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After reading this guide, should you wish to proceed with a project requiring Building Regulations Approval, please ensure that you use **Norfolk** Building Control Services. This is because we provide an independent, impartial, and publicly accountable service which is carried out by a team of experienced surveyors with unrivalled local knowledge. The service is non-profit making and the standards will be implemented fairly and professionally.



This publication is also available as an ebook: www.extendingyourhome.com/norfolk

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Designed and published by LABC Publishing (part of zinc media), Kings House, Royal Court, Brook Street, Macclesfield, Cheshire SK11 7AE. Tel: (01625) 613000. www.zincmedia.com Ref: PXX 2019 © LABC Publishing. All rights reserved.

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INTRODUCTION

Your home is likely to be one of your biggest assets, it is a major long-term investment and over the course of your occupancy your home will have to adapt to the changing needs of you and your family.

Background

Your home is likely to be one of your biggest assets, it is a major long-term investment and over the course of your occupancy your home will have to adapt to the changing needs of you and your family.

Within England and Wales most construction work is covered by the Building Regulations. These are technical standards set by the government and all but the most minor building work carried out must conform to these standards.

The standards cover many aspects of health and safety within buildings as well as energy consumption and accessibility. The Building Regulations are detailed technical standards set to ensure that the building stock within England and Wales is built to a reasonable standard and that it meets the needs of the population.

The Building Regulations are minimum acceptable standards, they do not cover quality of workmanship or finishes beyond that required to ensure the safe construction of the building. It is possible that a building which complies with the Building Regulations may not meet the finishing standards that you require and you should be mindful of this when you are

entering into contractual arrangements with your builder.

There is a legal requirement on both the builder and the owner of the building to make an appropriate Building Regulations Application and to comply with the Building Regulations. Failure to do so can result in prosecution through the Magistrates' Court.

Purpose of this Guide

This guide will take you through the Building Control process. It is not a substitute for professional advice but it aims to show how your project will be affected by the Building Regulations. Separate advice should be sought for Planning Permission. The guide is divided into chapters that contain advice about typical building projects and it is hoped that when you have read it you will have a better understanding of what is involved in a domestic building project.

Domestic projects that may require Building Regulations consent include:

- Extensions
- Garage conversions
- Loft conversions
- Cellar conversions

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- Structural alterations e.g. removing load bearing walls
- Alterations to drainage, hot water or heating systems
- New or replacement windows
- Electrical work
- Replacement roof coverings
- Cavity wall insulation
- Some garages

- Some conservatories

If you are considering a building project and you are unsure as to whether it will require Building Regulations consent please feel free to contact us and we will be happy to advise you.

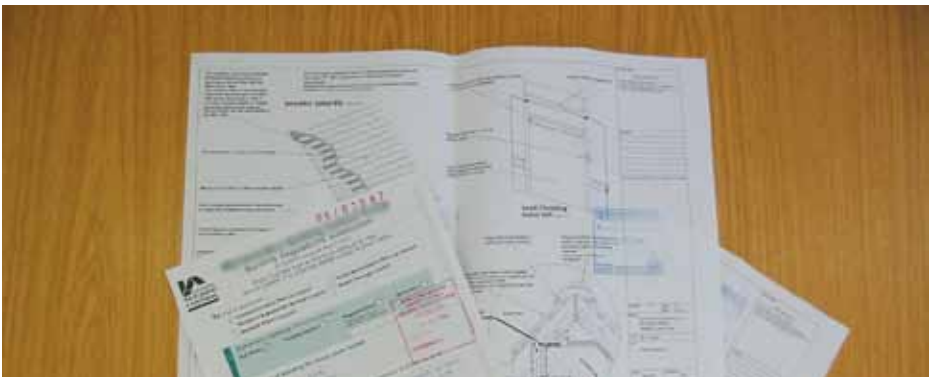
The Building Regulations Process

If your project needs Building Regulations consent you will need to make a Building Regulations application.

How to Proceed

Unless you are experienced in construction you will need to get some professional advice. There are a number of ways of obtaining this including:

1. **Appointing an architect/technician or building surveyor:** these will prepare drawings and designs for your proposal, obtain the necessary approvals and if required they will also help you to find a suitable builder and manage the project for you.
2. **Appointing a design & build company:** these companies offer a one-stop shop for construction projects, their design department will prepare the necessary drawings and obtain the necessary approvals and their construction departments will translate these drawings into reality.
3. **Using an experienced builder:** some builders have experience in carrying out domestic projects and may be able to offer you a package similar to the design & build companies.



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Making a Building Regulations Application

There are two ways of making a Building Regulations application:

Full Plans Application

This is often thought of as the traditional way of applying for Building Regulations Approval. The building designer will draw up detailed plans and supporting information for the proposed scheme and will send them to us together with an application form and the necessary fee. We will then check the details and following any necessary consultations and liaisons with the building designer issue Building Regulations Approval.

Work can start any time after the application has been received although it is wise to wait until the scheme has had its initial check under the Building Regulations, this usually takes between two and three weeks.

Our team of surveyors will liaise with your builder and inspect the work in progress on site. When the project is satisfactorily completed a Building Regulations Completion Certificate will be issued showing that the project has been independently inspected and that, as far as could be assessed, it complied with the Building Regulations.

Building Notice Application

This system is best suited to small projects carried out by a competent builder and is not recommended unless your builder and designer are very experienced in the type of project that you are undertaking and are fully aware of the requirements of the Building Regulations. Under this scheme no formal Approval of plans is issued and work is approved on site as it progresses.

To use the Building Notice process you or your agent will need to submit a Building Notice application form together with a site location plan and the required fee. Work

can commence 48 hours after the notice has been accepted.

When work commences one of our surveyors will meet with your builder to discuss your intentions, to agree how the work should be carried out, agree when the work will need to be inspected and to establish whether any further information will be required e.g. structural calculations or drawings.

When the project is satisfactorily completed a Building Regulations Completion Certificate will be issued showing that the project has been independently inspected and that, as far as could be assessed, it complied with the Building Regulations.

The forms for making a Building Regulations application can be obtained by telephoning or calling into our offices, or can be downloaded from our websites

Great Yarmouth: www.great-yarmouth.gov.uk

North Norfolk: www.north-norfolk.gov.uk

Breckland: www.breckland.gov.uk

Within England and Wales most construction work is covered by the Building Regulations. These are technical standards set by the government and all but the most minor building work carried out must conform to these standards

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Self Certification

To help you to gain Building Regulations approval more easily the government have allowed certain trade bodies to self certify their members' work and to issue Building Regulations certificates. An example of the bodies which can issue these certificates are:

1. **FENSA** – Contractors registered with FENSA can issue certificates for replacement windows.
2. **CERTASS** – Contractors registered with CERTASS can issue certificates for replacement windows.
3. **GAS SAFE** – Registered contractors can issue certificates for installations and alterations to gas, hot water and heating systems so long as the contractor is a registered installer and not just a service engineer.
4. **OFTEC** – Registered OFTEC installers can issue certificates for installation of and alteration to oil burning boilers and appliances.
5. **HETAS** – Registered HETAS installers can issue certificates for installation of and alteration to solid fuel burning boilers and appliances.
6. **Part P** – Electrical Contractors registered under one of the Part P schemes can issue certificates for domestic electrical work.
7. **CompetentRoofer** – Contractors under this scheme can carry out works to your roof either full or partial replacement.

Details of the current competent person self-certification schemes can be found on:
www.gov.uk/building-regulations-competent-person-schemes.

Tips for using Self Certified Contractors

1. Always ensure the contractor is registered for the work they are undertaking, eg. If you are having a new heating system installed ensure the contractor is a registered installer not a service engineer.
2. Always ensure that at the end of the job the contractor issues you with a Certificate confirming that the work complies with the Building Regulations,

you may need this when you come to sell your property.

3. If you are in any doubt about anything either contact the relevant trade association or contact **Norfolk** Building Control for advice.

Other Permissions you may Require

Planning Permission: many domestic alterations will also require Planning Permission, further advice is available from the Planning Portal www.planningportal.co.uk or to confirm



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whether Planning Permission will be required for your project please either contact one of our Planning Officers on **Great Yarmouth: 01493 846169** or **01493 846695**, **North Norfolk: 01263 516150** **Breckland: 01362 656873** or download and complete the householder enquiry form from our website **see back cover for contact details**.

Party Wall Act: if your proposal affects a Party Wall or if you will need to excavate foundations close to your neighbour's house you may need to give them notice under the Party Wall Act. This is a Civil Act and **Norfolk Council** do not have any enforcing power under the Act. A guidance document can be downloaded from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/523010/Party_Wall_etc__Act_1996_-_Explanatory_Booklet.pdf



The Inspection Process

Whatever type of project you are undertaking we will arrange to carry out a series of inspections of the work in progress. Whilst we cannot be on site all of the time the inspections will be carried out at key stages so that we can be reasonably sure that the work carried out complies with the Building Regulations.

We will tailor the inspections carried out to suit your individual project and we will generally arrange these inspections with your builder. If during the project you have any concerns, if you want something specific inspecting, or if you would like to meet to discuss any issues please contact us and we will make the necessary arrangements.

Completion Certificates

When your project has been satisfactorily completed under the Building Regulations we will issue a Completion Certificate.

This is a legal document that you will need if you want to sell your house, you may also need it for re-mortgaging or insurance purposes. Please ensure that we are called in to carry out our final inspection at the end of the project to ensure that your Completion Certificate is issued.



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Use the postcode search on **www.labc.co.uk** to find your local authority building control team.

5 easy steps to use your local authority building control team

1. **Contact** your local authority building control team to find out whether you need building control approval for your project.
2. **Free pre-application advice** is often available before you submit a building regulation application. Use this opportunity to ask any questions you may have about your project.
3. **Submit** your building regulations application and plans to your local authority building control team. They will check your plans to ensure your proposed design meets the full range of building standards including: structural stability, fire safety and energy efficiency. They will give you helpful feedback and suggestions which helps to spot potential problems -saving you time, trouble and expense.
4. **A schedule of inspections onsite** will be agreed once your plans are submitted to check work as the build progresses - making sure your project is safe, legal and helping to resolve any technical issues.
5. **A completion certificate** will be issued at the end of the project, which you'll need when you sell your home.



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DOMESTIC EXTENSIONS

If you need more space and you do not want to move house you may wish to consider extending your home. Your home is probably your most valuable asset so it is important that your extension 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 extension.

Suitability: most houses are suitable for extending, providing that you have the space. When you are thinking about whether your house is suitable for extending you might like to consider:

1. How will you access your extension?
2. What effect will your extension have on the circulation in and around your home?
3. What effect will your extension have on your existing house and garden? Will it block out light from existing rooms or make some rooms unusable? Will you still be able to get into your garden?
4. Is your existing house built from an unusual construction for example prefabricated panels, concrete frame etc?

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

How to Proceed: extensions 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 domestic extensions.

Technical Issues

Foundations: the foundations are one of the most important parts of your extension and often one of the most expensive. For domestic extensions concrete trenchfill foundations are the most common, these should be taken down into firm natural ground and should generally be a minimum of 450mm to 1m deep, depending on your location and the ground conditions. In areas with clay subsoil trees up to 20m away can have a significant effect on foundations which generally means that they need to be



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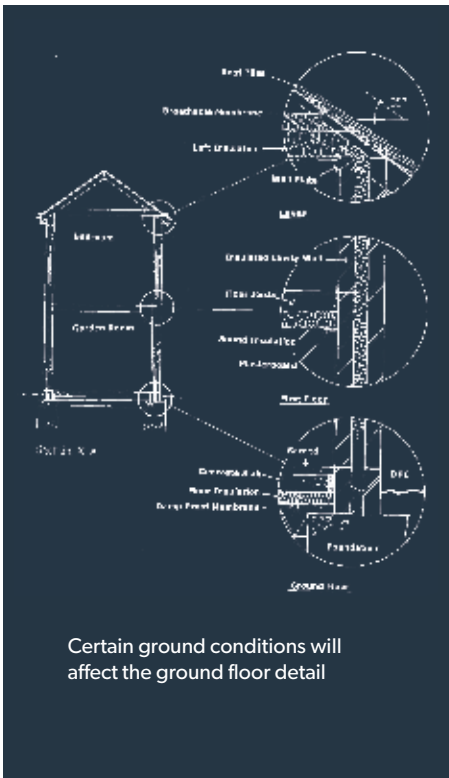
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YOUR HOME IS PROBABLY YOUR MOST VALUABLE ASSET SO IT IS IMPORTANT THAT YOUR EXTENSION PROJECT IS CAREFULLY PLANNED



deeper, sometimes as deep as 2.5m. If you are concerned about any trees please get in touch with us and we will give you some advice regarding foundation depths.

Ground Floor: the ground floor of your extension performs a number of tasks: it must support the floor loading, keep out damp and provide thermal insulation. A common method of ground floor construction is a multilayer structure, the top soil under the extension floor area is removed and a layer of compacted stone is placed over the site. This is covered with sand and a layer of 1200g polythene is then placed over the sand and lapped in with the damp proof course in the wall. A layer of insulation is then provided and a concrete slab at least 100mm thick is poured over the insulation (some insulation may require an additional membrane). 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.



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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 insulated 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. The

joists 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, 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 or supporting beams which are then covered with a plywood

IT IS IMPORTANT TO ENSURE THAT YOU PLAN YOUR EXTENSION CAREFULLY AND GET THE WORK CARRIED OUT BY AN EXPERIENCED CONTRACTOR



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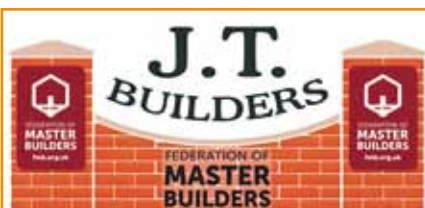
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decking laid on furring strips to provide a fall. Thermal insulation is then placed over the decking and generally finished with a waterproof covering of three layers of bonded roofing felt. Where insulation is provided below the decking it will require a 50mm void below the decking that is insulated on both sides. 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, that are then delivered to site ready for installation. Each roof is individually designed by the roof truss manufacturer using specialist computer software meaning 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 timber roof frame 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 using timber battens. 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.

DID YOU KNOW?

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

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 pitch line of 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. You should not have any opening in the balustrade that exceeds 100mm, this is to prevent young children from falling through it.

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 advise 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 and 450mm high and cill height not more than 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, with the window having 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, 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 Gas Safe for gas fired boilers or OFTEC



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 of 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.

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.

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; 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

...A WELL CONVERTED LOFT IS A DEFINITE ASSET TO YOUR HOME, IT CAN PROVIDE USEFUL EXTRA SPACE AND ADD VALUE TO YOUR PROPERTY.

Introduction: most houses have a large space under their roofs normally known as the loft or attic, a space is often under-utilised and, which 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 and the insulation to the roof may lower the height by up to 150mm.

- 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 increased loadings. A new floor structure will usually be required and it is likely that a number of the structural elements will usually 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

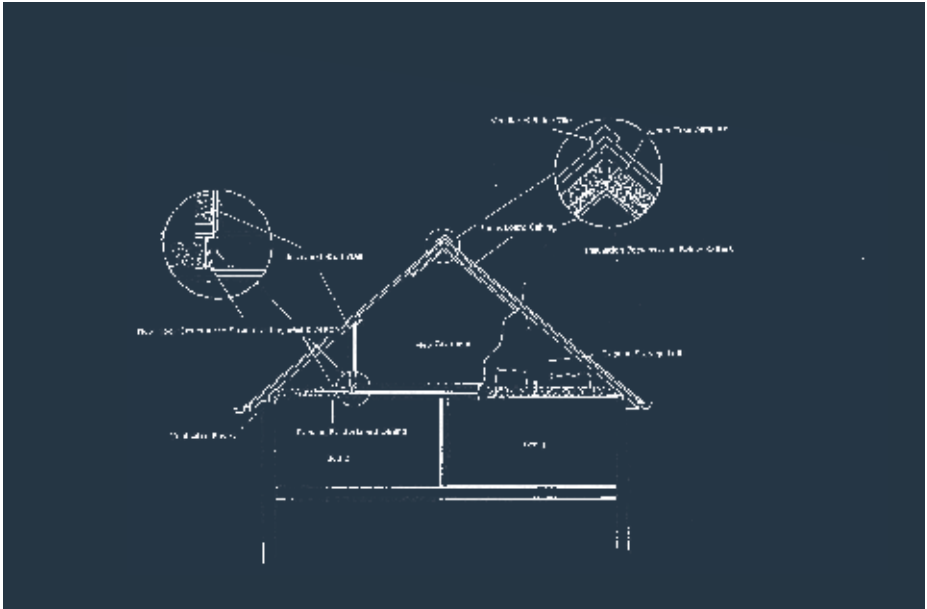
complex pieces of engineering and they should not be altered without the advice of a structural engineer. When converting this type of roof it is common for a series of beams to be installed to provide support to the new floor and to strengthen the rafters, this allows the bracing sections of the trusses 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



...IF THE ANSWER TO ALL OF THESE QUESTIONS IS 'YES' THEN YOUR LOFT MAY WELL BE SUITABLE FOR CONVERSION.



existing ceiling joists and rafters, this can adversely affect the value of your property, negate your building insurance and in some circumstances can cause overloading and endanger the structural stability and occupants 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 steeper traditional staircase may be acceptable where floor space is very restricted. Where you propose this solution you are advised to speak with our building control team at an early stage.

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



...LOFT CONVERSIONS ARE COMPLEX PROJECTS AND UNLESS YOU ARE EXPERIENCED IN CONSTRUCTION YOU WILL NEED TO GET SOME PROFESSIONAL ADVICE.

have mains powered, interlinked smoke detectors in the hall/landing areas on every floor of your house.

Single 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 down the stairs you could jump 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 wide and 450mm high. The bottom of the opening light should be no more than 1100mm above floor 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.

Two 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, due to the height of your new floor, you can no longer rely on escaping safely through the windows. The only safe way out of the house is now down the stairs. So 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 twenty-minute rated 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.

Three Storey Houses: if your house already has three storeys and you wish to add one or more additional floors, 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

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.



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.

Heating: to maximise the usability of the room you will probably want to install heating and 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 will 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; **Norfolk 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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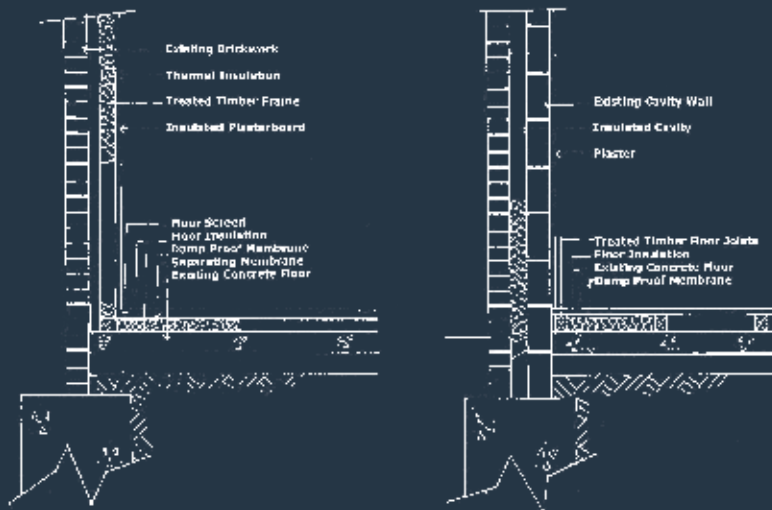


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GARAGE CONVERSIONS

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.



Certain ground conditions will effect the ground floor detail

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 choose 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 house, 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 meet current energy efficiency requirements. 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. It is critical to ensure that any damp proof membranes provided to the floor are continuous with those in the walls, which are often at a higher level.



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. This type of floor will have to be ventilated though to prevent the build up of damp.

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 and will usually require additional work for damp protection and thermal efficiency. They are sometimes formed from a single thickness of brickwork and even when built from cavity masonry they are often uninsulated.

The three main areas of concern when upgrading walls in a garage conversion are: 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.

BEFORE

AFTER



DID YOU KNOW?

“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”

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 an insulated 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 many 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 and 450mm high. This 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 will 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; **Norfolk 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

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.

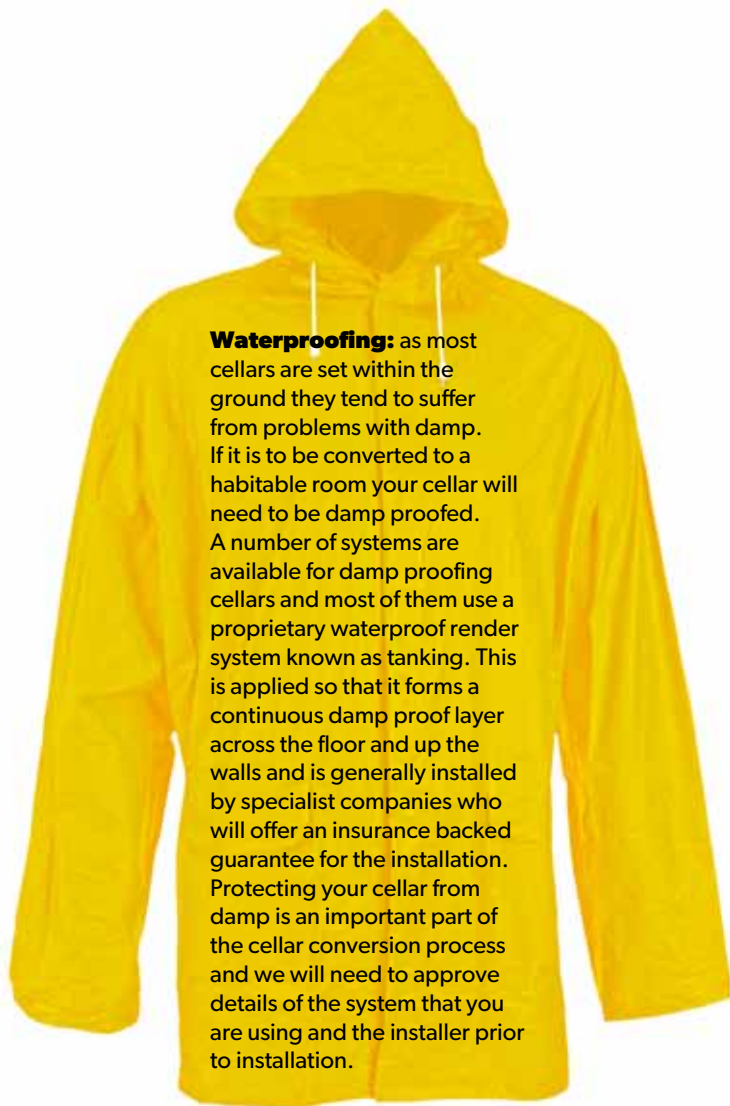
How to Proceed: Cellar conversions can be complex projects and unless you are experienced in construction you will need to get some professional advice. The introduction contained advice about how

to select professional advice 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

DID YOU KNOW?
"the maximum pitch for the stair should not exceed 42 degrees."



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.

water table and make the property more vulnerable to flooding. Specialist advice should always be taken before considering lowering cellar floors.

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.

...A WELL CONVERTED CELLAR CAN BE AN INTERESTING SPACE AND CAN BE A GREAT WAY OF GETTING EXTRA ROOM IN YOUR HOUSE.



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: there are no reductions permitted – it is a simple 2m minimum above the pitch line.

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 and 450mm high. 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

DID YOU KNOW?
"any new habitable rooms will need to be ventilated"

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 will 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; **Norfolk 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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OTHER ALTERATIONS

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 any 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 – Domestic Extensions). 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

Like for like 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 some self certification schemes 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 this if you wish to sell your house.

Conclusion

This guide has endeavoured to provide useful information about a range of typical domestic projects and we 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.

RADON

Radon is a natural radioactive gas. You cannot see, smell, hear or feel it. It comes from minute amounts of uranium that occur naturally in all rocks and soils and the air in all buildings contains a degree of radon.

The gas can move through cracks and fissures in the subsoil and eventually to the atmosphere. Most of the radon will disperse harmlessly but some will pass from the ground and collect in spaces under or within buildings.

Some areas of the country might have unacceptably high concentrations unless precautions are taken.

The level of radon protection required to your extension depends on the location of your property. This can be determined either by consulting your local **Norfolk Council Building Control Services office** or by accessing the maps on the Building Research Establishment website.

The maps indicate the highest radon potential within each 1-km grid and determines whether full or basic radon precautions are required or if radon protection is not needed at all. More accurate information is available from the Public Health England or the British Geological Survey.

Radon protective measures can be included relatively easily and cost-effectively within extensions to dwellings.

All extensions to dwellings which fall within a full or basic radon protection area will be required to incorporate an appropriate level of radon protection if a new ground floor is provided.

Full radon protection

The damp proof membrane (minimum 1200g) acts as the radon barrier. It is important that the membrane extends through the cavity and is linked with a cavity tray. A subfloor sump is also required. Where the existing house has a solid floor the sump could be used to reduce the level of radon in both the extension and the existing building.

Basic radon protection

Only the continuous damp proof membrane is required.

The detailing in both cases will depend on the type of construction used and the positioning of the damp proof membrane, your local surveyor will be able to give you further guidance.

Wherever possible the construction joint between the new floor and the existing house should be sealed. Where radon barriers have been incorporated in both the new floor and the existing floor, the aim should be to join the two barriers where they meet within the wall of the house. This is difficult to achieve in practice without

damaging the existing barrier and a simpler alternative is to cut a chase in the wall slightly above or below the existing barrier in which to tuck the new barrier.

If the existing house has a beam and block or suspended timber floor, care should be taken to ensure that the provision of subfloor ventilation is maintained.

It is recommended that you have your house measured for radon before plans are prepared. Ideally measurement should be over at least 3 months; Public Health England can provide detectors for this purpose. If your dwelling is found to exceed the current recommended action level, appropriate protection measures can be incorporated into your building project.

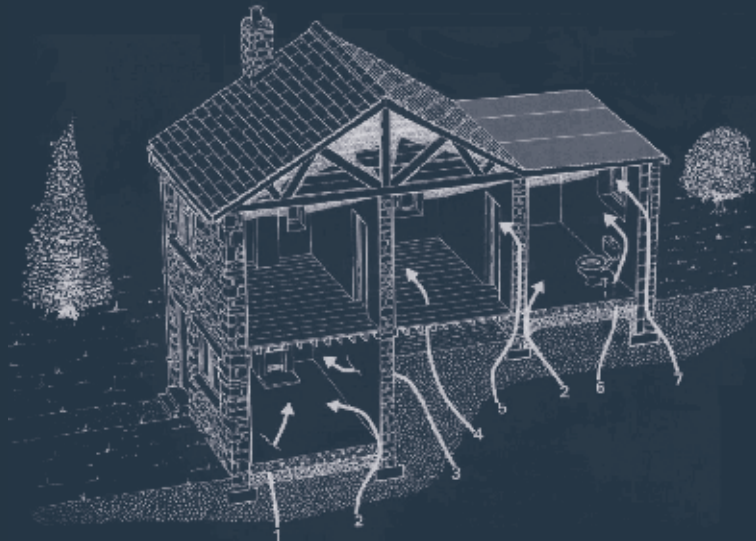
Useful contacts

Centre for Radiation, Chemical and Environmental Hazards
Chilton, Didcot,
Oxon, OX 11 0RQ
www.ukradon.org

Building Research Establishment
Garston,
Watford, WD25 9XX
www.bre.co.uk/radon

British Geological Survey
Keyworth,
Nottingham, NG12 5GG
www.bgs.ac.uk/radon

Figure 1 Routes by which radon enters a dwelling



Key to ingress routes

- | | |
|--|-------------------------------------|
| 1 Through cracks in solid floors | 4 Through gaps in suspended floors |
| 2 Through construction joints | 5 Through cracks in walls |
| 3 Through cracks in walls below ground level | 6 Through gaps around service pipes |
| | 7 Through cavities in walls |

MINING



BRITAIN'S INDUSTRIAL HISTORY CREATES PROBLEMS FOR DEVELOPERS IN SOME AREAS WITH RELATION TO GROUND STABILITY, FOUNDATION DESIGN AND CONTAMINATED LAND.

There are areas within Britain that have historically been heavily mined. Specialist investigations are required to assess the risks associated with building on land that is affected by a history of mining.

For new buildings and areas of concern, initially a desk study is required to assess the risk to the development. A desk study is carried out by a suitably qualified person who will investigate the possible risks associated with mining using maps and archive records. This report will then provide recommendations and a conclusion. The recommendations will normally say either that there is minimal

risk from mining activity or that further investigations are necessary.

If further investigations are required this will involve site investigations. Depending on the nature of the ground the investigations can range from the inspection of the foundation trenches to a full trench survey of the site. The investigations can reveal the following problems:

- **Filled Ground** – In areas that have been mined it is usual for mine waste to be used to fill over natural ground. These areas are not obvious as they may have been filled many years before. This is a common problem and can usually be

overcome. Suitable load bearing strata can usually be found but at greater depths. This may impact on the amount of concrete used to fill the foundations and thus increase the cost of the substructure. Trial holes taken at an early stage can assist in planning and costing the scheme.

- **Shafts** – These are vertical features found frequently in mined areas. Most are in known locations and are noted on the desk study, however, others can be discovered during the site investigations. Shafts are normally capped under the guidance of a structural engineer. The structural caps can usually be built over, however, guidance will be required from the structural engineer.
- **Adits** – These are horizontal features found infrequently. Adits will require

investigations by a suitably qualified mining engineer to ascertain the extent and nature of the feature. They will then advise on the best possible course of action.

- **Trial holes** – These are features where shafts and adits have been started but never completed. Trial holes are frequent in these areas and usually easily dealt with. The holes can usually be excavated and backfilled with concrete once a suitable base is located.
- **Contaminated land** – The filled material is usually excavated mining waste. This material can be contaminated with arsenic and sulphates.

If high levels of sulphates are found they can affect the concrete mix that is required.

SELLING YOUR PROPERTY

When buying and selling a house it can be a stressful and daunting process. In order to assist you in ensuring that some of the problems commonly encountered when selling a house are dealt with at an early stage with the help of Building Control it may be possible to reduce the chance of delay or the risk of losing that important sale.

How can Building Control assist with selling your home?

During the conveyance process your solicitors will normally require you to fill out a fixtures and fittings document. Within this

document you are required to identify any building work that has been carried out that required a Building Regulations application. If alterations and extensions to buildings have been carried out without Building



Regulations approval, these will come to light during the purchasers' solicitor sales investigations, if the relevant completion certificates are not in place then this could delay the sale of your property.

I have Building Regulations approval but I do not have a completion certificate.

If an outstanding Building Regulations application is in place, but a completion certificate has not been issued, then it is important to arrange for one of our Building Control team to carry out the completion inspection at the earliest opportunity, so that upon satisfactory inspection of all relevant aspects of construction a completion certificate can be issued ready for the solicitors.

Work has been carried out but I wasn't aware I needed a Building Regulations application.

This guide has been published to avoid this happening however if you find yourself in this situation it will be necessary to apply for a Regularisation Certificate. This is a retrospective Building Regulation application that can be used for any work carried out after 1985. In most cases the work will have been finished, this means that certain elements of the work may need to be opened up in order to establish compliance with the Building Regulations.

Contact Building Control

If you have any questions or would like to arrange for us to visit your property to carry out an inspection please contact us using the details contained in the contacts page.



AND FINALLY – HOW TO SAVE MONEY

As you progress with any project you will undoubtedly become aware (if you are not already) that building work is generally expensive, causes disruption, mess and dust and usually takes longer than expected. These may all be good reasons for using the opportunity to consider undertaking some additional energy saving measures at the same time. After all, the cost of installing loft insulation is likely to be insignificant compared to everything else happening, but will quickly result in savings in heating costs as well as improving the comfort of your home. There are many other possibilities with short payback periods, so

why not look at the Energy Saving Trust for some good ideas?

[http://www.energysavingtrust.org.uk/
domestic/improving-my-home-0](http://www.energysavingtrust.org.uk/domestic/improving-my-home-0)

Conclusion

This guide has endeavoured to provide useful information about a range of typical domestic projects and we 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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