



poured over the insulation. The concrete can either be float finished or a screed applied at a later date. On some sites where the ground floor is significantly higher than external ground level or where the site has been affected by trees, a suspended floor may be needed, these can be formed from either concrete or timber and if you need any guidance regarding suspended floors, please get in touch with us for advice.

Walls: the walls of your extension must carry the loads from the floors and roof, keep the weather out of the extension and provide thermal insulation. Cavity walls are commonly used for domestic extensions. These are made up from bricks and blocks and the cavity is filled with insulation as the work proceeds. When building walls remember to ensure that you have adequate buttressing at the corner of your extension, lintels over all openings, wall ties to join the leaves of your cavity wall together and a suitable damp

proof course. If you are building up against your neighbour's house you will also need to ensure that your wall provides adequate sound resistance.

First Floor: two storey extensions will require a first floor, these are generally made up from timber floor joists which span between load bearing walls, they support floor boarding above and plasterboard is then fixed to the underside of the joists to provide a ceiling finish and fire resistance. The size of the floor joists will depend on the span so please contact us for advice on the joist size required. The floor will also need to include sound insulation and in domestic extensions, 100mm of sound deadening mineral wool placed between the joists is generally sufficient.

The Roof Structure: the roof of your extension will need to be designed to keep out the rain and snow and may need to cope with some light loft storage loading. Generally two types of

roof are used for domestic extensions:-

Flat Roofs: this is the simplest type of roof structure and for some extensions, generally single storey, a flat roof can provide a practical and economic solution. Timber joists are used to span between the loadbearing walls and beams and these are covered with a plywood decking. Thermal insulation is then placed over the roof and it is generally finished with a waterproof covering of three layers of bonded roofing felt. Critical things to consider in this type of roof are the size and support of the roof joists and the way that the roof will be insulated and, if necessary, ventilated.

Pitched Roofs: if a flat roof is not suitable for your needs you are likely to require a pitched roof. These are generally more substantial structures that are finished with roof tiles or slates. The supporting structure of the roof can be formed in two ways:



1. **Trussed Rafter Roofs:** these are quick to construct, measurements are taken from site and roof trusses are made up in a factory, they are then delivered to site ready for installation. Each roof is individually designed by the roof truss manufacturer using specialist computer software and the carpenter's time on site can be significantly reduced.
2. **Traditional Roofs:** A carpenter cuts a traditional roof on site. The roof structure will generally be designed by an Architect or Structural Engineer and the timber is then delivered to site where the carpenter will set out the roof and cut each of the individual timbers to size before installing them. This type of roof offers the greatest flexibility in roof shape and is often the only way of roofing complicated extensions especially where the new roof must join onto an existing structure.

The size of the timbers and supporting beams required in a roof will depend on the loadings and spans involved in each case, complex roofs will require a Structural Engineer's design but our Building Control Surveyors will be happy to assist your builder in designing simple roof structures.

Once the support is in place the roof must be covered to provide weather protection, pitched roofs are generally finished with tiles or slates with a layer of roofing membrane or felt under them. The tiles are supported by the rafters via a series of timber batons. To provide adequate weather resistance the tiles overlap each other and they must have an adequate pitch.



For extensions it is common to use tiles or slates that match the main house although this is not always possible if the extension roof has a very low pitch. Our Building Control Surveyors will be happy to assist you with any enquiries that you have about roof finishes.

Stairs: if your extension has more than one storey you may need to install a staircase and careful design of this can be critical to the success of the extension. If a stair is installed it should be designed in accordance with the following guidance.

Width: there is no minimum width for stairs in the Building Regulations however they will need to be useable. Generally stairs are 850–1000mm wide.

Pitch: the maximum pitch for the stair should not exceed 42 degrees.

Rise and going: the maximum rise of each tread of a domestic stair should not exceed 220mm and the going should be at least 220mm.

Headroom: the clear headroom over the stair should be at least 2m.

Handrails and Balustrades: the stair should be provided with a handrail at least 900mm high and any exposed edges of stairs or landings should be provided with balustrading at least 900mm high.

Fire Precautions: it is important that you consider fire precautions when you are designing your extension. The most dangerous fires generally

occur at night when everyone is asleep and to give you awareness of a fire the Building Regulations suggest that mains operated smoke detectors should be installed on each floor of the house when it is extended.

To prevent people being trapped by a fire all rooms that do not open directly onto a hall and all first floor rooms should have a window or door that is large enough for people to escape through. If you are using a window as your secondary fire escape it should have a clear opening of at least 0.33m² at least 450mm wide with a cill height of between 800 and 1100mm above floor level.

Fire is a very dangerous thing and careful design and planning are required to ensure that the risks it poses are minimised.

Ventilation: fresh air is essential to healthy living and the Building Regulations require your extension to have adequate ventilation, generally an opening window with a 'trickle vent' is all that is required, the window should have an openable area equivalent to at least 1/20th of the floor area of the room that it is ventilating. The trickle vent is a small slot type vent that you can leave open to allow some background ventilation without the need to open the window, generally these are found in the top of the window frame. If your extension contains a kitchen, utility room or bathroom you will need to provide an extract fan in these areas and your Building Control Surveyor will be pleased to provide you with more detailed advice when they call on site.

Drainage: it is usually possible to connect drainage from extensions into the existing drainage systems. Drainage can be divided into two types, foul

water and rainwater and generally speaking the drainage systems should be kept separate. Foul drainage is generally discharged through a series of pipes and manholes to a public sewer although some properties will have septic tanks or private sewage treatment plants. When planning your extension look for manholes and try and find out where your drains are running so that you can work out how any new drains will connect to them. It is important that all new underground drain pipes have a diameter of at least 100mm so that they do not block or freeze, are watertight and have manholes or access points so that any blockages can be cleared. Where possible rainwater drainage should not be discharged to foul sewers as this can cause problems with flooding, the preferred solutions are to discharge rainwater to soakaways located in your garden at least 5m from any building or to storm water sewers if they are available.

Heating: most extensions will need to be heated and you will need to check with your heating engineer that your existing system has sufficient capacity to heat your extended house. You may also need to move your boiler, if for example, your extension will cover the flue outlet. Any alterations to your heating system should be carried out by a suitably qualified plumber or heating engineer registered with CORGI for gas fired boilers or OFTEC for oil fired boilers. Any new boilers will need to be highly efficient Condensing Boilers and the new radiators that you install in your extension should be fitted with Thermostatic Radiator Valves so that you can ensure that they use heat efficiently.

Thermal Insulation: CO₂ emissions are a major concern in today's environment and you will need to provide a high level of insulation within your extension. Your extension should provide an insulated envelope so that the amount of heat escaping is minimised. The roof, walls and floors or your extension should all include thermal insulation; walls generally have insulation placed within the cavity, roofs generally have insulation in the loft area and sheets of insulation can be placed beneath the concrete of your ground floor.

Another major area where heat is lost from buildings is the windows and these require special attention: 24mm double glazing units incorporating low emissivity glass are generally required and, unless energy improvements are carried out in the existing house, the window area of your extension is limited by the Building Regulations to 25% of the floor area plus the area of any existing openings covered by the extension.

High levels of insulation can result in problems with condensation and care must be taken to ensure adequate ventilation is available to rooms and particularly in roof voids.

As well as insulating your extension you will need to consider the efficiency of any services you put into it. Low energy light fittings should be used where possible and any new heating systems should work to high levels of efficiency and have suitable thermostats and controls.

Sound Insulation: to reduce unwanted noise the walls and floor around bedrooms will need to be insulated to reduce sound transmission, this is generally achieved by placing

100mm of sound deadening quilt in the floor void and in the partitions around the bedrooms.

Electrical Installations: as part of the Building Regulations process you will need to supply British Standard Test Certificates for most new electrical installations, when selecting your electrical contractor please ensure that they are competent to provide you with these test certificates as otherwise you are likely to incur additional costs for testing the circuits.

Glazing: to reduce the risk of people injuring themselves, glazing in and around doors and all glazing within 800mm of floor level should be either toughened or laminated glass.

Conclusion: whereas a well designed and constructed extension is a definite asset to your home that can provide useful extra space and add value to your property, a poorly thought-out extension can reduce your property's value and in some cases compromise your safety and the structural integrity of your home. It is

important to ensure that you plan your extension carefully and get the work carried out by an experienced contractor.

The Building Regulations exist to ensure that buildings are constructed to a reasonable standard; Stratford Building Control will be pleased to provide you with any further assistance that you require during the design and construction of your extension.

Loft Conversions

Introduction: most houses have a large space under their roofs normally known as the loft or attic, this space is often under utilised and in some instances can offer an ideal opportunity for expanding your home. This guide has been written to provide you with useful information about how the Building Regulations will affect your loft conversion project.

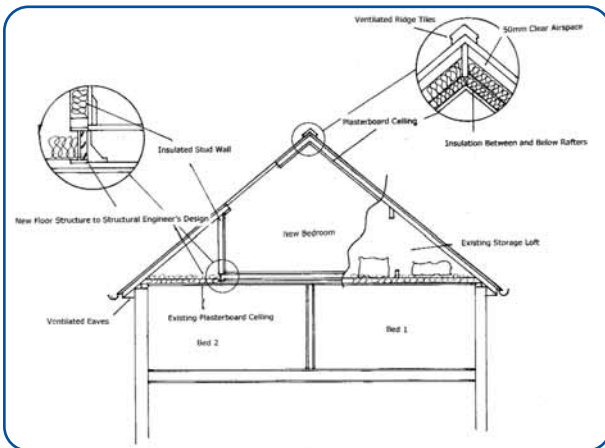
Suitability: not all lofts are suitable for conversion and as a first step it is wise to go into your loft and carry out a brief survey before you get too far into the planning of your project. When carrying out your survey check:

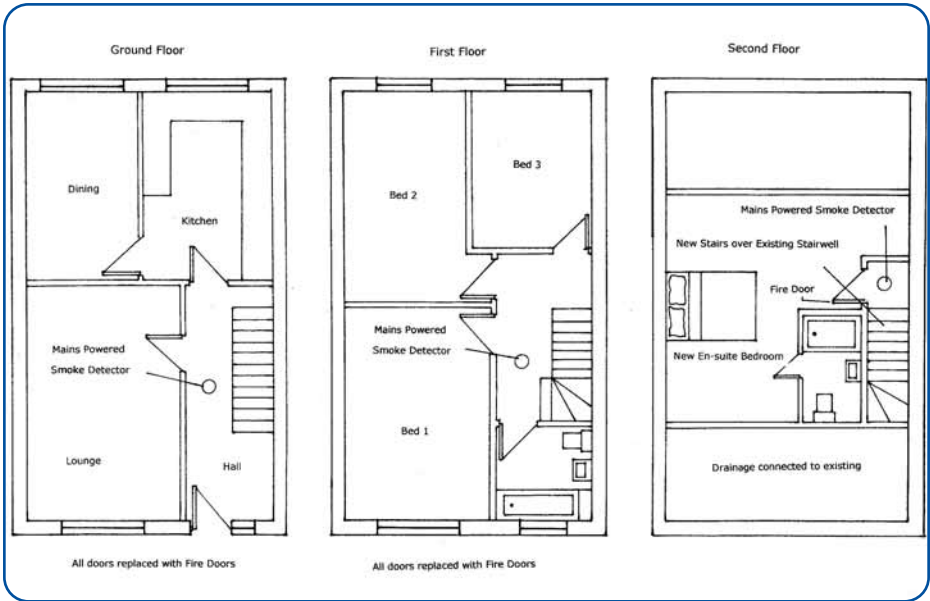
- That there is enough height within your loft to stand comfortably, bearing in mind that your new floor is likely to be around 200mm higher than your existing ceiling joists.

- That the loft space is large enough to provide a useable room.
- That there aren't any chimneys or services passing through the loft space that will need moving.
- That your roof has felt under the tiles or is fully weathertight.

If the answer to all of these questions is 'Yes' then your loft may well be suitable for conversion.

How to Proceed: loft conversions are complex projects and unless you are experienced in construction you will need to get some professional advice. The introduction contained advice about obtaining this and with this in place we can now consider some of the technical issues that affect loft conversions.





Technical Issues

The Roof Structure: the roof of your home is currently designed to keep out the rain and snow and to cope with some light loft storage loading. After a loft conversion your roof will have to cope with significantly different loadings, a new floor structure will be required and it is likely that a number of the structural elements will need to be altered to allow for circulation within the room, roof windows etc. Roofs can generally be divided into two types.

Trussed Rafter Roofs: these have been common since the 1970s, and roofs of this type are difficult to convert. Roof trusses are complex pieces of engineering and they should not be altered without the advice of a Structural Engineer. When converting this type of roof it is common for a series of beams to be installed to provide support to the new floor and to strengthen the rafters, this allows the bracing

sections of the trusses to be cut out to create a clear floor area.

Traditional Roofs: these are generally made up from a series of rafters and purlins spanning between load bearing walls. These roofs are less complicated to convert than Trussed Rafter Roofs, however, beams are often required to provide support to the new floor structure and the existing purlins and a Structural Engineer's design will be required for all but the simplest conversions.

When considering a loft conversion don't be tempted to simply board over your existing ceiling joists and rafters, this can adversely affect the value of your property and in some circumstances can cause overloading and endanger the structural stability of your home.

Accessing your Loft

Conversion: if you want to convert your loft for habitable use you will need to install a

staircase and careful design of this can be critical to the success of your conversion. If there is enough headroom it is often best to continue the stair in the existing stairwell as this saves space and gives a feeling of continuity within the home, alternatively part of a room will have to be partitioned off to accommodate the new staircase. Wherever the stair is installed it should be designed in accordance with the following guidance.

Pitch: the maximum pitch for the stair should not exceed 42 degrees.

Rise and going: the maximum rise of each tread of a domestic stair should not exceed 220mm and the going should be at least 220mm.

Headroom: the clear headroom over the stair should be at least 2m, for some loft conversions the Building Regulations allow a reduced headroom of 1.9m over the centre of the stair and 1.8m on the outside edge.

Handrails and Balustrades: the stair should be provided with a handrail at least 900mm high and any exposed edges of stairs or landings should be provided with balustrading at least 900mm high.

For loft conversions where space is very limited and only one room is created, a specialist alternating tread staircase can be used, these are steeper than standard stairs and can provide valuable space in some circumstances.

Fire Precautions: house fires can kill and fire precautions are a major concern for the Building Regulations. The most dangerous fires generally occur at night when everyone is asleep and to give you awareness of a fire it is important that you install smoke detection. When converting your loft you will need to ensure that you have mains powered, interlinked smoke detectors in the hall/landing areas on every floor of your house.

Two Storey Houses: the Building Regulations requirements for fire precautions in two storey housing are quite simple as it is generally felt that if you couldn't get out down the stairs you could jump or be rescued from a first floor window. If you are converting the loft of a bungalow you will need to ensure that you have mains powered interlinked smoke detection at ground and first floor level and that all habitable rooms at first floor level have an 'escape window'.

Escape Windows: as their name suggests, are windows that are large enough to allow people to escape or be rescued through them. They need to have a clear opening area of at least 0.33m² and a clear width of at least 450mm. The bottom of the



opening light should be no more than 1100mm above ground level and they should allow people to escape to a place free from danger. Escape windows need to be fitted with escape hinges that allow the window to fully open. Some of the standard hinges fitted to Upvc windows do not achieve this so it is wise to check this with your glazing supplier when you order your windows.

Three Storey Houses: when you convert the loft of a house and create a third floor the Building Regulations require you to look at the fire precautions within the house a lot more seriously. Mains operated smoke detection needs to be fitted to give you awareness of a fire and as, due to the height of your new floor, you can no longer rely on escaping through the windows the only safe way out of the house is down the stairs. It is therefore vital that the stair is protected from fire. To protect the stair all of the doors that open onto the stair need to be half hour fire doors and the stair should end up in a hall with a door direct to the outside. Generally, unless a sprinkler system or alternative escape stair is provided, stairs cannot discharge into other

rooms in three storey properties.

Four Storey Houses: if your house already has three stories loft conversions become more complicated, you are likely to need to install a sprinkler system or a second escape stair and the project will need specialist design. Please contact us and we will be happy to provide you with more detailed advice if you are considering one of these projects.

Fire is very dangerous and careful design and planning is required to ensure that the risks it poses are minimised.

Bathrooms: it is often a nice idea to include a bath or shower room in your loft conversion, the best place for this is generally directly above your existing bathroom as this should ensure that you can connect into the existing drainage and water supplies without the need for excessive pipework. Any bath or shower rooms will also need to be fitted with an extract fan to improve ventilation. It is a good idea to decide on the location of any bathrooms at an early stage in your space planning process.



Thermal Insulation: CO₂ emissions are a major concern in today's environment and you will need to provide a high level of insulation to your roof as part of your loft conversion. The most common way of achieving this is to place a high performance insulation board in between and below the rafters. Unless your roof has a breathable felt you will need to leave a void above the insulation and ensure that you have effective roof ventilation to prevent the build up of condensation.

Sound Insulation: to reduce unwanted noise the walls and floor around bedrooms will need to be insulated to reduce sound transmission, this is generally achieved by placing 100mm of sound deadening quilt in the floor void and in the partitions around the bedrooms. If you are converting the loft of a semi-detached or terraced property you will need to ensure that the sound resistance of the Party Wall is upgraded so that sound transmission to your neighbours is reduced.

Heating: to maximise the usability of the room you will probably want to install

heating, in most instances the most effective way of doing this is to extend the existing central heating system. You will need to check with your plumber or heating engineer to ensure that your existing boiler has sufficient capacity to serve any additional radiators and any new radiators should be fitted with thermostatic valves to control the room temperature. If it is not possible to extend the existing system or if you prefer an alternative method of heating, e.g. electric panel heaters, careful consideration should be given as to how these can be switched and controlled to ensure that they function efficiently.

Electrics: you are likely to require some electrical alterations as part of your conversion. Depending on the age and condition of your existing electrical system it is sometimes possible to extend existing circuits but sometimes new circuits and even a new distribution board will be required. It is a good idea to get advice from a competent electrician at an early stage. When appointing an electrician please ensure that they are able to issue you with BS7671

test certificates when they have completed their installation as these will be required before your Building Regulations Completion Certificate can be issued and you are likely to incur additional costs if the test certificates have not been provided.

Windows and Ventilation: any new habitable rooms will need to be ventilated. Generally this is achieved by providing an opening window or roof light equivalent to 1/20th of the floor area of the room with a trickle vent at high level. All new windows must be fitted with highly efficient double glazed units.

In bath or shower rooms an extract fan should be fitted and in rooms without opening windows extract fans should be fitted that are triggered by the light switch with overrun timers that allow the fan to remain on after the light is turned out.

Conclusion: a well converted loft is a definite asset to your home, it can provide useful extra space and add value to your property. However a poorly converted loft can reduce your property's value and in some cases compromise your safety and the structural integrity of your home. It is important to ensure that you plan your conversion carefully and get the work carried out by an experienced contractor.

The Building Regulations exist to ensure that buildings are constructed to a reasonable standard; Stratford Building Control will be pleased to provide you with any further assistance that you require during the design and construction of your project.



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Garage Conversions



Introduction: if you need more space and you do not want to move house you may wish to consider converting your garage. Your home is probably your most valuable asset so it is important that your conversion project is carefully planned. This guide is not a substitute for professional advice but has been written to provide you with useful information about how the Building Regulations will affect your conversion.

Suitability: if you have a brick or block garage attached to your house it is probably suitable for converting. When you are thinking about whether your garage is suitable for conversion you might like to consider:

- Whether there are any known problems with your garage, are there any cracks in it? Is it damp? Does the roof leak? Has the floor been contaminated with fuel or oil?
- How will you get into the new room? Have you got or can you put a doorway through to the garage from the house?
- Will you have enough parking and storage area if you convert your garage?
- Is there enough room in your garage to provide the accommodation that you require or would you be better extending the property?

- Is your existing garage built from an unusual construction? For example, prefabricated panels, concrete frame etc.

If you can resolve all of these issues then your garage may well be suitable for conversion.

How to Proceed: garage conversions can be complex projects and unless you are experienced in construction you will need to get some professional advice. The introduction contained advice about obtaining this and with this in place we can now consider some of the technical issues that affect garage conversions.

Technical Issues

Infilling the Garage Door

Opening: this tends to be the most visible part of your conversion from the outside and whatever you chose to infill the opening it will need some support. Some garages have a foundation that runs across the garage opening which you can use to support your infill. Unfortunately the only real way to tell if the front of your garage has an existing foundation is to dig a hole and find out.

If there is no foundation under your garage door opening there are two main options. You can either:

1. Dig a foundation 1m deep or to the same depth as the



foundations of the existing garage, call us to inspect the foundation and then fill it with concrete.

Or

2. If the opening is only the width of a single garage door install two 150mm deep concrete lintels across the opening supported by the existing foundations.

Your Building Control Surveyor will be happy to provide you with more advice about which is the best option for you when we get to site.

With the foundations in place the garage door opening can now be filled in. There are several options for how this can be done. The opening can be filled in with brickwork to match the house and a window. People generally narrow the garage door opening slightly as a full width window can appear out of proportion. To keep the damp out and to provide insulation it is best to use a cavity wall and your new window should be double-glazed. Other options include installing a lightweight timber framed panel with a weatherproof external surface and insulation, this can be quicker and cheaper and has the advantage that it is easier to remove if you, or any future owners of the house, ever wanted to reinstate your garage. Whichever option you choose it is important that the infill panel provides adequate weather resistance and insulation and that all of the new work is tied into the existing construction. Your Building Control Surveyor will be happy to provide you with advice about this.

Raising the Floor Level: garage floors are generally lower than the floor in the main house and they often slope towards the

garage door. For these reasons garage floors are generally raised as part of a conversion. There are two main ways of raising a garage floor. Whichever way you choose it is important to consider insulation and damp proofing.

Option 1: Concrete: using this method a polythene membrane is placed over the garage floor, floor insulation is laid down, a second polythene membrane is installed and the floor level is brought up to the same level as the house using concrete or sand and cement screed.

Option 2: Timber: this method involves placing treated timber floor joists onto a damp proof membrane placed over the existing concrete floor, placing floor insulation between the joists and covering the floor joists with floor boards or tongued and grooved chipboard.

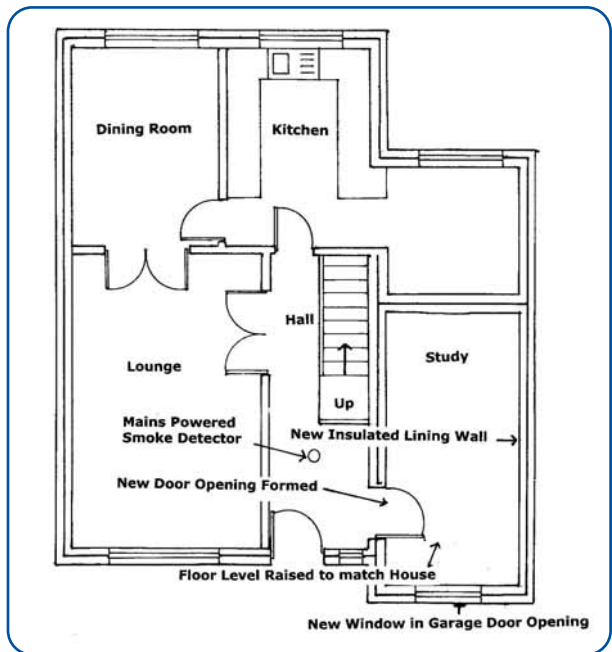
The floor can then be finished with carpet, laminate or any

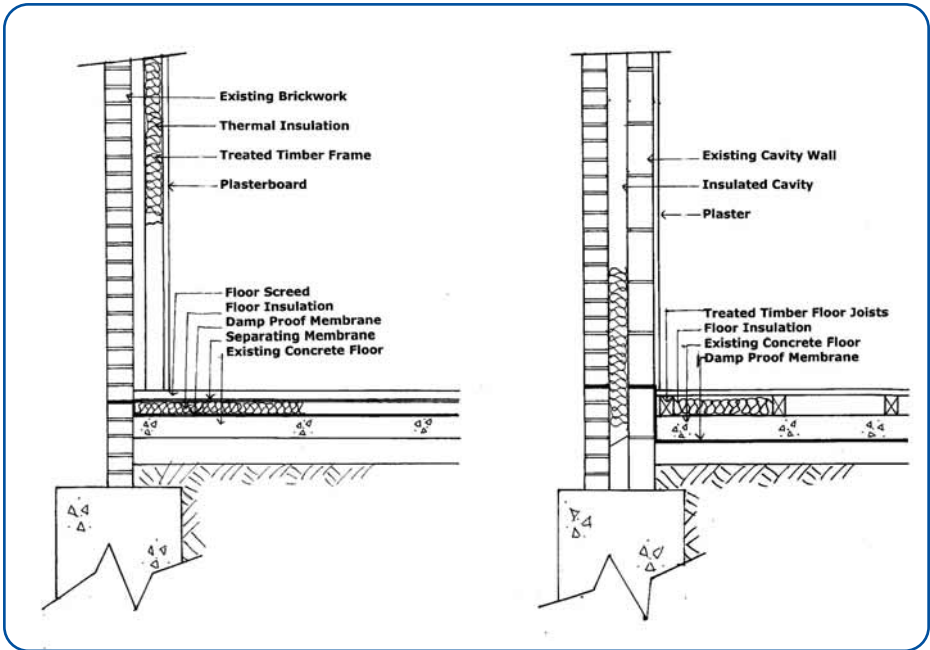
other decorative surface.

Lining the External Walls: the walls used to construct garages are not normally up to habitable standards, they are sometimes formed from a single thickness of brickwork and even when built from cavity masonry they are often uninsulated. When converting your garage the walls will need to be upgraded.

There are three main areas of concern when upgrading walls in a garage conversion: weather and damp resistance, insulation and sound resistance. The upgrading scheme that you choose will be influenced by the original construction of your garage walls, these can be broadly divided into two categories.

Cavity Walls: if your garage is built from cavity walling, weather resistance and damp proofing are unlikely to be a problem. These walls generally have damp proof courses and





providing that your wall is in good condition and is not showing signs of water ingress or rising damp, the wall will simply require insulating and a plaster finish ready for your decoration. There are two options for insulating the wall: either the cavity can be injected with cavity wall insulation or an insulated lining board can be fixed to the inner face of the wall prior to plaster boarding or plastering. Various boards are available and your Building Control Surveyor will be happy to provide advice as to which boards are suitable for your project.

Solid Brick Walls: in garages these are generally only a single brick approximately 100mm thick and they often have intermediate piers that buttress the walls and give them additional strength. A single brick wall will not provide adequate weather resistance to a habitable room and a supplementary wall will

need to be provided behind the original wall. This can be done either by building an additional skin of masonry to form a cavity wall, the cavity can be insulated as the wall is built, and the wall can then be dry lined or plastered. Alternatively an independent timber framed wall can be constructed with a cavity between the new framing and the existing wall. The frame should be constructed from treated timber and insulation should be provided between the timber studs. Once the frame is in place a plasterboard finish can be applied ready for decoration.

Occasionally garages are built with 225mm thick solid brick walls. If they are in good condition and have a damp proof course they will normally provide adequate weather resistance but they will need to be lined with an insulating board to improve their insulation.

Party Walls: if any of the walls of your garage are shared with a neighbour it is considered to be a Party Wall. These walls will need to be upgraded to reduce sound transfer between your new room and your neighbour's property. Your Building Control Surveyor will be happy to provide you with advice as to how you can upgrade any Party Walls.

The Ceiling: unless your existing garage has an adequate ceiling you will need to provide one as part of your conversion. Plasterboard is the most common material used for ceilings as it offers good fire resistance and flame spread properties. Other materials can be used but they will generally need to be treated to improve their fire performance. If the garage is open to a roof you will need to provide insulation above the ceiling and the roof void will generally need to be ventilated above the insulation to reduce the risk of problems

with condensation. In a pitched roof fibreglass insulation will normally suffice but with flat roofs, where space is confined, high performance insulation boards are often required. Your Building Control Surveyor will be happy to discuss this with you.

Heating: to maximise the usability of the room you will probably want to install heating; in most instances the most effective way of doing this is to extend the existing central heating system. You will need to check with your plumber or heating engineer to ensure that your existing boiler has sufficient capacity to serve any additional radiators and any new radiators should be fitted with thermostatic valves to control the room temperature. If it is not possible to extend the existing system, or, if you prefer an alternative method of heating, e.g. electric panel heaters, careful consideration should be given as to how these can be switched and controlled to ensure that they function efficiently.

Drainage: if you are looking to include a sink, bathroom, shower room or cloakroom in your conversion it is important that you consider drainage at an early stage. Any new appliances will need to connect to your existing foul drainage system as they are not allowed to be connected into rainwater drains. When planning your layouts make sure that there are suitable routes for pipes to run to a point where they can connect to existing drains.

Windows and Ventilation: any new habitable rooms will need to be ventilated. Generally this is achieved by providing an opening window equivalent to 1/20th of the floor area of the room with a trickle vent at high level. All new windows must be fitted with highly efficient double glazed units and it is wise to make sure that they contain an opener with a clear area of at least 0.33m² and 450mm wide which should be large enough for you to escape through in the case of fire. This is essential if the door out of your garage opens into a room other than your entrance hall. Special fire escape hinges should be fitted to this window to ensure that it can be fully opened if you ever need it. In bath or shower rooms an extract fan should be fitted and in rooms without opening windows extract fans should be fitted that are triggered by the light switch with overrun timers that allow the fan to remain on after the light is turned out.

Fire Precautions: when you are investing money in your home it is a good opportunity to review the fire precautions that are available in the existing house. Mains operated smoke detection significantly improves fire safety in the home and the Building Regulations require that it should be installed where garages are converted to habitable rooms.

Electrics: you are likely to require some electrical alterations as part of your conversion. Depending on the age and condition of your

existing electrical system it is sometimes possible to extend existing circuits but sometimes new circuits and even a new distribution board will be required. It is a good idea to get advice from a competent electrician at an early stage. When appointing an electrician please ensure that they are able to issue you with BS7671 test certificates when they have completed their installation as these will be required before your Building Regulations Completion Certificate can be issued and you are likely to incur additional costs if the test certificates have not been provided.

Conclusion: a well designed and constructed garage conversion can be a definite asset to your home that can provide useful extra space and add value to your property. A poorly thought-out conversion can reduce your property's value and in some cases compromise your safety and the structural integrity of your home. It is important to ensure that you plan your conversion carefully and get the work carried out by an experienced contractor.

The Building Regulations exist to ensure that buildings are constructed to a reasonable standard; Stratford Building Control will be pleased to provide you with any further assistance that you require during the design and construction of your project.

Domestic Cellar Conversions

Introduction: if you are fortunate enough to have a cellar beneath your house and you need more space you may wish to consider converting your cellar. Your home is probably your most valuable asset so it is important that your conversion project is carefully planned. This guide is not a substitute for professional advice but has been written to provide you with useful information about how the Building Regulations will affect your conversion.

Suitability: if you have a cellar beneath your house it may well be suitable for converting. When you are thinking about whether your cellar is suitable for conversion you might like to consider:-

- Is there sufficient headroom in the cellar, bearing in mind that the ceiling and the floor treatments that you will have to install are likely to

reduce the available headroom?

- Does the cellar ever flood?
- What is the access like? Is there a place for a staircase?
- Will you have enough storage area if you convert your cellar?
- Is there enough room in your cellar to provide the accommodation that you require or would you be better extending the property?
- Is there any ventilation to your cellar or could any be provided?

If you can resolve all of these issues then your cellar may well be suitable for conversion.

How to Proceed: Cellar conversions can be complex projects and unless you are experienced in construction you will need to get some professional advice.



The introduction contained advice about obtaining this and with this in place we can now consider some of the technical issues that affect cellar conversions.

Technical Issues

Lowering the Cellar Floor: if there is not sufficient headroom in your cellar it is sometimes possible to lower the cellar floor. This is not however a simple operation and careful consideration needs to be given to whether lowering the floor will undermine the house or the neighbour's house foundations and whether the floor will end up below the water table and make the property more vulnerable to flooding. Specialist advice should always be taken before considering lowering cellar floors.

Waterproofing: as most cellars are set within the ground they tend to suffer from problems with damp. If it is to be converted to a habitable room your cellar will need to be damp proofed. A number of systems are available for damp proofing cellars and most of them use a proprietary waterproof render system known as tanking. This is applied so that it forms a continuous damp proof layer across the floor and up the walls and is generally installed by specialist companies who will offer an insurance backed guarantee for the installation. Protecting your cellar from damp is an important part of the cellar conversion process and we will need to approve details of the system that you are using and the installer prior to installation.

Access: some cellars already have good stepped access to them, whether the existing stairs will provide suitable access to a habitable room is a matter of judgment and our Building Control Surveyors will

be happy to offer advice. If there are no steps, or if the existing steps are inadequate a new stair will need to be installed. Careful consideration should be given to the best location for the stair and this will be influenced by a number of factors including the layout of the existing house and cellar, the headroom available and whether a secondary means of escape can be provided from the cellar area. Wherever the stair is installed it should be designed in accordance with the following guidance.

Pitch: the maximum pitch for the stair should not exceed 42 degrees.

Rise and going: the maximum rise of each tread of a domestic stair should not exceed 220mm and the going should be at least 220mm.

Headroom: the clear headroom over the stair should be at least 2m, for some loft conversions the Building Regulations allow a reduced headroom of 1.9m over the centre of the stair and 1.8m on the outside edge.

Handrails and Balustrades: the stair should be provided with a handrail at least 900mm high and any exposed edges of stairs or landings should be provided with balustrading at least 900mm high.

Fire Precautions: your cellar will need to be provided with suitable escape routes in case of a fire. If your cellar has a light well it may be possible to upgrade this so that as well as providing ventilation to the room it can provide a secondary fire escape. To be considered as a secondary fire escape it would need to be fitted with a door or window with a clear area of at least 0.33m² and 450mm wide. Special fire escape hinges should be fitted to this window to ensure that it

can be fully opened if you ever need it and you should be able to easily climb up from the light well to ground level. If you cannot provide a secondary fire escape the staircase will need to end up in a fire protected hallway with a door direct to outside.

When converting your cellar it is a good opportunity to review the fire precautions that are available in the existing house. Mains operated smoke detection significantly improves fire safety in the home and the Building Regulations require that it should be installed where cellars are converted to habitable rooms.

Drainage: if you are looking to include a sink, bathroom, shower room or even a washing machine in your conversion it is important that you consider drainage at an early stage. Any new appliances will need to connect to your existing foul drainage system and the drains are usually above the level of the appliances that you wish to install. You are likely to need to install a pumped drainage system and various package systems are available that macerate the drainage and pump it via a small diameter pipe to the existing drainage system. When planning your layouts make sure that there are suitable routes for pipes to run to a point where they can connect to existing drains.

The Ceiling: unless your existing cellar has an adequate ceiling you will need to provide one as part of your conversion. Plasterboard is the most common material used for ceilings as it offers good fire resistance and flame spread properties. Other materials can be used but they will generally need to be treated to improve their fire performance. If either your cellar or the room above is

to be used as a bedroom you will need to install 100mm of acoustic quilt within the floor void between the rooms.

Heating: to maximise the usability of the room you will probably want to install heating, in most instances the most effective way of doing this is to extend the existing central heating system. You will need to check with your plumber or heating engineer to ensure that your existing boiler and pump has sufficient capacity to serve any additional radiators. Any new radiators should be fitted with thermostatic valves to control the room temperature. If it is not possible to extend the existing system, or, if you prefer an alternative method of heating, e.g. electric panel heaters, careful consideration should be given as to how these can be switched and controlled to ensure that they function efficiently.

Ventilation: any new habitable rooms will need to be ventilated and this can sometimes present a problem for cellar conversions. Where the cellar contains a light well this can sometimes be adapted to include an opening window equivalent to 1/20th of the floor area of the room with a trickle vent at high level. In any bath or shower rooms an extract fan

should be fitted and if they do not have opening windows extract fans should be fitted that are triggered by the light switch with overrun timers that allow the fan to remain on after the light is turned out. Where natural ventilation through windows is not practical a mechanical ventilation system will need to be installed and various package systems are available on the market. Ventilation should be considered early in the design stage as, if mechanical ventilation is required, the duct work will need to be accommodated.

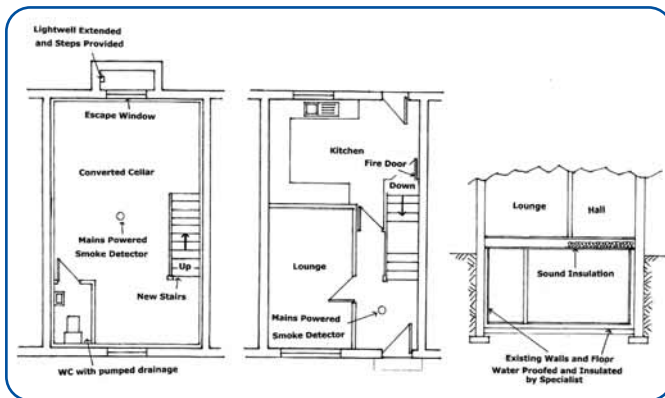
Thermal Insulation: CO₂ emissions are a major concern in today's environment and you will need to provide a high level of insulation within your conversion. Your cellar should provide an insulated envelope so that the amount of heat escaping is minimised. The walls and floor of your cellar are generally lined with insulating boards and the windows should include 24mm double glazing units incorporating low emissivity glass. As well as insulating your extension you will need to consider the efficiency of any services you put into it. Low energy light fittings should be used where possible and any new heating

systems should work to high levels of efficiency and have suitable thermostats and controls.

Electrics: you are likely to require some electrical alterations as part of your conversion. Depending on the age and condition of your existing electrical system it is sometimes possible to extend existing circuits but sometimes new circuits and even a new distribution board will be required. It is a good idea to get advice from a competent electrician at an early stage. When appointing an electrician please ensure that they are able to issue you with BS7671 test certificates when they have completed their installation as these will be required before your Building Regulations Completion Certificate can be issued and you are likely to incur additional costs if the test certificates have not been provided.

Conclusion: a well converted cellar can be an interesting space and can be a great way of getting extra room in your house. Cellar conversions are often not simple projects and a poorly thought-out conversion can reduce your property's value and in some cases compromise your safety and the structural integrity of your home. It is important to ensure that you plan your conversion carefully and get the work carried out by an experienced contractor.

The Building Regulations exist to ensure that buildings are constructed to a reasonable standard; Stratford Building Control will be pleased to provide you with any further assistance that you require during the design and construction of your project.



Other Alterations

Introduction: a number of home improvement projects are covered by the Building Regulations and this chapter sets out to explain how the Building Regulations affect some of the projects that you may be considering.

This guide is not a substitute for professional advice but has been written to provide you with useful information about how the Building Regulations will affect your project.

Removing Internal Walls

Internal walls have a number of functions, some are fundamental to the structure of the house, some offer fire protection to the stairway and others merely divide up the space within the house and can be altered or removed with very few issues.

Load Bearing Walls are fundamental to the structure of the house and careful





consideration needs to be given before they can be altered or removed. Alteration or removal of load bearing walls requires Building Regulations consent and generally speaking a Structural Engineer should be commissioned to design the alteration. The Structural Engineer will consider what loads the wall is taking and will design a beam and, if necessary, other supporting structure to ensure that the loads the wall was carrying are safely transmitted to the ground. We will then inspect the work as it progresses and then issue a Completion Certificate to show that the work complied with the Building Regulations.

The walls around your staircase offer you some protection to allow you to escape if your house catches fire and the alteration of these walls requires Building Regulations consent. If these walls are removed it is essential that your house is fitted with mains operated smoke detection and that all of your rooms have windows suitable for fire escape purposes (see Fire

Precautions Chapter 1). If you wish to remove one of these walls contact us and we will arrange to visit you to establish whether the walls are essential to the fire protection within your house and advise what, if any, additional work is required to allow the alterations to take place.

Bay Windows and Chimneys

In Building Regulations terms these are basically small extensions. They require Building Regulations consent and much of the guidance in the Extensions chapter is relevant albeit on a somewhat smaller scale. Chimneys require lining with a flue liner that is suitable for the fire that they will serve and the installer should test the flue prior to commissioning the fire.

We will carry out a series of inspections on these projects and issue a Completion Certificate when the works are satisfactorily completed.

New Drainage

Replacement kitchens and bathrooms do not generally

need Building Regulations consent but where new drainage is installed to serve a new bathroom or other appliance Building Regulations consent is required. With these projects we will carry out a series of inspections to ensure that the drainage and ventilation is satisfactory and issue a Completion Certificate when the works are satisfactorily completed.

Replacement Boilers and Alterations to Electrical Systems

These alterations require Building Regulations consent although in practice most of this work is carried out by contractors who can self certify their work. Details of the self certification scheme are given in the introduction to this guide and, if your contractor is able to self certify, you will not need to make a separate Building Regulations application.

If you wish to use a contractor who is not registered with a self certification scheme please contact us and we will arrange for the necessary application to be submitted, carry out the relevant inspections and issue your Completion Certificate when work has been satisfactorily completed.

Whichever scheme you use make sure that you get the Completion Certificate as you will need to include this in your Home Information Pack if you wish to sell your house.

Conclusion

This guide has endeavoured to provide useful information about a range of typical domestic projects and I hope that you have found it useful. If you need any further information about a project that you are considering please contact us and we will be happy to provide further advice.

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