Section 2 – Key performance requirements of this guide.
Fire	The partition finish must not change the surface spread of flame classification required: generally class 1, except escape routes, which will be class 0.
Hygrothermal	<p>The hygrothermal performance of the surface finish should conform to the requirements set out in Section 2 for normal, humid and wet conditions.</p> <p>Code n = Normal and able to withstand intermittent contact with water and water vapour. Code h = Humid and able to withstand intermittent contact with water and water vapour. Code w = Wet and able to withstand sustained contact with water and water vapour.</p>
Acoustics	Code s = Acoustic wall finishes may be required in these rooms to achieve reverberation times/ acoustic requirements – consult an acoustics expert.
DDA	The recommendations shown in this this table should be read in conjunction with Section 2 – Key performance requirements of this guide. For further guidance on recommended surface reflectance see BB 90.

This table defines the partition finish types for the rooms listed.

General teaching	
Seminar room	F1n
Classroom (inc. open plan and small lecture)	F1n
Small group/interview room (FLA etc)	F1n
Light practical	
IT room	F1n
Science laboratory	F2n
Large (textiles or 3D) and general (2D) art rooms	F1n
Kiln room	F1n
Darkroom	F1h
Electronics and control systems	F1n
Constructional textiles	F1n
Graphics room	F1n
Art/design resource area	F1n
Heavy practical	
Food room	F3h
Resistant materials (including CAD/CAM)	F1n
Performance	
Music recital	F1ns
Music classroom	F1ns
Music group/practice rooms	F1ns
Music ensemble rooms	F1ns
Recording studio	F1ns
Recording studio control room	F1ns
Drama studio	F1ns
A/V studio (including video-conferencing)	F1ns
Halls	
4-court sports hall	F1ns
Activity studio (including gymnasium)	F1ns
Main assembly multi-purpose hall	F1ns
Lecture theatre (over 50 people)	F1ns
Learning resource areas	
SEN resource base	F1ns
Small group room (SEN etc)	F1n
Library resource centre and careers	F1ns
Study areas (including sixth form)	F1n
Staff and administration	
Meeting room (including interview)	F1n
SEN therapy/counselling/MI room	F1n
Offices, general office	F1n
Staff rooms	F1n
Entrance/reception	F1n
Storage	
All walk-in stores for basic teaching areas	Fin
Science prep room	F2n
Chemical store	F2h
Multi-materials prep room	F1n
PE store	F1n
Non-teaching stores	F1n
Wheelchair laybys and locker areas	F1n
Chair store	F1n
Maintenance and cleaners' stores	F2h
Dining/social areas	
Dining and sandwich/vending areas	F2ns
Social and common rooms (including sixth form)	F1n
Catering facilities	
Kitchen preparation areas	F3h
Kitchen staff and store rooms	F2h
Toilets (personal care)	
Pupil and staff changing	F2h
Pupils and staff showers	F3w
Pupil, staff and visitors toilets	F2h
Circulation	
Atria and circulation areas used by pupils during lessons	F1ns
Corridors to general and practical teaching and non-teaching areas	F1ns
Corridors to performance areas and halls	F1ns
Plant	
Plant rooms	F1h
Electrical cupboards and ducts	F1n
Server rooms	F1n

Partition finish type F1

General summary of finish type F1

Finish generally suitable for all school areas not subject to humid/wet conditions or high hygiene requirements.

Note: This is a general statement – each room should be assessed and the finish type determined from the finishes summary table.

key performance attributes

Impervious Able to resist the penetration of water, solutions containing detergents, disinfectants and other liquids likely to be encountered in School Buildings	N/A
Jointless Without joints, or having joints that are sealed by methods and materials which make the whole surface impervious and prevent the collection of dirt and bacteria in the joint	N/A
Smooth No coarser than brush-applied matt emulsion paint on a flat plastered surface without projections, indents or holes part-way through the material	Yes
Hygrothermal performance	See finishes summary table
Surface spread of flame class All means of escape routes class O	1
Sound absorbent	See finishes summary table

Type F1 examples

Emulsion

Emulsion paint, vinyl silk or matt

Notes: Always check manufacturer's actual paint properties to ensure resistance to: fungal and bacterial attack, cracking and abrasion.

Eggshell

Eggshell paint (low sheen)

Notes: Always check manufacturer's actual paint properties to ensure resistance to: fungal and bacterial attack, cracking and abrasion.

Partition finish type F2

General summary of finish type F2

Finish generally suitable for humid rooms requiring a hygienic finish, such as laboratories, prep rooms and food stores and dining areas.

Note: This is a general statement – each room should be assessed and the finish type determined from the finishes summary table.

Key performance attributes

Impervious Able to resist the penetration of water solutions containing detergents, disinfectants and other liquids likely to be encountered in school buildings	Yes
Jointless Without joints, or having joints that are sealed by methods and materials which make the whole surface impervious and prevent the collection of dirt and bacteria in the joint	N/A
Smooth No coarser than brush-applied matt emulsion paint on a flat plastered surface without projections, indents or holes part-way through the material	Yes
Hygrothermal performance	See finishes summary table
Surface spread of flame class	1
Sound absorbent	See finishes summary table

Type F2 examples

Epoxy/acrylic coatings

Polyurethane or acrylic paint wall coating systems

Notes: Always check manufacturer's actual paint properties to ensure resistance to: fungal and bacterial attack, cracking and abrasion.

Plastic laminates

Plastic sheet wall covering systems

Notes: Always check manufacturer's jointing details and requirements for support of plastic sheets. All joints should be sealed to stop ingress of water, dirt and bacteria. Check adhesive compatibility with wall type. Ensure surface spread of flame meets class 1 requirement.

Ceramic tiling

Ceramic tiles on cement grouting

Notes: Always check manufacturer's grout and adhesive properties to ensure resistance to fungal and bacterial attack.

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Partition finish type F3

General summary of finish type F3

Finish generally suitable for wet rooms, requiring a high hygienic finish, such as kitchens and showers.

Note: This is a general statement – each room should be assessed and the finish type determined from the finishes summary table.

key performance attributes

Impervious Able to resist the penetration of water, solutions containing detergents, disinfectants and other liquids likely to be encountered in School Buildings	Yes
Jointless Without joints, or having joints that are sealed by methods and materials which make the whole surface impervious and prevent the collection of dirt and bacteria in the joint	Yes
Smooth No coarser than brush-applied matt emulsion paint on a flat plastered surface without projections, indents or holes part-way through the material	Yes
Hygrothermal performance	See finishes summary table
Surface spread of flame class All means of escape routes class O	1
Sound absorbent	See finishes summary table

Type F3 examples

Epoxy/acrylic coatings

Polyurethane or acrylic paint wall coating systems

Notes: Always check manufacturer's actual paint properties to ensure resistance to: fungal and bacterial attack, cracking and abrasion.

Plastic laminates

Plastic sheet wall covering systems

Notes: Always check manufacturer's jointing details and requirements for support of plastic sheets. All joints should be sealed to stop ingress of water, dirt and bacteria. Check adhesive compatibility with wall type. Ensure surface spread of flame meets class 1 requirement.

Ceramic tiling

Ceramic tiles with epoxy grouting

Notes: Always check manufacturer's grout and adhesive properties to ensure resistance to fungal and bacterial attack.

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4

References

This document was published in April 2007. After this date readers should ensure they use the latest edition of all references.

Robustness

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- BS 5628: 2005 *Code of Practice for the use of masonry*
- BS 5628-3: 2005 *Code of Practice for the use of masonry. Materials and components design and workmanship*

Fire

- *Building Regulations Approved Document B – Fire safety*
- BS EN 1363-1: 1999 *Fire resistant tests. General requirements*
- BS EN 1364-1: 1999 *Fire resistance test for non load-bearing elements – Walls*
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- *DfES Building bulletin 100*

Hygrothermal

- *DfES Building Bulletin 87, 2nd Edition Version 1, May 2003*
- *Guidelines for Environmental Design in Schools*, DfES School Buildings and Design Unit. This publication is available in the Regulatory Information Section of the DfES School Buildings and Design Unit's website at www.teachernet.gov.uk/energy

Acoustics

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- BS 6206: 1981 (R 1994) *Impact performance requirements for flat safety glass and safety plastics for use in buildings* (Amd 8693) July 15 1995® Amd 5
- BS 6262: 1982 *Code of Practice for glazing for buildings* (AMD 8279) July 15 1994 (R) – Amd 3. Partially superseded by BS 6262-1: 2005. Other parts of BS 6262 may be applicable.
- BS 952-1: 1995 *Glass for glazing – Part 1*. Part 2 might also be applicable

General requirements

- BS 7671: 2001 *Requirements for electrical installations. IEE Wiring Regulations*. Sixteenth edition

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