warranty
LABC

TECHNICAL MANUAL

VERSION 11

7: INTERNAL WALLS

7. Internal Walls

Contents

Functional Requirements

7.1 Masonry

7.2 Timber Stud

7.3 Metal Stud

7.4 General Requirements - Cavity Barriers and Fire Stopping

Limitations of Functional Requirements

1. These Functional Requirements do not and will not apply to create any policy liability for any remedial works carried out by the contractor or otherwise, nor to any materials used in those remedial works
2. The guidance provided in this Section, is guidance that provides a suggested solution to meeting the Functional Requirements. If an alternative solution is selected, then this must still meet the Functional Requirements.
3. Means of escape, passive and active systems are not covered by the Warranty unless specifically identified in the appropriate 'Building Part' section.

Workmanship

1. Any multiple occupancy building (which includes flats /apartment accommodation) must have fire stopping and cavity barriers completed by a third-party approved contractor, or have a suitable quality assurance process provided to evidence the installation of the fire stopping and cavity barriers. This is applicable to all floor levels of a building that has a floor 4.5m above the lowest external ground level.
2. All workmanship must be within the tolerance requirements set out in this Technical Manual.
3. All work is to be carried out by a technically competent person in a workmanlike manner.
4. Concreting shall not take place during cold weather periods where the working temperature is below 2°C or where ground conditions are frozen.

Materials

1. All materials should be stored, installed and protected correctly in a manner that will not cause damage or deterioration of the product.
2. All materials, products and building systems shall be appropriately tested and approved for their intended purpose.
3. All load bearing structural elements providing support to the Home will have a service life of not less than 60 years, unless specifically agreed otherwise with us. All other parts of the Home will have a lesser durability and need planned maintenance, repair or replacement during that reduced period.
4. Timber should be adequately treated or finished to resist insect attacks and be suitable for the position used within the structure. All timber treatment should be in accordance with relevant British standards and Codes of Practice.
5. Timber used in the building to provide support to the structure must be appropriately seasoned to prevent excessive shrinkage and movement.
6. All materials should be suitable for the relative exposure of the building in accordance with the relevant British Standards.
7. Reclaimed materials may only be reused with the prior agreement with the Warranty Surveyor. Independent certification and/or testing of the suitability may be required.

Design

1. Internal walls shall be designed and constructed so that they:
    a. Are structurally sound;
    b. Have adequate resistance to the effects of fire and surface spread of flame.
    c. Are durable and resistant to moisture;
    d. Provide suitable surfaces to receive a range of finishes.
2. Separating and compartment walls shall be designed and constructed so that they:
    a. Have adequate resistance to the spread of fire between buildings;
    b. Have adequate resistance to the passage of sound between buildings.
3. Separating walls between the dwelling area and garage within a Housing Unit shall be designed and constructed so that they:
    a. Have adequate resistance to the spread of fire between garage, and dwelling area;
    b. Have an adequate thermal performance.
4. The design and specifications shall provide a clear indication of the design intent and demonstrate a satisfactory level of performance.
5. The following additional elements shall be supported by structural calculations designed by an Engineer:
    a. Structural elements outside the parameters of Building Regulations.
    b. Specialist structural works.
    c. Reinforced concrete elements.
    d. Precast structural elements.
    e. Any engineered beams/posts manufactured off-site.
6. Damp proofing works should prevent any external moisture passing into the internal environment of the building.
7. Projects consisting of Non-standard/Modern methods of construction must be supported with evidence of valid independent third party product conformity certification before an offer of Warranty is provided. These types of constructions must be declared before commencement.

7.
Internal Walls

7.1
Masonry

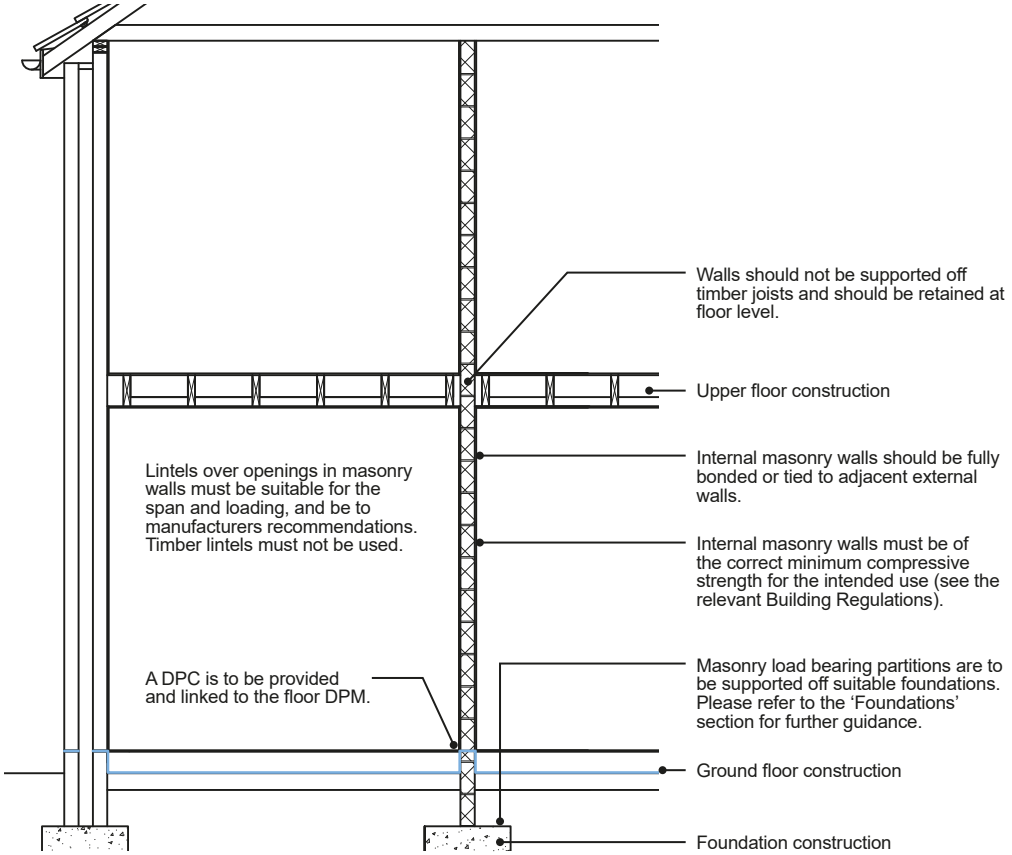
Provision of information

A full set of design drawings and specifications shall be made available to the Warranty Provider and all other interested parties prior to the associated works starting on site. This may include:

- Floor plans indicating the positions of internal walls - load-bearing and non-load-bearing.
- Specifications relating to the proposed construction of internal walls and formation of openings including lintels.
- Site specific supporting calculations confirming design loading where required.
- Details of proposed fire stopping and cavity barriers.
- Details relating to service penetrations.

The Warranty surveyor, at their discretion, may also request supporting information that demonstrates suitability for use of any materials or systems contained within the above.

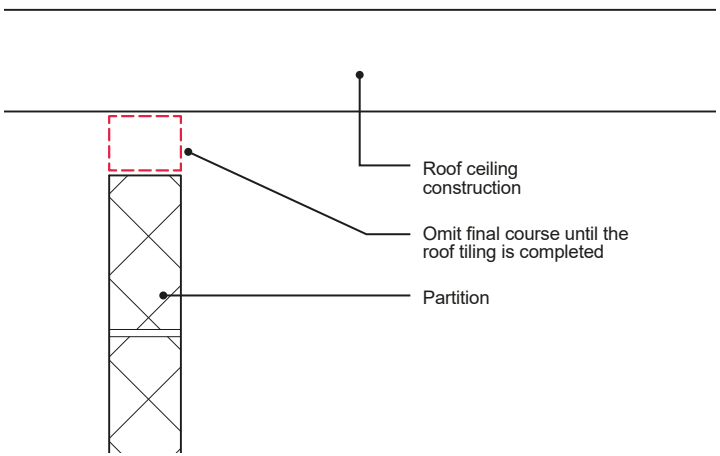
Internal loading bearing walls



Note:
- Internal partitions should not be supported by compressible layers forming part of a floating floor unless suitable for that purpose.
- Internal partitions between bedrooms or rooms containing WC's and other rooms, must achieve adequate sound resistance.
- Internal masonry partitions should have a minimum density of 600kg/m³ and finished both sides with 13mm of plaster.

Additional requirements may apply for Building Regulations compliance. Please refer to the relevant Building Regulations.

Internal non-loadbearing walls



It is advisable to erect non-load bearing walls after the roof tiling has been completed thus allowing deflection to take place under dead load, thereby reducing the risk of cracking appearing in the ceiling finishes. If partitions are of brick or block, then alternatively the final course can be omitted until roof tiling has been completed.

Damp proof course (DPC) and damp proof membrane (DPM)

Where an internal wall is built off a foundation continuity of the DPM must be achieved.

The internal wall should have a DPC, which is at least the width of the internal wall and linked with the DPM by a minimum of 100mm.

Foundations

Below ground, load-bearing walls must be supported using a suitable foundation. Where the upper floors are supported by a suitable beam or lintel, the load should be adequately transferable to the foundations. All structural masonry walls should be provided with foundations.

Compressive strength

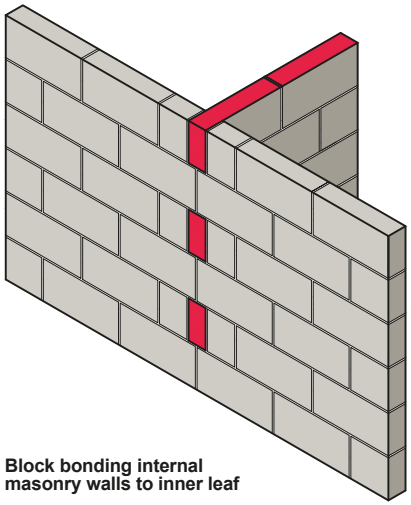
The varying strengths of bricks and blocks mean that they have to be chosen in accordance with the proposed use of the building. The recommended strengths of bricks and blocks to be used in buildings up to three storeys high are found in 'Appendix C - Materials, Products, and Building Systems' and the relevant Building Regulations.

Lateral restraint

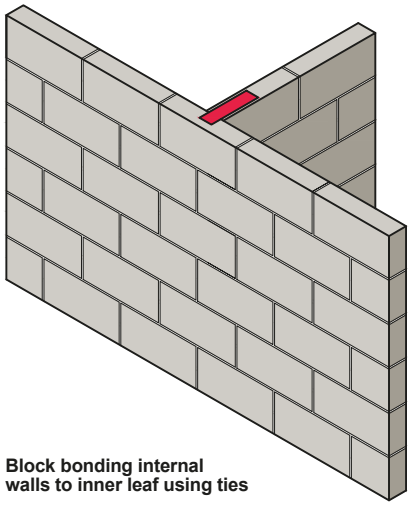
Lateral restraint is to be provided for load-bearing walls and separating walls at each floor level and the ceiling level below a roof.

Bonding and tying

Where a separating wall abuts an external wall, they may be tied or bonded together. Tied joints should be formed using expanded metal strip, wall ties or equivalent fixings, at maximum 300mm vertical centres.



Block bonding internal masonry walls to inner leaf



Block bonding internal walls to inner leaf using ties

Where the external wall cavity needs to be closed at the junction with the separating wall with a flexible cavity stop, but not if the cavity is fully filled with built-in insulation (where permitted).

Beams and lintels

Beams and lintels shall be satisfactory for their purpose.

Items to be taken into account include:

- Loads and spans are in accordance with the manufacturer's recommendations.
- Wall and cavity thicknesses.
- Bearing capacity of the masonry supporting the lintel or beam.

Steel beams should be designed by an Engineer and should have appropriate fire resistance to meet the requirements of the relevant Building Regulations.

Where steel beams and columns are used on a project in a coastal location, please follow the requirements for additional corrosion protection 'Appendix B - Coastal Locations'.

Materials

Concrete or steel lintels are appropriate for use in masonry walls. Support for masonry should not be provided by timber lintels.

Concrete lintels should extend beyond each end of openings in masonry as follows:

Span (m)	Minimum length of bearing (mm)
Up to 1.2	100
Over 1.2	150

- Steel lintels should comply with the manufacturers installation guidance.
- Where structurally necessary, provide padstones under the bearings of lintels and beams.
- Beams and lintels should bear on a full masonry unit.
- Non-load bearing partitions shall have acceptable strength and be adequately supported.

Method of supporting partitions

Masonry partitions should be supported on one of the following:

- A suitable foundation.
- Other masonry partitions or walls (wherever conceivable, the design of buildings should be such that the first floor masonry partitions are an extension of those on the ground floor).
- Structural concrete floors.
- Steel or concrete beams.

It may be necessary to use padstones at bearings where steel or concrete beams are to be used.

Masonry partitions should not be supported by timber joists or beams.

Allowance for the probable deflection of floors at the head of partitions is required to prevent the partition becoming load-bearing. Allowance should be given in the design for the relatively flexible nature of the timber and the rigid nature of masonry.

Walls and partitions that are supported off structural floors, should not be built directly off a compressible layer forming part of a floating floor system.

Minimum masonry thickness to achieve fire resistance

Material	1/2 hour FR	1 hour FR
Brick	90mm thickness	90mm thickness
Block	90mm thickness	90mm thickness

All internal, separating and compartment walls should have the fire resistance required by the Building Regulations.

Penetrations in fire resisting masonry construction must be designed to meet the requirements of the Building Regulations.

Fire stopping in apartments and flats with a floor over 4.5m will have additional requirements. Please see 'Internal Walls - General Requirements - Cavity Barrier and Fire Stopping' for further guidance.

Fire doors

Where an internal wall is required to fulfil a fire resisting function, any fire door installed in it must maintain the period of fire resistance of the internal wall and the following must be satisfied:

- The fire door and frame must be installed as a combined tested fire door set and not made from either different untested components or components from different products which were not tested together.
- Proof of fire test performance to be available to demonstrate meeting the requirements of the relevant Building Regulations.
- Suitable approved linear gap sealing systems must be utilised to protect the frame and supporting construction gap. These should be applied subject to the conditions contained in the relevant fire test certification.
- The fire door must be installed as per manufacturer's instructions.

Fire doors between a dwelling and attached/integral garage must be half-hour fire resisting, be fitted with a self-closer and also meet the above requirements.

It is recommended that third party accredited installers are used as this provides a means of ensuring that installations have been conducted by knowledgeable contractors and are to appropriate standards.

Openings for pipes and ducts in fire resisting walls

Pipes and ducts which pass internally through fire resisting walls (unless in a protected shaft) must not compromise the required fire resistance of the element through which they pass. As a minimum, openings through walls should be as few as possible in number, as small as practicable in size and fire-stopped to the surrounding construction.

For pipes and ducts passing through compartment walls, guidance supporting the relevant Building Regulations will need to be consulted for additional provisions.

Sound insulation

Internal separating walls shall, where necessary, have adequate resistance to the transmission of sound.

All separating walls in England and Wales may be built in accordance with Robust Details and meet the requirements for Resistance to the passage of sound in the relevant Building Regulations. Compliance with the relevant Building Regulations can be demonstrated by either:

Pre-completion testing
Pre-completion testing (PCT) is required in the following situations:

- To all new build properties (including rooms for residential purposes), other than when the Developer has registered and built in accordance with Robust Details.
- Where the sound insulation construction is in accordance with the guidance given in the relevant Building Regulations for resistance to the passage of sound.
- Where the building is not built in accordance with the relevant Building Regulations.
- The requirements of the Robust Details system have not been met.

or

Robust details
The use of robust details as a means of providing adequate sound insulation applies only to party walls and floors between different dwellings or flats. It is approved by Robust Details Ltd.

The robust design details are available in a handbook, which can be purchased from:

Robust Details Ltd, Unit 14, Shenley Pavilions, Chalkdell Drive, Shenley Wood, Milton Keynes, MK5 6LB
Tel 0870 240 8210

www.robustdetails.com

Robust Details Ltd may undertake monitoring to check on the performance achieved in practice.

Wall ties for cavity separating walls

To provide structural stability, the two leaves of a masonry cavity separating wall should normally be tied together.

Sound transmission across the cavity should be limited by the type of tie and spacing.

Ties should be specified in accordance with the System Designer's recommendations for separating walls. The type of tie and spacing should limit sound transmission across the cavity.

To limit sound transmission, metal tie straps should be:

- No more than 3mm thick.
- Fixed below ceiling level.
- Spaced at least 1.2m apart horizontally.

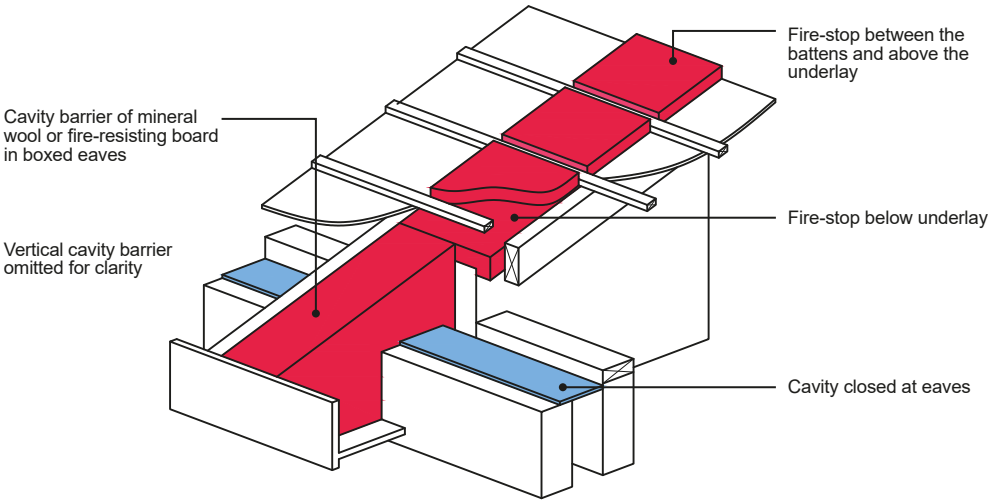
Thicker ties, fixed at ceiling level or more closely spaced, will increase sound transmission through the cavity.

Chases in party walls

Chases in masonry walls for service pipes and cables should be avoided. Where unavoidable, chases should:

- Only be made in solid masonry (not hollow blocks).
- A horizontal chase must not exceed 1/6 the thickness of the single leaf.
- A vertical chase must not exceed 1/3 the thickness of the wall.
- Electric sockets should be staggered either side of a party wall.

Fire stopping at roof level between party walls



Fire stopping should be provided in accordance with the relevant Building Regulations.

- Party/separating walls should be finished 25mm below the top of the rafter line and a soft fire-resistant packing, such as mineral wool, should be used to allow for movement in roof timbers and prevent distortion of the roof tiles.
- The fire stopping should be continuous to eaves level and a cavity barrier of fire-resisting board or a wire reinforced mineral wool blanket nailed to the rafter and carefully cut to fully seal the boxed eaves should be installed.

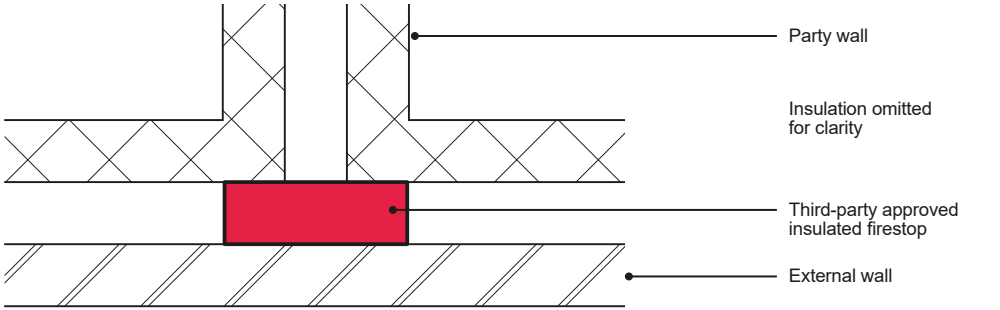
Fire resistance

Typically, in buildings, a half-hour or one-hour fire-resistance from both sides is required to satisfy the relevant Building Regulations with regard to fire separation between buildings and/or compartments within buildings.

Compartment walls that are common to two or more buildings should run the full height of the building in a continuous vertical plane and should be continued through the roof space.

Where a compartment wall meets another external wall or floor junction fire resistance should be maintained.

Fire stopping within the cavity on the party wall line



Single party wall spandrel panels on masonry walls in a cold roof space

Spandrel panel construction
Spandrel panels are generally a softwood structural frame with head and soleplates with vertical studs at 600 centres. The typical section sizes are 47mm x 72mm where joints are plated and 38mm x 89mm where joints are nailed. The designer should provide supporting calculations for the design of the spandrel panel upon request.

Fire resistance
Fire resistance should be provided on a site-by-site basis; however generally for party walls a minimum of 60 minutes' fire resistance from both sides is required. Plasterboard should be fixed at a minimum of 300 centres with plasterboard screws, the screws should penetrate a minimum of 25mm into the timber studs, and joints of the plasterboard should be over timber studs or noggins and staggered.

In the case of a fire the party wall the spandrel panels should be designed to remain in place should one side of the roof structure be burnt away, as a result party wall spandrel panels should be restrained from both sides.

Party wall spandrel panels for ease of handling may consist of a number of panels, it is important that these panels are suitably jointed as not to impair the required fire resistance of the panel. Fire stopping should also be provided above the panel between the roofing membrane and in between the battens, the fire stopping should continue into the boxed soffits.

General considerations
Below are some general considerations for party wall spandrel panels:

- Fire resistance should be provided on a site-by-site basis; however generally for party walls a minimum of 60 minutes, should be achieved.
- Plasterboard should be fixed at a minimum of 300 centres with plasterboard screws, the screws should penetrate a minimum of 25mm into the timber studs, joints of the plasterboard should be over timber studs or noggins and staggered.
- Spandrel panels should provide suitable sound resistance. In a cold roof where masonry party walls are used in conjunction with a single piece panel, the masonry walls should extend a minimum of 300mm above the ceiling line and incorporate suitable fire stopping to close the cavity. Party walls should be constructed in accordance with robust details or sound tested.
- Party wall spandrel panels should be fixed to the head of the wall this can be achieved with the use of vertical restraint straps at centres specified by the designer. These are typically placed at a minimum of 1200mm centres and face fixed to coincide with stud positions. The strap length should ensure a minimum of two fixings into the panel framework and three fixings into the blockwork, into a minimum of 2 blocks (See figure 5).
- The panel should also be restrained at roof level this should be on both sides of the panel and should be in accordance with the design typically at 2m centres. Common methods of achieving this are; fixing a timber ledger to the face of the spandrel panel to at least 2 vertical studs and fixing a timber to the top of the timber ledger, which extends back over a minimum of three trusses at 2m centres. Or using restraint straps at 2m centres (this may commonly need to be increased to 1.8m centres to coincide with the vertical studs) fixed to vertical studs within the panel and extending back over three trusses, these straps should be supported by noggins in between the truss (see figure 1 and 2). The restraint should not impair the fire resistance of the panel.
- As with a masonry cavity, fire stopping should be provided at the head of the spandrel panel and be continuous into the soffit area (see figure 3).

Acoustic requirements

Spandrel panels should meet the relevant Building Regulations. If robust details are being used it is important that the construction of the party wall is in conjunction with the robust details.

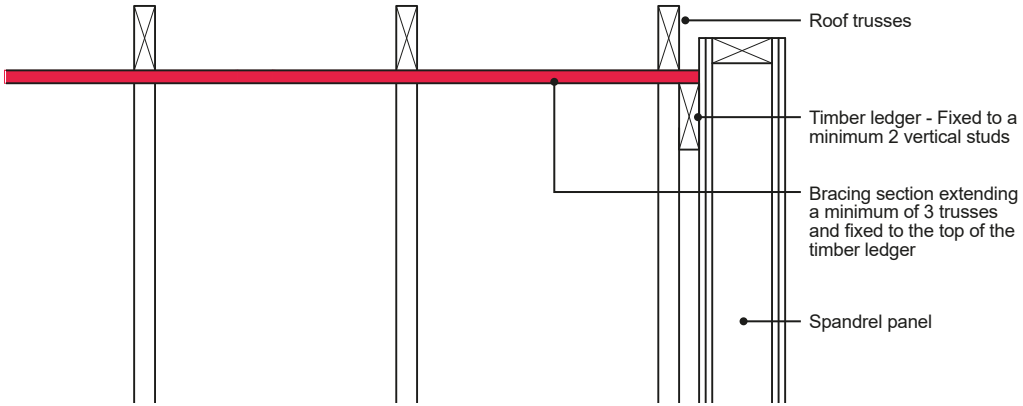
Weather protection

Any impervious weather protection should be removed sufficiently to allow the panels to breathe.

Fire stopping

Fire stopping is required between the top of the spandrel panel and the roof covering and in the batten space. It is important that the fire stopping is extended into any boxed eaves. Where the spandrel panel is sat on a masonry wall fire stopping is required between the panel and the wall.

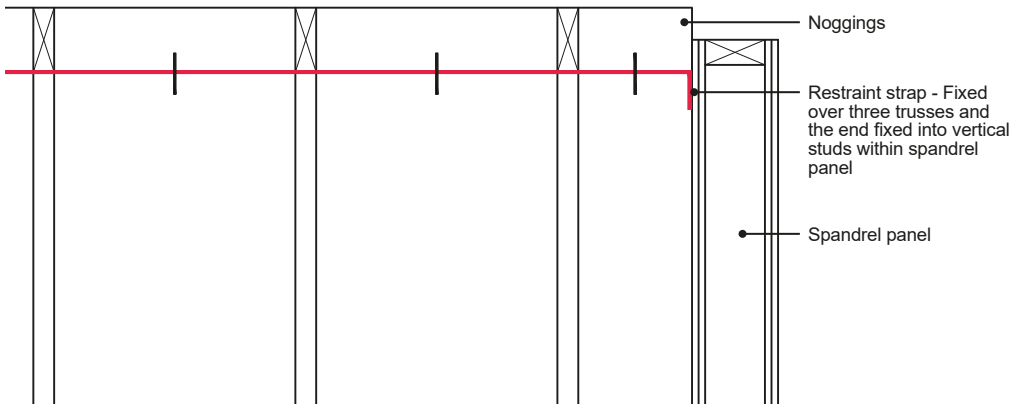
Figure 1 - Typical head arrangement



Head restraint may be achieved through timber bracing. Requirements for the spandrel panel head restraint are as follows:

- Lateral bracing at a maximum 2m centres.
- Minimum bracing section 25mm x 100mm, fixed using 2 x 3.35mm x 65mm galvanised wire nails to top edge of the timber ledger.
- Timber ledger minimum section 45mm x72mm and minimum length 900mm.
- Timber ledger screw-fixed with minimum100mm-long screws to at least two vertical studs within the panel.
- Lateral bracing should be fixed to a minimum of three trusses. (Note: 3.1mmmachine nails may be used in lieu of3.35mm standard wire nails).

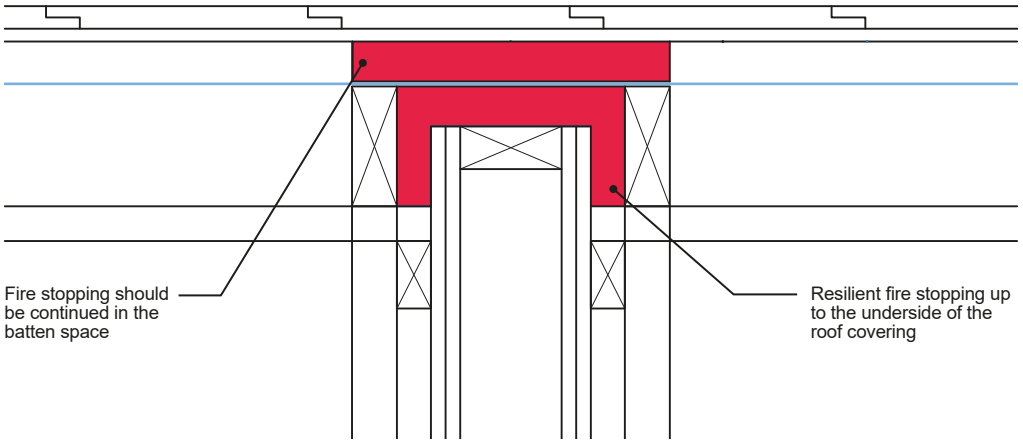
Figure 2 - Alternate head arrangement



Head restraint may be achieved through metal restraint straps. Requirements for the spandrel panel head restraint are as follows:

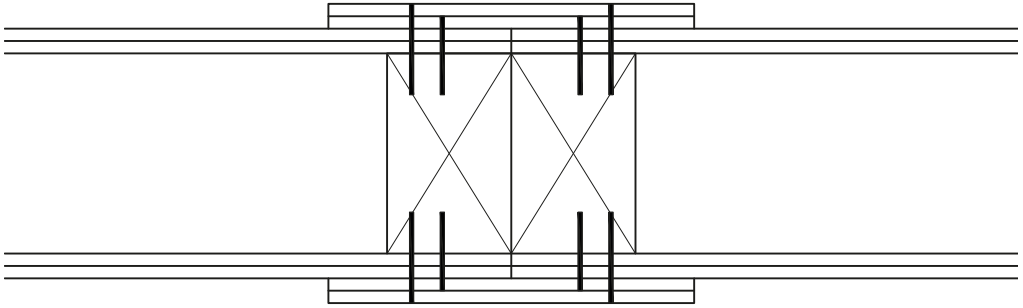
- Lateral bracing to be fitted at apex and along rafters and ceiling joists maximum two-metre centres (no more than 1.25m centres for dwellings over three storeys or over two storeys in Scotland).
- Minimum 38mm x 63mm noggings fixed between at least three trusses.
- Metal restraint strap fixed to noggings with eight 3.75mm x 30mm square twisted nails evenly spaced.
- End of metal restraint strap to be screw-fixed to studwork within spandrel with minimum 50mm-long screws.

Figure 3 - Fire stopping at the head of the panel



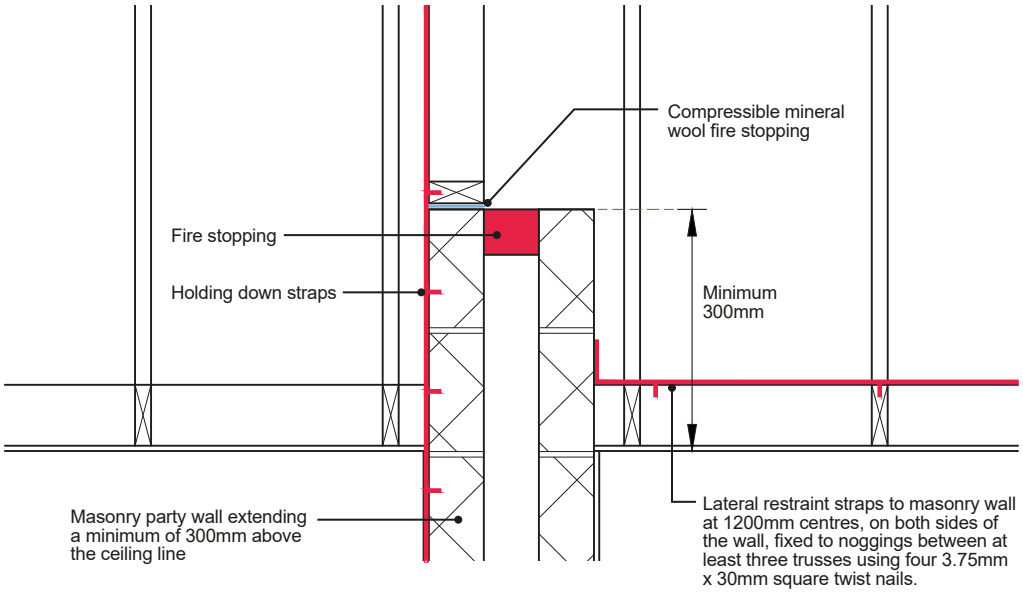
- Spandrel head at a minimum of 50mm below the truss head.
- Mineral wool quilt placed below the underlay felt as a fire stop.
- Fire stopping should continue into boxed eaves. Mineral wool quilt placed above underlay felt and laid between battens from eaves to ridge.

Figure 4 - Panel connections



- Joints should be backed by timber.
- Where panels are butt jointed cover strip should be fitted. The correct lapping must be to the manufactures requirements to achieve adequate fire resistance, generally the cover strip should be a minimum of 150mm wide.
- The cover strips should provide the same fire resistance as the rest of the wall. Each cover strip should be independently fixed and the joints of the cover strip should be staggered.
- Fixings should penetrate the timber by a minimum of 25mm.

Figure 5 - Foot detail of a single panel party wall spandrel panel on a masonry wall



- The masonry should extend a minimum of 300mm above the ceiling line.
- The blockwork should provide continuous support for the panel.
- The masonry cavity should be fire stopped.
- The bottom edge of the panel should be sealed with a compressible rock fibre quilt.
- Holding down straps should be provided to the spandrel panel at a minimum of 1200mm centres and face fixed to coincide with stud positions.
- The holding down strap length should ensure a minimum of two fixings into the panel framework and three fixings into the blockwork into a minimum of 2 blocks.
- Restraint should be provided to the top of the masonry party wall using lateral restraint straps at 1200mm centres, on both sides of the wall, fixed to noggins between at least three trusses using a minimum of four 3.75mm x 30mm square twist nails. The straps should be fixed to wall with a minimum of three fixings.

7.
Internal Walls

7.2
Timber Stud

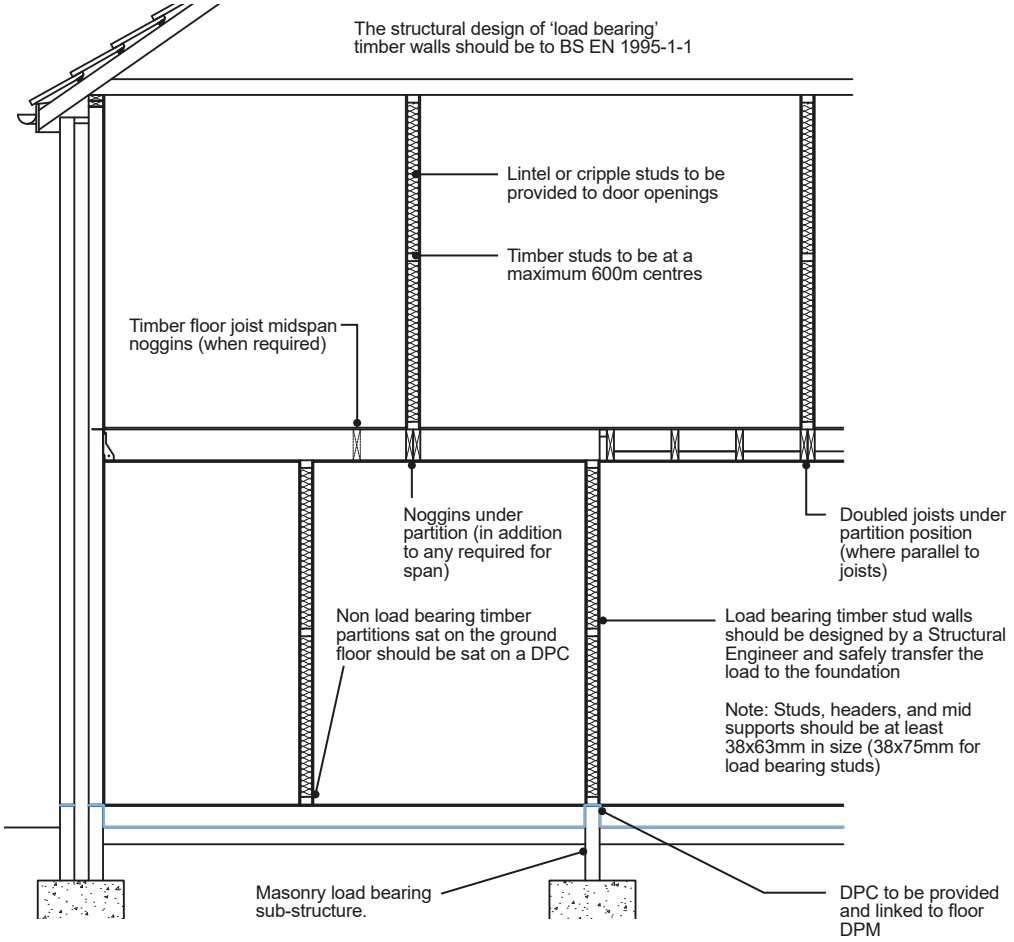
Provision of information

A full set of design drawings and specifications shall be made available to the Warranty Provider and all other interested parties prior to the associated works starting on site. This may include:

- Floor plans indicating the positions of internal walls - load-bearing and non-load-bearing.
- Specifications relating to the proposed construction of internal walls and formation of openings including lintels.
- Site specific supporting calculations confirming design loading where required.
- Details of proposed fire stopping and cavity barriers.
- Details relating to service penetrations.

The Warranty surveyor, at their discretion, may also request supporting information that demonstrates suitability for use of any materials or systems contained within the above.

Internal timber partitions (load bearing and non load bearing)



Damp proof course (DPC) and damp proof membrane (DPM)

Where partitions are placed onto concrete round floors a DPC should be provided directly below regardless of if there is a DPM beneath the slab.

Note:

1. Internal partitions should not be supported by compressible layers forming part of a floating floor unless suitable for that purpose.
2. Internal framed partitions between bedrooms or rooms containing WC's and other rooms, must achieve adequate sound resistance.

Load-bearing timber walls and partitions

Load-bearing timber internal walls are to be designed to provide support and transfer loads to foundations safely and without undue movement.

The structural design of load-bearing timber walls should be in accordance with BS EN 1995-1-1.

Structural timber should be specified according to the strength classes, e.g. C16 or C24.

Load-bearing partitions should be designed by an Engineer.

Structural elements of load bearing partitions

Typically, individual studs, sills and head plates are to be 38mm x 75mm. Larger timber section sizes are required to achieve satisfactory levels of fire resistance. 38mm x 89mm are common for low rise housing in the UK. Studs should be spaced at maximum 600mm centres.

Lintels and studs

A lintel and cripple studs are to be provided to any opening other than where the stud spacing is not affected. Traditionally, multiple studs will be used to support multiple joists.

Where internal walls are made-up of panels, structural continuity is to be maintained, for example through the use of a continuous top binder.

Framing joints need to be secured with a minimum of two nails per joint.

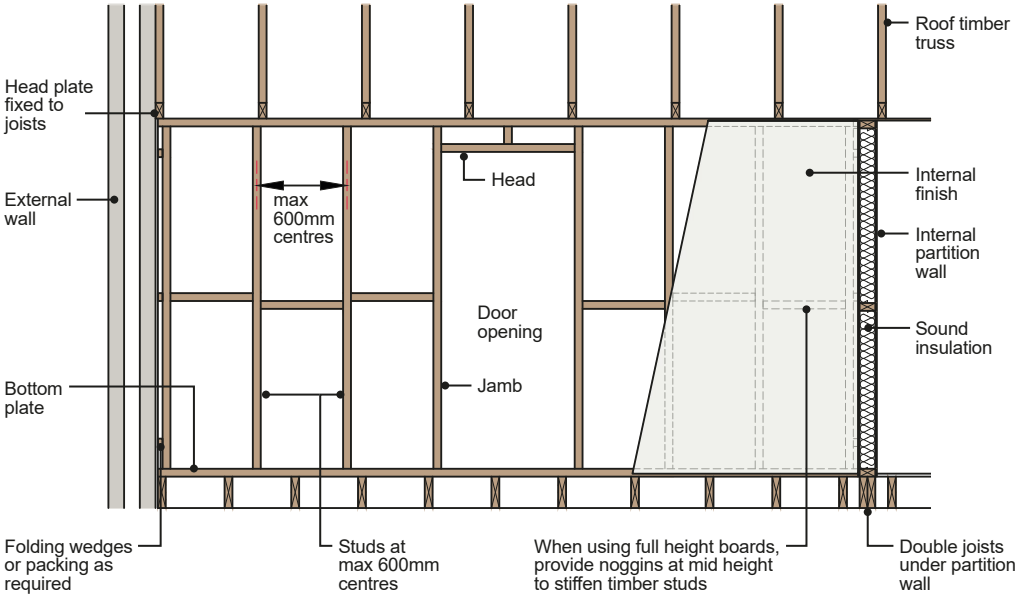
Beams and lintels

Beams and lintels shall be satisfactory for their purpose.

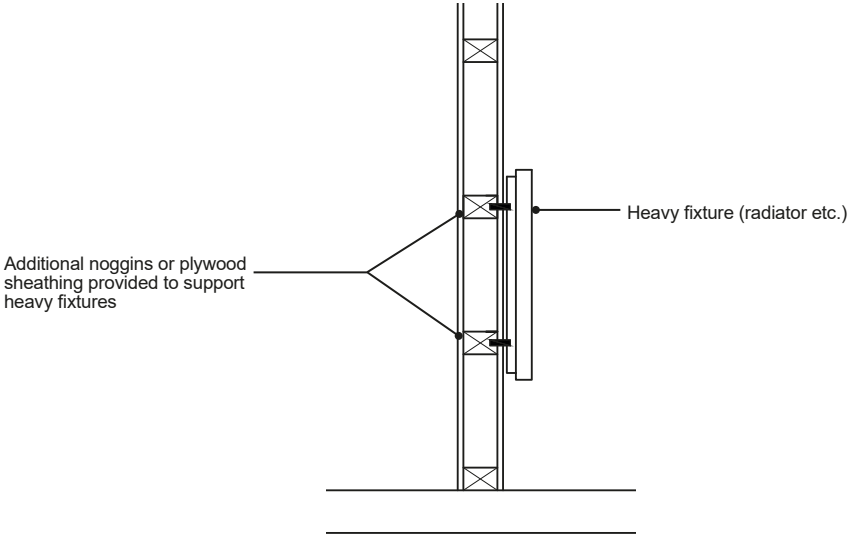
Items to be taken into account include:

- Loads and spans are in accordance with the manufacturer's recommendations.
- Wall thicknesses.
- Bearing capacity of the wall construction supporting the lintel or beam.

Timber stud partitions



Support of heavy timber fixtures



Where partitions are to support heavy items such as radiators or kitchen cupboards, additional noggins or plywood sheathing should be provided within the stud partition to accommodate fixings.

Partition construction

The following partition constructions are satisfactory:

- Loading bearing timber stud partitions using studs, sills and head plates nominally 75mm x 38mm.
- Non load bearing timber stud partitions using studs, sills and plates nominally 63mm x 38mm.*
- Maximum 450mm spacing for 9.5mm boards.
- Maximum 600mm spacing for 12.5mm-20mm boards.

Partitions should be robust and form a smooth, stable, plane surface to receive decoration:

- Supporting members should be accurately spaced, aligned and levelled.
- The tolerance of horizontal straightness of a partition should be +/-10mm over a 5m length.
- The deviation in vertical alignment of a partition in any storey height should be +/-10mm.
- Timbers supporting plasterboard should be regularised and have a moisture content not greater than 20% at the time of erection (lower moisture contents can reduce incidents of nail popping and other effects of shrinkage).

* Note: Stud partitions should be no less than 38mm wide and no less than 63mm thick (up to a maximum partition height of 2.4m), and 89mm thick up to a maximum partition height of 3m. However, in order to accommodate tolerances for plasterboard fixing, a minimum width of 44mm is recommended.

The use of oak in the external wall construction

Green oak, air dried (seasoned)/kin dried oak is not acceptable in the external wall construction, frame, window/door construction, internal wall or roof constructions, regardless of whether it forms part of the weather proof envelope or not. Projects incorporating such oak will not be acceptable for Warranty cover except where described in ‘Appendix C - Materials, Products, and Building Systems’ of this Manual.

Method of supporting partitions

Walls and partitions are to be supported by the structural floor, only if the material is specifically manufactured for that purpose; it is not to be supported by a floating floor that incorporates a compressible layer.

Extra noggins or joists should be specified where stud partitions or proprietary plasterboard partitions are supported by a timber floor, unless it can be shown that the deck can transfer the load without undue movement. Allowance for the probable deflection of floors at the head of partitions is required to prevent the partition becoming load-bearing.

Head and sole plates should consist of single length members fixed to the building structure at no less than 600mm centres.

Partitions should be located on double joists when parallel to floor joist span and nailed to 50mm x 50mm noggins fixed between ceiling joists at 600mm centres when parallel to ceiling joist span. For short lengths of partitions (1.2m maximum), blocking between joists at 600mm centres may be used. Intersecting head and sole plates should be skew nailed together.

Timber members should be fixed together with a minimum of 2 No. 75mm long x 2.65mm diameter nails. Proprietary partitions of plasterboard, strawboard or other material must be detailed and constructed in accordance with the manufacturer’s recommendations.

Walls and partitions that are supported off structural floors, should not be built directly off a compressible layer forming part of a floating floor system.

Internal plastering

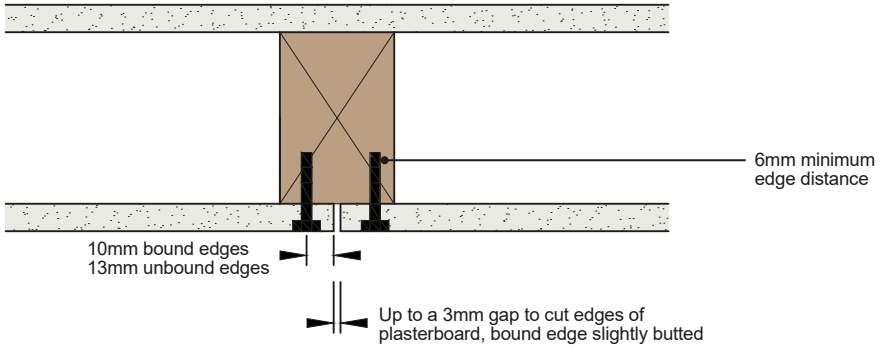
Internal plastering should comply with BS EN 3914-2.

Plasterboard should be to BS EN 520: Gypsum plasterboards - Definitions, requirements and test methods.

Plasterboard thickness should be:

- 9.5mm for stud spacing up to 450mm.
- 12.5mm for stud spacing up to 600mm.

Fixing of plasterboard to studs at joint positions



Plasterwork

This guidance covers all plastered finishes to walls and ceilings. The workmanship of plastered finishes should be applied to a certain standard to receive a suitable decorative finish. It should be durable enough to prevent surface cracking and, if applicable as part of the whole element, meet the required levels of fire and sound insulation in accordance with current Building Regulations.

Substrate and background

Plasterwork should be applied to suitable substrates. The substrate may also require additional sealing or bonding agents, in accordance with the requirements set out in BS 8481.

Where the background has a mix of varying materials, e.g. blockwork and brickwork, expanded metal should be provided to prevent differential movement in the plaster finish.

Plaster mixes

Plaster mix ratios should be in accordance with manufacturer's recommendations and be appropriate for the intended use.

Minimum plaster thickness

The thickness of plaster will vary depending on the evenness of the substrate. The finished element must meet the tolerances identified, and be of a suitable quality so that a decorative finish can be applied. Please refer to the 'Tolerances' section for further guidance.

Plastering of plasterboard walls

Plasterboard walls should be skimmed to provide a suitable and durable finish. A minimum of one coat is required.

Support of plasterboard

Supports for plasterboard should be designed so that the following span limits are not exceeded.

Plasterboard joints and fixings

Board thickness	Timber support centres (mm)	Intermediate noggins required
9.5mm	400mm	No
	450mm	Yes
12.5mm	400mm	No
	450mm	No
	600mm	Yes
15mm	600mm	No

When fixing plaster boarding:
- Fix with decorative side out to receive joint treatment or a skim plaster finish.
- Lightly butt boards together and never force boards into position.
- Install fixings no closer than 13mm from cut edges and 10mm from bound edges.
- Position cut edges to internal angles whenever possible, removing paper burrs with fine sandpaper.
- Stagger horizontal and vertical board joints between layers by a minimum of 600mm.
- Locate boards to the centre line of framing where this supports board edges or ends. Fix to timber studs using dry-wall screws.
- When dry lining, plasterboard can be fixed to walls using adhesive dabs or by screwing to timber battens.

Note: Where adhesive dabs are used, the plasterboard manufacturers recommendations must be followed.

Alternatively, a proprietary wall system can be used, providing it has full third-party accreditation. Gaps between boards should not exceed 3mm and consideration should be given to sealing all gaps to improve building air tightness.

Minimum periods of fire resistance

Material	½ hour FR	1 hour FR
Plasterboard on timber	12.5mm board on both sides of framing	Two layers of 12.5mm board on both sides of framing or proprietary fire boards (typically 12.5mm-15mm) on both sides of framing
Plasterboard on laminated wall	12.5mm laminated on both sides of 19mm board	Refer to manufacturers recommendations

All internal, separating and compartment walls should have the fire resistance required by the relevant Building Regulations.

Fire doors

Where an internal wall is required to fulfil a fire resisting function, any fire door installed in it must maintain the period of fire resistance of the internal wall and the following must be satisfied:
- The fire door and frame must be installed as a combined tested fire door set and not made from either different untested components or components from different products which were not tested together.
- Proof of fire test performance to be available to demonstrate meeting the requirements of the relevant Building Regulations.
- Whilst some gaps between the fire door frame and opening may be present, they should be kept to a minimum and be no greater than the gaps stipulated in the fire test certification. Expanding fire foam which has relevant testing and certification may be used to seal gaps up to 10mm.
- The fire door must be installed as per manufacturer's instructions.

Fire doors between a dwelling and attached/integral garage must be half-hour fire resisting, be fitted with a self-closer and also meet the above requirements.

Openings for pipes and ducts in fire resisting walls

Pipes and ducts which pass internally through fire resisting walls (unless in a protected shaft) must not compromise the required fire resistance of the element through which they pass. As a minimum, openings through walls should be as few as possible in number, as small as practicable in size and fire-stopped to the surrounding construction.

For pipes and ducts passing through compartment walls, guidance supporting the relevant Building Regulations will need to be consulted for additional provisions.

Sound insulation

Internal separating walls shall, where necessary, have adequate resistance to the transmission of sound.

All separating walls in England and Wales may be built in accordance with Robust Details and meet the requirements for resistance to the passage of sound in the relevant Building Regulations.

Compliance with the relevant Building Regulations can be demonstrated by either:

Pre-completion testing
Pre-completion testing (PCT) is required in the following situations:

- To all new build properties (including rooms for residential purposes), other than when the Developer has registered and built in accordance with Robust Details.
- Where the sound insulation construction is in accordance with the guidance given in the relevant Building Regulations for resistance to the passage of sound.
- Where the building is not built in accordance with the relevant Building Regulations.
- The requirements of the Robust Details system have not been met.

or

Robust details
The use of robust details as a means of providing adequate sound insulation applies only to party walls and floors between different dwellings or flats. It is approved by Robust Details Ltd.

The robust design details are available in a handbook, which can be purchased from:

Robust Details Ltd, 14 Shenley Pavilions, Chalkdell Drive, Shenley Wood, Milton Keynes, MK5 6LB
Tel 0870 240 8210

www.robustdetails.com

Robust Details Ltd may undertake monitoring to check on the performance achieved in practice.

Method of supporting partitions

Walls and partitions are to be supported by the structural floor only if the material is specifically manufactured for that purpose; it is not to be supported by a floating floor that incorporates a compressible layer.

Extra noggins or joists should be specified where stud partitions or proprietary plasterboard partitions are supported by a timber floor, unless it can be shown that the deck can transfer the load without undue movement.

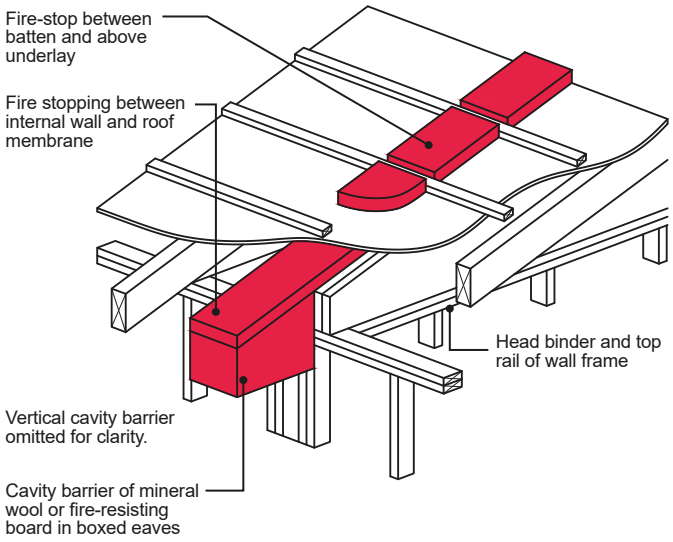
Allowance for the probable deflection of floors at the head of partitions is required to prevent the partition becoming load-bearing.

Sound resistance

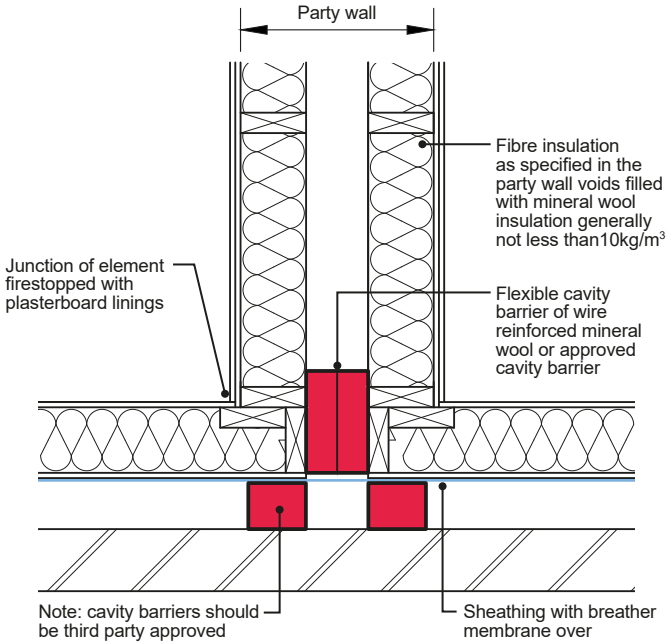
Sound insulation
Internal walls shall, where necessary, have adequate resistance to the transmission of sound.

All separating walls in England and Wales may be built in accordance with Robust Details and meet the requirements for resistance to the passage of sound in the relevant Building Regulations.

Fire stopping at roof level between party walls



Fire stopping within the cavity on the party wall line



Electrical sockets in party walls

Electrical sockets within the party walls should be avoided where possible, where this is not possible the fire and sound resistance of the walls should be maintained.

Sockets should not be installed back to back in party walls. Please refer to the 'Electrical Services' section for further guidance.

Fire stopping

Where separating walls and compartment walls meet a roof, further guidance can be found in the 'Roofs' section.

Penetrations in walls that are required to have fire resistance must be designed to meet the requirements of the Building Regulations. Fire stopping in apartments and flats with a floor over 4.5m will have additional requirements. Please see 'Internal Walls - General Requirements - Cavity Barriers and Fire Stopping' for further guidance.

Fire stopping should be provided in accordance with the relevant Building Regulations.

- Party/separating walls should be finished 25mm below the top of the rafter line and a soft fire-resistant packing, such as mineral wool, should be used to allow for movement in roof timbers and prevent distortion of the roof tiles.
- The fire stopping should be continuous to eaves level and a cavity barrier of fire-resisting board or a wire reinforced mineral wool blanket nailed to the rafter and carefully cut to fully seal the boxed eaves should be installed.

Fire resistance

Typically, in dwellings, a half-hour or one-hour fire-resistance is required to satisfy the relevant Building Regulations with regard to fire separation between dwellings and/or compartments within dwellings.

Compartment walls that are common to two or more buildings should run the full height of the building in a continuous vertical plane and should be continued through the roof space.

Where a compartment wall meets another external wall or floor junction fire resistance should be maintained.

All internal, separating and compartment walls should have the fire resistance required by the relevant Building Regulations.

Penetrations in walls that are required to have fire resistance must be designed to meet the requirements of the relevant Building Regulations.

7.
Internal Walls

7.3
Metal Stud

METAL STUD: Non load bearing internal metal partitions

Provision of Information

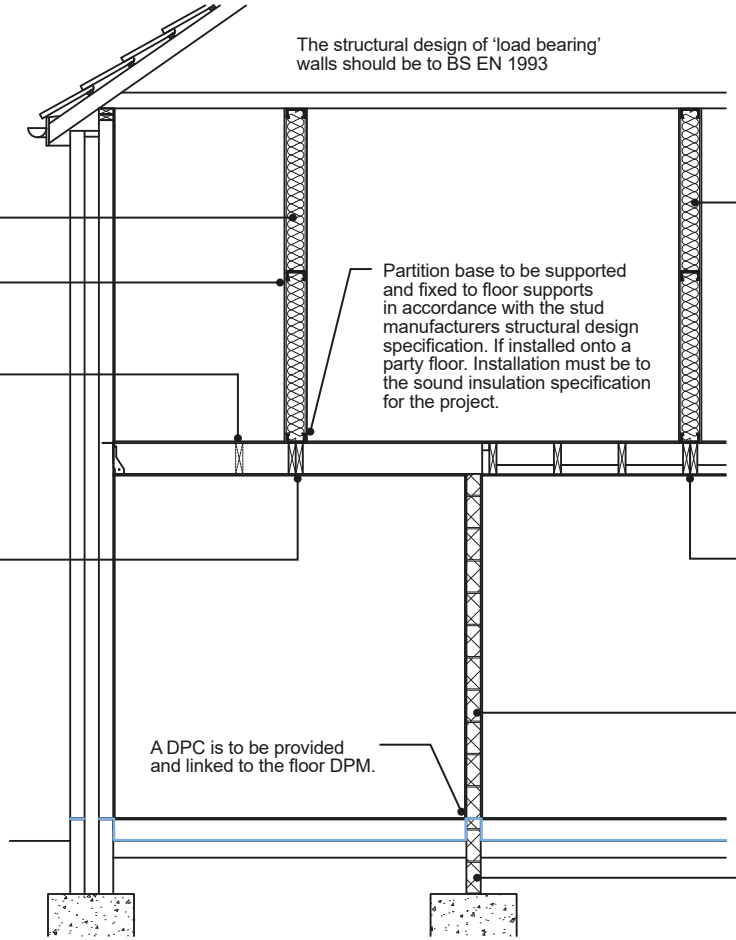
A full set of design drawings and specifications shall be made available to the Warranty Provider and all other interested parties prior to the associated works starting on site. This may include:

- Floor plans indicating the positions of internal walls - load-bearing and non-load-bearing
- Specifications relating to the proposed construction of internal walls and formation of openings including lintels
- Site specific supporting calculations confirming design loading where required
- Details of proposed fire stopping and cavity barriers
- Details relating to service penetrations

The Warranty surveyor, at their discretion, may also request supporting information that demonstrates suitability for use of any materials or systems contained within the above.

Metal stud system

There are a number of proprietary systems on the market. This traditionally consists of U-shaped channels that act as ceiling (head), base plates (tracks) and the vertical studs. The advantage of this system is that it is lightweight, versatile and quick to erect. Installation should always be carried out in accordance with the manufacturer's instructions. Plasterboard coverings are screw-fixed to the metal studs, with the perimeter studs/tracks generally being mechanically fixed to the surrounding walls, ceilings and floors. It may be necessary to provide earth-bonding to the metal stud system.



Lintels over openings to be to the stud manufacturers structural design specification.

Studs to be at maximum 600mm centres as per manufacturers instructions.

Please refer to the appropriate upper floor construction details for further guidance on midspan and additional strutting requirements.

Adequate support must be provided under the stud partitions within the floor construction. This may be in addition to any internal strutting required.

Metal stud partitions:

- Studs to be at 600mm max centres.
- Stud, head, and base rails to be minimum section size of 43x32x0.45mm.
- Plasterboard 9.5mm thick (studs at 450mm centres) or 12.5mm plasterboard (studs at 600mm centres).

Note:

1. Internal partitions should not be supported by compressible layers forming part of a floating floor unless suitable for that purpose.
2. Internal framed partitions between bedrooms or rooms containing WC's and other rooms, must achieve adequate sound resistance.

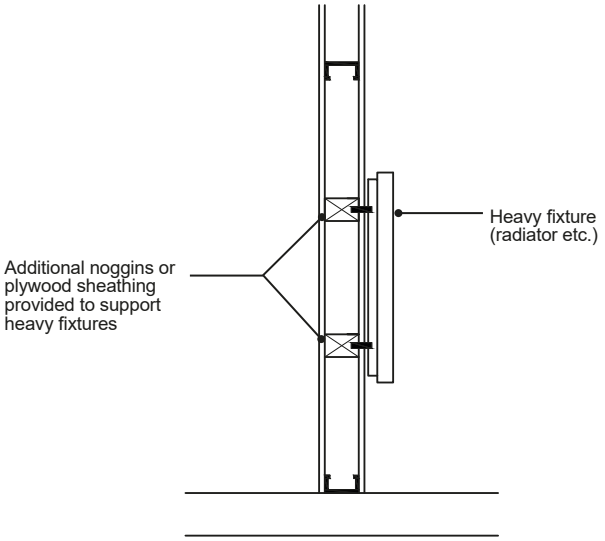
Where joists run parallel to the partition:

Partitions must be positioned directly over floor construction members (not solely on floor boards). Additional joists may be necessary in order to support the partition.

Masonry internal load bearing wall shown off a suitable foundation if a structural metal stud load bearing wall is not provided.

Masonry load bearing partitions to be supported off suitable foundations.

Support of heavy timber fixtures



Where additional loads will be applied to the walls e.g. radiators or kitchen cabinets, these may require additional strengthening support as per the manufacturers guidance

Proprietary systems

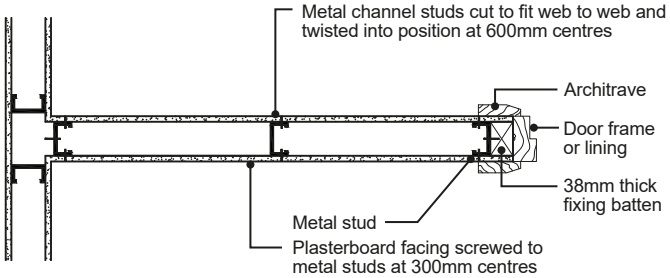
Proprietary systems are to be specified in accordance with the manufacturer's recommendations.

Metal stud system

There are a number of proprietary systems on the market.

This traditionally consists of U-shaped channels that act as ceiling (head), base plates (tracks) and the vertical studs. The advantage of this system is that it is lightweight, versatile and quick to erect. Installation should always be carried out in accordance with the manufacturer's instructions. Plasterboard coverings are screw-fixed to the metal studs, with the perimeter studs/tracks generally being mechanically fixed to the surrounding walls, ceilings and floors.

Metal stud partition (plan)



Method of supporting partitions

Walls and partitions are to be supported by the structural floor only if the material is specifically manufactured for that purpose; it is not to be supported by a floating floor that incorporates a compressible layer.

Extra noggins or joists should be specified where stud partitions or proprietary plasterboard partitions are supported by a timber floor, unless it can be shown that the deck can transfer the load without undue movement.

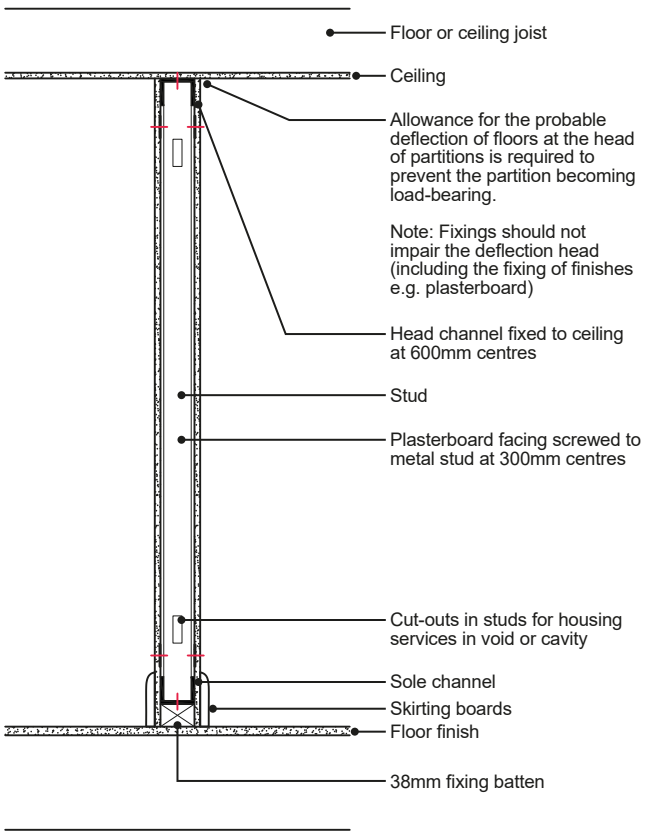
Allowance for the probable deflection of floors at the head of partitions is required to prevent the partition becoming load-bearing.

Head and sole plates should consist of single length members fixed to the building structure at no less than 600mm centres.

Partitions should be located on double joists when parallel to floor joist span and nailed to 50mm x 50mm noggins fixed between ceiling joists at 600mm centres when parallel to ceiling joist span. For short lengths of partitions (1.2m maximum), blocking between joists at 600mm centres may be used. Intersecting head and sole plates should be fixed in accordance with the manufacturers recommendations.

Proprietary partitions of plasterboard, strawboard or other material must be detailed and constructed in accordance with the manufacturer's recommendations.

Metal stud partition



Internal plastering

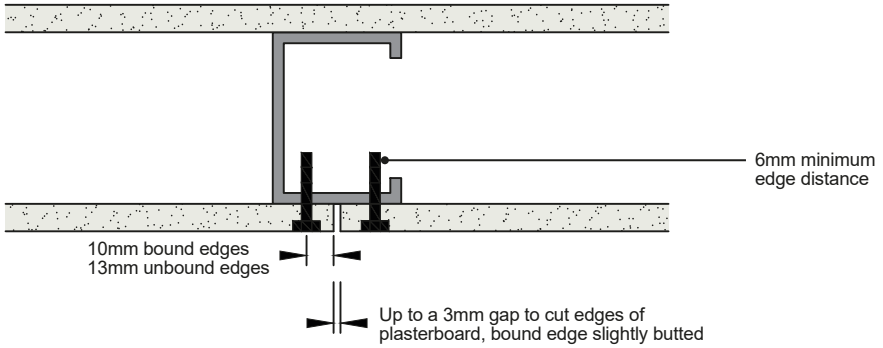
Internal plastering should comply with BS EN 3914-2.

Plasterboard should be to BS EN 520: Gypsum plasterboards - Definitions, requirements and test methods.

Plasterboard thickness should be:

- 9.5mm for stud spacing up to 450mm.
- 12.5mm for stud spacing up to 600mm.

Fixing of plasterboard to studs at joint positions



Plasterwork

This guidance covers all plastered finishes to walls and ceilings. The workmanship of plastered finishes should be applied to a certain standard to receive a suitable decorative finish. It should be durable enough to prevent surface cracking and, if applicable as part of the whole element, meet the required levels of fire and sound insulation in accordance with current Building Regulations.

Substrate and background

Plasterwork should be applied to suitable substrates. The substrate may also require additional sealing or bonding agents, in accordance with the requirements set out in BS 8481.

Where the background has a mix of varying materials, e.g. blockwork and brickwork, expanded metal should be provided to prevent differential movement in the plaster finish.

Plaster mixes

Plaster mix ratios should be in accordance with manufacturer's recommendations and be appropriate for the intended use.

Minimum plaster thickness

The thickness of plaster will vary depending on the evenness of the substrate. The finished element must meet the tolerances identified, and be of a suitable quality so that a decorative finish can be applied. Please refer to the 'Tolerances' section for further guidance.

Plastering of plasterboard walls

Plasterboard walls should be skimmed to provide a suitable and durable finish. A minimum of one coat is required.

Support of plasterboard

Supports for plasterboard should be designed so that the following span limits are not exceeded.

Plasterboard joints and fixings

Board thickness	Timber support centres (mm)	Intermediate noggins required
9.5mm	400mm	No
	450mm	Yes
12.5mm	400mm	No
	450mm	No
	600mm	Yes
15mm	600mm	No

When fixing plaster boarding:

- Fix with decorative side out to receive joint treatment or a skim plaster finish.
- Lightly butt boards together and never force boards into position.
- Install fixings no closer than 13mm from cut edges and 10mm from bound edges.
- Position cut edges to internal angles whenever possible, removing paper burrs with fine sandpaper.
- Stagger horizontal and vertical board joints between layers by a minimum of 600mm.
- Locate boards to the centre line of framing where this supports board edges or ends.
- Fix metal studs using dry-wall screws.
- When dry lining, plasterboard can be fixed to walls using adhesive dabs or by screwing to metal battens.

Note: Where adhesive dabs are used, the plasterboard manufacturers recommendations must be followed.

Alternatively, a proprietary wall system can be used, providing it has full third-party accreditation. Gaps between boards should not exceed 3mm and consideration should be given to sealing all gaps to improve building air tightness.

Minimum periods of fire resistance

All internal, separating and compartment walls should have the fire resistance required by the relevant Building Regulations.

Fire doors

Where an internal wall is required to fulfil a fire resisting function, any fire door installed in it must maintain the period of fire resistance of the internal wall and the following must be satisfied:

- The fire door and frame must be installed as a combined tested fire door set and not made from either different untested components or components from different products which were not tested together.
- Proof of fire test performance to be available to demonstrate meeting the requirements of the relevant Building Regulations.
- Whilst some gaps between the fire door frame and opening may be present, they should be kept to a minimum and be no greater than the gaps stipulated in the fire test certification. Expanding fire foam which has relevant testing and certification may be used to seal gaps up to 10mm.
- The fire door must be installed as per manufacturer's instructions

Fire doors between a dwelling and attached/integral garage must be half-hour fire resisting, be fitted with a self-closer and also meet the above requirements.

Openings for pipes and ducts in fire resisting walls

Pipes and ducts which pass internally through fire resisting walls (unless in a protected shaft) must not compromise the required fire resistance of the element through which they pass. As a minimum, openings through walls should be as few as possible in number, as small as practicable in size and fire-stopped to the surrounding construction.

For pipes and ducts passing through compartment walls, guidance supporting the relevant Building Regulations will need to be consulted for additional provisions.

Sound insulation

Internal separating walls shall, where necessary, have adequate resistance to the transmission of sound.

All separating walls in England and Wales may be built in accordance with Robust Details and meet the requirements for resistance to the passage of sound in the relevant Building Regulations.

Compliance with the relevant Building Regulations can be demonstrated by either:

Pre-completion testing
Pre-completion testing (PCT) is required in the following situations:

- To all new build properties (including rooms for residential purposes), other than when the Developer has registered and built in accordance with Robust Details.
- Where the sound insulation construction is in accordance with the guidance given in the relevant Building Regulations for resistance to the passage of sound.
- Where the building is not built in accordance with the relevant Building Regulations.
- The requirements of the Robust Details system have not been met.

or

Robust details
The use of robust details as a means of providing adequate sound insulation applies only to party walls and floors between different dwellings or flats. It is approved by Robust Details Ltd.

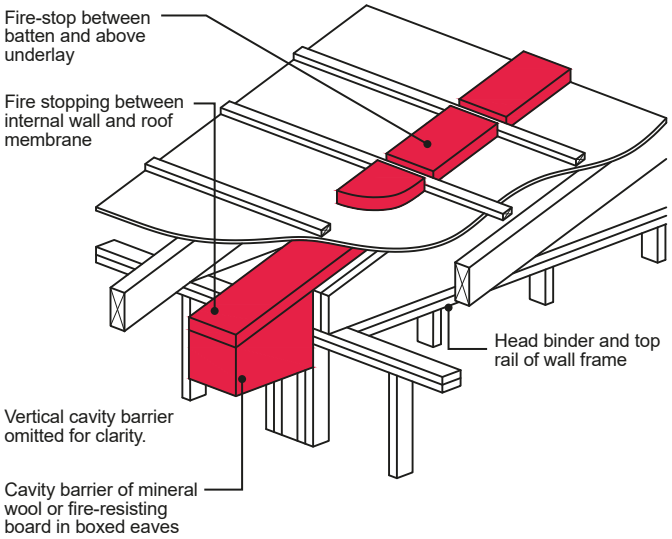
The robust design details are available in a handbook, which can be purchased from:

Robust Details Ltd, 14 Shenley Pavilions, Chalkdell Drive, Shenley Wood, Milton Keynes, MK5 6LB
Tel 0870 240 8210

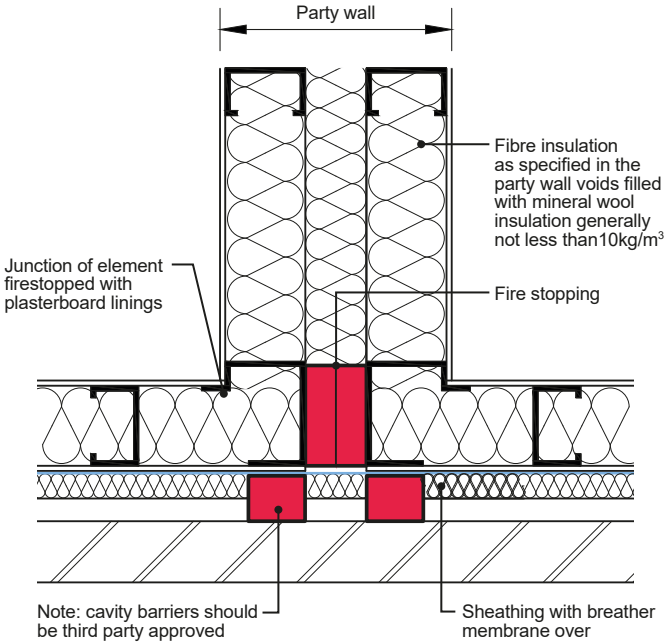
www.robustdetails.com

Robust Details Ltd may undertake monitoring to check on the performance achieved in practice.

Fire stopping at roof level between party walls



Fire stopping within the cavity on the party wall line



Electrical sockets in party walls

Electrical sockets within the party walls should be avoided where possible, where this is not possible the fire and sound resistance of the walls should be maintained.

Sockets should not be installed back to back in party walls. Please refer to the 'Electrical Services' section for further guidance.

Fire stopping

Where separating walls and compartment walls meet a roof, further guidance can be found in the 'Roofs' section.

Penetrations in walls that are required to have fire resistance must be designed to meet the requirements of the relevant Building Regulations. Fire stopping in apartments and flats with a floor over 4.5m will have additional requirements. Please see 'Internal Walls - Cavity Barriers and Fire Stopping' for further guidance.

Fire stopping should be provided in accordance with the relevant Building Regulations.

- Party/separating walls should be finished 25mm below the top of the rafter line and a soft fire-resistant packing, such as mineral wool, should be used to allow for movement in roof timbers and prevent distortion of the roof tiles.
- The fire stopping should be continuous to eaves level and a cavity barrier of fire-resisting board or a wire reinforced mineral wool blanket nailed to the rafter and carefully cut to fully seal the boxed eaves should be installed.

Fire resistance

Typically, in dwellings, a half-hour or one-hour fire-resistance is required to satisfy the relevant Building Regulations with regard to fire separation between dwellings and/or compartments within dwellings.

Compartment walls that are common to two or more buildings should run the full height of the building in a continuous vertical plane and should be continued through the roof space.

Where a compartment wall meets another external wall or floor junction fire resistance should be maintained.

All internal, separating and compartment walls should have the fire resistance required by the relevant Building Regulations.

Penetrations in walls that are required to have fire resistance must be designed to meet the requirements of the relevant Building Regulations.

7.
Internal Walls

7.4
General Requirements - Cavity Barriers and Fire Stopping

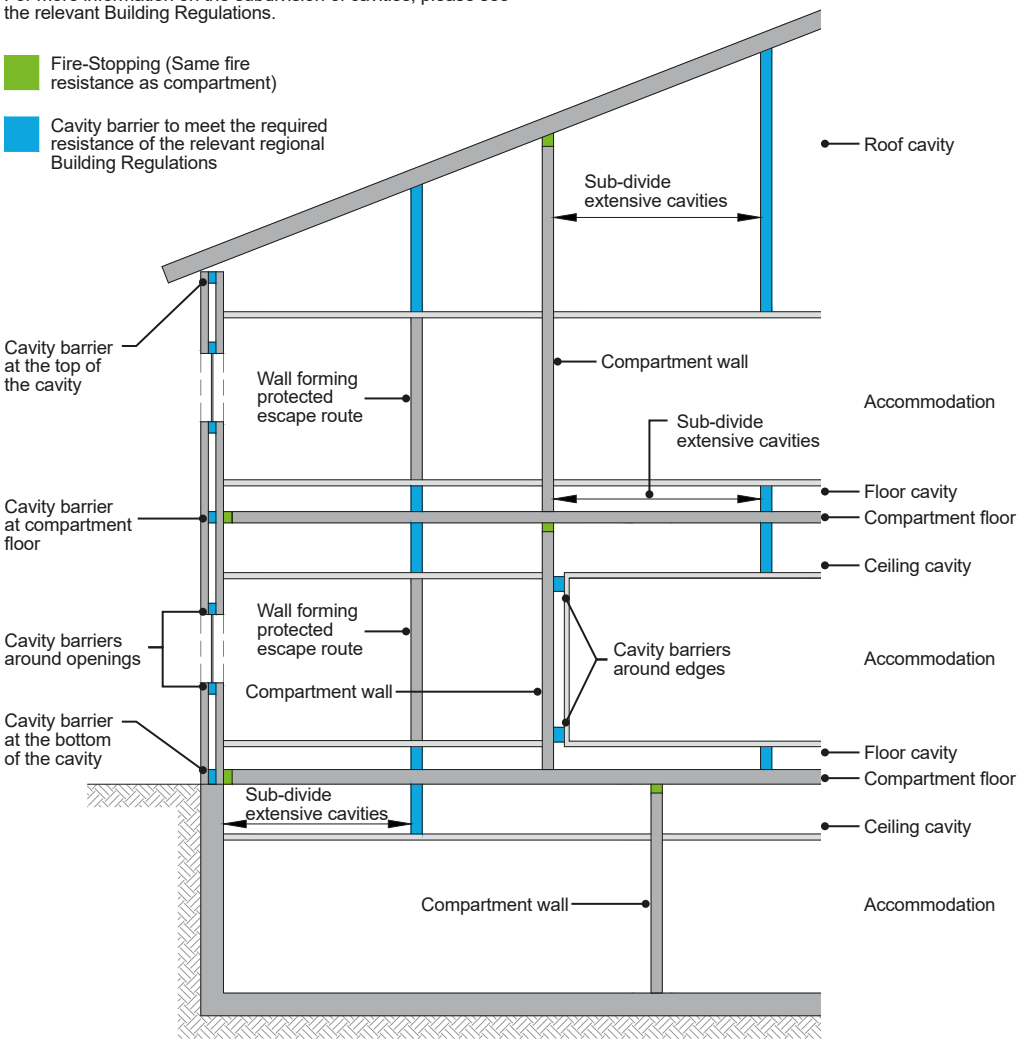
Openings for pipes in separating elements

Pipes which pass through fire separating elements (unless in a protected shaft) shall:

- Have an approved proprietary sealing system that has a UKAS accredited test to prove it will maintain the fire resistance of the wall. Note: It should only be installed as per the test requirements, or
- Where an approved proprietary sealing system is not used; the pipes penetrating the fire separating element should be restricted in diameter to a maximum size shown in the relevant Building Regulations and fire stopping used around the pipe, or
- A sleeving system with a maximum 160mm internal diameter is used as specified in the relevant Building Regulations.

Provisions for cavity barriers and fire stopping

For more information on the subdivision of cavities, please see the relevant Building Regulations.



Note: Diagrams courtesy of the approved documents for England

Fire resistance general

All walls should have the fire resistance required by the relevant Building Regulations.

Fire stopping

Penetrations in walls between buildings shall be fire stopped, there are to be no holes or gaps for smoke to pass through once the fire stopping has been fitted.

Further additional requirements for internal fire stopping and fire protection for compartment floors, walls, and roof junctions to flats and apartments with a floor 4.5m or more above the ground

The following additional guidance applies to internal fire stopping and fire protection only to buildings with a floor 4.5m or more above the ground that contain flats or apartments.

Although building legislation is robust in applying provisions for fire protection and fire stopping, it can often be difficult to implement high standards of fire stopping in complex buildings. This can lead to significant safety risks if the building does not have the correct levels of fire protection and if holes in compartment walls are not sealed correctly. This guidance assists Developers in providing good standards of fire stopping and fire protection.

It is not the intention to enhance the requirements of the Building Regulations, but more to ensure that the statutory requirements are applied correctly to the construction. It is therefore deemed that the requirements of Part B of the Building Regulations in England and Wales, or Section 2 of the Scottish Building Standards (whichever is appropriate depending on region), that apply to fire stopping, separating walls, service penetrations, minimum periods of fire resistance and concealed spaces will also meet the requirements of this guidance.

1. Fire stopping

Design information
Drawings showing the lines of compartmentation and the lines of fire-resisting construction should be provided to the Surveyor and the Builder. The drawings should also give the required level of fire resistance for each element. Drawings to show the position of cavity barriers should be provided, and the specification of cavity barriers included.

Materials for fire stopping and cavity barriers
All materials used to form a fire barrier must have relevant third-party certification or be CE marked in accordance with the Construction Products Regulations. The materials must be installed in accordance with the manufacturer's instructions and recommendations.

Installation
The fire stopping material or cavity barriers should be installed by a person who is deemed competent to install such products. A competent person is deemed to be a third-party approved contractor specialising in fire stopping and passive fire protection.

2. Fire protection in buildings

Design information
The design details must show the correct level of fire resistance for the building, in accordance with Part B of the Building Regulations or Section 2 of the Scottish Building Standards, depending on region.

Materials for fire protection
All materials used to form a fire barrier must have relevant third-party certification, or be CE marked in accordance with the Construction Products Regulations. The materials must be installed in accordance with the manufacturer's instructions and recommendations.

Installation
The fire stopping material or cavity barriers should be installed by a person who is deemed competent to install such products.

Where intumescent paints are used to provide the required level of fire protection, certification confirming that the paint applied will achieve the correct level of fire protection is required.

T 0800 183 1755 **E** enquiries@labcwarranty.co.uk **labcwarranty.co.uk**

@LABC_Warranty LABC Warranty LABC Warranty