Renovation Secrets

How to double or even triple your property renovation profits (& keep your nerves intact too!)

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Dedicated to:

Joyce, Morgen and Cole. Thanks for your patience and support!

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As with all investment advice, you are advised to take proper financial and legal advice at all stages. Investment values can decrease as well as increase!

As authors we have endeavoured to deliver information and advice of the highest quality, however you are advised not to rely on this ebook as your sole source of advice.

The basic principles in this ebook are founded on substantial experience and backed up by statistical evidence. However, please take care - not every property behaves as the 'average' - there are always lots of risky options around and we encourage you to take full and good advice on any investments or purchases that you intend to make. Equally, the nature of markets is that they are unpredictable.

Don't forget the story of the statistician who drowned in a river that was (on average) only 1 metre deep!

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Table of Contents

1. Forward

Little has changed in the renovation market since Renovation Secrets was first published in mid 2002. The housing market has of course been cursed as ready to crash every month since this book hit the stands. With the exception of a few isolated falls however, the market has continued to surge ahead.

The long term indicators (mainly employment, interest rates and housing demand) continue to predict decent conditions for us developers. Indeed, times are even better than they seem. Public sentiment, driven by pessimism amongst many forecasters and by international events, is holding the market below where it could be. This ongoing theme of hesitation amongst many buyers will continue to provide availability of good stock for the rest of us!

Strangely, in spite of buyer hesitation, the long term need for housing continues to outstrip supply. A quick look at the underlying factors reveals that population growth and tendencies toward smaller family sizes will consume all of the new houses being built and more besides. The building industry continues however to be severely constrained in the number of homes it can generate by lack of qualified people and planning delays.

The bottom line is that buyers are nervous and reluctant in many ways but they are still there in numbers and they still outstrip by a good margin the number of decent homes available. For renovators, the challenge is simply to produce homes that are the pick of the bunch. They will then consistently have plenty of interest in their properties and this will drive up the price. Buyers may be reluctant, but give them a good excuse to jump on the bandwagon and they will be there in droves!

Don't forget that we Brits put our houses above almost everything else. If we can better ourselves, then it won't take much for us to throw our inhibitions away!

We have recently of course seen a surge in house prices outside of the home counties region. This is a regular cyclical effect that is driven by a shift in perception about the value of living in or close to London.

The effect of this has been that many outlying regions are now seeing the same skills shortages that the home counties have seen for a decade. Plumbers and electricians are commanding salaries in excess of accountants and lawyers. Good bricklayers are impossible to find and even harder to hang on to. This theme will continue to be the renovators' number one challenge for years to come.

There isn't a simple answer.

The best I can offer is for you to be a good employer. Consider that when times are good, as they are now, that market forces will redistribute wealth according to rules that are difficult to change. If you have to pay a little more, then do so rather than halt your own progress!

And finally, my prediction for beyond 2004?

It's really looking very good for all of us!

Good fundamentals will sustain demand. The British love affair with the home will deepen. Uncertainty will continue (but will become more acceptable as the norm). Labour will become harder to find and more expensive. Materials will continue to reduce in price (apart from insulation which will become 10% of a homes cost!).

Then….look toward the Euro. The day we can buy a mortgage from a French bank at 3% will put 20% on house values. That will be a good day for us all!

So enjoy this latest edition of Renovation Secrets. Absorb its ideas and enjoy making huge profit from your renovations!

Sean, July 2003

2. Introduction.

Welcome to **Renovation Secrets**!

You have, like many others, decided that you want to profit from the property market. Who can blame you!

Investments in property can significantly outperform other types of investment. Properly equipped, you can even make good profits in bad markets!

The Companion ebooks in this series, Property Developer Secrets and Buy to Let Secrets (both available from www.propertysecrets.net) and give you crucial advice in the strategy of buying to let or buying to sell for a profit.

These ebooks also introduce the concept of renovating as one way to add value and give excellent advice on making the right commercial decisions.

They then go on to talk about important issues like buying right, selling and raising finance. If you are new to the property development or rental business, you must read these ebooks!

Renovation Secrets focuses on projects where a serious degree of renovation is required and where the renovation is the primary source of "added value".

Renovation Secrets is for people who are in the business of making money from property development. It will give you eyes that see property renovation as someone who has done it for twenty years.

- You will know how to look at a property and quickly **recognise a property's opportunities and challenges**.
- You will be able to assess the quality of tradesmen's work.
- You will be able to choose between different renovation options in terms of cost, time and other factors.
- You will know how to decide whether to Do It Yourself or call in the experts, or most likely a combination of the two.

Renovation Secrets is not a DIY reference, there are plenty of good DIY books and we will recommend at least one www.finddiy.co.uk/diy_books.html.

Renovation Secrets is not even a technical ebook even though it discusses technical subjects.

This ebook is an “advice” ebook. By all means buy a good DIY reference to supplement it, but use this ebook a source of advice. Use it like a friend in the trade. It will be the best friend you ever had!

5 Key Points of Renovation Secrets

1. How to assess a property for purchase.
2. How to judge the opportunity and costs for your project.
3. How to choose the right approaches to save money and time and still get the same return.
4. How to use your skills and manage the skills of others to best effect.
5. How to get materials at the best possible prices.

Key Tip

If you don’t remember anything else remember this: Your goal is to maximise profit. Each and every deviation from this philosophy will cost you money

3. The right strategy to maximise profits

This chapter is a summary of what could be many large books. It talks about the key elements of your profit maximising strategy. After reading this chapter you will understand:

- The importance of linking potential improvements with real buyers and how to do this.
- **The importance of location to your profits** and how location affects your renovation choices.
- The link between buyers, buyer wants and the location of the property.
- The things that motivate a buyer to make a purchase.
- The concept of “adding value”.
- **The four main categories of improvement** you can make and the importance of each.
- **The importance of being prepared** and how the first steps you take are the biggest ones.

One key point will be emphasised over and over in this ebook. It is be made in many different ways and it is essentially about up front planning.

Let me give you a comparison…

> "Imagine for a moment you are lost in a desert…desperate to find a water hole.
>
> "You choose a direction based on the information that you have and you start walking.
>
> "How many steps do you take before you start to doubt your decision on direction? Certainly not one or two! “
>
> "It is almost certain that you will go far enough that, if you have chosen a completely wrong direction, you will not have the energy to go back to the beginning and start again!"

The point is that the first steps are the most critical, so be well prepared!

3.1 Improvements that generate "bang for the buck".

The table below contains lists of possible renovation work you could choose to carry out. They are categorised into "cosmetic", "major" and "structural" in order to give you a sense of scale for each one.

Minor Renovation	Major Renovation	Structural Renovation
Patching and Painting. Flooring. Kitchen. Bathroom. Lighting. Fireplaces. Finish carpentry.	Wiring. Plumbing. Re-plastering. Roofing. Central Heating. Rain guttering. Weather boards. Replacement windows. Conservatories.	Interior openings. Loft conversion. Bigger Windows. Conservatory. Roof structure. Damp proofing. Drainage system. Extension. Extra bathrooms

3.2 Buyer clusters, buyers, buyers needs and locations

It is crucially important that your strategy considers the relationship between buyers, buyer needs and locations. These factors interrelate very closely.

Use the following examples to create your own buyer models. Remember one key point. There are clusters of people who are on a property ladder of some kind. In technical terms these are known as your "market segments". Most people are not on a property ladder and are of little interest to you. They are in a segment called "not moving". Consider first some of the market segments below. Identify your own, more specific segments based on your own local knowledge.

- Single male / female.
- Young couple.
- Young couple + child present or on way.
- Growing family couple.
- Middle aged couple, mature family size.
- Mature family, kids leaving nest.
- End of career couple.
- Widow / widower.

- Not moving.

Look at the following examples and then construct your own for your prospective property.

Buyers Zack and Claire are in their mid twenties, both working, no children present or on the way. Both busy, growing income, social life important. They are drawn to the following features in a home:

Close to facilities like restaurants, entertainment, convenience shopping etc.

Possible walk, bike, tube to work (avoiding 2x cars and/or long commute).

Like a simple, efficient pleasant home.

Like to entertain small groups in a semi-formal, fun way twice a month.

Need to work at home so like a private space.

Always in a hurry (power shower is good).

Kitchen needs to be smart, but minimal cooking time.

Need 1x bed a guest room.

Good to have bathroom to guest room.

A huge garden is a disincentive.

A low maintenance deck with a bit of privacy and south facing would be great for the summer nights.

Buyers Bob & Daisy have a young child, James.

Like all parents, they are worried about schooling and want to move to a good school catchment area.

They want to be away from traffic due to the safety risks.

They want to live somewhere where the kids can play with other kids.

Their partying days are over, they will be eating at home as a family.

Entertaining is a less frequent event but kitchen needs to work well as its in constant use.

More kids are planned so plenty of bedrooms required.

Want to opt out of the City bustle, no time for that with kids.

A good utility room for laundry work is an increasing need.

A garden would be great so the kids can play safely.

Key Tip

Build your buyer profiles with help from estate agents. There will be more than one potential segment interested in your property so build a balance of features. Focus on the segments that your property most closely fits with.

3.2.1 Key factors that sell properties

Here is a list of key factors that sell properties. Remember that the relative importance of each of these factors is dependent on the location, the buyer and the buyer's needs.

It's your job to decide (after talking to estate agents, developers, potential buyers and reading the local newspaper) which are most important for your project.

- Schools.
- Convenient access to facilities, work etc.
- Good Community / Safe.

- Sense of community.
- Privacy.
- “Kerb appeal”.

- Good Kitchen.
- Number of (decent) bathrooms.
- Number of (decent) bedrooms.

- Good mixture of private and public “living” rooms.
- Good garden with a southerly aspect.
- Good natural light.

- One or two great features – period or contemporary (whatever fits with the property).
- Storage space.
- Peace and quiet.

3.2.2 Key factors that stop houses selling

Just as important as the 'factors to sell a property' is the decision or ability to get rid of factors that stop the property selling. These include:

- Anything perceived as a major technical problem (e.g. roof is falling apart) - which you will soon be able to resolve with the help of **Renovation Secrets**!

- Any of the above missing in a significant way and of concern to the buyer - which you may or may not be able to resolve by renovation.

3.3 New insight on the importance of Location

Everybody understands about locating being king. Here’s a view on it you may not have heard!

The best opportunity for renovation is a property that is priced well below neighbouring houses.

This is an obvious point and everybody knows it. Availability of this type of property is becoming shorter and shorter. As demand for renovation opportunity increases, many houses in need of attention are priced higher to reflect their potential more than their bricks and mortar value.

In fact, you can often make a hefty profit by buying a location with a poor property, getting planning permission to knock it down and selling it as a building plot! Look for this as an option as demand for building plots is sky high!

In a period of sustained economic growth, demand for better property increases. The housing market is like a rubber band and in prosperous times, it stretches itself out in terms of price.

In prosperous times, location is more important than ever before. All this means is that you have to work harder to get these locations. They do still exist however!

Key Tip

Consider avoiding properties with a "needs attention" flag flying over them. They are people magnets. Look in other places for an imbalance between property and location and go for these!

3.3.1 Property, price increases and drop off in demand

Economists use a term "price elasticity of demand" which in plain English means that demand drops off as the price increases.

Consider this example of 'price elasticity'

Let's say that Ferrari bring out a new sports car at £60,000.

If this car is priced 20% higher demand may drop off by 1%.

Say NSU bring out a car priced at £5500. At £6000 demand may have fallen 80%.

Demand for housing works in a similar way.

As prices go up, demand drops off (or tends towards zero) for a particular price in a particular location. However, there are some very important differences:

Premium locations can still have demand at prices that seem ludicrously extreme. And whilst demand may be low, it only takes one buyer to make a sale!

Hence, in a street of houses worth £600,000+, it would be common for one particular house to go for £2M if it has appeal to a certain buyer.

Whereas;

Undesirable locations conversely have a very tight price band. In one street of terrace houses selling for around £50,000, it would be unlikely that doubling the property size and doing a complete makeover would raise the value much above £60,000!

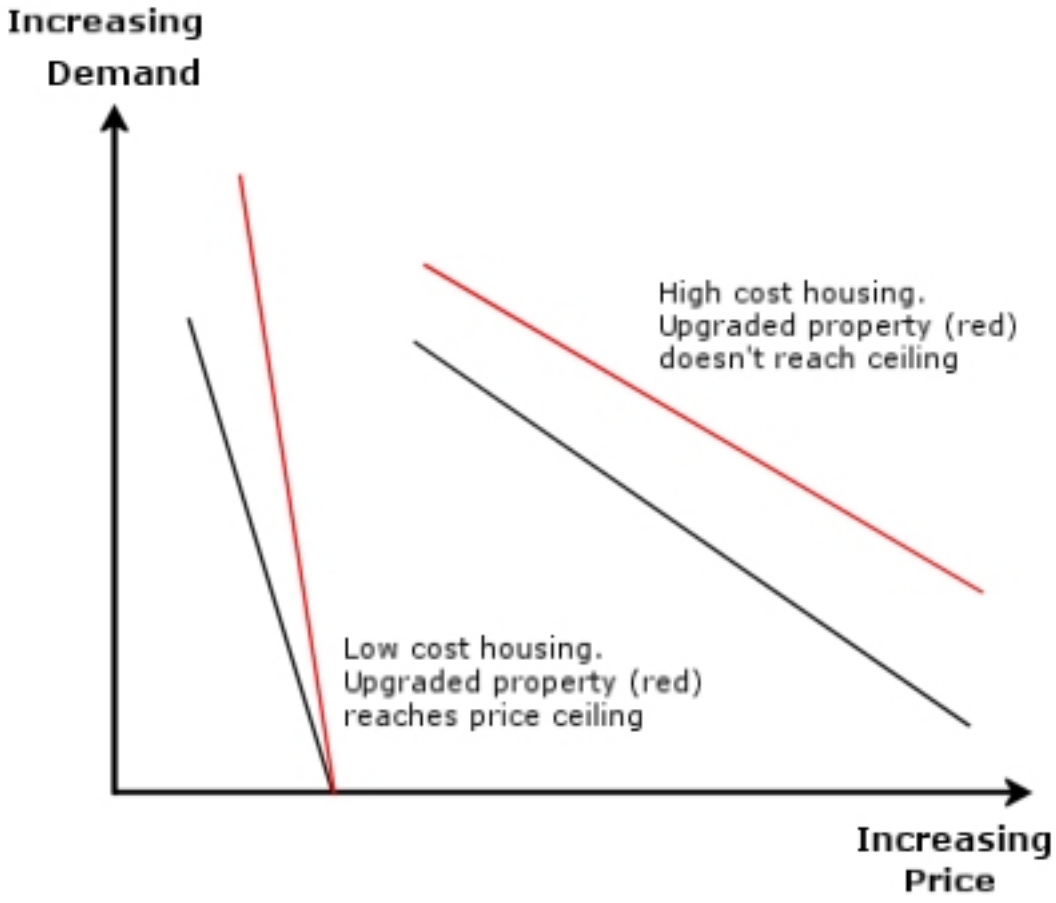
So, different locations will respond differently to price increases!

In addition, some observers will comment that some improvements do not increase the value of a property; they simply "make it more saleable".

What actually happens is that the improvements shift the property onto a new price demand curve. Demand will be improved and this can be translated into price increases.

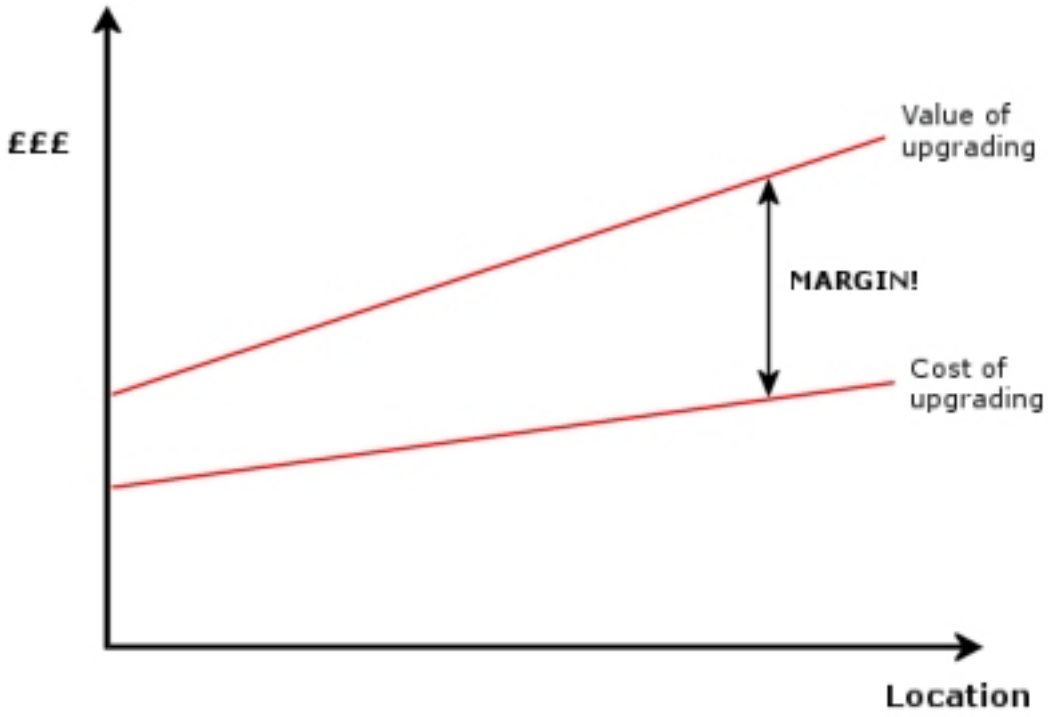
The only time this doesn't work is when a hard ceiling is reached or approached.

As you reach this limit (or hard ceiling), large-scale improvements can only yield small or non-existent gains. Whereas, the demand curve for premium locations takes a long time to get to zero!



Another advantage with premium housing is that the cost of improvements is not directly related to the 'added value' of the improvements.

That is because many costs stay the same for both premium and undesirable locations (such as Sand, cement, pipe, cable and plaster to name a few).



So the key to maximum profit from your renovation work is to find a property that has a potential selling price much in excess of its cost.

And in many instances, this will lead away from 'undesirable' locations towards prime locations.

3.4 Great locations within great locations

There are some great places to live (in terms of amenity, facility etc) in some pretty low demand areas. The ultimate location is… the right street, in the right village attached to the right kind of town, in the preferred corner of the country.

In this instance, demand is of course unstoppable. Potential uplift in value is at its greatest!

So…there you have it. You've always known location is king. Now you know a little more about why!

Great locations AMPLIFY your input ££. Find a great location, and for each £ you invest you can expect a greater return!

3.5 Understanding Why people buy - Needs or wants?

Here's a little philosophical question…

Will people buy a home based on needs or based on wants?

There is no clear answer.

Family a) will buy a 5-bed house that they are not exactly in love with because they have 4 teenage kids and need the room and it is all they can afford. (Here they are buying based on needs - not wants)

Buyer b) will buy a car he cannot even come close to affording because its made in Munich and has a CD multi-changer. (Here Buyer b) is buying something he doesn't need - he just wants it!)

The best answer is to appeal to both to some degree with a mixture of practicality (needs) and "**Munich**" appeal (wants). (Feel free by the way to borrow and spread this latter term. It's fun to hear these things back!)

3.6 Establish balance or lose the plot!

Consider a "typical" refurbishment project. You are faced with a guide budget that you have calculated:

Sale price – Costs = Required 20% margin

Your potential project is a little Victorian two bed, one bath. The kitchen is a mess and so is the bathroom. You know these are two of the key refurbishment areas, but you don't have the budget to do both.

Let's say that you bought the property and decide to renovate the kitchen only. You produce a finished property that has a great looking kitchen and a dodgy bathroom.

Have you done the right thing?

Okay, let's consider where this has put you in relation to where you started out, you have:

- Created **one major positive** i.e. the kitchen and
- Retained or probably greatly **exaggerated a major negative** (the bathroom)

Where does this put you? Are you better off, worse off, or in the same boat?

In most scenarios, you are far worse off with a great kitchen but shoddy bathroom! (Okay, I know there are exceptions, but generally speaking it is better to maintain a balance)

The point of this scenario is that with any renovation you are faced with a myriad of choices.

Golden Rules: You must maintain balance to your renovation. Don't spend all your money on just one room!

You will already know that some of these improvements have greater benefits, more “bang for the buck” than others, but you are restricted by a limited budget (which you need to maintain if you are going to make your margin).

Hence, even though a new kitchen would give you a great return or 'bang for your buck', if you spend your whole on just this one room, you'll be worse off than when you started, because you'll simply exaggerate the remaining negative factors (e.g. bathroom etc).

So, **develop a vision of what you want to achieve**.

Remember, each potential improvement interacts and largely works against the others. This is the joy and challenge of what you are embarking on!

So far we've been talking about the '**opportunity'** of adding value.

It’s the **opportunity** to do something that will generate a greater sale price or rental value.

However, **Renovation Secrets** is about the '**challenge**' side.

Renovation Secrets is essentially about the cost side of your “cost - benefit” analysis. It positions you to deliver opportunities as efficiently as possible. It does this by giving you “expert eyes” and a set of tools that allow you to translate (or “leverage” to use a popular term) your knowledge into profit.

3.7 Adding value and maximising profit!

Property investment is not all about location; it's about a location that has a willing buyer at a price that makes you a profit.

A good location always has strong demand but remember that this demand must translate into a willing buyer at the right price. There will always be a buyer at some price. Your goal is to position your property so that it is the right property in the right location at the right price.

Golden Rule: Property Investment in not just about location - it is the right property in the right location that sells for the right price

When you buy a property in the right location, you are buying a fruit from the right tree.

You've already got the first bit right!

At this point however, you haven't added any value. If you sell on, you are likely to sell for roughly the same as you paid.

To make a profit, you must add things that enhance the value beyond their cost. The change in 'value' must be greater than the cost incurred by you.

In simple terms, with profitable renovation you will have performed a miracle of mathematics:

2+3=6

Remember, in order to deliver your goal (MAXIMUM PROFIT), you must have two things:

- A strategy that, if successful, will deliver a profit. I.e. 2+3=6.
- Control over "3".

"2" is the cost of buying.
"3" is the cost of renovating.
"6" is the selling price.

The strategy is of course crucial. It defines the POTENTIAL for how much "6" (selling price) may be. It also helps to establish and control "3" (cost).

… and that's what Renovation Secrets is all about! Showing you the trade secrets and insider tricks of how to manage your costs to achieve a top selling price and therefore maximise your profits.

It requires a few special skills:

- **An ability to assess opportunity and cost** for a whole variety of improvements that you could make to a particular property.
- **An ability to leverage your skills and the skills of others** (tradesmen and professionals) into meaningful and cost effective change. This requires that YOU are good at managing yourself, at managing others and at selecting the right type of others!
- **An ability to minimise material costs**.

This is how profitable business works. It adds value beyond its costs.

3.7.1 The four fundamental ways to add value to a property

- You can **add "kerb appeal"**, i.e. change perceptions about the property.
- You can **add functionality**.
- You can **remove disincentives**.
- You can **change spatial quality**.

Read Property Developer Secrets (available from www.propertysecrets.net) for further advice on these subjects. However, I'll also describe these briefly here:

3.7.2 Adding Kerb Appeal...Clean – Fresh – Warm

"Kerb appeal" is an old phrase for perceived value. Focus your energy on making a property look clean, fresh and warm.

You can spend less than a fortune and do very well. Consider it like buying designer clothes. They may not hold together well, wash well or iron well but they still make you feel good! The point is that you are influencing emotions rather than good sense.

Car "a" is faster, sportier, safer, bigger, more economical, ergonomic, inventive and practical. Car "b" has "Munich appeal". Who do you think makes more money!

Key Tip

Maximise your profit, Get **'Munich'** Appeal

Think about having three simple positive memories (as opposed to visions of holes in the ceiling) that a buyer can carry away with them.

Remember, kerb appeal is all about perception! Focus very hard in this area as the gains are often easy to come by and very economical! A few examples are listed below.

- A good lick of neutral (warm) paint.
- Bold highlights (like dried roses or red ribbons for example).
- Neutral odours.
- New floor covering.
- New internal doors.

- New lighting.
- New kitchen.
- New bathroom.
- Clutter free.
- Clean lines. Paint on the walls not the light switches!

A good pro can turn around these improvements in a 3 bed house within 4-6 weeks.

3.7.3 Adding Functionality – Boring but big bucks!

Adding functionality means going further: adding a bedroom, bathroom, study, garage, conservatory, loft conversion etc.

Three bedrooms will usually win over two (but don't be tempted to create rooms less than 100 sq.ft. unless they are bathrooms or wardrobes). Again, remember to maintain balance. 'Five bedrooms into one bathroom' does not go!

A few good approaches are listed below:

- Extending outwards.
- Extending into loft.
- Adding a conservatory.

Adding functionality tends to connect well to "maintaining good balance" as a concept. Generally, a buyer will have expectations based on the position of the property on the market.

At the lower end of the market for example, the following functions would be considered essential:

- A bathroom.
- A downstairs loo (Perhaps a bonus!)
- Three bedrooms.

Move up the property ladder a few notches and you can add a lot more:

- En-suite bathrooms to at least one bedroom.
- Utility room.
- Walk in wardrobes.
- Study.
- Cloakroom.

Finding homes without this balance of functionality that can be fixed is a great way to make money. For instance, adding an extra bathroom is a classic example!

3.7.4 Removing Major Disincentives

If there is a great crack over the front door, fix this first. A major negative like this will overcome all but the hardiest customers!

Most buyers these days are prepared to take on a certain amount of work. If they are not, they usually go for new housing and these people are probably not in your target segment.

If you buy a property and clean it up, but still leave a major disincentive, you will have problems selling it. That is because most buyers can paint walls and change flooring. However, most buyers will not want to take on a major structural defect like subsidence.

The following is a list of defects that most buyers will shy away from.

- Roof crumbling.
- Plaster coming away.
- Floors sinking.
- Major dry/wet rot issues.
- Woodworm infestation.
- Chimneys leaning.
- Major cracks over windows and doors
- Drainage system not working.
- Walls sinking.
- Windows falling out.

Because these major issues will kill your sale, you must focus on making sure you know about them if they exist so that you can budget to remove them.

3.8 Improving spatial quality and value

Did you ever walk through the front door of a house, into a dismal closed in hallway that felt like a phone box without windows?

The impact is quite difficult to get over. Space is not necessarily a “real” quality. It is mostly a “felt” quality. A big house can be made to feel very small. A small house can feel big.

There are a few excellent rules that can transform a property.

3.8.1 Designs for modern living

House design in the UK has in the past stubbornly held on to a notion of a collection of boxes (rooms) with one function only and no particular relationship between them. This is beginning to change.

For example, large house builders now favour connecting some spaces with double doors.

There is one key point that you would do well to remember:

A home needs to harness “Ying and Yang”. In other words it must have spaces that contrast with one another for each to be fully appreciated.

Consider the following examples:

- Private and public spaces.
- Rooms that are light and airy and rooms that are warm and cosy.
- **Old and new in a rich harmony**. Old fireplaces and shiny new fridges.

Remember also, the following key features of house design:

- **The kitchen is the heart of your house**. Design it to be a social centre and put it in the centre of the house.

- The rooms within a home are used for activities. If they were towns, they would have to be connected by a good road network in order for people to be comfortable using them. A home must have a good road network. **It must be possible to**

flow from one area of the house to another without any traffic jams.

3.8.2 Providing private and public spaces

A house will have a better feel if it has places to interact; to socialise; to do things together and spaces hide (for when you've had enough socialising).

All people, to some degree, appreciate these two contrasting features and appreciate having the freedom to decide which they want at a particular time.

If the kids have a nightclub running in the basement, then mum and dad can come and dance when they want and they can retire to a quite, tranquil space when they want. Think of this concept like having Piccadilly Circus and Isle of Arran in the same house!

So, to help you do this: Make a list of “uses” for your property. Consider which are private and which are public. Assign an importance to each. Build a design around this analysis.

Here are a few examples:

- Working.
- Cooking.
- Entertaining.
- Bathing.
- Sleeping.
- Dressing.
- Studying.
- Reading.
- Making phone calls.

Bathing for example is a very private activity. That is why an En-suite bathroom is a great (private) feature!

3.8.3 The paradox of space

The following example illustrates that having sense of space is more a 'feeling' than a matter of measuring square feet!

There was a time when many (even small) houses had a room called a “parlour”. It was used for formal events like entertaining important guests, weddings and funerals.

Many houses still have a “parlour”. It is a room that seldom gets used except to accumulate junk.

The unusual thing about the parlour is that it is commonly found in homes whose owners complain of insufficient space.

This paradox occurs because the needed space is a public one and the room is isolated in the minds of the occupiers. This is usually because of the physical layout of the property.

Renovation Opportunity: if you find a property with a parlour, consider ways in which you could incorporate the room into the house as public space.

A more modern example of a space that is dysfunctional is a formal dining room. If it is too formal it will hardly ever be used. A good dining room used to be “Ritzy”. Nowadays, a good dining room is more “coffee house”. The level of formality has shifted.

Renovation Opportunity: shift the design and usage of the dining room from formal to relaxed.

House design is much more evolved in the USA. The concepts introduced earlier are widely adopted. Houses tend to have several “mostly public” spaces like kitchen, dining and living rooms that flow into each other.

Separation is subtler than a brick wall and comes commonly in the form of floor or ceiling level changes, potted plants, floor covering changes and many more alternatives.

Separation of the dining area should for example be just enough that dining has the right degree of formality placed on it. The benefits of these designs are numerous:

- Feeling of space.
- Good natural light.
- Great sense of community.
- Rooms used for multiple purposes (therefore high space utilisation which again increases feeling of space!)

They also have private spaces that are separated in terms of location and noise communication.

- Studies.
- En suite bathrooms.
- Home offices.
- 'Quiet' rooms.

Golden Rule: Remember you are aiming to create Piccadilly Circus and Isle of Arran in the same house. Remember to get the balance right between public and private space.

Key Tip
Rooms designed for multi-purposes create a feeling of space

3.8.4 Kitchen - the heart of a home

It's very simple.

It should be well understood.

Yet, kitchens often get put into a dark, almost non-existent corner of the house!

In more formal times, the kitchen would have been staffed (for those more fortunate) by servants. The room and its inhabitants were not to be seen.

Fortunately, we now live in less formal times. Informality is a growing trend that property developers must harness. Most entertaining for example, unless it is of the rarer formal nature, will migrate to and thrive in a well-designed kitchen. Kitchens must therefore be designed with this in mind.

At their best, kitchens will have the following social features:

- A bar / counter top people can lean on.
- A place to sit and chat over a coffee.
- Good natural light.
- A phone.
- A small writing area for making notes.
- Places to store things other than kitchen apparatus.

3.8.5 The power of sunlight

Natural light is an undisputed asset.

Its most crucial feature is that it is constantly changing and impacting on its environment. Its power is at its best if it is applied without excess. Nobody would choose to live in a glass house. A mixture of natural light levels works well. Think of the following images.

- Sitting in a cosy warm kitchen, early in the day, sipping coffee as the sunlight reaches its way up the walls.

- Relaxing in an open porch area appreciating the cool evening sun, enjoying a glass of wine and generally unwinding.

Contrast is crucial. A cosy, intimate space does not demand much natural light. In fact, it would be spoiled by it.

Study your sun angles and design your property to interact with the sun. See **Section 17 - Modifying the layout of your property.** to learn more about making windows bigger.

Don't forget though that windows have about 10x less insulating value than an insulated wall. Too much glass will make a house cold. North facing glass will receive no sun whereas south facing glass will gain heat when the sun is around and lose heat when the clouds are out.

3.8.6 Long views

Look at a plan view of your property. Consider what you see and how far you see from some key strategic points:

- As you enter the front door.
- As you enter the back door.
- Generally. From any point where you may be parked e.g. sitting on your sofa.

Key Tip

Long views give a feeling of space. If you can see diagonally to far off corners, you will "see" a very big property. The key "long view" opportunities are the ones as you come into a property

3.8.7 Linking the inside to the outside

The concept of long views can be integrated with the concept of "bringing the outside in".

Use strategically placed windows (or doors) to "frame" good outside aspects. Imagine entering a spacious entry area that opens out into a generous living space.

Beyond this imagine there is a Cedar deck with an elevated view of beautiful countryside scene. In your dreams, this might be an elevated view over miles of rolling fields and mountains. In reality, there is a great deal you can do in a limited environment.

Design the outside of your property as a "picture" from several key internal and external viewpoints.

Here's an additional theory with no particular scientific basis (other than observation) People are instinctively attracted to being close to the outside world while at home with out actually being impacted by it. Take the following examples:

- It feels good to be in a cool place on a very hot day.
- It feels good to sit in the rain without getting wet.
- It feels good to watch the wind without being affected by it.
- It feels good to watch people without people watching you.

Fundamentally, a home is a sanctuary. If a feeling of "security" can be maintained whilst allowing an interaction with the world it will have great appeal.

3.8.8 Sun angles

Architects understand that at a particular time of day, at a particular time of year, in a particular part of planet earth, the sun will follow an arc from a point somewhere around the East to somewhere around the West. Halfway between, it will rise to an angle above the horizon.

Midsummer in the UK, the sun rises around the northeast, sets in the North West and reaches around 55 degrees above the horizon. In the middle of winter, the arc is much shorter and reaches around 25 degrees above the horizon.

Now you know that - you can begin to **plan your views to the sun** - and make sure that they last all year!

3.8.9 Using planning software

If you intend making significant alterations, you will benefit from a software package that allows you to visualise your designs in 2D and 3D. You can get these packages from as little as £15 or you can pay thousands. Here a quick summary of what to expect:

- You will find it easy to create simple boxes with roofs and you will be greatly impressed by the start you have made.
- You will then find the package cannot do at least twenty things you really want to do and you will get incredibly frustrated.
- You will then (assuming you don't just give up) spend about two years learning how to do the twenty things you thought you couldn't do. You will at this point feel impressed that you have finally got the software to work and disappointed that life has past you by.
- Alternatively, you will find another package that promises not to have the limitations of the previous one and go through the whole process again!

You have been warned!

The key is not to get too clever. Use a low cost package to generate floor plans and elevations (side views).

Leave the posh design stuff to somebody else.

There are many good CAD packages available.

The **low-level CAD packages** (where you just draw lines and arcs in 2D) will allow you do draw anything given enough time.

The **high level CAD packages** do the work for you, produce great 3D views but are gruesome to learn. The following were created using Chief Architect. This package retails (mostly sold in the USA) for about $900. It takes 5 minutes to learn the basics and 5 years to learn the advanced stuff.

Again, stick to the basics. It will be easier and cost a lot less!

Try www.chiefarch.com for a demo version with limited save and print ability.

Or

www.housebuilderxl.co.uk/index.htm?Zmain=http://www.housebuilderxl.co.uk/ordering/software/arcon.htm

3.9 *Getting good help.*

Here you are, a hard-nosed business-person, with "emotional" customers all around you! You must however be a tough business-person to avoid bringing your emotions into play. Conversely, you have to be emotionally in touch with what appeals to others! What a challenge!

Beware however; if you do get embroiled in your own "feelings" If your taste is "skewed" away from that of your customers (and you cannot possibly know if it is or not!), you will lose money…often in a big way!

There are a couple of ways to accommodate customer feelings and stay level headed:

- **Use estate agents. Begin selling your property before you buy it**. This way, your renovation choices can be guided by input from the estate agents. Ask your estate agent about your target market. Ask them to write their "ad". It will help guide your choices. Get them in and decide together.
- **Use a scoring system. The Project Scoring spreadsheet (see Appendix One - Spreadsheet Software) is a good guide that will help you get started**. It allows you to look at different improvements from different perspectives. It will help you make choices. Play with it. It will help you rationalise your thinking.

Key Tip

Look at the property from a customer's point of view. Talk to your estate agents about who your likely customers are. Avoid being dismissive about their advice if you do not agree with it!

3.10 *Urgency not haste.*

As a final note on strategy, let's reinforce the first point that was made.

Consider the concepts of "urgency" and "haste". What's the difference you may ask?

It's simple.

Urgency is in control… haste is not.

If you let your enthusiasm rule your decisions, you will not be objective. You will probably, in this case, make bad decisions!

Key Tip

Stay in control. If you lose control, you lose!

Consider the story below. It has played out in many guises for countless would be developers. It should alert you to the risks. This e-book is about avoiding these pitfalls and many other more subtle ones!

Story of where the Property Developer went wrong….

You are raring to go.

You get a call from an estate agent about a property that fits the bill. It needs a little attention. You have done a little DIY and feel up for it.

You don't know the geographic area too well but the estate agent tells you it's a good bet. You make an appointment right away. You have to because you've got to move fast. You are there in half an hour. You enter the property. It looks a bit of a state.

Fortunately you can see past its limitations. You recognise that this is a straightforward cosmetic job. You should be in and out in about six weeks.

You know you need to be decisive. You have money to spend. You make an offer on the spot. Within two hours your offer is accepted.

You push for exchange. You pay £100 and get a mortgage surveyor around to do a valuation. He points out a few minor points and values the house at 95% of its asking price. Close enough.

Within two weeks you have completed and the house is yours. You hire a skip, call a painter and spend a long weekend tearing out old carpets and stripping wallpaper.

The painter arrives and tells you the plaster is not sound in several areas.

The plasterer arrives and tells you he has to re-plaster four rooms.

You keep moving.

You take out the sixties fireplace and half the chimney breast falls down.

You call a builder. He says the breast is unstable and has to be re-built. He takes a cash down-payment and never comes back.

The lights keep tripping out. You call an electrician. He says he cannot fix the system, it has to be replaced. It will cost you £2000.

Your suddenly remember your profit margin and break into a cold sweat. You say to hell with the electrician. You'll do it yourself.

Six months later you power-up. The house, almost finished, burns to the ground. Fortunately, nobody is hurt. You decide to move to France and are never seen again.

Don't worry, it is just a story and you are already beyond this point.

Beware however of your enthusiasm. It will take you away from your objective of maximising profit faster than you could ever imagine!

Golden Rule: Stay objective. Put your 'feelings' through logical and economic tests.

Or put it another way…

'Slow Trigger... Fast Bullet'

In case it is lost on you, it refers to a gun. Consider a marksman who has five seconds to hit a target 1 mile away with his high powered rifle. He will aim for four point eight seconds, pull the trigger and the bullet will reach its target before the five seconds has elapsed.

If conversely, he shoots before he even knows were the target is, he will be shooting and missing all day.

Hopefully, this now makes sense?

The message is not to suggest that you take a long time over things (it's the opposite)….

…the message of the story is to aim carefully.

Every minute spent in preparation will save an hour later.

Every penny spent in planning will save a pound later.

How does this apply to property development? The answer is simple, you are “aiming” between your first viewing and exchanging contracts.

You have to apply all the knowledge, energy, planning and resource that you can between these times to maximise your profit.

You pull the trigger at the point money leaves your bank account i.e. once you pay your deposit.

At this point you must have clear plans. You must have resources ready to jump.

The instant you pull the trigger, every minute of every day that passes is costing you money. You will enter a time warp, money pressure generates time pressure. It’s like parachuting.

You wait nervously, planning, imagining, doubting, and hoping. Then suddenly you’re hurtling towards the ground at great speed. If your planning is correct then all will go well. If it is not, time will pass quicker than you can think. You will be spiralling out of control towards the ground!

The skills that you learn in **Renovation Secrets** will be most useful at this “aiming” stage.

Consider the impact of the decisions you are making at this time:

- Choose a rural bungalow.
- Target professionals with 2x young children.
- Decide to add two bedrooms.
- Decide to add two bathrooms.
- Decide to replace heating system.

As compared to those made late in the project:

- Turf not seed.
- White not magnolia.
- Neff or Bosch.

Make no mistake, all decisions are important. You can recover however from choosing the wrong paint colour.

But …..

Pick the wrong property, and every decision you make from that point on will be to dig you out of a hole. It will be a painful journey. Don't go there!

Your goal will be to have 100% of your strategy and 80% of your execution plan totally thought through to a high level of detail.

You will know every inch of your new property.

You will know exactly

- the when,
- the who,
- the how of the plan.

The you will know your total cost within a 10% margin of error. You will even have plans in place for selling or renting the house, the day this will happen and how it will happen.

You will also recognise that 20% of your plan will change in some way or another.

3.11 Testing your skills.

This is the first thing you should do once you finish **Renovation Secrets.**

Take the checklist (see the **Inspection Checklist** spreadsheet in **Appendix One - Spreadsheet Software**) and visit a few "possible" properties.

Do your technical assessment as per **Renovation Secrets**.

Go through the planning process. Try not to buy the first property you see. It may appear to be an excellent choice. If it is, go and see five others. If it is still an excellent choice, then go for it!

3.12 Getting good help from tradesmen and experts

Getting good help may be your biggest challenge.

Get to know some key people. Here is a list of key people starting with the most important. As you progress beyond your first property, this will change.

- Surveyors.

- Estate agents.
- General builders.
- Bricklayers.
- Plasters.

- Carpenters.
- Electricians.
- Plumbers.
- Roofers.
- Material suppliers.

- Window makers and installers.
- Designers and architects.
- Structural engineers.

Key Tip

Build a network of people to help you. Do this before you buy a property

3.12.1 Assessing a tradesman's attitude

Go about measuring these people as prospective “partners”.

- Look at their attitude.
- Look at their work
- Trust your instincts.

Follow this template when assessing their attitude:

- Decide what the three most important things they can do for you are.
- Design questions that will tease out their position on these things.
- Ask in a positive “I'm interested” kind of a way.

For example, if a hotspot for you is timeliness, no point in asking “will you be on time?”

Instead try asking:

- 'How do you schedule your jobs'

- 'What happens to your schedules if it rains a lot or you are off sick?'

- 'How to you adjust your schedules if you get behind'
- 'Are customers usually understanding if you're late?'
- 'Do you sometimes have to please more than one customer at the same time?'

Nobody is perfect. Most customers however are forgiving if communication is good. Anyone who is 'good with people' knows this. A tradesman who is 'good with people' will stay in touch with customers and let them know if there are any issues.

Key Tip

Here is a great tip on attitude.

Bring a tradesman to your house. Welcome the person outside the property.

Next invite them in. When you come into the house together, discreetly take your shoes off. If the tradesman does not follow suit then forget about him.

3.12.2 How to assess a tradesman's work

You should be able to directly measure the quality of your tradesmen's work.

Ask them if you can visit them on the job. Simply follow the same routine (the one you will learn in **Renovation Secrets**) as for assessing potential properties. The good and the bad will jump out at you!

You will often have seen advice for choosing contractors that goes this way:

- Go for personal recommendation.
- Ask for at least three references.
- Look for members of a trade organisation.

These are all reasonable to an extent. In practice, personal recommendation works well for personal characteristics but most people don't know good from bad work so it's weak in this sense.

Personal characteristics are very important however as building sites are often highly emotional places!

Generally, references aren't worth much. If you wanted a reference from a few mates you could get them, right?

Also, those who belong to a 'trade club' will be members for one significant reason: IT HELPS THEM MAKE MORE MONEY. This is not to dismiss these excellent organisations that try very hard to police their members. It is not to dismiss the hundreds of craftsmen who love to produce good work.

You have to think about the socio-economic changes in the building industry to know how to approach employing people. In other words you have to see things for what they are. Keep the following picture in mind when trying to recruit help:

- **The building industry is in a period of sustained expansion**. You may call twenty builders and nineteen will tell you they are not taking any work on. This is more likely in the South East and London than anywhere else.
- **Fewer and fewer people are getting trained in building trades**. Everyone wants to build or extend or decorate. There is excess demand for trades.
- **Less and less regard is being given to traditional 'quality above all else'** attitudes of the past. Money is a greater priority in our society as a whole. Builders are no exception.
- And… one point above all others: Tradesmen are being constantly dismissed as a bunch of cowboys**. If you approach your tradesmen as if they could be cowboys, they will become very de-motivated and angry**.

If you read **Renovation Secrets** and follow its advice, it is very unlikely that you will come across a cowboy. They will steer clear of you and prey on easier targets.

If your tradesmen seem a little arrogant, a little rude or a little brash they won't get better on site. Don't employ them even if their work is great. It will cause you no end of problems!

3.12.3 General Builders

You may also come across '**General builders**'.

Very few tradesmen can lay bricks, plaster, wire electrics and draw plans all equally well.

If you want to build an extension, you may want all of the above. If one builder can do it all that saves you time and hassle.

However, what usually happens is that the general builder subs out most of the trades and becomes part tradesman part project manager. You pay extra for this convenience.

You sometimes pay MUCH extra.

However, if you are busy, it may be worth it. Co-ordinating multiple trades is a nightmare!

3.13 Using Zoom Vision to assess your renovation project.

You must look at property in two ways:

3.13.1 View potential property as an 'emotional experience'

Trust your instincts but remember to examine them objectively. Instincts can be fooled. Here's a shortlist of things that can significantly impact your 'instinctive' point of view:

- Rainy old day.
- Doggy smell (or any other unpleasant smell).
- Junk piled up.
- Doors don't open right.
- Dirty plates in the sink.

- Dirty towels.
- Dirty anything else!
- Pressure of salesman.
- Pressure of limited time.
- Etc. etc. etc.

Now make a list of all the things that put you off the property.

3.13.2 View potential property using the 'zoom vision' template

Use "zoom vision". Rather than "see" emotionally, follow this template.

- Determine the local area plan, how the house fits in and in which geographic direction.

- Relate the position to sun angles at various times of year.
- Determine the floor-plan and become familiar with it.
- Within this floor-plan look at the shape and fitness for purpose of each room. Consider alternatives for this.
- Look within each room, focussing on 1 Square metre at a time. Simply study each element within that square metre until the defects jump out at you.
- Keep scanning 1 metre at a time as you go through your checklist.

Now make a list of all the defects and then you can begin to draw up your plans of how you can remove them.

3.14 Working with and getting the best out of Estate Agents

Read Property Developer Secrets (available from www.propertysecrets.net) for great advice on Estate Agents. However, here is a quick synopsis:

There are good and bad estate agents. A bad estate agent puts a picture of a property in a filing cabinet and waits for a customer to beg for it. A good estate agent connects buyers and sellers. There is one way to tell a good one:

- **Call up and express an interest in a property**.
- **Ask to speak to the negotiator responsible**. A good agent will have negotiators with their own portfolio to sell. A bad one will have a load of people who answer the phone and don't know a thing about the properties they are selling.
- **Ask a load of good questions about what's on offer** and see how they do! Ask them the size of rooms, the garden, the aspect, the neighbouring properties etc etc.

The best way to make friend with a good negotiator is to offer him…

An opportunity for repeat business!

If you can offer this, you will then have a willing partner. You can then ask this individual to work with you in terms of assessing properties and renovation opportunities.

Remember that estate agents get to meet a lot of house buyers. They have a good feel for what's in demand!

4. Stage Two – Finding the right property.

4.1 A prospective property – taking a first look

How long do you think average buyers spend looking at a single property before they buy?

Consider that you could spend two hours shopping for a new suit or evening dress. Do you think you should spend less time looking at a property that could cost a thousand times more? Try visiting a house with an estate agent and timing the length of your visit. It's absolutely remarkable!

To fully know a property will take 3-5 hours depending on size and detail.

You may not get a chance to look for this long on your initial visit. If this is the case, do this:-

Once you've taken a good look at the potential, at sun angles, room sizes etc, check the big cost items from the **Project Costs** spreadsheet (see **Appendix One - Spreadsheet Software**).

Also, take a digital camera with you (get permission to use it) and take a couple of hundred snaps. Use some sort of logic so that you know which is which afterwards.

Market conditions may dictate that you have to make an offer on the spot. If your offer is then accepted, you will have to do the rigorous investigations before exchange.

If you have to back out then so be it. This is unlikely unless you missed a major item on your first visit.

You will certainly have missed many smaller ones. Accept this and build it into your costing. Don't get in the habit of backing out. You'll lose the good will of the negotiator for the next property.

If you have the opportunity of visiting a property you like more than once, do it. If your first visit was a cursory look, then look much harder on your second visit. Use your skills and your checklist. If your first visit was thorough, make a second visit if you can anyway just to confirm.

4.2 Surveying your property - how to get real value for money

Once you have had an offer accepted, you should then bring in your surveyor.

You may need to engage a surveyor before your offer is accepted if you buy at auction for example. If this is the case, you stand to lose your surveyor costs if you do not get the property. The rewards conversely can be bigger.

Avoid auctions on your first few projects.

Unless you are extremely experienced technically, you will need a surveyor and you will need to study this section carefully. Not all surveys are made equal. The same applies to surveyors.

Most Surveyors have a basic level of competency. You are looking for much more!

Check out the surveyor's website www.rics.org.uk

4.2.1 Getting the best out of the survey

Your lender will insist you have a valuation done.

Problem with Valuations

A valuation secures the lenders position. It determines that the lender will not lose money should you exit the project. This should not be your primary source of information. It does not consider enough detail. It will miss enough detail that your profit margin will be very vulnerable! This valuation costs £100 upwards.

Other Surveys

There are various levels of "package" surveys on offer above this. Lenders will quite often provide these for a higher cost and they will provide more detail. There is a better way however.

Follow the guidance below. It will be the best investment you will make:

Key Question	Main points
Ask around…	Use your network and get some recommendations for good surveyors

Key Question	Main points
Decide what you want for your money	For between £500 and £800 you will get about three to four hours of your experts' time on site and a written report. The surveyor will want to follow a specific template. In fact, he is somewhat obliged to do that by his professional body. By doing this he may focus on areas that are of little interest to you. You may for example have already decided to remove the bathroom. Any time spent checking the bathtub for chips in this case will be wasted. Tell him/her its OK to follow a template but stress that you have priorities. **Communicate your intentions in writing and ask for the survey to be focussed on your specific needs.**
Ask your surveyor about their experience in the area	Ask them how long they've been practising. Ask them about the type of work they normally do. In particular **find out if they have *personal* experience of renovation**. If they have been through the process themselves they will have clearer vision. Talk at length about their projects. Find out how much renovation they have done *hands-on.*
Tell the surveyor you want to be present and actively involved in the survey	Tell your surveyor you will ask challenging questions and may even be a little annoying! This will sort the men from the boys! Once you have tuned your skills by reading **Renovating Secrets** from start to end you will be in an excellent position to work alongside the surveyor. If your surveyor is positive about this, it will be a very strong indication that he is supremely confident about his skill and doesn't see your presence and questioning as a threat.
Agree everything in writing	Agree exactly how much time, as a minimum, will be spent on site. Agree the level of detail that the report will contain (a surveyor has a professional obligation to write a report). Tell the surveyor that you want cost estimates for all remedial work. Put it all in writing.

Key Question	Main points
Ask for the surveyor's appraisal continually as you progress with the survey	Avoid taking notes at this point but listen carefully and make notes as soon as he leaves.

The benefits of this approach are huge:

- **You will learn by going through the process** about your property and about some of the techniques used by professional evaluators.
- **You will push the surveyor to their highest level of performance**.
- **You will get honest opinions**. You will be both pleasantly surprised and disappointed when you see the written version. It will be carefully re-phrased and toned down to limit the surveyor's liability. It will talk about all sorts of "risks" of failure. The surveyor's personal opinion, based on all of his experience will have been diluted to the point of total non-commitment!

Golden rule: Choose your surveyor carefully and work in a way that you get the best out of him!

4.2.2 Using people in the trade for an informal 'survey'

You can get a valuable second opinion (and often a very valuable one) by "surveying" with members of the trade.

This has a double benefit in that you can get help to gauge cost at the same time! The approach is simple. Just call in your chosen tradesmen and ask them to cost a repair for you. They will always come back to you with issues and alternatives that will help your understanding.

4.2.3 Using the Internet and other means to survey your target area

At a broader level you have two tools at your disposal for gauging an area:

- Pound the beat. Walk or cycle around the surrounding area. Visit schools and community buildings to get a sense of “location”.
- Use the following websites. They offer a depth of knowledge on local property values and facilities like schools and pubs.

www.hometrack.co.uk

www.upyourstreet.com

www.google.co.uk

Use the Google search engine to uncover the hidden mysteries of your road or neighbourhood. Key in the name of the street into the Google search engine and you'll be surprised at the information you'll discover

4.2.4 Bought “as seen?”

If you (for example) uncover dry rot under the floorboards, then you should ask for money off. You do this, of course, on the understanding that you may lose the property as you may upset the seller.

But then, you are not buying the property as seen - you are simply agreeing a price for the property on the basis of the property as seen and subject to any further problems.

For some reason, this attitude is not always well received in the property industry. Yet, if you were buying a car and the RAC man told you the engine was about to fall out, you would not be unreasonable to ask for money off even after previously agreeing a price.

So, don't be afraid to renegotiate if your survey brings up some fresh 'previously unseen' problems.

4.3 Making your final assessment and going for it!

Ideally, you will know the following and will have analysed what it all means before you make an offer.

- A vision for the property.
- An understanding of the challenges with the property.
- A good assessment of final value.
- A good assessment of cost.

- A good assessment of time (and therefore cost of time based on your cost of capital).
- A plan for executing the renovation.
- Resources on stand by (you can always cancel).

Make a plan for executing repairs before deciding to buy. I know it seems extreme, but it also reduces risk of making a bad decision. Its 4-5 hours of time well invested.

5. Stage 3 – Executing your plan

5.1 DIY v PRO which is best?

You may frequently have to choose between employing pros at a cost or DIYing. Consider the aspects of this choice:

- **Economic advantage** - will you really save money?
- **Emotional advantage** - might you save your nerves?
- **Learning advantage** - will you learn anything if someone else does all the work?

5.1.1 Economic advantage

There are two crucial pre-requisites for deciding what you do and do not do yourself.

1 **The time value of money**.
2 **The amount in £££ you can save by DIYing**.

And two points of lesser importance:

3 The value in £ of things you cannot do because you are doing DIY.
4 The value of work to your quality level compared to that of a pro.

Factor 4 can be removed easily by agreeing this – **If the quality of your work is going to damage the value of the property, get a pro to do it**. The cost of not selling because of silly defects will be huge.

Factor 3 can be removed easily by agreeing this – **If you are "earning" less doing DIY than you could be by working somewhere else or by doing something else like managing your project, don't do the DIY**.

Prioritise your project management first and above Doing It Yourself.

Only do DIY when everything else is running smoothly

Let's look at why you should put DIY last (and yes, you probably want to put it first, am I right?)

Example of the 'real' savings of DIY vs. using a PRO

If you owe £60,000 at 10%, the cost of your capital is £6,000 per year. This is about £500 per month.

If it takes you a full month (additional) to plaster a kitchen yourself at a saving of £800 then your real saving is £300.

In the same time you could have made twice this much delivering pizza!

5.1.2 When DIY is king

There is one scenario where DIY is king.

If you live in the property under renovation and wish to stay there for some time, your best option financially is all DIY.

That is for two reasons

- Firstly, you can not offset the cost of professional help against income
- Secondly, even if you pay £500 on a mortgage, you still get to live in the property (and you do have to live somewhere)

5.1.3 Emotional advantage

There are two possible emotional outcomes (plus shades of grey of course!) to taking on DIY:

- You take on too much, and get really frustrated with your progress.
- You take on the right amount and take great pleasure in looking at your (excellent) work.

5.1.4 Learning advantage

Renovation Secrets is a strange ebook. Over half its content is about 'DIY' yet it does not encourage DIY in most cases.

However, it encourages learning trade skills with a view towards being a better renovation professional or manager.

It may be better to practice or experiment with a lot of the skills described outside of your property development projects or at least off your critical path.

If you spend all your time 'Doing It Yourself', you'll never learn how to manage others doing for you!

Golden Rule: If you can 'Do It Yourself' already, then you will do even better managing others doing it for you!

5.2 Managing your own time

Never forget that time is money! You will be surprised at the amount of time it takes to plan and organise. Consider these other time burdens that you will be under:

- Visiting potential tradesmen.
- Looking at materials like bathrooms and kitchens.
- Looking at potential properties.
- Managing contractors on site.
- Pure thinking time. (Consider this an investment!)
- Talking over the phone.
- Discussing with estate agents and other professionals.

The list goes on and on!

Time management requires you adopt a careful strategy.

The greatest waste of money and time that you can ever incur will be when:

- You delay making key decisions.
- You rush decisions and they become bad ones.

You must therefore allocate a substantial amount of time to planning (and re-planning).

Key Tip

Treat your 'time' as a resource that needs careful management. Spend at least 10 minutes every day setting out your goals and

objectives.

5.3 Managing your plan – (Critical path, PERT, schedules of works)

The quality of a plan is in the planning.

As soon as a plan is put to paper, it is out of date. The world changes at an ever-quickening pace. Why would it be any different?

Your goal is to have a good solid plan before starting work that aims your ship towards the right continent. From that point on, you will revisit your plan every day to modify it based on influences from outside.

5.3.1 Difference between a target and a plan

Be clear in your own mind about the distinction between targets and plans.

A target is “this house will be sold by …” or “the roof will be done for less than ...”.

A plan is the HOW part. “How” this house will be sold by a certain date.

It is better always to set targets that are aggressive and then build plans around these targets. The targets will create tension that will generate creative response.

However, if after planning and thinking creatively the targets seem impossible; adjust them until you truly believe they can be achieved.

5.3.2 Start with the end in mind

Start by setting 5 crucial targets in time, working backwards from your ultimate goal i.e. “money in the bank!”

- Money in the bank.
- Sale made.
- Property on the market.
- Renovation started.
- Plan “finalised”.

5.3.3 Define the 'How'

The next step is to fill in the gaps by defining the “how”. This is easier with experience. The following rules will help you to schedule your tasks however:

- Do the “dirtiest” work first.
- Do the “heaviest” work first.
- Plan for “who does” in your tasks.

These are the planning tools that you must use:

- PERT.
- Talking to people about the plan.
- Revisiting the plan daily.

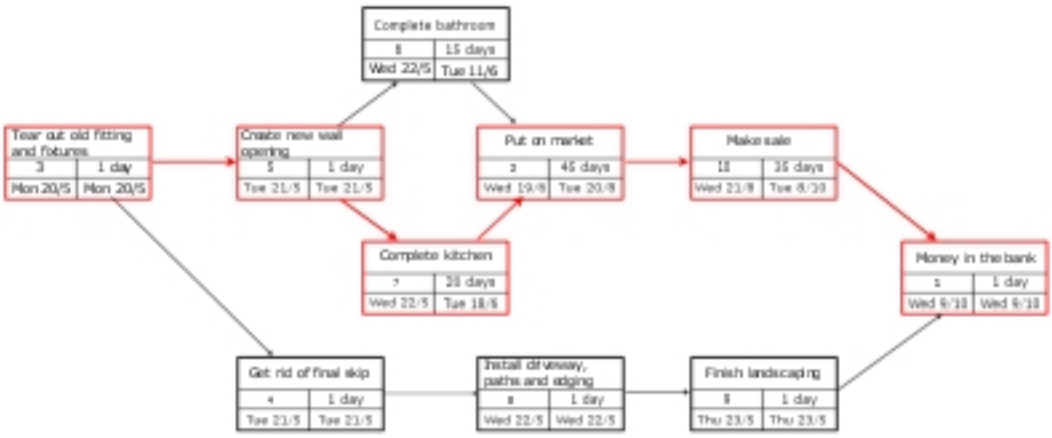
5.3.4 Using PERT

PERT is a technique for connecting tasks together in a logical sequence and re-working until the pattern of events is optimised.

Each activity box on the chart contains a job description, duration and resource. These activity boxes are connected together to form a plan.

The best way to do PERT is using a PC. The separate file PERT.pdf contains a picture of a PERT chart that will help you understand the mechanism.

In real life there are several good programs around including Microsoft Project. Try this link for other programs www.hotfiles.com.



Click on the chart above to view it in full

Ideally, you will do the planning with a group of two or more people. This will allow all the knowledge and creativity of these people to be added. You can also talk somebody through the plan to get his or her input retrospectively.

Once the plan is up and running, you can re-visit it daily and make adjustments. The computer will re-align the chart to produce a new schedule.

5.3.5 The Critical Path analysis

One of the most crucial aspects of planning using PERT is that it will generate a CRITICAL PATH. Because any optimised plan has many activities going on at once, all with their own timelines, there will always be a sequential path through the plan that takes more time than any other.

Let's take an example:

Example of Critical Path Analysis

Path A – Extension,
Excavate 20 days,
Building foundation slab 12 days,
Build superstructure 30 days,
Roofing 10 days,
Internal finishing 30 days.
This gives a total of 102 days.

There is another path that can happen at the same time…

Path B – Bathroom,
Remove old units 2 days,
Fit plumbing 2 days,
Fit new suite 4 days,
Tile and finish 4 days.
This gives 12 days.

Now if both activities feed the final activity of “sell property” then clearly path A is longer and becomes the CRITICAL PATH.

The point is that this Path A must be attended to as a greater priority as it is the one that determines the end of the project.

In a real situation, multiple paths will be much closer in time and it is possible that as things progress the critical path shifts. At this point, so does your priority.

Key Tip

Monitor and prioritise your critical path. It determines the overall timeline of your project!

5.4 Managing your suppliers and tradesmen

Follow these key project management tips:

5.4.1 Have a solid contract

This can be a complex legal document or it can be a written request that details the work, the quality of work and other factors of importance.

When you give a tradesman permission to proceed, you should do this in the form of a purchase order. The purchase order should contain at least the following:

- Details of the work being carried out.
- Cost.
- Start date.
- Finish date.
- Any penalties you agree for failure to finish on time for example.
- Details of any other conditions like sanitary arrangements.
- Payment terms.
- A reference to any specifications, British and European standards, or anything else that will better define what you actually want.

The purchase order should have a statement to the effect that “signing it means agreeing to its terms”. Any other specifications should also be signed on each page.

The point by the way of having a solid contract is two-fold:

- In prevents in most cases genuine misunderstandings from arising.
- It stops you, in other less likely cases, from being ripped off.

If you want to use a standard contract, contact the Federation of Master builders for one of theirs. www.fmb.org.uk

Generally, you should not view contracts as being a means by which you can sue someone. If you get to the point were lawyers are involved you will be into a lose-lose outcome (aside that is from the lawyer).

5.4.2 Write everything down

Create a "paper-trail" so that you can refer back to it in the case of misunderstanding. Keep a day book as a record of all events.

5.4.3 Stay on top of things

If a supplier doesn't call you, don't expect things to happen. If you assume your bricks are arriving on Friday just because that is what the man said, then you are in for a few surprises.

Generally, you should call your supplier regularly to the point were they 'suggest' in their voices 'why the heck to you keep calling me'.

At this point, you know you've got their attention.

Key Tip

Most people you meet will have more to do than they have time to do it. Be a perfectly polite pain in the backside if you want to get people's attention.

If you are dealing with people over the phone, for example when ordering goods, make sure you get the person's name (they are protected by law from giving surnames unless they are officers of the company).

Get extension numbers and positions within hierarchies etc. This will put the person in a position of personal responsibility and they are less likely to let you down.

5.4.4 Never pay for anything in advance

If your tradesman asks for a deposit to buy materials (or for any other reason) just refuse and tell him you don't do business in this kind of way.

Work out a payment system that is:

- Fair to the tradesman.
- Protects you. The payments should always be phased behind the work. Pay in 2-5 stages depending on the size of the job. Always agree to withhold 10% for a period of 1-2 months to provide some degree of guarantee.

5.4.5 Avoid being intimidated - call time out!

If you find yourself being cornered for any reason and you are not totally comfortable with the decision you are being led towards, just call 'time out' and back away.

Make an excuse, go to the toilet whatever just back away and allow your composure to return.

Think things through first and then go back into battle.

5.4.6 Always be reasonable with people

Separate tasks and/or goals from the people performing those tasks and handle them differently.

As an example…" I understand you are busy and I also understand how hard this deadline is to achieve. I'm certainly very grateful for the excellent work you are doing and wouldn't want to jeopardise our good relationship. We have to meet the deadline however. Is there anything I can do to help us get there?"

Find more good tips on this subject at…

www.freeserve.com/property/home_improvement/

5.5 Managing your costs

One thing is more likely to happen with your renovation project than any thing else and that is…

Yet, there is a simple explanation for this.

It is unlikely that you will have budgeted for items that just don't exist (like decorating a fourth bedroom in a three bedroom house). It is quite likely on the other hand that you will not have budgeted or under-budgeted for many items. This will occur because:

- You don't have enough experience to **know what things cost.**
- You **miss detail items** and lots of these can add up at a frightening rate.
- You **decide to add items** to your specification later.

Here are some items most likely to be missed:

- Grass or turf.
- Plants / trees.
- Fencing.
- Driveways.
- Insulation.
- Screws and nails.
- Curtain rails.
- Repairs to dodgy heating systems.
- Light fittings.

It is crucial that you keep a detailed cost assessment and that you update this regularly.

A good format to follow is to use a computer spreadsheet like Microsoft Excel and create a column for each cost revision that you make.

The first column for example will be your initial estimate. The second may be your next estimate two weeks later (based on new information). The third may be two weeks into the actual project.

As you work through each iteration, your total cost projection will become clearer.

By updating your cost forecast, you will be able to make adjustments to keep you within your budget. Use the **Project Costs** spreadsheet template provided (see **Appendix One - Spreadsheet Software**). It is not guaranteed to cover every cost item you could ever incur but it should be a good start!

5.6 Site preparation

You've reached the stage where the property is ready to start. You've done your planning, got your trades lined up, got money ready to spend. Before starting, consider the logistics of the site in terms of safety and practicality. Think about the following:

- The area within which workpeople flow needs to be separated from those routes used by others, by fencing of some kind.
- Warning signs need to be posted alerting those who are unaware of the dangers of this particular site.
- Places to store materials (safely) need to be determined. Old railway carriages are a popular option, as they can be made very secure.
- Work out a place for a skip.
- Routes need to be mapped out that allow access for materials and for removals to the skip for example.
- Insurance should be sought against matters like theft and personal liability.

As you are a contractor rather than a householder, there is a much higher expectation on you in terms of delivering safety results. Read up on the CDM Regulations i.e. Construction (Design and Management) Regulations 1994. Speak to the Health and Safety executive about your responsibilities. They will be glad to guide you! Even If you are not within the scope of this law, it makes good sense to comply with it. Its mostly good sense about how people should act responsibly.

www.hse.gov.uk - Health and Safety Executive

6. Guide to How to Use the Technical Sections

The technical sections that follow contain all the knowledge you will need to assess and plan your renovation. They each follow the structure below:

a) **What to look for** during your visits to the property.

b) **What a pro can do** in terms of quality of work.

c) **The techniques that are required** and how to choose the best options.

d) **Time and costs** required for different repairs.

e) **DIY self-assessment** - a gauge of skill level, knowledge level and likely productivity a novice can expect (so you can judge whether it is worth 'Doing It Yourself' or getting help from an expert).

f) **Other impacts** this type of work may have (mess etc).

6.1 Using the 'knowledge, skill and productivity matrix'

Each section has a matrix that shows the knowledge, skill and productivity ratings. These are ranked as follows:

Category.	Scoring system.
Skill level	A score of 1-10 with 10 being hardest. An assessment of the physical “hand-eye” skills required.
Knowledge level	A score of 1-10 with 10 being hardest. An assessment of the technical know how required.
Productivity	A “percentage of pro” performance that a novice can expect to achieve. E.g. a 50% score means the novice will take twice as long to complete the task. Use this measure as a rough starting point if you have no experience of your own productivity.

6.2 Using the 'Find and evaluate a pro' sections

Each technical chapter has a section called "**find and evaluate a pro**". This is crucial information that you will use to assess skills of potential contractors.

6.3 Using the 'Costings' sections

The costing section is based on southeast England rates. It does not include VAT that is chargeable at 17.5% on all work except with respect to listed buildings and conversions (where you can reclaim some VAT in some cases).

Remember that hours are impacted by time to site, set-up time and cleanup time as well as the job itself. Smaller jobs will therefore cost a disproportionate amount. Also, use the costs as a general guide only as prices vary according to:

a) Demand for builders.

b) Specification.

c) Risk involved.

In any case, scale the rates as follows:

Region	Multiple costs by a factor of
Central London	Multiply by x1.5
Outer London, Home counties S and W	Multiply by x1.2
More than 100 miles from London	Multiply by x0.8
Home counties N and E	Multiply by x0.9
More than 200 miles from London	Multiply by x0.6

Don't forget to add the VAT! The costs we quote are before VAT

6.4 Using the 'DIY recommendations' sections

Each technical chapter also has a section called "**DIY recommendations**". This section provides some of the hottest tips for doing DIY right together with a guide to how challenging certain DIY jobs can be.

The DIY recommendations section in Renovation Secrets will not give you a step-by-step guide (there are other manuals that do that better) but it will tell you **how to plan and manage your DIY**. For instance:

- Which **things you should do and which you should avoid**.
- How much **time, energy and cost** you will likely expend.
- **Which approach should you take** to maximise your profit!

Use our DIY recommendation section tips to explore your own skills. You can then apply what you learn to improve your technical knowledge. This will directly improve your chance of managing an effective project.

In short, you may not want to be a DIYer for the love of DIYing, but consider being one for just long enough to know your subject area!

7. Walls Ceilings and floors.

There are several (common) underlying structures that you will encounter within walls:

- Brick (clay based).
- Block (concrete / aggregate based).
- Timber.
- Metal (such as steel).

In terms of structural performance, all of these materials can be used to good effect. Aside from brick, the materials are then commonly clad in some finish material. To the inside of a property there are two common finishes:

- Plaster (applied to brick, block or timber).
- Plasterboards (also called dry-wall, partition wall and dry-lining).

To confuse you even more, plasterboards can be used as a base for plaster. In this case, the undercoat plasters are replaced with the plasterboards and **a topcoat of plaster (called "Skim")** is applied!

Solid walls are almost universal in older properties and are common with newer properties as well.

Brick or block walls are finished with a two or three coat plaster system. Newer plasters are gypsum based. The undercoat is similar to the topcoat except that it contains an additional fine aggregate that acts as a filler and a binder.

7.1 Walls, determining their construction and their finish

During your first property visit, confirm the wall type by "knocking":

- **Solid feel and sound** – Plaster on brick / block.
- **Hollow sound (older house)** – Plaster on timber walls (laths).
- **Hollow sound (newer house)** – Plasterboards (Dry lining).

Check in many locations as wall types may vary (indicating previous modifications).

7.2 Solid walls and plastering

7.2.1 Locating and understanding common defects - walls

Lighter paint colours will magnify poor finish.

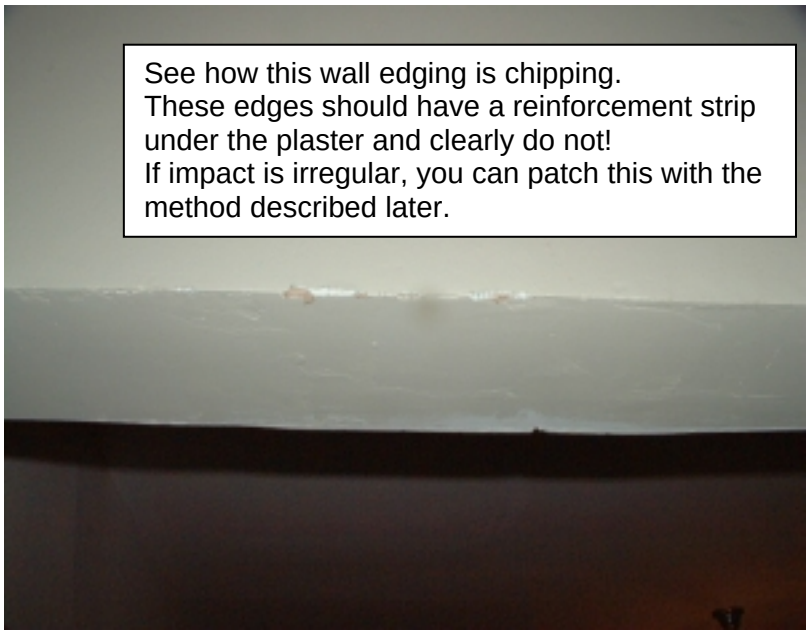
If you are removing wallpaper there may be defects underneath. You may also create defects by stripping wallpaper particularly if the wallpaper sits on multiple layers of paint (you may get “craters”).

Consider how sunlight affects the property. On a dull day, defects will be more difficult to see. They will suddenly jump out when the sun hits them though a window or a door.

Look for the following defects in solid walls.

Defect	Explanation
Localised hollow sound when tapped. Tap all walls to verify areas of concern.	The old plaster has lost its “key” to the wall. This does not have to be replaced unless it is cracking away. It may do this under the daily stress of hammers and drills!
Blemishes in the plaster surface. Often crescent shaped.	Called “half-crowns” in the trade. Low quality plastering. Easily fixed though.
Cracks.	May be loose plaster, may be simple shrinkage. May also be cracks in the wall underneath. Cracks less than 2mm are not usually in this category. Discuss with your surveyor if you’re concerned. See **Section 16 - Structural Faults.** for more info.
Smaller missing areas of plaster.	It may have fallen off, or it may have been pulled off by a DIYer!
Vertical ridges in plaster.	Wires or pipes have been plastered over (badly)
Multiple Craters usually 1-10cm^2.	Removing wallpaper often pulls layers of paint from underneath.

Defect	Explanation
Chipped corners.	It happens. You can repair and even re-enforce if required using a metal or plastic band.
Irregular corners	Just the way it was done! Look at any lines that are meant to be straight. May or may not be a cosmetic concern but certainly a sign of quality work.
Look at paintwork closely. Does it end were it should or does it run over woodwork, light switches etc	Clean lines with paintwork give good definition to a space. A poor paint job can put a buyer off.
Cracks greater than 2mm	Consult an engineer. Your walls may be moving!



7.2.2 Risk of creating new defects - walls

There are several areas where you will likely add to the plastering burden during your renovation. Be aware of these in your planning as they can affect your cost and time assessment!

Cause of new defect	Symptoms
Stripping wallpaper.	Craters formed when underlying paint layers de-laminate.
Removing kitchen / bathroom.	Large areas particularly if tiles / units are removed and they pull plaster with them.
Removing old cabinets / shelves.	Uneven areas, old screw or nail holes.
Removing food hatches.	Wall must match with surrounding.
Making new openings / Closing openings.	Can generate a substantial amount of wall repair.

Older properties may use sand / lime plaster. Newer properties will use gypsum-based plasters. It's easy to tell them apart; Gypsum has a pinky/ brown colour. Lime plaster looks like cement but is whiter. It is not possible to get as smooth a finish with lime plaster but it should be flat.

7.2.3 How to inspect existing plaster work

The best way to inspect plaster is to carry a 500 watt halogen lamp and place it close to the wall pointing along it at about 15 degrees away from parallel. Move the lamp to other locations if you're really concerned. You will see all manner of defects even with very good work, so be prepared.

The point of this is that sunlight will hit walls at various angles during the day and reveal defects in different places. It is actually quite common to live in a home for a few days before noticing some pretty nasty looking faults that could put a future purchaser off!

You can also spot defects by running your palm across the walls in arcs. Most people can "feel" a step of about 0.1mm! Ultimately, of course, you are more concerned with what you can actually see so don't be too fussy.

If you want a contemporary finish and you expect fussy customers then clean walls with well-defined corners are important.

Look hard around corners, sockets and switches. These are the harder areas to plaster and defects are common.

Smaller defects are very simple to repair and not too concerning. Likewise, filling channelled (for cable and pipe) sections is easy enough.

Re-plastering larger areas however is a more major job. It is also messy, it leaves the property damp for a time and it is difficult for anything else to be done at the same time.

7.2.4 Opportunities that will add value - walls

The impact of wall finish on perceived quality (and therefore price) will vary with home time.

If potential buyers of the property demand a high quality finish and you only achieved a mediocre finish then the property value will be seriously affected!

However, this varies from property to property:

- **A 500 year old listed home** – Undulating walls full of holes is the norm and anything else would be out of character.
- **A modern family home** – Reasonable quality of finish acceptable.

- **Contemporary apartment** (premium location) – High quality finish required!

The surface of the wall is one aspect of importance. The finish is equally important. We recommend two approaches to finishing walls:

- **1. Paint with a matt emulsion**. Use a warm shade of off white. Magnolia is the trade favourite. If you want to spend a little more by all means choose an alternative shade but keep it warm and keep neutral.
- **2. Provide wall mounted artefacts** that add a dash of colour and warmth to walls. Some favourites are listed below:

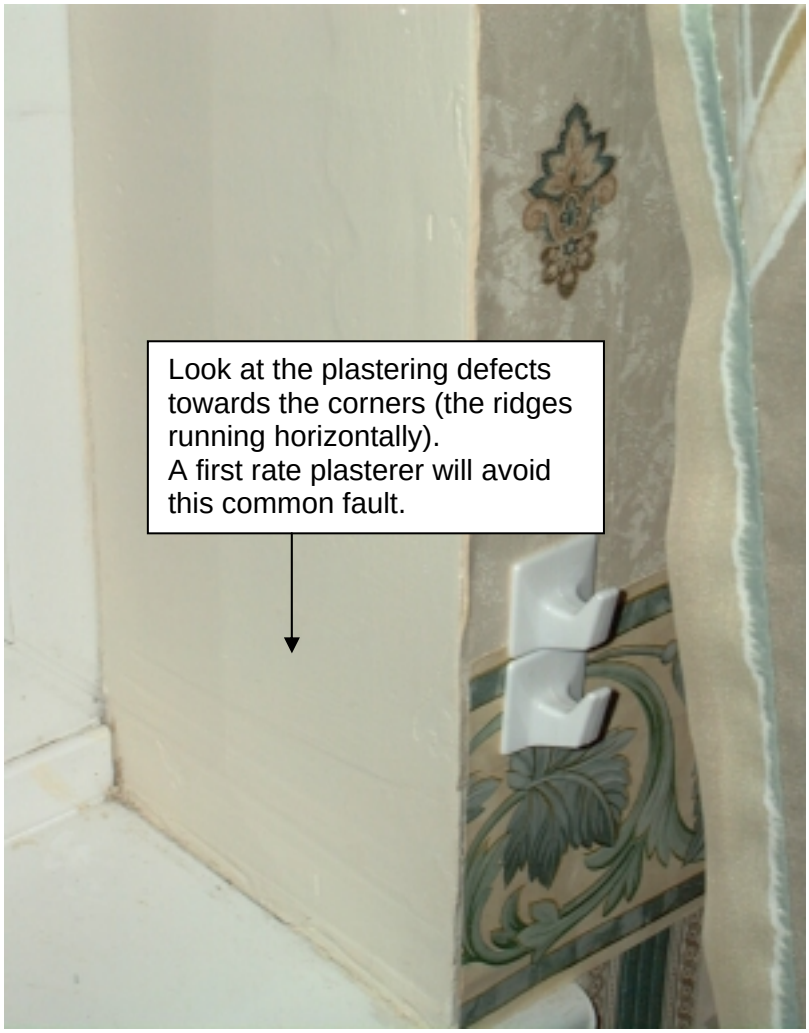
    - Pictures.
    - Mirrors (also can be used to reflect light).
    - Hats.
    - Baskets.
    - Grass compositions.

Check out the **Section 7.5.3 - DIY recommendations** for methods of hanging!

7.2.5 Find and Evaluate a Pro - plastering

Good quality plastering is a joy to see. Look for the following:

- The **wall will be perfectly flat** and will have a glaze finish.
- It will **look like it has been spray lacquered** (almost)!
- It will **feel like glass**.
- Look at corners. They will **form perfectly straight tight lines**.



Watch for poor quality work:

- Look in tight places like gaps between light switches and door architrave. These areas are difficult to finish well.
- **On a lower quality job you will see sponge lines** in these areas where a wet sponge has been dragged over to smooth the finish. Not so with high quality work!

7.2.6 Time and cost issues - plastering

Task	Labour time	Labour cost	Material cost	Total Cost
Plaster 180m^2 house	100hrs	£2000	£600	£2600
Repair medium room Small defects, significant craters	4hrs	£120	£3	£123
Make good 1 vertical channel (electrical)	2hrs	£40	£3	£43

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

7.2.7 DIY recommendations - plastering

The following section describes how to approach some of this work yourself.

Its purpose however is twofold:

- To give you tips and advice if you do want to do DIY.
- To give you an appreciation of the techniques, so that if you intend to be hands off; you can effectively manage trades-people.

It's suggested that you at least try out these skills at some stage, perhaps outside your project, in order that you may advance your understanding of the challenges involved.

In order to get good results from minor or major repairs, do not try to fill and finish in one coat; rather view them as separate activities

One coat plasters give a very compromised result. Instead, concentrate first on building a thick, level base fill; then apply a thin finish over this.

7.2.8 Plaster Materials

In terms of materials, the following list will enable you to complete all types of plastering job:

- Undercoat gypsum plaster.
- Finish coat gypsum plaster.
- Water.
- Plasterers PVA / Unibond.
- Gyproc Easyfill.
- Corner re-enforcement bands.

The main brands of plaster are Browning and Thistle www.british-gypsum.bpb.co.uk. Each brand has two fundamental components – namely undercoat and topcoat. There are usually several variations on undercoat for different base wall types.

Easyfill is not strictly a plaster. It is a finely ground filler that is used for joint filling in drywall installations. It is rather like those (very good) fillers that come in a small box.

The main difference is cost with Easyfill weighing in at an impressive £12 for a 10kg sack! Easyfill is a key tool in your renovation armoury. Its main feature of interest is that it is soft and sands very readily. This is important for high class finish!

The best product for sanding Easyfill (or other fillers come to that) is a sanding sponge called Sandblaster that is made by 3M and is available at B&Q. Choose the purple product. It's expensive but works incredibly well!

For repairs work, it is important to note that you cannot lap traditional plaster over existing. This is because finish plaster will not adhere well or have any mechanical strength below 2mm or so thickness.

For repair work therefore, by all means use finish plaster to match the surrounding wall but instead of overlapping, butt the plaster to the existing.

You can then use Easyfill to bridge and "feather" across the gap between them. Refer to the **Section 7.2.10 - Using Feathering** for more info on this subject!

7.2.9 Knowledge and skills required - plastering

The table contains a list of solutions with a skill and knowledge assessment. Plastering does not require any substantial technical knowledge aside from how to make a good mix and how to balance suction to get the best attachment.

However, plastering is probably the trade that requires the highest "pure" skill level with the exception of cabinet making. It is very difficult for a non-pro to produce much beyond average results. The DIY productivity ratings reflect this.

Small repairs are certainly within the domain of the DIYer. In fact, it is essential to have small repair skills if you intend to do your own decorating, as a little time spent on this will improve wall finish considerably.

Type of solution	Skill level	DIY productivity	Knowledge level
Plastering complete walls.	10	10%	3
Missing plaster area .5m^2+	8	15%	3
Plaster lost key .5m^2+	8	15%	3
Missing plaster .25m^2-1m^2	7	20%	2
Smaller Holes.	5	75%	2
Craters on surface.	7	80%	2
Filling channels.	7	75%	2
Dressing walls – attaching artefacts.	3	80%	2

Smaller repairs are well within the range of a DIYer. With a little practice, amounting to 8-12 hours of self training its possible to deliver productivity close to or in some cases better than a "pro".

The investment in equipment is low and so this does not provide a significant barrier. **It is very difficult to produce quality and productivity that will be anywhere close to a pro with large repairs**. Consider the rate that you could pay a pro, divide this by ten to establish what you are offering to pay yourself as a DIYer!

7.2.10 Using Feathering

Feathering is an important concept to renovators.

It is essential where old meets new. If you consider that when two edges meet; there is a line that has to be covered. This is best addressed by covering with Easyfill (see **Section 7.2.8 - Plaster Materials**). Feathering is the process of dragging the filler out in two directions away from the centre of the repair such that the edges have very little thickness and effectively blend with the underlying surface.

The final sanding process that removes any irregularities helps this process.

Feathering has to be sufficiently shallow that it disguises any irregularity. If for example a wall has a ridge that sits about 0.5mm above the surrounding surface due to a poor repair, to disguise this will require feathering of at least six inches at each side. Less than this and it will be possible to see an ugly “bump” in the wall.

7.2.11 Plaster Mix consistency

Textbooks often refer to a mix that is “creamy” or use other subjective terms.

The right mix consistency is crucial to good results. The following table makes the mix consistency more of an objective business. It uses a concept called “slump” that is commonly used to measure the consistency of concrete mix. Simply make the mix and hold on a spoon turned through 90 degrees.

The slump time is the time taken (approximately!) for the mix to fall off the spoon.

Mix slump test time in seconds.	Mix description	Best use.	Issues.
Less than 3 second (3S)	Wet	Final “feathering”.	So wet that it will easily fall off your trowel.
3-10 seconds (10S)	Medium	2nd fill, part for building volume, part to feather.	
More than 10 seconds (20S)	Stiff	Building volume.	More laborious to work.

7.2.12 Material usage

As follows:

Product	Thickness mm	Kg per m^2
Undercoat	9	7
Finish coat	2	2

Key Tip

Consider how much water you are putting into your walls.

As the plaster dries, most of the water will pass through the air in your property significantly raising the humidity as it does so. Consider the effect this may have on joinery for example that may swell significantly. A four bed house will have 1500 litres of water used in its plaster!

Key Tip

Keep yourself and your tools clean. In particular, clean your trowel with water as you use it every ten minutes.

Use strong halogen lighting to highlight your work. It will show imperfections as you proceed.

7.2.13 Priming

You will need to prime the surface being plastered using the PVA depending on surface types. Use the table below:

Surface material	Absorbency	Paint on PVA:Water mix primer as follows
Ceramic.	Very low.	Neat. Plaster when tacky.
Brick.	Low.	1:5 then 4:1 when dry. Plaster when second coat is tacky.
Lightweight Block.	High.	1:5 then 3:1 when dry. Plaster when second coat is tacky.

If you do not follow this guide, your work will fall off. Make sure your builder follows these rules as well!

7.2.14 Very small wall repairs

Example – drill holes, cracks, craters.

Use Easyfill alone for this type of repair and count on using more than one layer of fill if your depth of repair is more than 1mm. This is due to shrinkage and will be very obvious.

Mix thickness will be crucial to good results. Priming is not required with this type of filling. Follow these key tips for great results:

- Prepare the repair surface by scraping, removing loose material, chiselling out any part of the surrounding surface that is higher than the repair.
- Make sure the surrounding surface (within trowel range) is flat and clean. If you do not, the trowel will tend to “bump” over it and give a poor finish.
- Mix a small amount of 10s mix.
- Fill the repair by applying some mix to the trowel and dragging it over the repair at an angle of about 45 degrees to the wall. Drag 100mm either side of the repair. The repair should be mostly filled. If it is not, either the mix is too wet or the trowel is sticky.

Clean the trowel with cold water and try again. If it still doesn't fill completely, stiffen up the mix a little

- Once dry (the colour will become whiter), quickly sand the repair using a 150 grit (fine) sandpaper to remove any significant bumps. Remove all trace of the product from the surrounding area. The edges of the filler should be semi-transparent and the repair should not protrude above the surrounding surface.
- Fill again using a wetter mix (3s). This time feather a little further out.
- Once dry, sand so that the repair is flat and the feathered edge "fades away" into the surrounding wall.
- The finished result should look perfectly flat under halogen lamps. It should feel perfectly flat as well. If it feels convex it because you are overfilling. There is no need to overfill and then spend two hours sanding it off!

Key Tip

Paint will not hide a blemished repair; it will make it look worse. Use paint to detect defects not to hide them!

7.2.15 Why decorators use backing paper

The alternative to making the type of repair **above** is to use backing paper. Decorators favour this approach because they often cannot plaster very well. It is a clean approach but not half as good a finish as a proper plaster repair.

7.2.16 Small wall repairs

The next level of repair will be one that is typically too large to fill with a fine powder filler.

The approach to take with small repairs is to first undercoat plaster until the repair is close to but definitely below the level of the surrounding plaster. If you use a fairly stiff mix and level to the surface, two things will happen:

- The mix will not flow out of the repair.

- As the mix dries it will shrink back just below the surface (which is where you need it to be!)

A typical example is for filling channels cut for cable drops. Once the undercoat is dry, it must be scraped to free loose aggregate. It is particularly important to scrape any residual left on the adjacent plaster until it is smooth.

This channel (to the ceiling) and box hole was cut with an SDS drill in stationary mode with a spike. It took about three minutes. It would take 30 minutes with hand tools. Not a big deal if you only have one channel to cut!

Note also that with deep plaster, the cable can be bedded in the plaster without resorting to cutting the brick. There is no requirement to fit a cover over cables but they must travel vertically away from the socket.

The channel is filled level with a stiff undercoat on top of a tacky PVA. Next step (once dry) is to scrape the surrounding walls clean and add the Easyfill.

The next step is to apply a layer of 10s Easyfill. This should be scraped diagonally across the surface of the undercoat so that it is level with the surface of the surrounding wall and sanded back until it is smooth and definitely not above or level with the surrounding surface.

Finally, a thin 3s Easyfill should be applied on top and feathered out over the surrounding surface. When sanded it will leave a semi-transparent thin, i.e. less than .25mm layer, feathered out over the surrounding area to blend in the repair.

7.2.17 Repairing Corners

If you should decide not to go to the extent of re-enforcing corners, then follow the simple tips below to affect a pretty decent repair:

- Scrape any undulations away from the repair area.
- Make up a 20S Easyfill mix.
- Hold a flat piece of timber (300mm long) to one side of the corner and fill into it using a plastering trowel by drawing the trowel vertically downwards.
- Remove the timber by dragging away from the repair along the wall.
- Allow to harden, sand and repeat until results are OK.

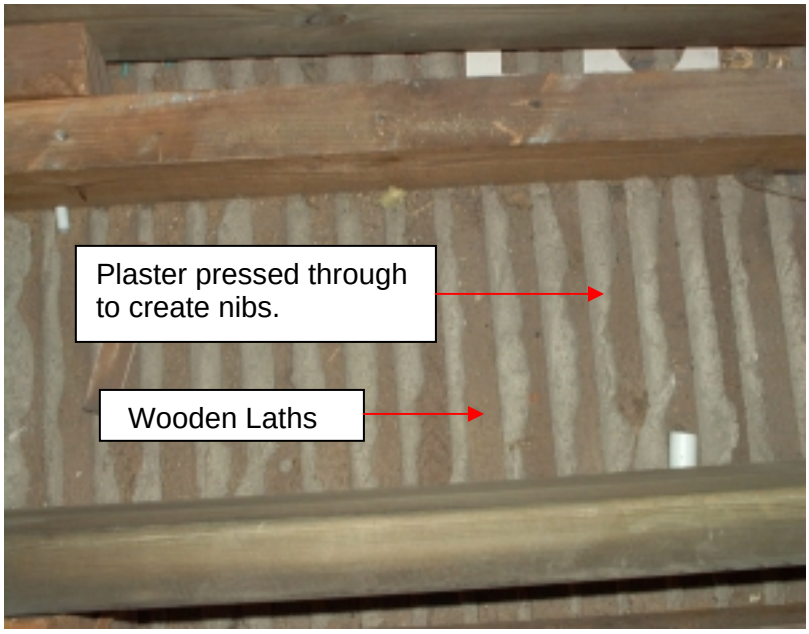
7.2.18 Other considerations

- Plaster introduces significant water.
- Sanding products like Easyfill creates a lot of dust. See **Section 20.1 - Safety and housekeeping.** for more information.
- Plastering can be messy. DIY plastering can leave great dollops of plaster on floors and can be difficult to remove.
- A team of two or three plasterers may totally monopolise your space. It may be difficult to do much else concurrently with their work!

7.3 Plaster and Lath walls

In this case, the walls are timber frames with Laths of times (thin slices) nailed onto the frame.

The laths are spaced apart about 5mm so that plaster can be applied by pressing it onto and through the laths. This creates nibs on the backside that hold it in position. Read more about this type of construction in **Section 7.5 - Ceilings.** where it is more common.



7.4 Dry lining or Plasterboarding

Dry lining is growing in popularity, as it is simple and quick to install.

It some countries, like the United States, it is used universally. Opinions vary on its performance. It can be considered “flimsy” and “noisy” in the UK.

It is acceptable in contemporary homes, much less so in older homes where a more traditional “feel” is expected.

Dry lining, either to a wall or ceiling, involves fitting 2400mm x 1200mm plasterboards over one of two options.

- A timber frame.
- A traditional solid wall.

The first method requires that plasterboards are nailed or screwed to the timber at intervals of 225mm or so. This becomes 150mm in ceilings. Screws are a better option.

Look at the structure of this picture (ignore the tools!):

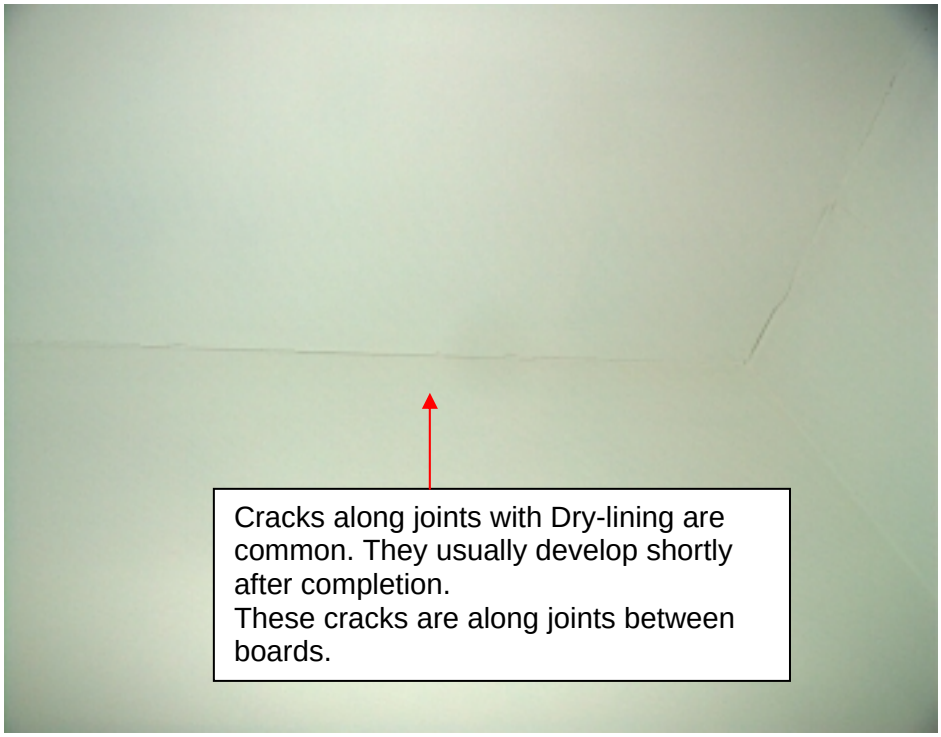
- A timber frame (vertical and horizontal timbers).
- Yellow fibreglass insulation between timbers.
- Green vapour-check membrane (required in external walls to stop water vapour passing through).
- Grey/White plasterboard.

The second method requires that a bonding compound is “dabbed” onto a wall and the board pressed onto it. Care must be taken to ensure there is sufficient support at joints otherwise the joint will crack.

7.4.1 Locating and understanding common defects - dry lined walls

If your walls are dry lined, look for the following:

Defect	Explanation
Cracks - particularly in corners and joints.	Very common due to movement in the underlying structure. No gaps should exceed 2mm. If they do, you may have structural issues (see **Section 16 - Structural Faults.**). Simple to fix with a filler compound. Push the boards near the crack. If they move more than 2mm, the problem is a poorly supported board. This may require stripping out and re-supporting of the section.
Bumps.	Use your halogen light to detect bumps. You may well see bumps that coincide with joints. Run your palm over the work to get the same level of clarity.
Nail heads pushing through.	Nails do tend to work loose and generate an unsightly bump. Easy enough to fix. Just remove, insert a new screw (not in the same hole) and fill over.



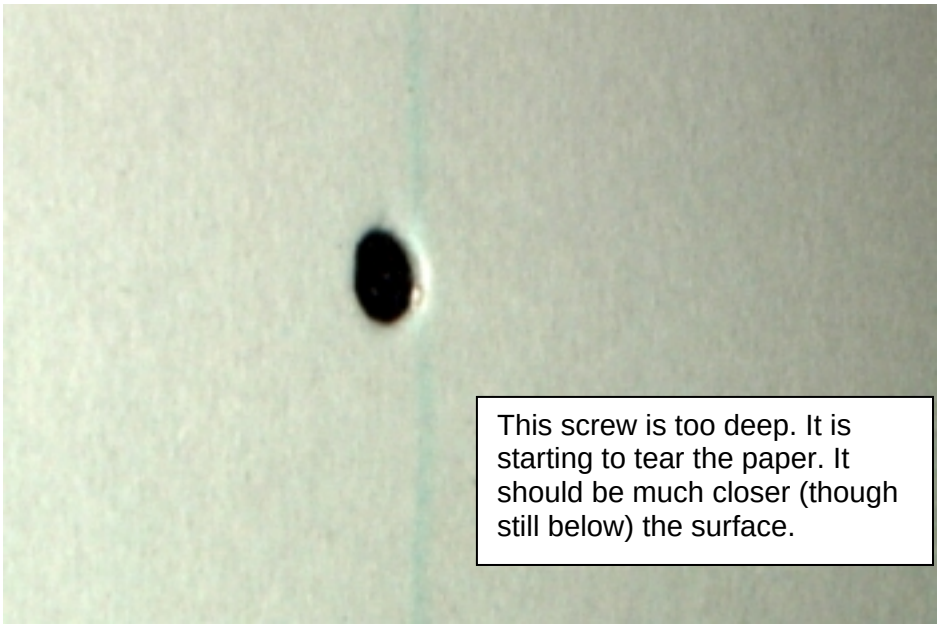
7.4.2 What a pro can do - dry lining/ plasterboarding

Most builders fit wall and ceiling boards and skim over them with plaster (Skim = apply a plaster finish coat). It is far easier to tape and fill joints (see **Section 7.4.7 - Taping and filling.**) even to ceilings. Because the ceiling is above normal vision, bumps are much harder to see. Taping and jointing ceilings is therefore easier in terms of results than doing the same to walls! Ask your potential contractor about this. In either case, perfect results are obtainable from the tape and joint as opposed to tape and skim. Its just not as common an approach and is therefore treated with suspicion.

7.4.3 What to expect of first rate work - dry lining/ plasterboarding

- Bump free! Use your halogen lamp to highlight defects.
- Boards are properly supported. Look for small areas around windows and doors where parts of boards may not be properly fixed to a backing. If you push these boards on the joints, they may move. If you can easily get more than 2mm of movement there is a concern.
- Look for reinforcing band on outside corners. (You will only see this before finishing).
- Look for screw attachment rather than nail. Screws can be fed from auto-feeders that cost about £200 so there is no reason to avoid using them!

- Look for screw penetration. The screw should be below the surface of the paper by about 1.5mm. It should indent the paper not break it! This is important, as the board will not hold on the screw if the paper is weakened.



This screw is too deep. It is starting to tear the paper. It should be much closer (though still below) the surface.

- Again, look for angles in finished walls of 90 degrees not 80 or 100!

Key Tip

If metal banding is used in corners, look to see that the band has been painted where it is cut through at its ends. If not, it will rust and stain the wall! A good tradesman will know this.

7.4.4 Time and cost issues - dry lining/ plasterboarding

A "room" for the case of this table is assumed as 14m^2

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Dry line 1 room	4	£160	£40	£200
Tape and joint 1 room	4	£160	£5	£165
Refinish 1 joint	1	£20	£2	£22
Remove and re-set badly fitted board	3	£40	£5	£45

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

7.4.5 DIY recommendations - dry lining/ plasterboarding

This table contains a list of solutions with a skill and knowledge assessment for dry lining.

Type of solution	Skill level	DIY productivity	Knowledge level.
Fitting plasterboards	3	50%	1
Taping joints	1	80%	1
Filling and feathering joints	6	30%	3

7.4.6 Fitting new plasterboards.

Your goal is to fit boards that:

- Don't move in relation to one another.
- Don't sag.
- Look flat.

You will need to check with your suppliers about support spacing and screw spacing. Generally, all perimeter edges need to be supported. From that point, supports can be spaced as far as 600mm apart. The key point of course is that you are trying to prevent the board from moving.

For solid walls fixing, do one of the following:

- 1. Dab method
- 2. Fix batten to wall and screw to this.

"1" is simpler. Fixing battens means drilling, plugging and screwing. It's OK for small areas however.

Follow these key tips for effective dry-lining:

- Hire a screw gun made for the job. It will have depth control for the screws. Figure on 30 screws per board!
- Work out board cuts ahead of time to minimise cutting.
- Use tapered edge boards if possible (not always possible as you will find)
- Lift board into position using a wedge in the centre only. This will allow repositioning in an angular sense as well as a height sense.
- Use a helper! The boards can be difficult to manipulate. This is particularly the case with ceilings where you would be well advised to make a propping frame.

7.4.7 Taping and filling.

- Tape boards before filling. Use a self adhesive tape (looks like a mesh). This is less robust but many times easier to use. It will almost always work just fine!
- Fill using three layers of compound. If using taper boards then fill the whole taper with the first application. If not then just fill over the tape.
- Use the second layer to fill over any gross defects (like holes). This starts the smoothing process.
- Use the third coat to feather out. Go out as far as you dare. With a taper joint 200mm spread is fine. With a raised joint, go out 600mm (300 on each side of the tape).
- Use progressively less viscous mix. Use thick mix for filling and thin mix for feathering.
- Sand using 150 grade sandpaper on a sanding block between coats.
- Work your trowel diagonally across the join. This will prevent any undulation from developing.

7.4.8 Skimming.

If this were an unbiased DIY ebook, it would tell you how to skim a ceiling. Lucky for you, this is not the case. This ebook is full of opinions. Here's one for you - if you have little plastering experience, in this instance, the result you achieve will likely be as follows:

- Plaster in your hair.
- Plaster on your face.
- Plaster on the floor.
- An irregular mess on the ceiling.
- A stiff neck and sore shoulder

If you want to teach yourself to skim, get trained. However, ask yourself about your motives. Remember you are a businessperson whose focus is first and foremost of profit!

7.5 Ceilings.

There are four fundamental ceiling types:

- Plaster and Lath.
- Plasterboard and skim.
- Plasterboard and Artex.
- Dry line.

Identify by accessing the attic space. Plaster and Lath will look like this:

The other three methods are similar. You will recognise 2400mm x 1200mm plasterboards from above. The only difference in the three latter types of ceiling is the finish:

- The “skim” version actually has a plaster coat over it.
- The Artex version has fancy waves all over it.
- The dry line version is simply taped and filled with a product such as Easyfill.

7.5.1 Locating and understanding common defects - ceilings

Examine your property for the following:

Defect	Explanation
Cracking of plaster and Lath ceiling.	Loss of key is common over time. If you push on the cracked plaster it will move upwards to its original position.
Cracking in plasterboard ceilings.	Drying out (common in new houses). Deflection caused by load on floor above. Structural problems.
Artex	It looks terrible.
Sagging sections.	Improper fixing. A general lack of support.
Whole Ceiling sags.	Lack of structure.
Holes.	Easily patched.
Damp patches.	Check either for roof leaks or plumbing leaks. *
Damp patches that have dried.	Check either for roof leaks or plumbing leaks. *

*Other potential cause is dampness generated within the room. This is particularly likely in a bathroom with poor extraction.

Typical plaster and lath cracks.

The most common problem a renovator will face with ceilings is cracked plaster and lath. There are several good solutions.

- Remove and replace with plasterboards.
- Superimpose plasterboard onto plaster and lath.
- Repair the plaster and lath structurally.
- Repair the plaster with a filler.

The choice between replacing and fixing is usually dependent on the seriousness of the problem.

Filler repairs can last a number of years but the cracks will come back. Structural repair is a fairly simple matter using Plaster of Paris. Removing a plaster and lath ceiling is conversely an incredibly painful task. If replacement is your favoured option due to extensive damage, then consider superimposing as an alternative.

7.5.2 Time and cost issues - ceilings

A “room” for the case of this table is assumed as 14m^2

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Take down 1 ceiling and remove.	8	£160		£160
Dry line 1 ceiling	5	£100	£35	£135
Skim 1 ceiling	4	£80	£20	£100
Superimpose a plasterboard ceiling over a plaster and lath ceiling.	6	£120	£35	£155

See **Section 6.3 - Using the 'Costings' sections** for information on applying these costs to your local region.

7.5.3 DIY recommendations - ceilings

The table contains a list of solutions with a skill and knowledge assessment.

Avoid skimming (see **Section 7.4.8 - Skimming.**), as it requires a lot of skill. Taping and filling a ceiling is awkward work but the good news is that defects are far less visible at ground level than wall imperfections.

If you are inclined to remove old ceilings completely, consider this a good DIY choice as the skills required are low and your tradesmen will be very grateful to you!

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Removing plaster and lath.	1	70%	1
Fitting new plasterboards.	3	40%	1
Taping and filling.	6	30%	3
Repairing plaster and lath.	3	70%	2
Skimming.	10	10%	3

Follow the guide in the dry lining section (see **Section 7.4 - Dry lining or Plasterboarding**) for tips on selecting tradesmen and dry lining methods.

7.5.4 Repairing plaster and lath.

Follow these key tips:

Establish, by pushing the ceiling, how loose the cracked section is.

If the plaster and lath is fairly sturdy then consider filling over it and feathering out the repair. Use Easyfill for this and apply two coats (1 for volume, 2 for finish). Sand between coats and to final coat.

If the ceiling is loose, then do the following:

- Prop the loose sections using a timber strut with a 500mmx500mm board on top. Use multiple struts to cover a larger area.
- Expose the plaster and lath from above (harder in a house!)
- Clean around the plaster.
- Mix and pour Plaster of Paris to re-key the plaster to the laths.
- Once dry, remove the struts and fill as above.

7.5.5 Removing a plaster and lath ceiling.

If the ceiling is seriously damaged, major action of this kind will be required.

Little in life will be as hard to understand as the mess that is possible with removing an old lime plaster ceiling. Be prepared for the following:

- Masses of fine dust that is irritating and impossible to get rid of.
- An unbelievable mountain of timber and plaster.
- A day's work per room.
- Difficulties in finding help to do it.

Follow these key tips:

- Knock out the old plaster as much as possible from above.
- Clear this away before breaking the laths (important).
- Break down the laths and extract all the nails. (You can knock them home but they will interfere with attaching the new boards, as the screws will often hit old nail-heads).

7.5.6 Alternative to removing plaster and lath

Superimposing a ceiling on plaster and lath rather than removing it.

Superimposing a new ceiling is a better solution than removing plaster and lath and is technically sound unless the ceiling joists are operating close to their bearing limit.

How to check the bearing limits of ceiling joists:

If there is a floor above the plaster and lath then the joists should be able to bear the extra weight of the plasterboards. If you have only a ceiling (smaller joists) above the plaster and lath; then walk on the joints to observe how much they bend.

A piece of plasterboard weighs in at around 12 kg. Consider the impact that several more plasterboards added on will have on the ceiling. Discuss this with your surveyor if in doubt.

If you decide to superimpose a ceiling, follow these key tips:

- **Support the edges of boards** by adding timber elements in the ceiling cavity.
- **Mark the position of rafters** on the ceiling by drilling to one side of each rafter and drawing pencil lines on the ceiling.
- **Make a frame** of some kind to help you put the boards in their final resting place.

7.6 Securing items to walls.

This is an important area, as you may want to attach items to your walls without too much fuss and very simply for the purpose of selling a property.

Once the property is sold, these items will likely be taken away - but you won't want to leave great big holes behind!

Here's how to go about hanging items:

7.6.1 Light wall items

For light items up to about 5kg, use self-adhesive hooks. If you are concerned about ripping the paint off the wall once you're done then use 3M Command[tm] attachments. They will remove without pulling paint off.

7.6.2 Heavier wall items

For heavier items, use one of the following:

For dry lined walls (remember the hollow sound when tapped), use a special dry lining fixture such as RediDrive[tm].

For solid walls do the following:

- Drill out with an SDS plus drill (or hammer drill if you want to take five times longer).
- Fit either a hammer fixing or a wall plug and screw. They work in essentially the same way by expanding in the hole that you've made. There is only one important thing to remember when plugging a hole…. the screw you use must:

    a) Be the right length so that it reaches the bottom of the plug once it's screwed in as far as you want it to go.

    b) Be suitably large in diameter terms that it creates maximum expansion to the plug. Use the fattest screws possible for best fixing.

Semi-solid walls

For semi-solid walls, like aerated concrete blocks, try the dry lining fittings or buy special lightweight block anchors.

Right to left: Hammer fixing; drywall anchor; three variations on the solid wall plug. Look at the expansion of the third plug. This is what you need!

8. The Bathroom.

The bathroom is a key area and one that deserves much attention. Bathroom improvements can cover a broad range of activities:

- Simple makeover.
- Total makeover (new suite, flooring etc).
- Entirely new room.

A simple makeover can transform a bathroom in less than a day! If the units are in good shape but the cosmetics are not, you have a great opportunity to add value!

A four bed house with one bathroom is also an opportunity! Look closely at the layout and see where the extra bathroom can come from. One or two en-suite bathrooms are a big selling point!

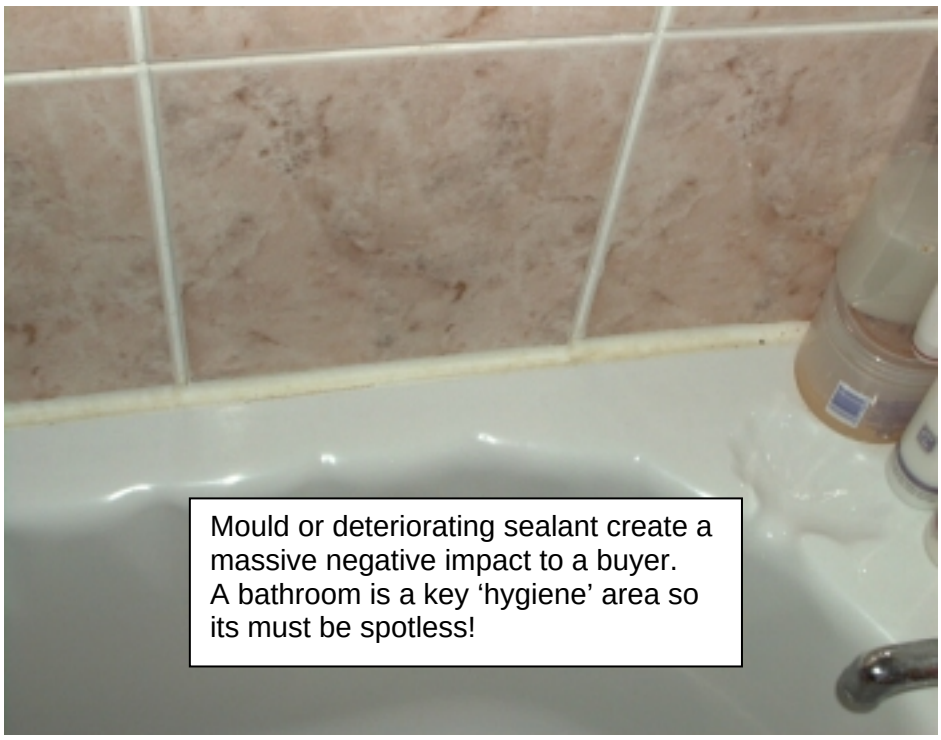
8.1 Locating and understanding common defects.

Look closely for the following defects.

Defect	Explanation
Peeling paint.	Caused by condensation. Condensation forms when steam hits a relatively cold surface. Buy special bathroom paints to re-coat. Scrape and fill loose paint before re-painting to avoid craters.
Mould (around units, on grout, on walls)	Mould resistant sealant needs to be used.
Chipped or stained units.	Examine bath tubs in particular.
Dripping taps.	Worn washers. Easy to fix!
Stained taps.	Consider whether they will clean. Otherwise look at cost of replacement.
Loose tiles.	Water penetrating / poor ventilation

Defect	Explanation
Failing sealant around bath and sink	There are two common reasons: • The sealant got wet before it was dry. • The units are moving. The floor could even be settling so look closely!
Gaps in panelling	Look closely at the quality of carpentry. See **Section 13 - Carpentry** for more info.
Inappropriate floor cover.	Look for warped wood (due to high moisture), or smelly carpets. The good news is that bathroom floors usually have little area and as such are cheap to upgrade. Get rid of the old carpet and put something hygienic in!
Sewer smell.	Look for wet brown stains at the back of sinks and under toilets as there could be leaks. Otherwise, check for traps as the smell may be coming back through the pipes.
Low hot water pressure.	Measure the flow of hot water using a bucket and stopwatch. You need 10 litres per minute + for a good shower. See **Section 11.2 - Plumbing systems** for more info.
No extractor.	These are essential to stop mould.
No heating / heated rail.	Bathrooms are better warm than cold. See plumbing for guidance on how to fit radiators see **Section 11.2 - Plumbing systems**
Insufficient shower pressure.	Check for HOT water flow rate.

Look for the paint peeling here; it's due to condensation forming. Special bathroom paints will resist this happening. Good ventilation is also a requirement. A window that opens is a good option and powered extraction is also a must.



8.2 Opportunities that will add value - bathroom

The bathroom is a huge opportunity to add value to your property.

However, it is possible to have a perfectly functional bathroom that is a buyer disincentive so pay attention!

Try and achieve most of the following if you can in a bathroom:

- **Clean, bright, sparkly. It must glow**!
- Expensive looking **mixer taps**.
- **Separate shower** as opposed to an over bath shower. Power shower if possible.
- **Clean tile surround** to at least the wet areas.
- **Simplicity** with a hint or more of warmth.

- **Good ventilation**.
- **Spot lights**.
- **Hygienic floor** surface.
- **En-Suite bathrooms** (even small ones).
- **Natural light**.

- **A view** (outwards not inward!)
- **A heated towel rail** (chrome is good).

A bathroom with more than a hint of warmth!

Note the carpet. This is UK only so avoid if you have an international market. Hygiene matters more than anything so be careful with frills.

Key Tip

If the option is available to you, make your main bathroom a few m^2 bigger than normal. This, if properly finished, will give a considerable feeling of luxury to the property.

8.2.1 Fit spotlights to highlight finish quality.

If you can achieve the high quality finish you desire, this can be highlighted with spotlights.

Of course, if you have a poor finish, then spotlights will highlight this too!

It is best to fit 4-5 of these lights strategically placed over sinks, toilets and baths. It is possible to buy spotlights with a special extract fan to fit over showers.

8.2.2 Fit expensive taps and handles

It is not usually necessary to fit an expensive bathroom suite.

It is the taps and handles that make the difference to appearance so focus on these. Mixer taps are essential for non-UK customer base. Check out **Plumbing and Central Heating** on how to change taps.

8.2.3 Power shower

A power shower is a great improvement. It's a great selling point and is a far superior option to an over-the-bath shower. At the highest end, consider a double size unit with multiple nozzles. The sky is the limit in terms of cost! The basic requirements are:

- **A decent tray and enclosure** i.e. rigid not bendy! Don't skimp on quality here.
- **A tiled wall** area.
- **A mixer** that has separate pressure and temperature controls.

So what does "power shower" mean? Well, the top end electric showers, at 10.5KW, can deliver up to around 7.5 litres per minute flow at an acceptable temperature. This is pretty good actually.

A good combi boiler (say 100,000 BTU hr) can deliver about twice this at an instantaneous rate. Anything above about 10 litres per minute qualifies in my mind as a power shower. If you are unsure, find a shower you like and measure the rate with a bucket and stopwatch!

If your heating system is based around an indirect i.e. hot water tank fed system, then the pressure you get from the altitude of the tank may not be enough to give 10 litres + per minute. In this instance, you can spend another £100 on a pump this will sort this out!

If you advertise a "Power Shower" and deliver a "Mist Shower" with a flowery curtain over a bathtub you will disappoint your potential buyers. You must do this item right to get the return!

8.3 Find and Evaluate a Pro - bathroom

A plumber or a general builder can fit a bathroom. It is not a particularly difficult thing to do.

Look for the following as demonstrations of good work:

- **The units should be sturdy** i.e. should not move around when you give them a shake. This is particularly important for baths. If they move, the silicone seal between the bath and the wall will break.
- The **sealant should form consistent neat lines**.
- The **wall tiles should be evenly spaced** and evenly laid.
- The **wall tiles should be cut inconspicuously**. The cuts should be no less than 30% the size of the tile (otherwise they catch the eye)
- The **plumbing should be neat** (see **Section 11 - Plumbing and Central Heating**)
- The panelling should be neat (see **Section 13 - Carpentry**).

8.4 Time and cost issues - bathroom

A "room" for the case of this table is assumed as $8m^2$.

Task	Labour Hours	Labour Cost	Material Costs	Total Costs
Fitting a bathroom suite (bath, toilet, sink).	20	£600	£300	£900
Removing old tiles (per m^2)	1	£20		£20
Floor and wall tiling (per m^2)	1.5	£30	£20	£50
Fitting an extract fan	4	£80	£40	£120
Fitting a power shower	20	£600	£700	£1300
Re-grouting $1m^2$	1	£20	£5	£25
Sealing per m	.5	£10	£1	£11
Converting a $6m^2$ bathroom	50	£1500	£500	£2000

See **Section 6.3** - **Using the 'Costings' sections** to adjust these costs for your local area.

8.5 DIY recommendations - bathroom

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Fitting a bathroom suite	5	40%	2
Sealing	3	50%	1
Tiling	4	50%	2
Re-grouting	2	70%	1
Panelling		See **Section 13 - Carpentry**	

8.5.1 Replacing a bathroom suite.

Follow these key tips (see **Section 11 - Plumbing and Central Heating** for more info):

- **Fit taps and other hardware to items before fitting the items** into the room.
- **Do the same with waste plumbing**.
- **Use push-fit connectors**.
- **Fit flexible connectors** to all taps.
- **Supplement the bath frame with additional timber framing** if required to make it totally robust.
- **Tile first** and build units over tiling.

8.5.2 Re-grouting

Re-grouting can add enormously to the perception of "clean" and so it is critical to the success of your bathroom. Follow these key tips.

- **Cut out old grout using a Rotazip** or Dremel type tool.
- **Use a "mix yourself" grout** - they tend to work better.
- Mix only **enough grout for ½ hour** of use.
- **Apply grout with a plastic trowel** and force into the joints.
- **Wipe off excess with a trowel**.
- **Then wipe with a damp sponge** (clean this often with luke-warm water).

8.5.3 Tiling

Tiling is easy if you follow some key rules:

- **Measure your layout to minimise cutting**. Do not produce cuts that are less than 30% of a tile size. Move your pattern around and cut both ends to avoid this!
- **Attach a batten** (a straight one!) to the wall at the lowest tile level (or higher if you have to). Use hammer fixings to attach.
- **Set the tile level below the top of the bath** and attach the bath to the tiled surface.
- **Apply a "mix yourself" tile adhesive** using a serrated trowel. Apply to as large an area as you are comfortable with.
- **Use plastic tile spacers to get your gaps consistent**. Pull them out as the adhesive hardens.
- **Apply the tiles lightly to the adhesive** (without pushing in too hard). As you progress, you can use the depth of adhesive available to even out the tiles should there be any high-spots on the wall.

Key Tip

A final note on tiling: If the wall is excessively uneven, get it plastered before tiling. You will otherwise be constantly fighting the wall as you apply the tiles!

8.5.4 Cutting tiles

Scraper type cutters work well for simple tile cuts.

However, for intricate cuts get a wet diamond cutter for around £39. Try www.screwfix.com for good deals. These machines will not last forever.

Also, be careful. Make sure you have an RCD (Residual Circuit Device - see **Section 10.4 - How this applies to a domestic situation** for more on electrical installations) on the mains and wear safety goggles!

8.5.5 Changing taps

Follow the advice in **Section 11 - Plumbing and Central Heating**

8.5.6 Sealing a bathroom

Again, sealing is a big hygiene factor and will greatly affect the perceived value of your property. Follow these key tips:

- Make sure the surface to be sealed is clean and dry.
- Use a sealant that has a mould-resisting component.
- Spread a thin bead of fill without repeatedly covering the same patch.
- Shape a smoothing tool out of wood (or use the back of a teaspoon).
- Keep water away for the recommended period (or expect the joint to fall apart!)

9. The Kitchen.

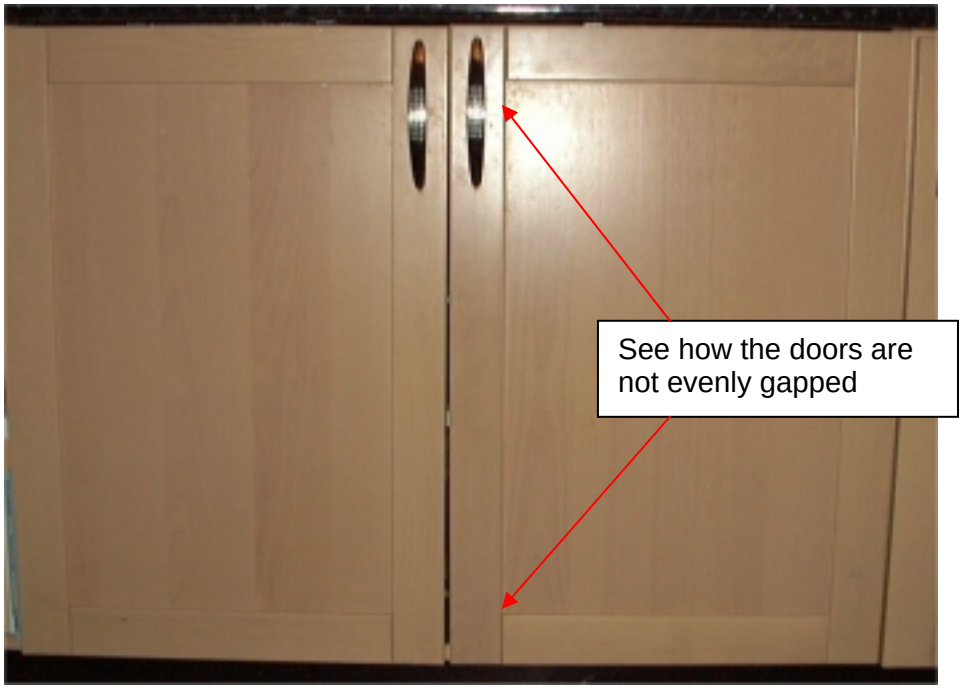
Focus on this room above all else!

At its best, the kitchen is a beautifully crafted room with an abundance of character, warmth and natural light. It becomes, if correctly designed, the social hub of the whole house!

9.1 Locating and understanding common defects.

Look closely for the following defects:

Defect	Explanation
Cabinet doors not hanging straight.	Stress on carcass or hinges not adjusted. Check the hinges for adjustment. If there isn't enough then a little carpentry is required.
Poor Lighting.	Insufficient light or poorly placed light. Natural light is a great asset in a kitchen. After that, good halogen lights highlight features like worktops very well.
Damaged worktop.	Look at the worktops under a bright light to identify excessive scratching and chipping. Look closely at the evenness of the joints. Look for a very close mitred joint rather than one that has a strip over the gap.
Damaged sink.	Again, look for chips.
Leaking or poor taps.	The taps are a significant focal point. Plan on replacing if they are substandard. A good mixer tap is an asset.
Poor flooring.	Plastic flooring is OK at the budget end. Otherwise, plan on replacing.
Odd shapes.	Square is best, galleys are not a good selling point.



9.2 Opportunities that will add value - kitchen

The kitchen is a potentially huge winner in terms of revenue generation!

Yet, a kitchen can also absorb a lot of your renovation budget so shop carefully! A good kitchen greatly enhances the appeal of a property.

9.2.1 How to achieve a £20000 kitchen for around £5000

Here is a list of the things that make a great kitchen - but don't cost a fortune:

- **A good set of cabinets**. If you have old cabinets but they are intact, you can always change the doors and handles. Another good option is to buy down market cabinets and get high quality doors made for them out of an exotic wood like Cherry. The kitchen will look like it cost £20,000 when in fact it cost £5000. This is particularly the case if you use some high-class, hand made ironmongery.
- **Generally, the cabinet finish needs to be a good natural wood**. Plastic is a good alternative in its high density form. Heavily stained woods are a negative because they lose their "natural" feel.

- **Make your doors look natural**. Wood doors, when made by the volume suppliers, end up with a lacquer coating that looks borderline plastic. You can take these relatively cheap doors, strip the lacquer off using Nitromors^{tm} and give them a good natural wax or oil finish. This is less durable but will take you towards the £20,000 look.
- **Use a layout that works** (i.e. the old triangle of fridge, cooker, sink.) that allows for good circulation between key tasks.
- **Plenty of storage space**. Drawer / larder type storage is a useful option and so is a "lazy Susan" corner unit that allows corner cupboards to be more accessible.
- **A dishwasher** or space and plumbing for one.
- **Good quality worktops**. Stone worktops (such as granite) are best but pricey at around £350+ per m^2.
- **A good quality and robust floor**. Stone is a great choice (but can be cold if not insulated or heated from underneath). Ceramic tiles have a similar effect with the added issue that they are slippery when wet. Wood is warmer and is a good choice in the right property. Plastic floors look cheap. Slate starts at £6 per m^2 and is often cheaper than plastic tiles that look like slate!
- **Good natural light**. A kitchen is good if it has an East to South aspect.
- **Good artificial light** to highlight those great worktops. Recessed Halogens are best.
- **Plenty of sockets**. Buyers will often look for and respond favourably to this. It is therefore a low cost "feature".
- **High quality splash-back tiling**. Ceramic tile is fine. Getting it right is a matter of taste.

Remember that that the tiling and kitchen must look…

…Clean-Fresh-Warm.

As a reader of this ebook, please:

a) **DON'T paint cabinet doors with emulsion** of any colour.

b) **DON'T use MDF** over the top of cabinet doors.

c) **DON'T use a zinc sheet** on top of the cabinet doors.

Thank you! ☺

9.3 Find and Evaluate a Pro – kitchen

A kitchen installation spans many skills.

If you buy a high-end kitchen then the supplier will want to fit it for you. The low-end kitchen suppliers have contracted installers who vary in quality. At least if they make a mess of it, you can get it rectified!

If you go the more creative route, you may have to employ a builder or carpenter. Look for these features in good quality work:

- The worktop will be jointed as it turns through 90 degrees. Low quality jointing is achieved with a jointing strip that laps over the top of the joint. **High quality work is cut with a router machine so that the two sections make a joint that is almost invisible**. Run a hand over this joint. There should be no ridge at all between the sections.
- Get down low and look at the lines made between doors, between doors and worktops and between doors and the carcass that is carrying them. **The lines should all be parallel**.
- Look at the handles. Look at how they are attached**. The handles should be perpendicular to the surface** they are attached to i.e. not wonky!
- **Shake the worktop** (up and down). It should not move.

9.4 Time and cost issues - kitchen

A "room" for the case of this table is assumed as $10m^2$

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Fitting kitchen units including trim.	40	£800	£1000 up	£1800 up
Fitting a plastic worktop	8	£160	£40 per m up	£400 up
Fitting a stone worktop	8	£400	£300 per m up	£1400 up

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

9.5 DIY recommendations – kitchen

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Level doors.	3	70%	2
Fit units	4	40%	3
Fit worktop.	8	30%	4
Fit stone flooring.	5	50%	3
Halogen lighting (see **Section 10.9 - DIY recommendations - electrics**).			

9.5.1 Levelling doors.

9.5.2 Fitting kitchen units.

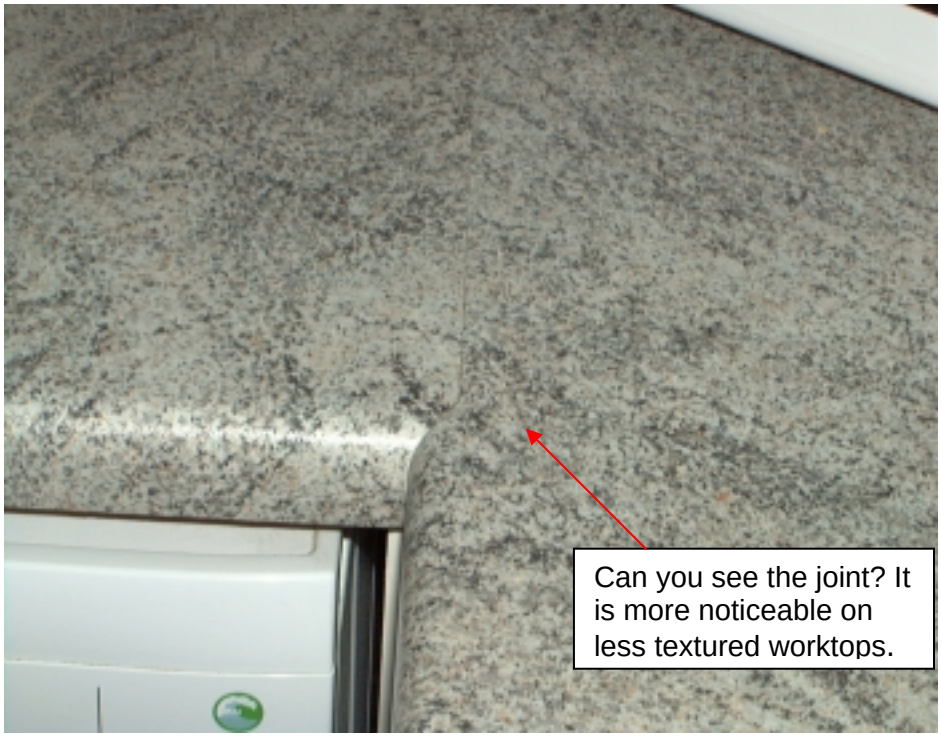
Follow these key tips:

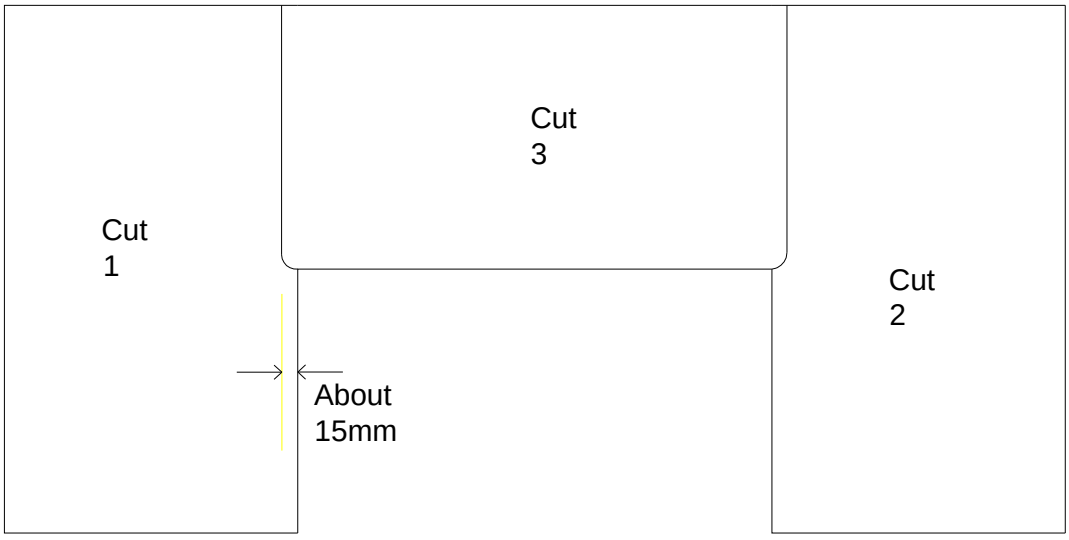
- **Prepare the walls and floor first**. Fit the wires and sockets, tile the walls, tile the floor and put the plumbing in.
- Assemble the units if required **and place the units loosely in place to ensure dimensions work out OK**.
- **Use a spirit level** to get everything in the same plane. Level up the feet so that they are all in contact with the ground. If you do not have feet, use wood or plastic spacers to level up.
- **Screw the individual units together using 30mm wood screws.** No need to countersink the screws, just use round head screws rather than countersinks screws.
- **Next screw the units to the wall. Use 8mm hammer fixings for this**. The advantage of hammer fixings is that you can leave the units in position to drill and fit the fixings. Make sure you don't pull the units out of shape when doing this attaching. If there are any gaps between the units and the wall then fit wood spacers to prevent this "pulling" of the units.

9.5.3 Fitting a worktop.

Fitting worktops is a pretty easy task with the exception of one item – mitring the joints! If you are feeling brave, follow these tips:

- The cuts you make when mitring look like this: (the corners need to have a radius greater than the router bit!)





The only way to cut worktops right is to use a router.

- Make a template of the first cut (using a jigsaw and sanding smooth). This template can then be used to make a second template so that you have a Male-Female pair. Make sure the templates match. You can then use them as a router guide.
- The router should have a straight bit with a bearing guide the same size as the bit. This can then be used to follow the template. The template should be clamped in position to

prevent movement and the cut should be made in a patient way!

- First cut and fit any lengths of worktop that have one router cut only (in this case cuts 1 and 2). Cut slightly long with a circular saw or jigsaw. Next finish them by routing. Fit these in place but do not fix.
- If you have a “U” arrangement then measure the size of the inset piece and cut slightly big. Finish both ends with a router. The parts should then fit together quite well. You may have to re-align the outer bits to get things properly lined up.
- Attach by screwing from below (through the carcasses of the cupboards).
- Seal around the worktop with a waterproof silicone.

9.5.4 Fitting kitchen flooring tiles

Fitting tile flooring is a little harder than tiling walls (as odd as it seems). Follow these key tips for a successful job.

- Buy the right kind of cement based compound.
- Plan out the floor before starting. Make sure you project straight lines in all directions so that you don’t wander.
- Work out from the centre but be careful not to box yourself in!
- Make a firm mix that holds its shape (otherwise the tiles will sink into it) but not so firm that it is difficult to spread.
- Spread about $1m^2$ of compound with a floor adhesive spreader (a trowel with serrations about 8mm deep).
- Rest tiles onto adhesive and push down about 2mm. This leaves plenty of latitude for re-levelling downwards as you go along. This is important with all tiles but particularly so with slate as it tends to be quite irregular in thickness.
- Use plastic spacers (5mm) between tiles.
- Make cuts before spreading adhesive. Use a diamond blade tile cutter bench with water facility (£30-40).
- Keep mixing the adhesive in its bucket (other wise it starts to set).

9.5.5 How to grout kitchen tiles:

- Run wide masking tape down each side of each joint. You will need to do this in one direction and subsequently the other.
- Fill using a small pointing trowel.
- Remove the tape as the grout starts to firm up (not when its rock hard).
- Finish porous tiles (like slate or terracotta) with a tile sealant and then a tile finish (gloss or otherwise).

And that's all there is too it!

10. Electrics

10.1 Things you will learn in this section:

- Some understanding of electrical terminology.
- Knowledge of the key things to look for when assessing a property.
- Some tips on improvements that will add value.
- Tips on finding and assessing a tradesman.
- Time and cost assessments for common tasks.
- DIY recommendations and guidance on how to proceed.

10.2 A special note!

Warning – Be very careful when working with electricity! You can create many dangerous outcomes inadvertently! A sound technical knowledge is required to correctly modify or install domestic electrics. In this area, above all others consider employing a pro!

If you choose to ignore this advice, at least do one thing….

Always use a mains tester to ensure the power is off. Follow these guidelines:

- Buy a simple and reliable device to test. The simpler the device, the less chance of getting it wrong!
- Read the instructions for use!
- Practice using the device on a safe source (like a battery)!

Additionally, when you isolate the power, make sure it cannot be turned back on – without your knowledge!

Some experts test their circuits by checking the circuit is live and testing it is subsequently dead (when isolated). This is more rigorous but exposes the user to risk of electric shock so is not recommended.

10.3 A little theory behind electrics!

It is worth having a little technical know how. Take a whirlwind tour! It will help you talk to the experts! The explanations get progressively more difficult so jump out whenever you've had enough!

Remember that electrical installation is the most theoretical area you will face as a renovator.

So…here we go with a few definitions…

10.3.1 Volts, Amps, Ohms and Watts

Volts – Drives the electricity through the wire (or through you!). Imagine a hosepipe connected to a mains tap. Volts = the pressure of the mains water. Domestic installations use 240 volts. (240v). Some houses have up to 415V for powering heavy equipment but this is rare. You may see it in a farmhouse for example. You would certainly see it in a factory.

Amps – A measure of "current". Simply how much water flows through the hosepipe. Typically in the range 5 to 40 amps (5A-40A) for the individual circuits in houses.

Ohms – A measure of resistance to flow. If you turn the tap mostly off or kink the hose, you get resistance. You've always got some resistance even with an un-kinked hose.

Relationship between the above – Volts = Amps x Ohms

Or…doing a little mathematical juggling - Amps = Volts divided by Ohms

Watts – A measure of power. Multiply Volts by Amps and you get Watts.

Watts = Volts x Amps

Or again being mathematical, Amps = Watts divided by Volts

So for example, a 100watt light bulb will take 100/240 amps.

10.3.2 Circuits and circuit protection devices such as RCDs

Circuit – Unlike our hosepipe example **above**, electrical installations go in a circuit. It is like having a hose connected to a tap at one end and a drain at the other!

Limits to the flow of current – If you turn a tap fully on, that's pretty much it. You get maximum flow. To minimise resistance you can turn the tap on fully and disconnect the hose (the hose has some resistance to flow) and get a little more flow because the pipe resistance has gone (this is one experiment you can safely perform)! **If you remove the resistance to electricity flow, you get a massive build up of current**. You can momentarily get thousands of amps flowing. The magnitude of the rise is huge. Your hosepipe would be shooting water to the next town. That is why electricity is dangerous!

Circuit protection devices – These are crucial. Electrical wires come in a range of sizes. The bigger the cable, the more electricity (current in amps) it can carry. The cable itself does not significantly limit the amount of current it carries. The voltage will be fixed coming into the house usually at 240V. The current is therefore limited by the device connected to it (for the resistance of that device see again the equation above). If fuses or circuit breakers did not protect the circuits, it would be possible to "overload" a circuit by connecting a low enough resistance. The current flow would then exceed the capacity of the cable. **If a circuit is "overloaded" by a little and there is not adequate protection, the cable will get hot. If this trend continues, it will melt and probably start a fire**.

Circuit protective devices come in the following forms:

- **Fuse** – literally a wire that melts when excess current passes through it.
- **Circuit Breaker** – a device that overheats and "trips" itself (opens an internal switch).
- **RCD (Residual Circuit Device)** – not strictly a circuit protector – they are people protectors and are essential!

Remember that the circuit protector must be rated at a significantly lower value than the capacity of the cable. For example …

A lighting circuit using 1.5mm^2 wire has a maximum current capability of about 12 amps.

The protective device for this circuit is rated always at 5 Amps.

There is therefore a considerable (and prudent) margin of safety!

Short circuits – This is the extreme end of overloading a circuit. For example, instead of flowing the electricity through a device that has reasonable resistance (e.g. a 100w light bulb has 575 ohms resistance) you connect through a device that has low resistance (a spanner for example may have a resistance of .1 ohms). In this example, you would get a massive surge of current. The protective devices are designed to trip as quickly as possible to limit this rise. Work it out for yourself using the equation Amps=Volts divided by Ohms. A human by the way does not have very high resistance. **0.020 amps is enough to kill a human**. That's why electricity is dangerous!

This is also why a house has a "fuse box"!

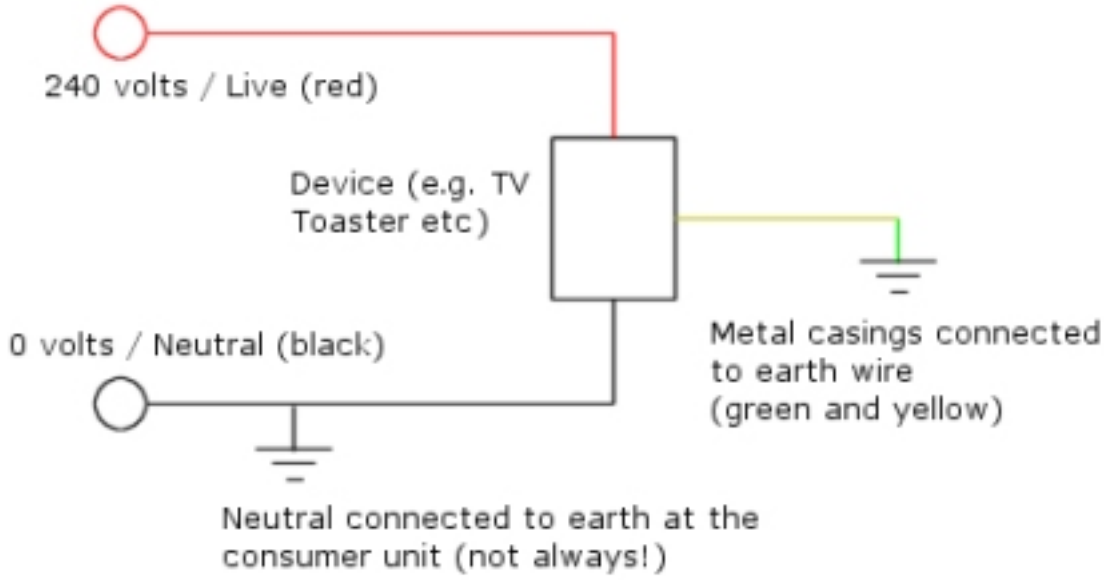
10.3.3 Types of current, live and neutral

DC – Direct current – A tap on one end of the circuit, a drain on the other. On a battery, the "+" is the tap (called the positive), the "–" (called negative) is the drain.

Path of least resistance – Electricity will divide itself into multiple paths in proportion to resistance of those paths. If it "sees" two paths – one of 100-ohm resistance and one of 10-ohm resistance, most, but not all of the flow will take the path of least resistance.

AC – Alternating current - All domestic supplies are AC. It's a little difficult to grasp but essentially the flow goes (as above) from the tap to the drain but then they swap ends and the water flows the other way. It does this 50 times a second (50 cycles or Hertz….that's Hz!). Many devices don't mind the alternating nature e.g. a kettle, light bulb. They just take the energy out of the flowing electricity (like taking fish out of a moving river). Other devices convert the AC to DC internally e.g. your TV.

Live and Neutral – These are the two ends of an electrical supply. The live is the tap, the neutral the drain. The live is usually red, the neutral black. Note this changes to brown and blue at device level! The neutral wire is connected to earth (practically zero volts) somewhere within the electrical system (usually in your home next to the electrical meter). The live wire is usually at 240v. The diagram below explains!



Key Tip

Consider the effect on you, as a layperson, if the wire colours do not follow this convention! You could easily get a nasty shock! A pro knows all the ins and outs. Apply your limited knowledge very carefully and respect the danger that you are working with!

10.3.4 Earth in electrical terms

Earthing literally means the "The Earth". Electricity will flow easily through the Earth.

Connecting a live wire to the earth (e.g. through a person - not a good idea!) will give a complete circuit. That's why cables are protected with insulators.

The earth wire – normally green / yellow stripe or a bare copper wire - does not normally carry electricity. It is literally connected to earth, either outside your home or more normally somewhere further down the line. It is best explained using an example:

Example of earthing

An electric toaster uses a conventional 13 Amp supply taking its energy from the current flowing between the Live and Neutral terminals.

A live wire comes loose within the device and touches the metal casing. The casing is now live but does not necessarily have a current flowing. If it is touched, the current will flow from the casing, through the person, to earth (commonly called “ground” as well).

A safer bet is to connect the metal casing permanently to earth. The electricity flows down this wire to earth in the event of a fault and trips out the protective devices. The most likely device to trip will be the RCD since its purpose is to measure this type of “leakage” to earth.

People protection – The RCD (Residual Circuit Device). The RCD is nowadays incorporated into the consumer unit (proper name for fuse box).

It detects leakage to earth as would occur through a human body (see the toaster example above). Look for a 30mA (***milli-Amp*** current rating) on the device.

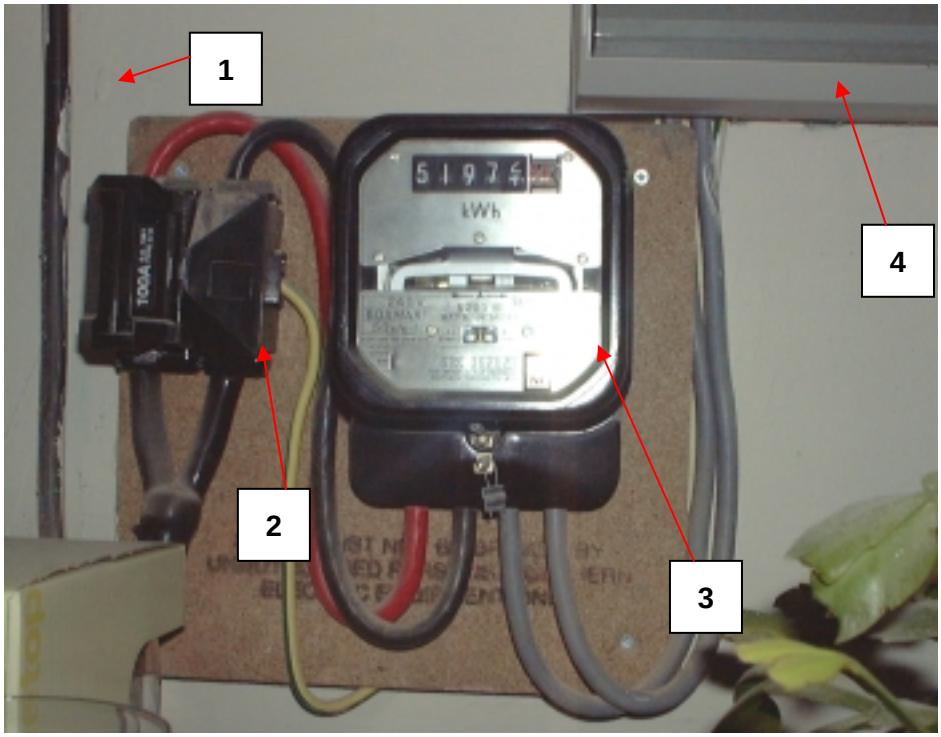
State of the art electrical supplies have a “split box” (see picture below). This allows sockets to be RCD protected but devices such a freezers not to. This is because RCDs are so sensitive that they can suffer from nuisance trips.

10.4 How this applies to a domestic situation

A domestic installation has a mains supply from the supply company that usually comes into a house (or to an outside white box) in a black steel reinforced (armoured) cable. The cable is capable of delivering more than 100amps under normal operation. It arrives underground or overhead.

The incoming cable goes through a main fuse (usually a black box about 100mm x 50mm). This is not yours so don’t touch. 100 amps would be a common rating from this fuse.

The supply then goes through a meter that of course measures the amount of electricity being used. This is the one part of the system everyone knows about!



1. Main cable into property
2. Electrical company fuse (the main cable goes into this). See the 100 Amp rating.
3. Meter. Look for the live and neutral wires going into it. The earth wire is going directly to the Consumer unit (4.)
4. Consumer unit

The supply may at some point go through a mains RCD (Residual Circuit Device). It will have RCD written on it. This is typical for first generation RCD based systems. Modern systems have the RCD in the consumer unit.

The electricity supply will make its way to a consumer unit.

This consumer unit is usually the first point in the system that is owned by the property. At this point, the supply is divided into separate circuits, each of which feed separate devices.

10.5 Locating and understanding common defects.

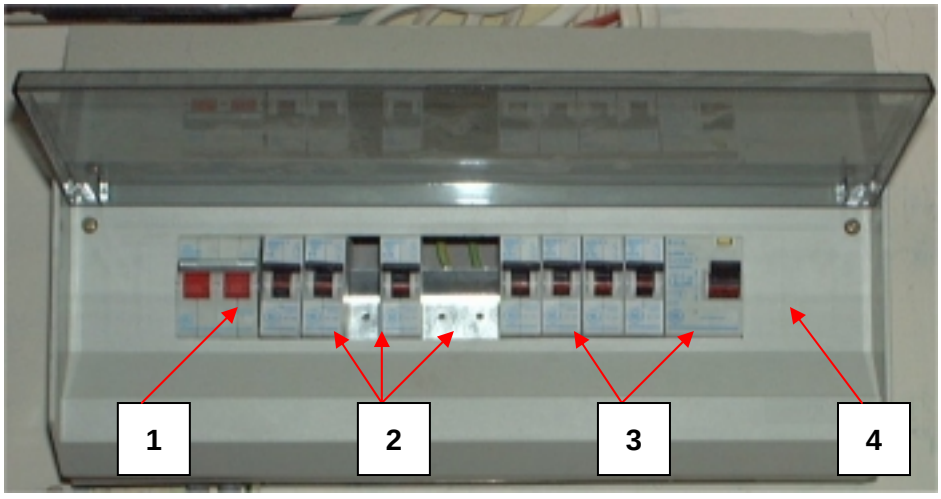
Look closely for the following defects:

Defect	Comments
Fuse box rather than circuit breaker based consumer box.	A fuse box can be perfectly safe but is indicative of an old system that will probably need replacing. There is usually a screw cover over the fuses. The circuit breakers are usually evident from the surface of the box **Look for the little reset switches. If you do not have these, you have fuses**.
No consumer box.	You've probably failed to find it. If you cannot find it call a pro.
Suspect fuse arrangement.	**DIYers going where they shouldn't go! Call a Pro**.
Burning / browning around sockets holes. Check them all.	Overloading through the use of adapters. If not, the sockets themselves do occasionally play up. Easily fixed by replacing the face plate.
Sockets with round pins or anything not conventional looking.	Old age. Must remove.
Improper earthing.	Always get a pro to check out a system. There are standard compliance checks that relate to safety. A pro should provide a safety certification.
Misaligned sockets / switches	Poor installation. There is quite a bit of movement allowed by unscrewing the cover a little, twisting and re-screwing.
Unconventional circuits	See notes below.
Polarity problems.	Installation errors.

Defect	Comments
Old wiring. Anything that's round rather than oval in profile. Anything that looks brittle (don't feel unless you know there is no power in).	Old age. Must be replaced.
No earth bonding, supplemental bonding etc.	It's not always present in older installations. Its important for safety and you cannot certify a system as safe without it!

Look closely at the consumer unit. The best you can expect is a circuit breaker split box. Look at the photograph below. The red switch to the left is the main isolator. The switch to the right is the RCD (Residual Circuit Device - look at the marking, for the 30mA rating). The devices in the middle are the circuit breakers. They protect individual circuits. Note that this box is incomplete in two ways:

- The blank spaces should be filled with plates supplied with the box.
- There are no labels for the circuit breakers. There should be!



'Consumer box' – commonly called 'Fuse box'

1. Mains isolator switch
2. Non-RCD protected circuit breakers (lights, freezers etc)
3. RCD protected circuit breakers
4. RCD (can be switched off too)

The breakers to the right are fed through the main isolator and the RCD (Residual Circuit Device). In this split box there are five. They are RCD

protected. This means they will trip very quickly in the event of an earth fault (like you touching a live wire). The five or so to the left are not RCD protected. They are used for devices that tend to leak to earth anyway (cookers, freezers etc) and hence become a source of nuisance tripping.

Commonly, sockets are protected by the RCD (Residual Circuit Device), other devices are not.

If you do not have a split box, look for an RCD in any case. This may be in the consumer box or it may be external. Internal RCDs tend to be more recent. This system may suffer from nuisance trips from the cooker etc and is therefore less common these days. In any case, look for the presence of circuit breakers.

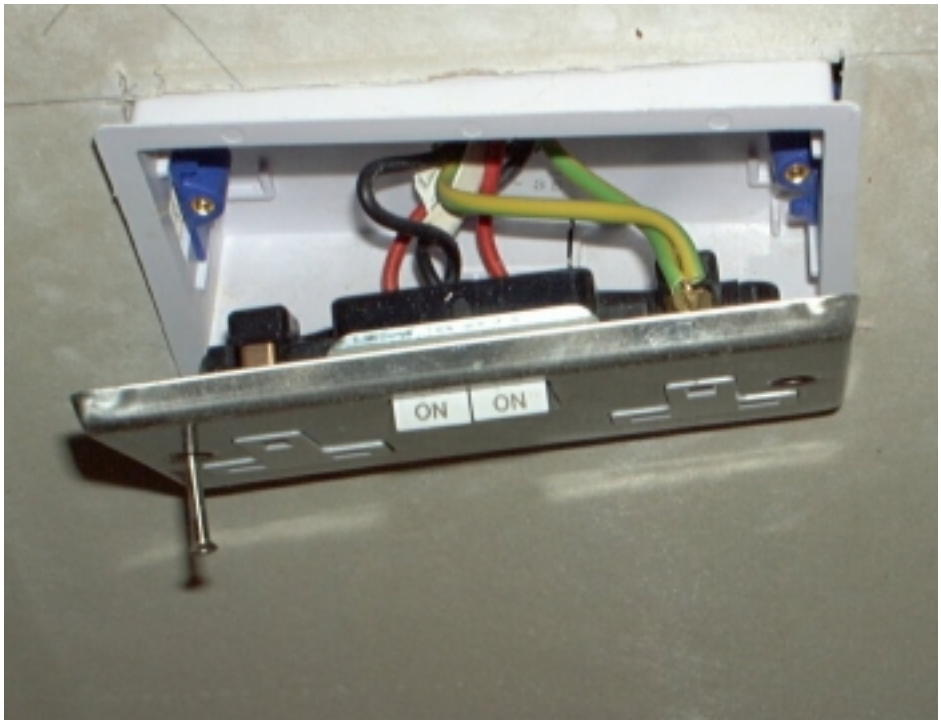
If you do not have circuit breakers, look for a fuse box. You should see a row of holders with blue, red, yellow or white dots on them (corresponding to the fuse rating). This should be replaced.

If you are comfortable isolating the supply at the distribution box, unscrew a socket cover and look at the wiring behind.

Look for the following features for a state of the art system.

- 2x reds (live) twisted together and screwed into the cover.
- 2x blacks (neutrals) twisted together and screwed into the cover.
- 2x Earth wires (bare wires) twisted together and screwed into the cover.
- The earth wires should have green and white sleeving over them.

10.5.1 Electric sockets



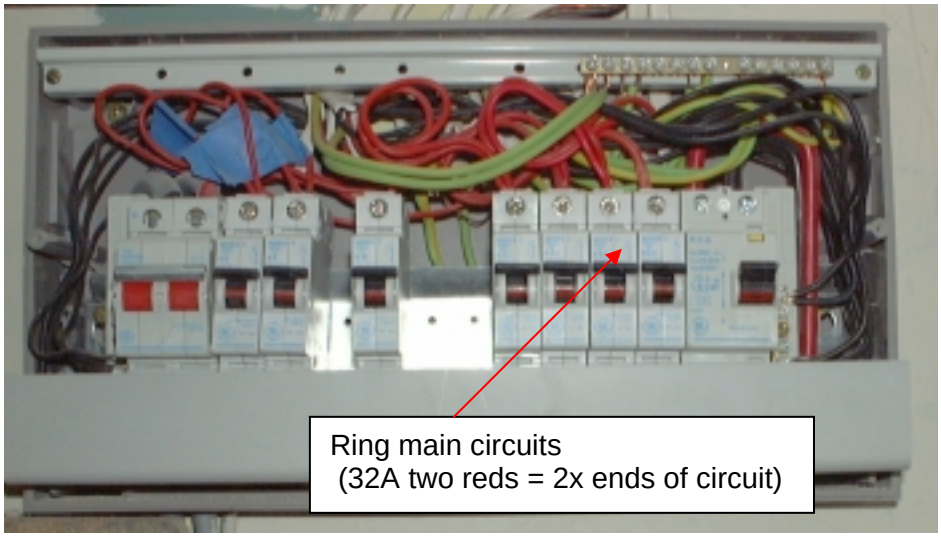
If you have three wires in each bundle, that's ok. You have a loop in, loop out and a spur. This is a connection to another socket close by. That socket will only have one of each wire.

The earth sleeving is the most likely feature to be absent. This shows a system that is not state of the art. If it has circuit breakers it is likely to be OK but not completely current.

Isolate the supply on the consumer unit and check the circuit breakers. Do not touch anything! Don't forget that parts of the consumer unit are still live (the wires coming into the main red isolator)! **If you do not completely understand what you are doing then stop!**

10.5.2 Ring Main system for electrical sockets

You should have at least one circuit breaker rated at 30A with two live (red) wires connected into it. You may have more than one. Two to three separate 30A circuits are common. This circuit is a "ring main". This is the modern Convention for feeding sockets.



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10.5.3 Radial system for electrical sockets

This system has two live wires going to each socket (apart from spurs). If you have multiple 20A circuits instead of 30A circuits with only one live wire connected to each circuit breaker, you have a radial system. This may still be OK but does raise suspicion that the system may need replacing.

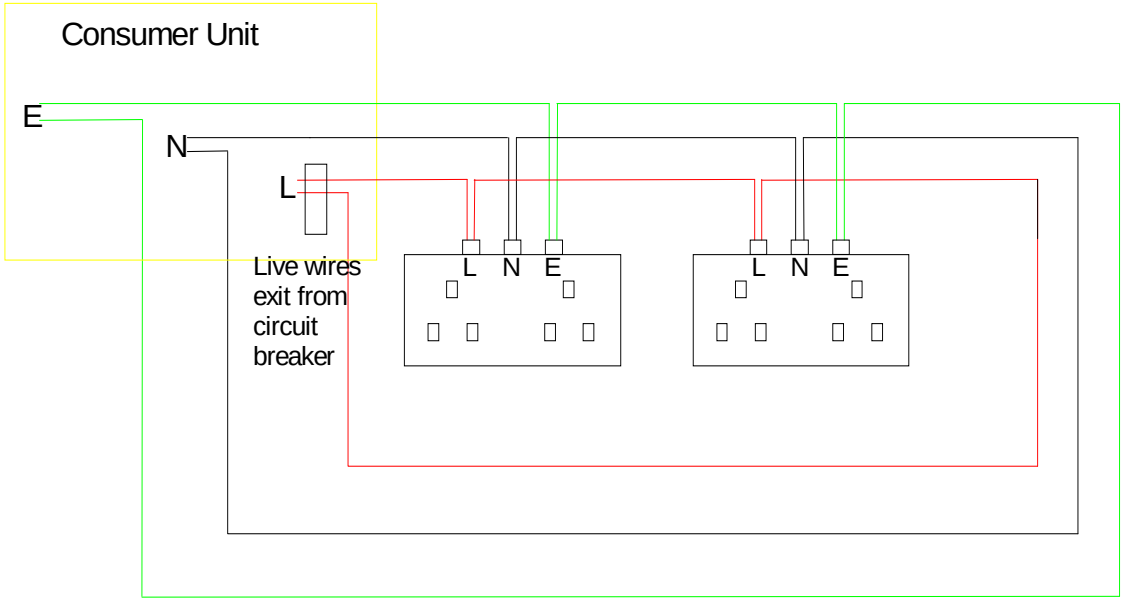


Diagram shows Ring Main circuit

10.5.4 Labelling circuits in the consumer unit

Check the consumer unit for labels. A good electrician will label all the circuits so that subsequent visitors will know what's what.

Look again at the circuit breakers. You should have a good collection that is something like the following:

- 5A – lighting
- 5A – lighting
- 15A – freezer
- 30A - Cooker
- 30A – Ring main (sockets)
- 30A – Ring main (sockets)
- 45A – Electric shower

Multiple circuits should be evident for sockets and lighting unless you have a very small property.

10.5.5 Testing your electrical system

If you are inclined, buy a plug in polarity tester. Polarity crossing is quite common and can be dangerous (this is where live and neutral get crossed over at some point).

RCDs (see Section 10.3.2 - Circuits and circuit protection devices such as RCDs) must work so they are worth verifying. This is a standard test for an electrician so "sub it out" (meaning give it to a subcontractor – a common trade term) if you want.

Look for anything suspicious like balls of tape around cables, chocolate block connectors or wire nut connectors. The latter two are OK with low voltage systems like spotlights but not OK at 240 volts!

10.6 Opportunities that will add value - electrics

- **A modern consumer box**, modern PVC wiring, good earthing and conventional outlets are essential.
- **An RCD (see Section 10.3.2 - Circuits and circuit protection devices such as RCDs) protected system is a must**.
- **Dimmer switches** are a good bet for dining and living rooms.

- **Consider using fancy covers** for light switches, dimmers, and sockets.
- **Add more sockets** if they are obviously lacking. Adding a "spur" like this is not too challenging.
- **Adding an alarm** may be a good option in some areas. It must be discreet enough that it doesn't "worry" potential customers into thinking there is a crime problem.
- **Spotlights** are a good feature for kitchens and bathrooms.
- **Extractor fans** to bathrooms are a good practical feature. May be marginal buyer appeal. They are a requirement in all new building work (building regulations).

Fancy switches (this one is brushed stainless steel) come in at around £3 - £6 each.

10.7 Find and Evaluate a Pro - electrics

Look for the following features in a good (new) installation.

- **A split Consumer box with RCD (see Section 10.3.2 - Circuits and circuit protection devices such as RCDs).**

- **Circuits marked** (on the consumer unit) showing what each circuit breaker switches.
- **Any blanks in the consumer unit blocked with plastic covers**.
- **Neat wiring** running flat to the wall out of the consumer box.
- **Sleeving on earth wires** (there are no bare wires without the sleeving).
- **Cables laid neatly in the loft**. They may not be neatly clipped which is OK if they are out of the way. They should be above the insulation. They should not present a trip hazard to people accessing the loft although they will be evident running loosely in non-pedestrian areas.
- **Covers to sockets**, light switches etc level.
- **A test certificate**.

All electrical installations should be checked. Checks are mandatory for rental properties and new installations. They are also wise in other cases.

10.8 Time and cost issues - electrics

This applies to a typical 3 bed house. Bungalows are simpler overall (less under-floor wiring) so subtract 20% for the bigger jobs.

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Ripping out.	8	£160	£0	£160
Chasing and lifting boards (making cable routes)	40	£800	£0	£800
Complete rewire including consumer box. (Add)	40	£1500	£350	£1850
New consumer box only.	8	£250	£130	£290
Adding a spur to a room.	8	£240	£15	£245
Adding 6x spot lights using existing light switch and supply)	8	£240	£100	£340

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Changing a cover to brass etc or fitting a dimmer.	.25	£5	£8	£13
Changing a light fitting.	1	£35	£0	£35
Adding a light switch to a room.	4	£120	£20	£140

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

Key Tip

Beware of having to cut walls and lift floorboards to access cable runs. You may have to do both to complete seemingly simple jobs like adding a socket. This can be very time consuming and very damaging to the property.

10.9 DIY recommendations - electrics

About 50% of refurbishment electrical work involves non-electrical activities. If you want to DIY, you can do many of these. Most wiring runs between floor (under floorboards), in lofts, and under plaster. Your electrician will thank you for helping because they don't like doing it!

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Ripping out.	1	70%	2
Making cable channels to walls.	2	50%	2
Removing Floor boards.	2	50%	3
Fitting low voltage lighting.	4	30%	4-7
Changing light fittings.	3	70%	4-7
Changing covers.	2	50%	3

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Adding a Spur.	3	30%	8

10.9.1 Ripping out.

You don't have to rip out old wiring unless it is somehow in the way or causing some other problem. Otherwise it's OK to leave dead wiring. If its convenient however, take it out as this avoids future confusion. Follow these simple steps:

- Talk to your electrician about what you need to take out.
- Get him to permanently isolate the consumer box (do something more permanent to switching it off like disconnecting some major wires).
- Confirm what is safe and what is not safe to cut.
- Just cut it all out and put it in the skip.

10.9.2 Preparing cable channels and metal box holes for sockets etc

Cables cannot just run anywhere (except in a loft!). They must be run ideally vertically away from an outlet. Other alternatives are allowed, but best stick to the vertical rule!

Cables usually drops down walls under plaster coat. If you have dry-lining walls see **Section 10.9.3 - Running new cables in dry-lining walls**

Cables need to be dropped in channels that are wide enough only to incorporate the cable.

Cables are often run under plastic channel covers but there is no absolute need for this. The advantage of covers is that it is possible to move the cable around, take it out etc. They can be safely run just clipped to the wall underneath the plaster (clip to the joints if the wall material is hard brick). The plaster must be thick enough to take the thickness of the cable + the clips (they stand off a little). If in doubt, chase out some of the underlying material. This is hard if the walls are made of brick so beware!

As well as cutting a channel, **you also need to cut a home for the metal clad box (KO box)** for the socket. This metal box fits into the wall and

forms the back end of the item. The cover that contains sockets, switches etc is screwed to this.

Follow this procedure for chasing channels and holes for the metal box:

- Select a position above the floor for low level and chest level boxes i.e. sockets and light switches.
- Hold a small spirit level to on the top face of the box to level the box and mark around it with a pencil.
- Mark the cable runs using a spirit level to give a vertical line.
- Hire a diamond blade cutter (Make sure it has a top class metal blade not an abrasive blade) set to the right depth. Better still, get a wall chasing machine that has a diamond blade and a dust extract connection to a vacuum.
- Score the walls.
- Chisel out. Best use an SDS+ with hammer stop and chisel attachment) Look in www.screwfix.com for plenty of examples.

This is a very dirty job. It will totally mess up a house so beware!

Also, the hole you have cut needs to be filled with plaster. This is time consuming work as well! See **Section 7 - Walls Ceilings and floors.** for information on this.

An alternative is to run cables and boxes on the surface of a wall. Use plastic ducting to cover the cables. Do this only at the lowest end of the property market. It is ideal for example for a student let. Beware however of short term strategies. You may want to sell your "long term student house". A buyer may not like surface mount electrics.

10.9.3 Running new cables in dry-lining walls

It is better to run new cables in dry-lining walls by going "up and over" rather than horizontally.

The wood "studs" that carry the plasterboards run vertically. They are usually spaced at 400,450 or 600mm intervals. There will also be horizontal "noggins" that you will need to drill through to place the cable. The best approach here is to take out a whole section of plasterboard from stud to stud. This allows for a properly supported repair to be made afterwards and for noggins to be drilled. Follow these tips:

- Use a stud detector to find two studs in the right location.

- Turn the power off.
- Mark with a pencil and use a sharp knife to cut the plasterboard down the centre of each stud.
- Cut a handgrip hole or two in the middle of the section to be removed.
- Pull out the board.
- Repeat this exercise at the other end if necessary.
- Run the new wiring. If there are any horizontal timbers, drill a 10mm or so hole through them at least ½ way to the back of the member (to stop future screws being drilled into them!
- Fit a new section of board with a cut-out for an electrical point and repair as per **Section 7 - Walls Ceilings and floors.**
- If the wall had a plastic membrane under the plasterboard, repair this as it prevents moisture passing into the wall.
- Run the cable into the sub-floor area above and down through another section.

10.9.4 Removing floor boards.

The advantage of DIYing this part of the work is that electricians, again, hate this type of work and will love you for it!

This work also translates to good cost savings.

You are most likely to encounter strip-wood flooring made from a softwood such as pine or Douglas fir.

If the floors are pre 1940 they will be of a higher quality than more recent examples that are faster grown, softer and moisture laden. If you do have this type of floor, it is best to salvage as much as possible as it is an excellent reclaimed material. If you intend to tear up sections of floor to place services, try to patch with reclaimed material rather than new.

You may encounter man made boards in newer properties. These are of little residual value.

As a general rule, for real wood in any event, the tighter the gaps between the boards, the better they probably are for reclaiming.

One feature almost all real wood floors will have is that they will have tongue and groove joints. At least one board has usually to be cut to get this type of board up!

They will not therefore simply lift apart unless you can work from one edge. Lifting boards is hard work so this approach is unlikely. The most likely approach is as follows:

- Locate cable runs as best you can. You can buy a sensor for detecting cables and/or metal for example. Isolate all electrical circuits at the consumer unit. Isolate gas if you can.
- If nails are clearly evident, the tongues are OK to cut. If not, the nails are probably in the tongues so look out. If the latter is the case, cut down the middle of the board. If the former, cut the tongue.
- Move a little (150mm) away from the cable run and set out to cut the tongue (or otherwise) out of one board run.
- Use a powered circular saw for this. Set the blade depth so that it matches the board depth (normally around 19mm) less a little. Find a scrap section to check depth of cut.
- Run the saw down the joint between the boards.
- Setting the correct height is crucial if you want to avoid cutting through cables / pipes that may be cut into joists just below the surface.
- Lever the boards up using a crow bar working up and down the length of the board.

10.9.5 Fitting low voltage spotlights.

Buy low voltage 50w lamps for improved safety. These will plug or screw connect into a transformer. This transformer will connect into a lighting circuit.

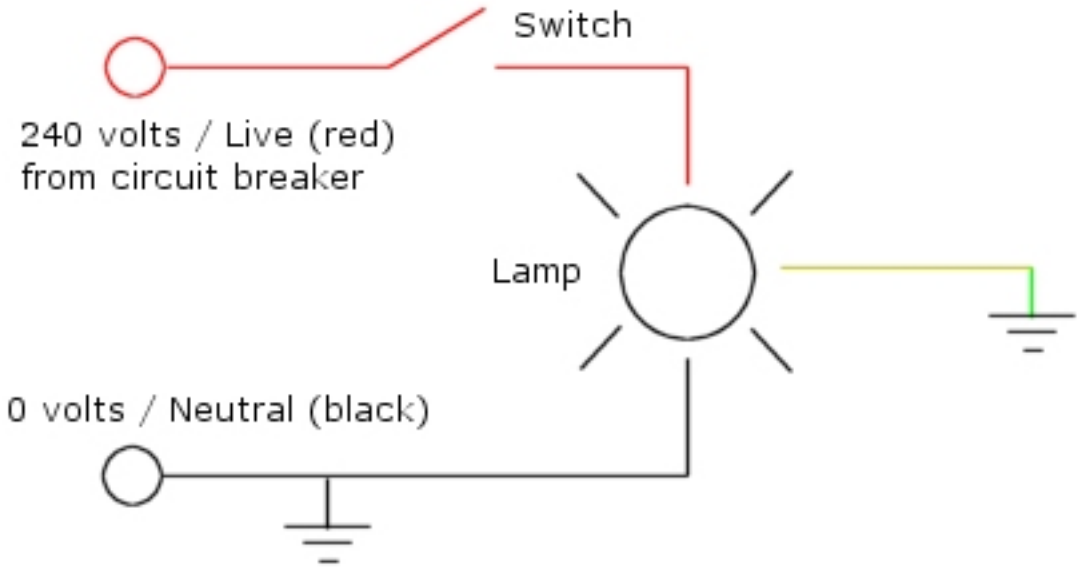
Isolate all electrical circuits at the consumer unit before doing any work!

These lights fit flush to the ceiling through a hole that will vary in diameter according to lamp supplier but will typically be 50-75mm. Follow these key tips:

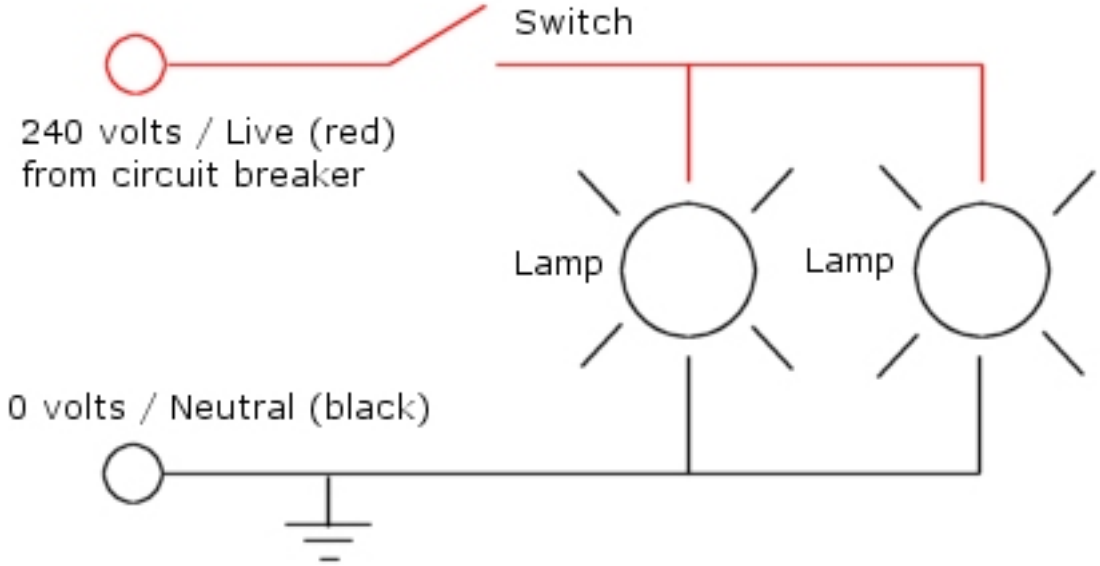
- Mark cut-outs according to preferred positions (usually over worktops, sinks etc) in some sort of pattern.
- Drill a small centre hole (about 10mm). Don't allow the drill to penetrate more than about 15mm or you might hit something (like a pipe).
- If the void above is accessible, place a little plastic tubing through each hole to indicate its position and inspect above to ensure you are clear of joists, pipes, cables etc.
- If the void above is under a floor, remove enough floor boards to expose the light positions. Consider this option carefully as its much more work!
- Find a route to the electrical supply. If it is linked to the existing light fitting and that will remain then follow the instruction for "terminating" below. Otherwise, you may be better working in partnership with an electrician, again saving money by doing some of the work yourself.
- You may need to run cables passed joists. In this case drill a hole through the middle of the joist. Do not notch the tops of joists as this weakens them!
- Mark and cut out the holes required with a hole-saw, jigsaw or small pull-saw.
- Fit the wiring as per the manufacturers' instructions.
- Connect in the lamps and fit into the ceiling holes.
- Turn the electrical supply back on and test. If there is a problem, don't forget to turn the supply off before diving in!

The diagram below should help.

It can be confusing in practice because as well as the circuit for the lamp in question, it also has a loop that "jumps" to the next system. Imagine putting several of the diagrams on top of each other with a link live-live-live and neutral-neutral-neutral. Make sense?



Or for two or more lamps……



10.9.6 Changing a light fitting.

Light fittings are fairly easy to change. There are two essential components:

- Mechanical fixing.
- Electrical fixing.

The ceiling covering will only withstand the weight of lightweight fittings. If you have a modern plasterboard ceiling (see **Section 7.5 - Ceilings.**) you can use special drywall fittings. Two of these will hold about 15kg in this hanging orientation. If you have plaster and lath or the weight is above this, fit a wooden member between ceiling timbers to take the weight. Again, in this instance, access above is a crucial consideration.

Electrical fixing will be through one of the following two methods:

- If the existing light is fitted to a round box that is on the ceiling surface, you can either leave it there (if the new fitting fits over it) or remove it. If you remove it, the box must be replicated in the ceiling void as it has a loop to other lights on the circuit. You can do this by marking all the wires and carefully reproducing with a junction box.

- If the box is already in the void, you need to replace the existing connection to the lamp with the new ones. Follow the instructions and use the fittings that come with the lamp to do this.

Make sure the power is off before doing this!

10.9.7 Changing switch covers.

New covers will fit to the existing back up box. Simply isolate the electrical supply, and replace making sure the wires are re-secured properly and to the correct markings:

Live (L) = Red wire.
Neutral (N) = Black wire.
Earth (E) = bare wire covered with a green / yellow sleeve. (fit this if it is absent).

If you get it wrong you can cause electric shock or fire. Call an expert if in doubt!

10.9.8 Adding a spur (a new socket).

- Verify that you have a ring main circuit by checking for 30A circuit breakers in the consumer box with two live (red wires connected) to the 30A circuit breaker (see **Section 10.5.2 - Ring Main system for electrical sockets**)

- Locate your new box chasing out walls as appropriate.

- Find a nearby socket and ensure it has the following wiring:

  2xReds twisted together.

  2xBlacks twisted together.

  2x Earth wires twisted together.

- Otherwise, if you have a radial circuit (20 Amps) (see **Section 10.5.3 - Radial system for electrical sockets**), link to any three pin socket. Make sure by the way that you don't cross connect sockets and lighting circuits or any other circuit for that matter!

- Wire and fix the new end first to minimise electric shock risk.

Make sure the cable enters and is terminated correctly. Follow these simple rules.

- Leave sufficient length on the cables so they don't pull too tight.

- Make sure that when you strip insulation you don't damage the insulation you want to leave intact.

- Bare only enough wire to connect in to the terminals. You will need more to create twist connections but try not to have any exposed bare wire once the wires are in their terminals.

Follow this link to the electrical installers governing body:

www.niceic.org.uk/ The National Inspection Council for Electrical Installation Contracting

11. Plumbing and Central Heating

11.1 Things you will learn in this section

- Some understanding of plumbing systems.
- Knowledge of the key things to look for when assessing a property.
- Some tips on improvements that will add value.
- Tips on finding and assessing a good tradesman.
- Time and cost assessments for common tasks with tips and warnings.
- DIY assessment.

11.2 Plumbing systems

The word “Plumbing” represents several key systems in your property:

- The hot and cold water system (see **Section 11.3**)
- The central heating system (see **Section 11.4**)
- The waste system (see **Section 11.5**)
- The rainwater disposal system (see **Section 11.6**)

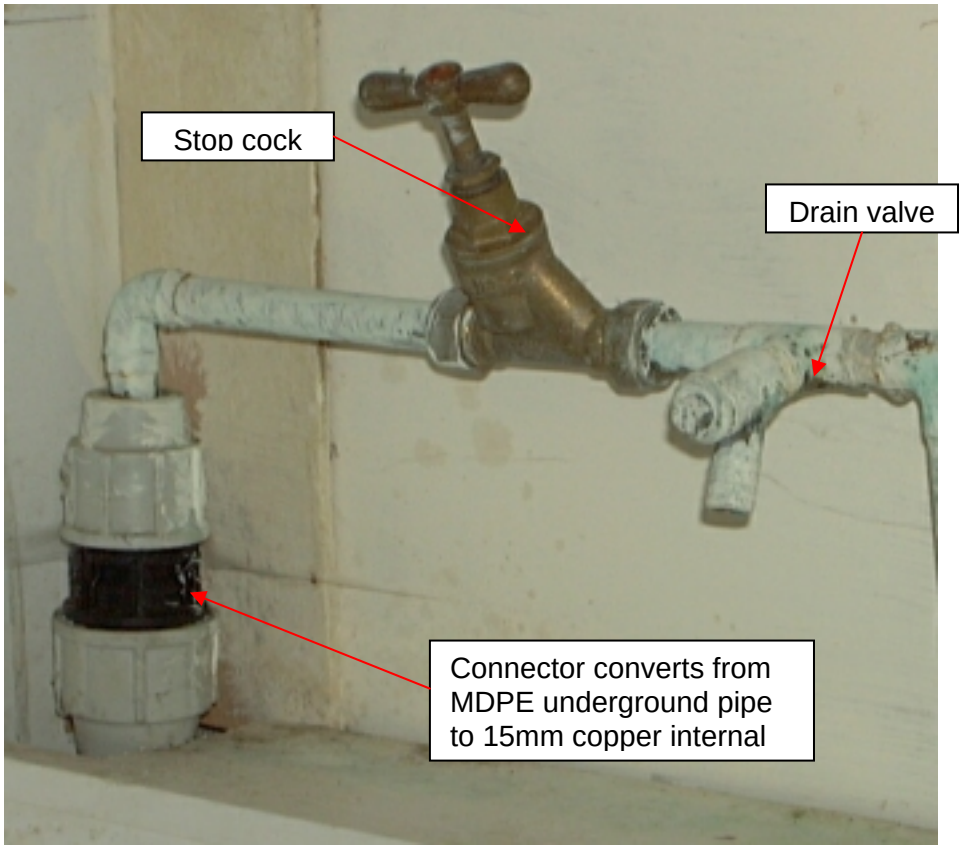
11.3 Cold water system.

Cold water enters your property (from the “mains” system in the street) in an underground pipe. This pipe is usually made of Iron, Copper, Lead or Plastic. Plastic is the good option, the others have issues as described below:

- **Iron** will give a good initial burst of brown water when you turn your taps on.
- **Copper**, if used externally in this way, can give an initial burst of blue water although this is rare.
- **Lead** will slowly but surely poison you.

Read about common defects (**Section 11.7 - Locating and understanding common defects - plumbing**) for more advice.

The cold water supply makes its way passed a stop cock valve (see below). This is usually located in the bathroom, utility or kitchen. From here, it makes its way to various cold water taps and to the central heating system.



11.4 Central heating system.

The central heating system has at its heart a boiler that uses a fuel (coal, oil, or gas) to heat water. There are several variations on the system from this point on. We will consider two types of heating system that are most relevant:

- Vented (Indirect) system.
- Sealed / pressurised system.

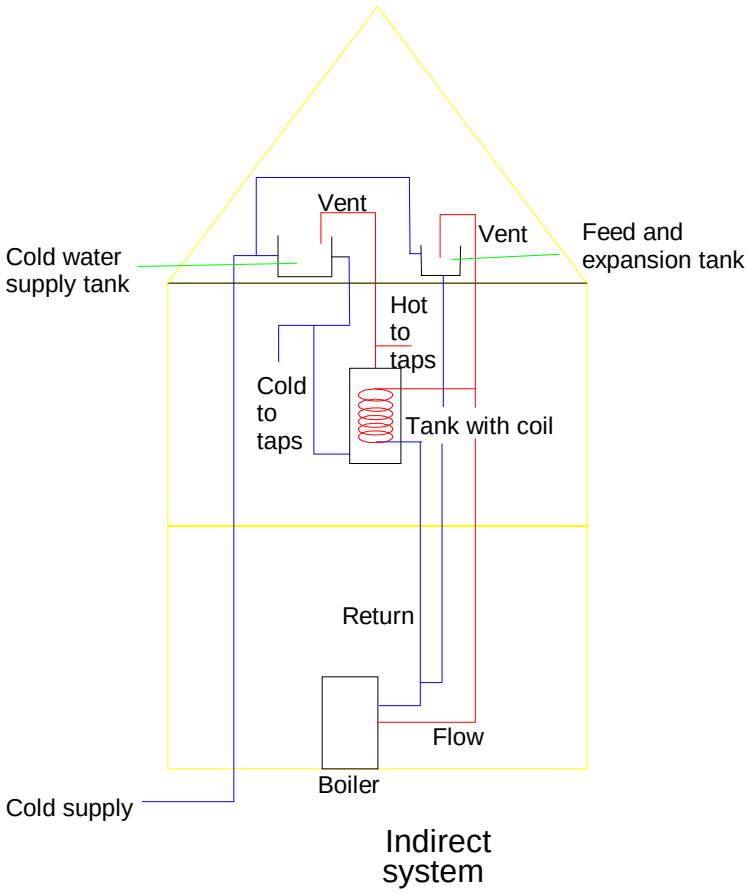
11.4.1 Vented or Indirect central heating system

The Vented or Indirect system utilises a hot water storage tank (commonly made from copper and often surrounded by some type of insulator) to deliver hot water. This has a cold water tank to keep it topped up. The boiler makes hot water and runs it through a coil inside the hot storage tank to heat the tank's contents.

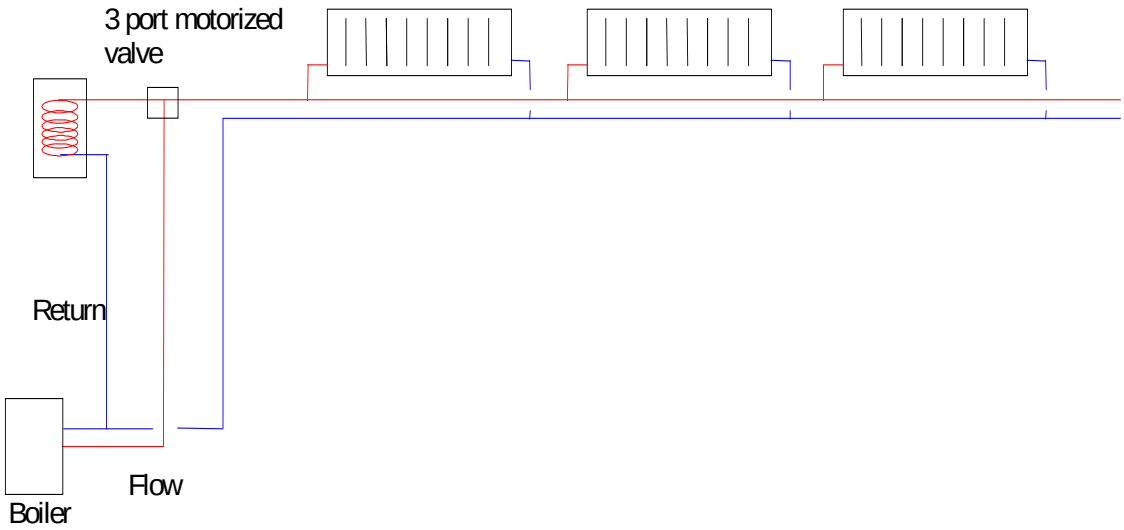
The heating system also has a cold water tank that keeps it topped up. Both cold water tanks are supplied by the mains water and contain a float valve. If you get overflowing water from the loft area, it's probably because one of these is not working.

Both tanks, in any case, will be fully enclosed (or should be) and will be insulated. The main principle of this type of system is that the hot water from the boiler circulates through the tank (and also through radiators) in a loop.

Often the water is pretty dirty looking water and it is isolated from the hot water supply by the tank coil, hence the name 'indirect'. The drawing explains all!



Indirect system



The radiators are on the same (dirty) circuit as the coil the hot water tank.

The motorised valve is controlled by the heating controller. If the thermostat asks for room heating, this valve diverts the flow of water through the radiators. Otherwise and assuming the tank thermostat says the water needs heating, the boiler heats the hot water in the tank (through the heat exchanger coil).

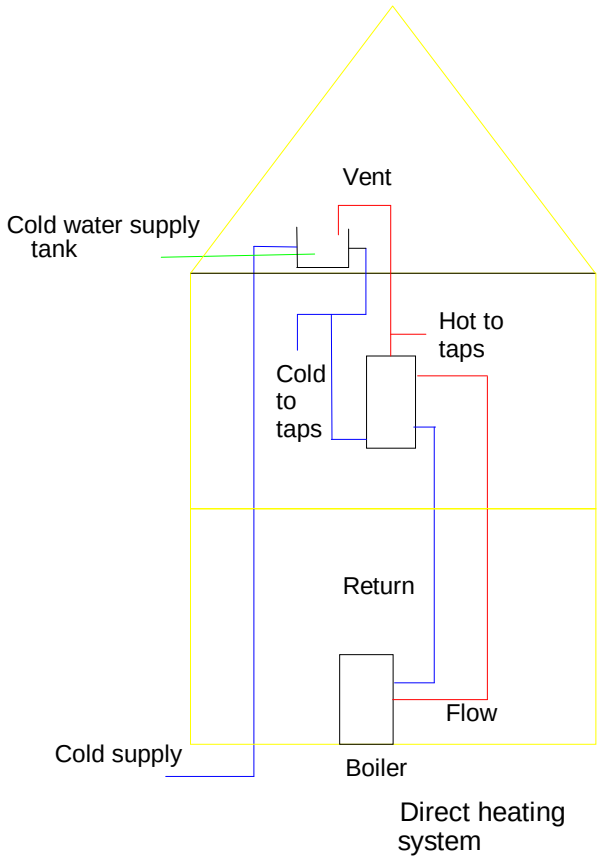
There are many variations on the theme of open vented systems although the one shown is the most contemporary.

Lesser indirect central heating systems may have only one loft tank. This system may still be indirect but as you can see there is not proper separation between the boiler / radiator loop and the water to the hot taps as the vents to both sides of the system return to the same cold water tank.

11.4.2 Direct vented system

The Direct vented system is even more compromised. This has no isolation between the boiler loop and the water to taps**.**

Therefore, the chance of contaminated tap water is therefore high.



It will be necessary for you to trace through your system to find out what type you have. **It may be worth replacing a direct system**.

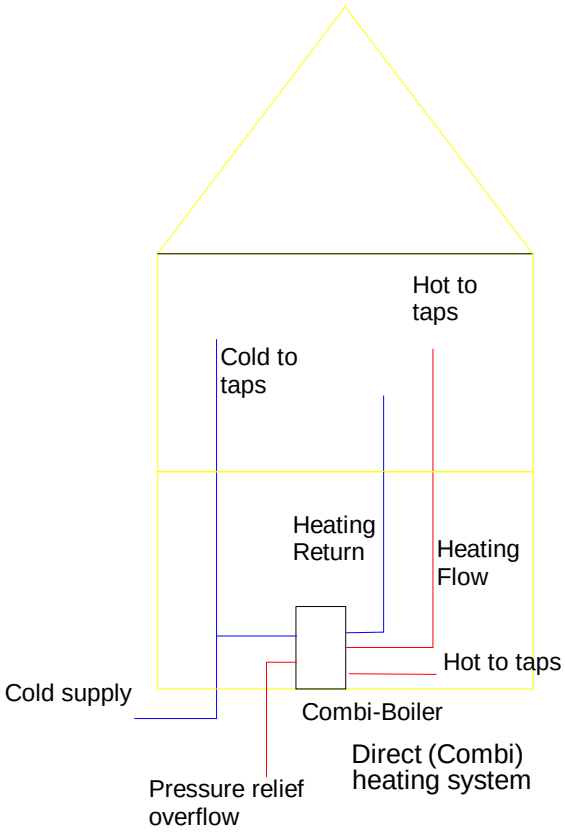
Generally, one cold water tank is a problem. Two indicates a good system, none indicates a sealed system.

11.4.3 Sealed central heating system

The sealed system does not have a tank for hot water storage.

This is a much simpler scheme that simply heats water from the mains on demand. Again, however, the radiators are in a separate loop to the hot water tap supply. Radiators often corrode internally and this separate loop has a corrosion resistant chemical installed.

Most elements of sealed systems are often contained within what is called a Combi-boiler. The scheme is shown in the drawing.



This type of system is fairly simple to install. However, the system should be made operational by a trained technician. In fact, if the boiler uses gas as a fuel, it is a legal requirement that a CORGI registered gas fitter carry out this part of the installation including firing up the boiler for the first time.

If you are buying a Combi system, get one with a high flow (20 litres per minute+) of hot water. This will ensure your power showers work properly!

See www.corgi-gas.com for the Council for Registered Gas Installers

11.5 Waste water systems.

Once hot and cold water have been consumed, they pass along plastic pipes to underground drainage or waste water systems.

The water (plus bonus items) from your toilet, sinks, washers etc pass through a series of traps and large bore pipes (usually range from 35mm for a sink to 100mm for a toilet).

The traps have a simple function. They create a water seal between the appliance and the sewerage system. They are crucial for hygiene! It

is also important (to prevent traps being sucked dry) to limit gradients on pipes leading away from traps.

These pipes will all terminate in one of three ways:

- **Into a vertical "stack" pipe with a vent on top**. This passes underground into a manhole. In older houses (i.e. pre 90s) these pipes were outside the property. This is still common today though builders and buyers prefer them to be hidden inside the building. In this instance, the top of the stack is fitted with a valve that lets air in (again to limit siphoning) but does not allow smells out!
- **Into a gully which is a discharge "pit" fitted into the ground**. (This should only be done for ground level drainage to again avoid siphoning).
- **Directly into a manhole** in the case of a ground level toilet only.

11.6 Rainwater systems.

Water from your roof is caught in guttering at roof level. It is carried downwards in drainpipes into underground pipes that carry it to a soak-away (a soak-away is usually a hole filled with stones or similar). The purpose of roof drainage is threefold (and not a lot of people know this!)

- To take water away from your property so that you don't have puddles.

But more importantly …

- To stop water accumulating around the foundation area and eroding the structure of the building.
- To stop roof water hitting hard areas (like paths) around the property and splashing onto the walls of the property. If unmanaged, this can cause damp penetration.

11.7 Locating and understanding common defects - plumbing

Look closely for the following defects. There are an amazing number of things that can go wrong, particularly with older heating systems:

Defect	Explanation
Brown water from cold taps .	Iron pipes. Either accept or replace.
Lead pipes.	Common before the thirties, Many houses have lead pipes supplying the property. Look at the pipe leading to the stop cock. If it is highly irregular commonly with pronounced bulges, then it is lead. This applies to pipes inside the property as well.
Insufficient hot water.	If the water is coming from a tank (just search the property for it!), is not getting hot enough or is in short supply, the tank is probably full of lime-scale. If your property has hard water (boil it in a kettle and look for lime-scale) then this is only a matter of time!
Cold radiators.	If most radiators are hot and one or two are not then a pocket of trapped air is probably the cause. Open the bleed valve (located at the top of the radiator) with a spanner. You will usually get a spurt of air followed by a stream of water. Close the valve when the water emerges.
Rattling pipes.	Pipes need to be clipped at regular intervals. If you have rattling pipes simply add more clipping. If this doesn't help then the system is taking in air and an air separator will need to be fitted. It is not a big job but best call an expert for advice.
Leaking radiators.	Radiators will eventually corrode at their bottom end. They will typically leak around the connections that are made to them. Look for signs of brown marks emerging from the radiation connections. Replacing a radiator is simple if you can find an identical size unit. If you can't, you will have some plumbing work to do. These days you can buy push fit copper connectors to connect copper to copper. You can also buy similar radiator valves that make fitting easier.
Lack of hot water pressure.	If you have a hot water tank, the altitude of the tank determines the pressure. The solution to low water pressure is to lift the tank higher (or to fit a water pump)

Defect	Explanation
Lack of cold water pressure.	Either… • Crushed main supply. • Stop cock not working either in property or out in street. Check with water supply company, as it may be their problem.
No electrical bonding.	Taps should be connected together with an earth bond (green and yellow wire). This is a safety feature to limit risk of electrocution and is legally required.
Poor waste trap arrangement.	If you don't have traps you will get smells. Easy to fit except in inaccessible places (like behind a bath panel or under a shower tray)
Toilet doesn't flush correctly.	If the toilet is not filling correctly, the float valve inside must not be working. Simply observe the operation and replace if defective (the float should follow the water as it rises. Low water should give high flow and high water no flow)
Dripping overflows.	As above. In this case, the high water level is failing to close the valve property.
Blocked drainage.	May be a simple blockage. This is usually a simple matter to resolve. Lift manhole covers to inspect. Use a "snake" to clear. Look out for old clay pipes that may have collapsed or may have root penetration.
Dripping taps.	Washer seals have failed. Simple maintenance will usually resolve. Isolate supply
Sewerage odour.	Traps absent? All appliances should have traps of some kind. Look at the slope of the pipes. They should slope gently. If they do not, fast running water can siphon the water from the traps. Upstairs bathrooms should run into a large bore (typically 100mm) stack pipe. Leaks? Inspect for brown marks around joints.

Defect	Explanation
No isolation.	There are several points in a plumbing system where isolation valves are highly desirable: • Where the water enters the building. • At the point were washing machines etc are connected. • For outside taps. There are many other areas were it is useful!
No drainage to heating system.	If you want to change a radiator, or do any work to the heating system, you have to drain it. There should be drain valve at low level in the system that you can connect a hose to.
Insufficient heating even when system is fully functional.	If the radiators are hot, but the property does not get hot enough, you either have… • Insufficient radiator area or • Too small a boiler or • Both of the above.
No controls.	The best alternative is a thermostatic timer. This combines the function of timer switch with temperature control.
Leaking or damaged guttering and drainpipes.	If the system is metal, the joints may be corroded. If plastic, it is probably in need of replacement. Metal is pricey, plastic cheap. Look for straight lines and guttering free of debris as a sign of a well maintained system.
Lack of insulation.	All parts of the heating system should be insulated. Look particularly at pipes in lofts, water storage tanks (cold and hot) and overflows from lofts. Practically anything to do with water in the loft can freeze if not protected**. Frozen pipes often fracture and flood houses so treat this as a priority!**
No overflows.	This is quite common. Toilet and loft tanks should have these. So should sinks and bath tubs. Check the plumbing to verify presence.
Dripping overflows.	This is because the float valves are not working quite right. They have adjustments that you can fiddle around with. Resolution is by trial and error.

11.8 Opportunities that will add value.

A good heating system is a must! Go for the following for best returns:

- A large capacity combi system (hot water on demand even for power showers).
- A natural gas system (if present in the street). Next best is oil.
- Heated towel rails.
- Sleek radiators.

Avoid the following:

- Air ducted or electric heating.
- Coal power.
- Bottled gas (great for cooking, very expensive for heating!)

Other than this, everything must work as it should.

Guttering is one significant item commonly outside this category! The most common feature of an older property will be guttering full of moss and leaves with loose joints and the leaks that come with it!

11.9 Find and Evaluate a Pro.

Look for the following:

Neatness!

- Where pipes are visible and run side by side, they should be parallel.
- Pipes that turn should do so through 90 degrees not 85 degrees!
- Pipes should be clipped to walls etc at frequent intervals (every metre or so).
- Pipes should not be obstructive or be an eyesore. Look under the sink for discreet plumbing (or otherwise)!
- Look for isolation and drain valves in multiple strategic places. Some examples are – coming into sinks, washers, toilet cisterns, a boiler or pretty much any other device.
- If the joints are soldered, the solder should form a neat silvery ring that runs around the joint. There should not be great splashes of solder in evidence.

Law for any gas-related work requires CORGI registration. Check out your plumber by calling CORGI!

11.10 Time and cost issues - plumbing

Task	Labour Hours	Labour cost	Material Cost	Total Cost
New natural gas heating system to new 3 bed house	60	£1800	£1200	£3200
New oil system (combi) as above	80	£2400	£2200	£4600
As above, old property	100	£3000	£2200	£5200
Replacing a water main (10metres long with digger)	10	£350	£50	£400
Above without digger access	20	£400	£50	£450
Dripping taps	.5	£30	£3	£33
Fit a trap	1	£30	£4	£34
Add a radiator	7	£210	£50	£260
Fit a new boiler	8	£240	£600	£840
Fit an isolation valve	2	£60	£3	£63
Replace a 6m section of plastic guttering	8	£160	£30	£190
As above in cast iron	10	£300	£180	£480
Fit guttering and down-pipes to 3 bed house	30	£600	£200	£800
Replace 3m of sewerage pipe	20	£400	£40	£440
Fitting a programmable thermostat	8	£200	£35	£235
Fitting above and below ground drainage to a new bathroom	40	£1200	£200	£1400
Fixing a poor toilet flush	1	£45	£10	£55

Remember that high level work (above 1.8 meters) requires scaffolding that is very expensive!

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

11.11 DIY recommendations - plumbing

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Fitting a trap	1	70%	1
Accessing pipes, chasing walls etc	6	30%	3
Adding a cold water tap	3	30%	5
Adding a hot water tap	5	30%	5
Drains from a sink	5	30%	4
Adding a washing machine drain	5	30%	
Adding a radiator	8	30%	7

11.11.1 Avoid heating systems

The heating system is best avoided by DIYers as it is easy to compromise! If you want to DIY, focus on the other plumbing areas. We've added radiators as a DIY option because it is a popular one.

Professional plumbers usually use traditional copper piping with soldered joints. If you decide to DIY, then you can avoid soldering by using push fit connections. These are available for copper or plastic pipes. The one significant advantage is that connections are simple and can be made wet.

Plumbers are experienced enough to solder joints with a low failure rate. As an amateur, your failure rate could be 25%+. Every time you get a leak, you have to drain your system and re-solder once the pipes are dry. This is time consuming and demoralising. You can also use push-fit type connectors to make quick pipe repairs. You can buy special flexible connectors for this.

Key Tip

Avoid soldered joints!

11.11.2 Fitting a sink with taps and drains.

Use these key tips to make the job easier!

- Route the drainage system before fitting the sink. The drainage should progress without too much slope to one of the following:
- A vertical pipe, usually 100mm or so in diameter that goes into the ground. This is a soil pipe. To get into this, a special port (called a manifold) needs to be inserted into the pipe. This is a matter of cutting with a hacksaw and fitting in appropriately.
- A gully. This is a pit in the ground that the drain water flows into before entering the underground drainage system.

The point of both of the above is that they prevent siphoning (and hence removal of water from traps) by allowing the water to accelerate out of the pipe that is carrying it without sucking the air out of it.

- Fit the taps according to the supplier instructions before fitting the sink.
- Fit flexible connectors (about 300 mm long with a stainless steel braiding around them) again before fitting the sink. Buy the sort with push-fit type connectors.

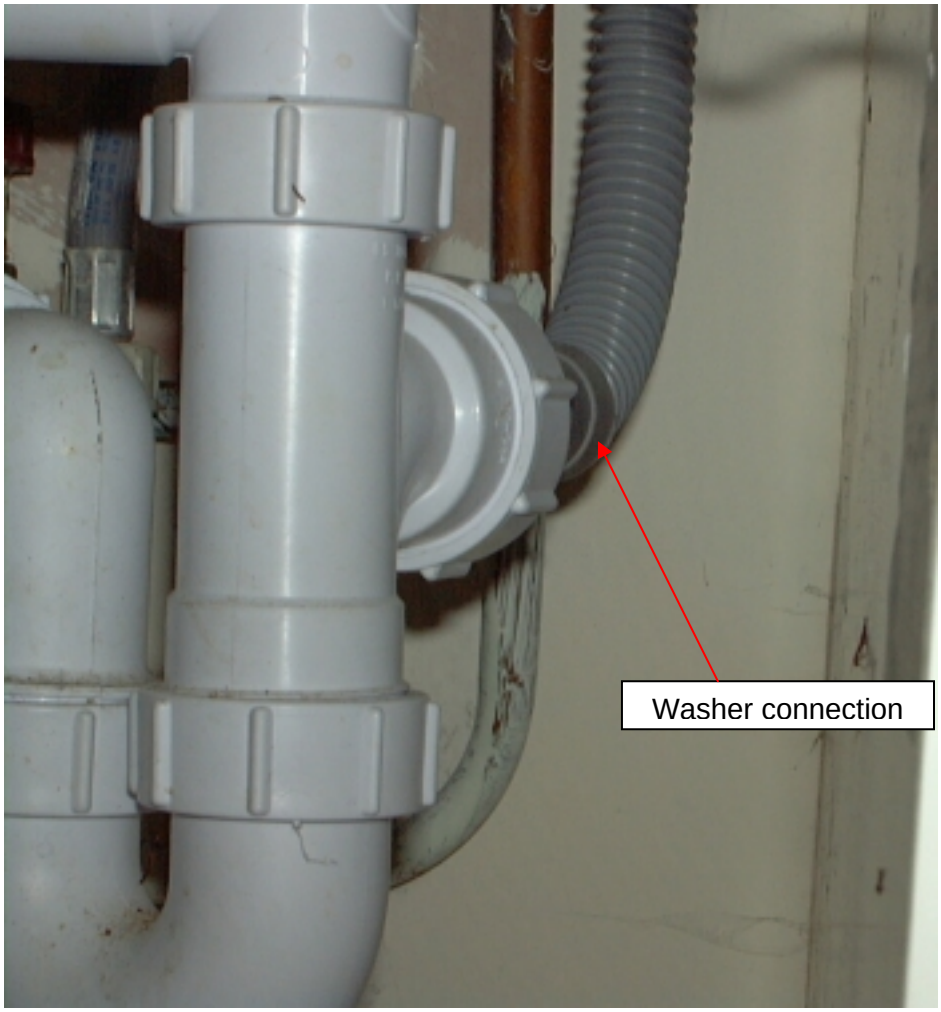
- Wrap all screw connections with 10 turns of PTFE tape. If the pipes are more than 22mm use a pipe sealant compound instead of tape.
- Isolate the water supply. Run other taps to drain the system. Open and drain via drain valves if present. Avoid draining the central heating system!
- Cut into the closest supply pipes. Be prepared to catch un-drained water (there will be some!)
- Use push-fit “T” pieces to interface.
- Run flexible pipes using push-fit connectors as required.
- Fit isolators near the taps.
- Route the pipes to the flexible connectors on the taps.
- Re-pressurise the system and check for leaks.
- The push-fit type of connector has an “o” ring seal inside. If you get a leak, it’s usually because you have unseated this. Remove the joint, carefully re-seat the o-ring and try again. If this fails, replace the connector.

These connectors go under different names. “Speed-fit” for example.

Push-fit parts of various kinds. The part on the far right is a flexible push-fit tap connector. It's a real bonus!

11.11.3 Adding a washing machine drain

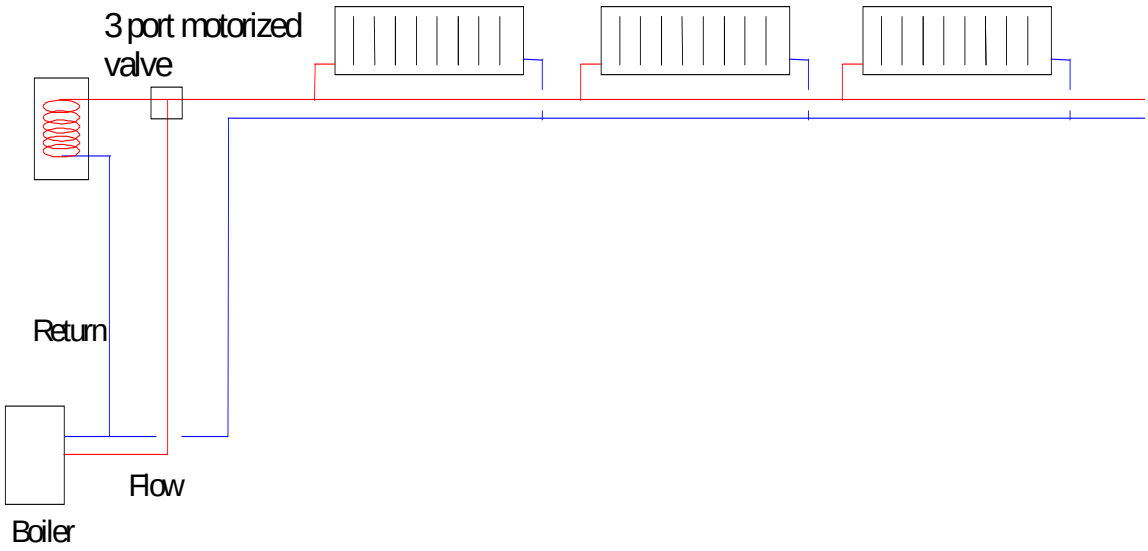
Washing machines have a flexible tube coming out of them that needs to sit in a "U" tube. This acts as a trap and also minimises resistance to flow. This is important to minimise wear on the washing machine pump. Just buy one from a shop and fit to the wall behind the washer. Alternatively, if your washer is close to your sink, fit a trap with a washing machine adapter.



11.11.4 Adding a radiator.

This is a pretty simple job with a couple of possible complications.

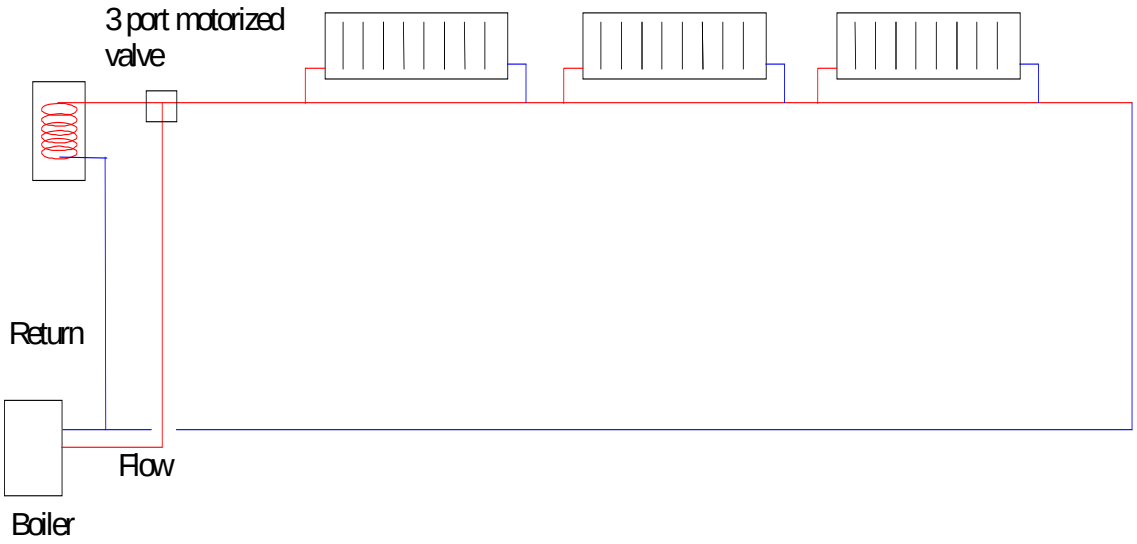
Generally, in most systems, there are two pipes going to each radiator. One supplies water and one returns water to the boiler to form a loop.



If you have a Combi-boiler (evidence = no tanks!) the loop for the radiators passes right from the boiler and is pumped around in a circuit. The motorised valve is used to divert water from the radiator circuit to the hot water tank. Again, this is absent in the combi system.

The main supply and return pipes are usually of a larger diameter typically 22mm-28mm. The “drop pipes” connecting the radiators are commonly 10mm-15mm. In practice, the drops may be quite long with the main pipes located in the loft or ceiling above.

An alternative scheme is a one pipe system. This is inferior in many ways and rarer. See the diagram below:

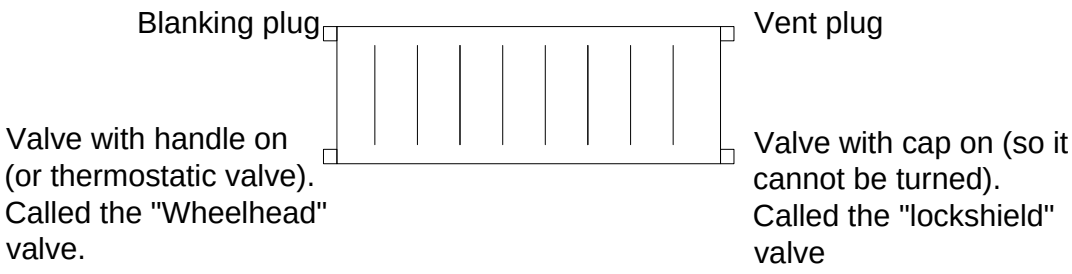


There are a couple of things that you need to be aware of when adding radiators:

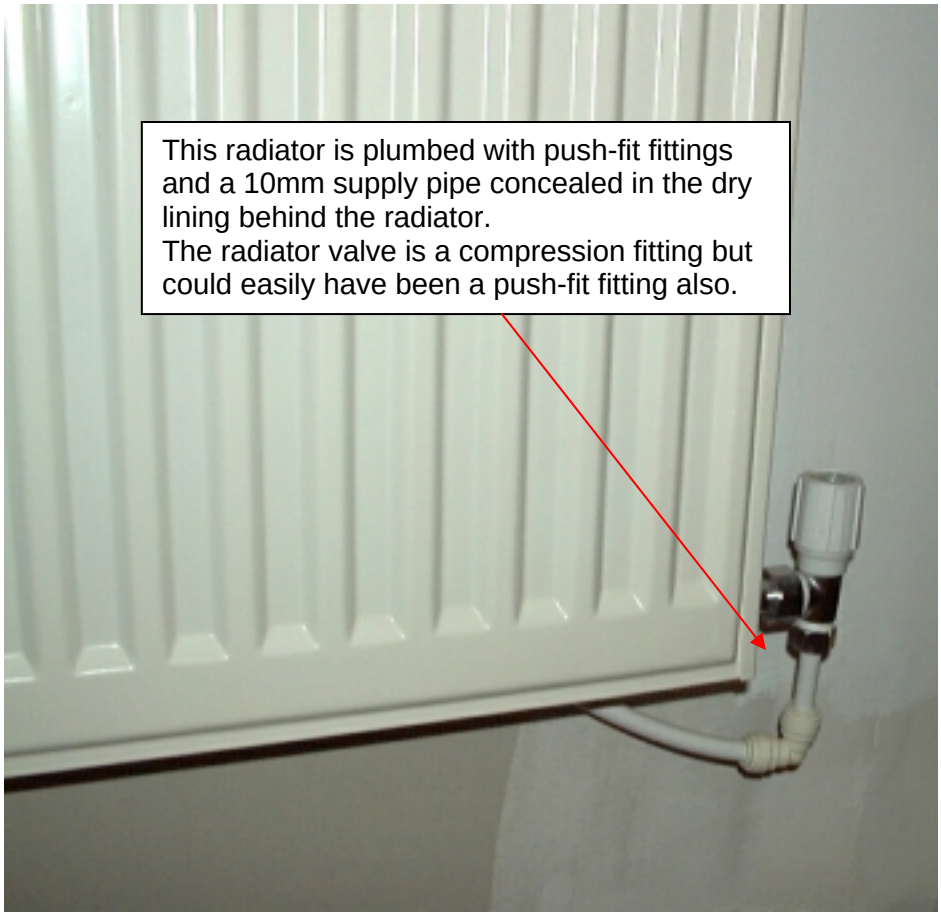
- The boiler may not have enough heating capacity or pumping capacity to deal with the extra radiator (properly called an emitter).
- The system needs to be balanced to work properly. If you study the flow of water, you will realise that the water flow is effectively split between the emitters. If the resistance to flow varies from one radiator to another, the one with the lowest resistance will take more water flow and be hotter.

Follow these key tips for installing radiators:

The radiator comes with plugs that have to be removed from all four corners. Equip the radiator as follows:



- Fit each corner with plenty of PTFE tape, particularly to the bottom connections.
- Fit the supply pipe (the hotter one) to the operable “wheelhead” valve.
- Fit the Return pipe to the capped valve (lockshield valve).
- If fitting thermostatic valves, the above may be reversed, check the valve instructions.
- Fit the vent diagonally opposite the operable valve.
- Use push-fit type connectors (including valves).
- Fit the radiator brackets using rawlplugs and screws (or drywall fixtures). See **Section 7 - Walls Ceilings and floors.** for more info. Make sure the spacing is correct and that the radiator slopes very slightly towards the vent (to allow air to escape).
- Drain the heating system. Find a low point with a drain valve (or cut a pipe and rejoin later if you have to!).
- Make connections into the system again using push-fit type connections.
- Be prepared for water to come out when you cut pipes even after you have drained the system.
- Balance the radiators by fully opening the wheelhead valve and adjusting the lockshield valve on each until the temperature is balanced between all radiators. Generally, the radiators closest to the boiler will require more restriction and the furthest away least.


This radiator is plumbed with push-fit fittings and a 10mm supply pipe concealed in the dry lining behind the radiator.
The radiator valve is a compression fitting but could easily have been a push-fit fitting also.

12. Windows and doors.

12.1 Things you will learn in this section.

- Knowledge of the key things to look for when assessing a property.
- Some tips on improvements that will add value.
- Tips on finding and assessing a tradesman.
- Time and cost assessments for common tasks with tips.
- DIY options and recommendations.

12.2 Locating and understanding common defects - windows and doors

Look firstly for the following:

12.2.1 Windows

- **Glazing – single or double**. Look at the glass, double will be at least 8mm thick and preferably 20mm+ Single will be about 4mm thick so it's not hard to tell them apart. Double glazing consists of two layers of glass (usually 4mm each with, preferably an air gap between or better still an Argon gas filling. The glass may have a coating called Pilkington "K" that reflects heat back into a room. Single glazing is difficult to get away with these days in terms of what the state will allow. All window replacements now need building control approval (see **Section 20.4 - Building control approval.**).
- **Rot, or rot hidden under a repair** (poke around) especially in outside corners and under wooden sills.
- **Windows that don't open or close properly**. Verify if this is because they are swollen or if they are out of shape. Check every panel to see it works. Get money back for problems here!
- **Windows that have a gap** in around the opener in one or more corners. This is unlikely with UPVC or hardwood but common with softwood.
- **Anything with a heavy coating of gloss paint**. This will be a softwood window probably. Look for rot around the bottom edges.

- **Softwood in general is a high maintenance** item unless it's Fir. Look for wood light in colour or with knots. It may be stained to look like something else.
- **Broken glass in corners** (caused by metal rusting and expanding).
- **Mould (common with single glazing)**.
- **Drafts**. Differentiate between gaps around windows and convection drafts caused by cold glass. Single glazing will always have the latter!
- **Secondary glazing panels**. It works but is a buyer disincentive. Remove and replace if you can, except perhaps at the bottom end of the market.

12.2.2 Doors:

- Wooden doors that don't open or close properly are common. They are also easy to fix (see **Section 12.8.5 - Stopping a door from jamming.**)

12.3 Opportunities that will add value.

- **The right look**. Avoid vent panels (the little top windows that open outward) as they look nasty! As a rule of thumb, always make sure that the vertical dimension is at least 1.6x the width. This gives a timeless look that was observed for generations. Anything else is fallout from the sixties.
- **Good security features**. If UPVC double glazing is installed from the outside (look for the beading that holds the glass in), then make sure it has a security tape holding the glass in place. Look also for security bolts and windows that lock partially open (for ventilation).
- **UPVC double glazing** – its low maintenance, effective, cheap and has mass appeal. Better still is high quality hardwood such as Oak. Not to be confused however with lower cost stained softwood alternatives.
- **Lead glass** – Not as expensive as you may think. Is usually overlaid these days (stuck on top of a single panel). Use in moderation to great effect. Better still, go for the real thing. If

you want to lead effect existing windows, by lead kits from any DIY outlet.

- **Restoring a traditional appearance e.g. sash**. UPVC can be used but be very careful with the design detail. Hardwood is better but can be pricey. Oak is the favoured material for durability and longevity.
- **Adding new or larger windows for light**.

12.4 Find and Evaluate a Pro.

This is where the fun really starts! If you are going for UPVC (as per 95% of cases) you have these buying options:

- **Buy from a manufacturer**. There are around 4 companies in the UK who actually make the plastic extrusion and the glass panels and turn these into windows.
- **Buy from an assembler**. These “factories” buy plastic and cut it up, “weld” it into frames. They are usually smaller firms employing 10-30 people.
- **Buy from an installer**. They usually buy from the “factories” or “manufacturers”. They range in size from 2 people to National coverage.
- Buy from a mass distributor (supply only).

12.4.1 Where to buy

You can usually buy from all of the above sources.

You will have to supply measurements and if you get it wrong you’re on your own!

Your best value is to buy from a mass distributor. Try Wickes or Screwfix (ask for their big stuff catalogue) for competitive pricing. Keep their prices in mind even if you choose to buy elsewhere.

The next best option, if you need unusual sizes is to find a factory.

12.4.2 Buying from a manufacturer

Once you find a factory, make sure they actually make the frames. Check their work as follows:

- **Visit** the factory.
- **Measure the accuracy of their frames**. They should be within 1mm.

- **Look at the extrusion section they use**. This can vary from supplier to supplier. Check the final article, particularly French doors, for excessive flexibility in the (glazed) frame.
- **Look at the method for fixing the glass**, number of seals etc.
- **If the windows are externally glazed make sure they use a security tape** to hold them in place (its quite easy to remove a glass panel without).
- **Look at the care they appear to take** with cutting and assembling.
- **If they won't let you in their factory, don't bother!**

12.5 Supply and fit (how to beat the double glazing salesman!)

Decide what you want in terms of windows, openings, glass type, look etc.

Call in about 6 reps.

Talk to them about your needs.

Absorb what they tell you. This is great education.

Don't be hostile with the double glazing salesmen. They are unlikely to act like the pushy salesman you expect (unless they are really inexperienced). Be charming and polite. Enjoy the encounter. You can be sure they will be charming and polite.

Because of the cut-throat nature of the industry, they often are pushy salesmen in disguise. Don't forget this!

Once you have agreed a specification, ask for a cost in the post. Tell them at this point that you are bidding three companies. Politely refuse to disclose the companies that are bidding. This is where it gets very interesting!

Tell the double glazing rep that:

You are looking for good value. You are not interested in just "cheap" but you do want GREAT VALUE FOR MONEY. Say this over and over.

And …

- Say you are bidding companies with a range of quality / cost positions.
- When they dismiss the “cheap” option reinforce that they don’t absolutely have to be the cheapest. This will keep them interested!
- Tell them you don’t fully understand what they offer above their competitors. Tell them this a couple of times and wait and listen to the answer.
- At some point, they will bring cost in either by bringing out the “list price guide” or by asking “how much do you want to pay”.
- If they ask the latter, answer (not flippantly). “nothing…I really don’t want to pay anything…….. but I realise that you have to make a profit”
- Tell them your architect friend said nobody pays more than 30% of list price. When they dismiss this don’t react.

Most reps will try to close on the spot. They make more money this way. They will offer all kinds of incentives.

DO NOT ACCEPT ON THEIR OFFER ON THE SPOT.

Ask them to drop a quote in the post. If theirs comes in good, call them and try to negotiate them down. Give them the contract contingent on them agreeing your terms. If they do not, walk away. You can always call them back later and try again.

It is more likely that most reps will not quote you unless you call them up again, (so don't be frightened to chase for their quote). This is because you are low margin business and the reps will talk to plenty of people who will pay over the odds.

The range of margins in this business can go from a “real killing” of several hundred percent mark-up to around 30%. Your goal is to establish the “hard base” for each company and then negotiate from that point.

Don’t forget to compare quality and reputation as well as cost! Look at their installed work and assess the following:

- **Look at the frame as it fits in the opening**. The gap around should be constant and be around 5mm, It should be neatly filled with a waterproof filler.

- **Look at the beading strips that hold the glass** in (may be inside or outside). Look at how the corners meet. Do they overlap, is there a gap or are they neatly mitred?
- **Try opening and closing the windows**. Are the smooth or bumpy?

Follow these links for manufacturer advice and some great prices on windows.

www.pilkington.com/europe/uk/english/building+products/default.htm

www.replacementwindow.co.uk

www.joinerydirectrochdale.co.uk

12.6 Time and cost issues - windows and doors

A window is taken as 1780mm x 1200mm with 3 panels.

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Removing a window	1.5	£30		£30
Fitting a new window.	4	£100	£250	£350
Stopping a casement window from jamming.	2	£50		£50
Stopping a sash window from jamming.	4	£100		£100
Fitting a new door.	4	£100	£350	£430
Stopping a door from jamming	2	£50	£10	£60

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

12.7 How much do you pay for UPVC units?

Panel size	Approximate supply cost
Small 600 wide	£85
Medium 1200 wide	£140

Large 1800 wide	£180
Patio door 2 panel 1800mm	£300
Patio door 4 panel 2600mm	£450
Leaded glass	Add £50-100 per glass panel

12.8 DIY recommendations.

Type of solution	Skill level	DIY productivity	Knowledge level
Removing a window	2	70%	1
Fitting a window	4	30%	2
Re-glazing / stopping a jamming window	4	30%	3
Fitting a new UPVC door	4	30%	2
Stopping a wooden door from jamming	4	50%	2

12.8.1 Removing a window.

A window will be attached in one of several ways (or a combination of):

- **Nails, screws or alternative anchor** through frame into wall (or wood inserts in wall).
- **Header and sill extends into brickwork**.

Some wooden windows have metal inserts. Some are metal only.

Follow this simple process in all cases:

- **Smash all glass out including small shards** in corners that could cause cuts. Collect up **all** debris.
- **Try hammering out any metal frame** (outwards of the building) by hitting a wooden post about 600mm long onto the frame with a heavy hammer. Get a second person to hold the post (with good gloves on!) while you hit it. If the impact looks like it will damage the brickwork, stop.
- **Cut metal / wood frame** at two points about 300mm apart around the centre of the frame on the bottom (sill) member and the top (header) member.
- **Take out the cut sections.**

- **Crow bar the remaining section in towards the centre** i.e. the gaps created in the middle until they are free of their anchors into the wall.

It is usually possible to remove a window with little damage to internal or external walls. Some patchwork repair will be likely.

12.8.2 Fitting a window.

Follow these tips:

- **Fit unglazed**. This will make for lighter work.
- **Check the frame fits** in the opening before lifting it!
- **Clean up the opening** before fitting.
- **Screw the sill to the frame before fitting**. A sill can overhang the window (in its length dimension) or be cut flush.
- **Position the window using spacers** to maintain a gap all round of about 5mm.
- **Check for level** in as many places as possible.
- **Re-adjust spacers to get squareness right** (use a large square).
- **Make sure the window doesn't fall out** by bracing with timber etc.
- **Drill through the frame towards the wall** that will hold it (use a metal drill as the frame may contain steel re-enforcement)
- **Drill though into the adjoining wall** (change to a masonry drill and use hammer action)
- **Fit window anchors** (get from Screwfix)
- **Seal large gaps with expanding foam** and smaller gaps with a silicone sealant.
- **Fit glazing**. If the windows are externally glazed, fit onto security double sided tape. Wet this with window cleaner spray to retard adhesion to the glass until you have squared things up.
- **Fit Spacers** around the glass to hold the frame in position (the glass makes the frame rigid and stops sagging). Fit spacers in the heel and toe positions (bottom corner where hinge is and middle where the handle is).

- **Fit beading**. Use window cleaner spray as a lubricant to slot in.

Key Tip
Seal windows using a clear sealant. This won't look unsightly if it gets a little smeared over the window frame / wall.

12.8.3 Repairing a casement window that doesn't open property.

If you get a chance to inspect a window frame with no glass you can see how weak it is. This is very apparent for UPVC where the frame is made rigid in 2 ways:

- By anchoring to a wall.
- By adding glass panels.

If a window will not open, the most likely cause is **sagging of the panel**.

If a vent lite won't open it's probably **swelling** (in wooden window particularly in bathrooms) or frame distortion. Using a large square, check first the frame and then the opener panel to see which element is out of square.

12.8.3.1 Cause 1 – swelling

- Remove and attack with a wood-plane. Varnish or paint all round as for a door.

12.8.3.2 Cause 2 – Frame distortion.

- Inspect for wall movement (see **Section 16 - Structural Faults.**).
- Loosen frame anchors.
- Use spacers (shims) to move frame around until square.
- Re-fix ensuring shims stay in place.

12.8.3.3 Cause 3 – Sagging.

The glass panel has failed to hold the frame square. In this case:

- **Take the glass out**. You may have to take out putty, cut double sided tape or remove plastic / wooden beading. Wooded beading may be nailed and glued in place!
- **Shim up the frame** using some wooden blocks (for example) until slightly past square.
- **Refit the glass using double sided glazing tape**. Spray the tape with window cleaner to stop instant adhesion.
- **Fit spacers** between the edge of the glass panel and the frame so that the glass holds the window in square. Test by allowing the panel to "sag" again. Verify and adjust to the right position.
- **Re-fit beading**.

12.8.4 Fitting a door.

For UPVC, this is the same as fitting a window with the following additional considerations.

- **Always get a door pre-fitted to a frame**.
- **Use a spirit level** on the frame to keep verticals vertical. This will allow the door to work as it should.
- **This is a two person job** - the door will weigh more than a window.

For wooden doors, call a carpenter, it's harder than it looks!

12.8.5 Stopping a door from jamming.

If you have a door that is jamming due to damp or wet weather, the solution is very simple:

Key Tip

Wood acts as a sponge in damp conditions. The way to stop the wood absorbing moisture is to paint it with several layers of paint or varnish. Make sure when you do this that you paint every face. As a tip, a door has SIX faces. If you fail to paint the most crucial one (the one that faces the ground), swelling is inevitable

13. Carpentry

There are two general categories to carpentry:

- 1. First fix or structural.
- 2. Finish carpentry.

Let's add a third, very important category as renovators spend a huge amount of time on it!

- 3. Wood restoration.

Generally, the first category refers to the frame of a building. The second category refers more to the cosmetic woodwork.

Most houses built in the world are built from a timber frame. This approach is both strong and heat efficient. England and Wales tend to be an exception to this rule with most houses still built out of brick or blocks. This is changing however.

Finish carpentry draws strongly the aesthetic aspects of woodwork. Wood is used to surround doorways, for doors themselves, for decorative surrounds such as dado and picture rails and for panelling work to walls, bathrooms and kitchens. It is also used to great effect to cover floors. At its highest level of excellence, wood is used for making cabinets and furniture.

13.1 Things you will learn in this section:

- Common wood types found in the home.
- Knowledge of the key things to look for when assessing a property.
- Some tips on improvements that will add value.
- Tips on finding and assessing a tradesman.
- Time and cost assessments for common tasks with tips and warnings.

13.2 Locating and understanding common defects.

Look closely for the following defects:

Defect	Reason
Look at the type of wood used.	Quality varies greatly. You can establish the value of the wood by close examination. Loose knots are a negative. Knot free is generally higher quality although knotting is often used to add feature.
Look all around room finishes for gaps of any kind.	Wood shrinks. Close and accurate gapping is the sign of patient and careful work.
Look for engineered woods like MDF.	MDF will be to our children what yellow melamine plastic and Artex are to us (bad taste)! These woods are often painted over with gloss paint. Look for buckling in these woods particularly with shelving. MDF in particular is very weak.
Look at paint-work.	Wood may have 10 layers of paint on. Some may contain lead so beware!
Look for joints in structural work that have come apart	Wood frames do tend to move around. Gaps should not exist however as in this case the fasteners are having to work too hard and may eventually fail.

13.3 Recognising wood types:

13.3.1 Softwoods

Softwood family – Pine, Spruce, Fir, are found in abundance in most homes. They are commonly categorised as “redwood” or “whitewood” by builders merchants.

“Redwood” tends to be slightly harder, and has bigger, livelier knots. It tends to take a reddish tinge if left exposed.

“Whitewood” is a softer, whiter wood with (commonly) an abundance of small knots.

As a general rule, the knottier the wood, the cheaper it is. If the wood has many “dead” knots that are a little loose, you have wood of the lowest category (often called fifths). First grade softwoods on the other hand have little or no knots and are relatively expensive.

Cheap woods are commonly disguised with a heavy stain. Look past the stain and you will see the familiar knotting.

For structural purposes, wood is often treated to resist deterioration. The most common treatment is CCA treatment. This is a pressure applied Arsenate (i.e. contains arsenic and it will make you sick if you breath the dust). The wood, once treated, has a distinctive green hue.

One category of softwood, namely pitch pine, is highly sought after. It was used in large degrees after WW1 as a decorative wood. It is often found in older internal doors and is characterised by its strong wavy patterns - see picture:

Pitch Pine Door

Softwoods, with the possible exception of pitch pine, are definitely in the second division of finishes.

Key Tip

If you have original woodwork installed to a high quality, even if it is softwood, it's worth keeping.

13.3.2 Hardwoods

Oak is by far the most abundant. It is also simple to spot. It has open pores (like skin pores) that are apparent as dark flecks all over its surface.

Oak is a desirable wood and is a considerable asset if present in your home. It is great for all kinds of finish but is particularly used for flooring due to its hardness and wearability.

Beech, Birch and Maple are light coloured woods that look quite similar (Maple tends to have a reddish tinge). They are **great woods to choose for a contemporary look**.

Cherry is a rich deep wood that is a **great choice for flooring**.

Walnut has even deeper colouring. It has a rich undulating texture and is very expensive.

13.4 Opportunities that will add value.

Exposed structural woodwork is a great asset in old or new homes.

There is a strong preference for natural coloured woods over highly stained or painted woods. It is important that if wood is exposed that it is indeed structural.

"Pretend" structural wood goes in that ever growing category of "bad choices" with Artex, MDF and painted kitchen cabinets (to name just a few)!

Softwood floors are great if properly laid. They are best treated with a water based acrylic finish as this will retain the original colour and give reasonable protection. Any type of oil finish will make the wood yellow. Try not to colour wood. It is a beautiful material in any natural colour and should be kept honest. **The best type of softwood for flooring is reclaimed wood** as it has a beauty developed over time – almost as though it has a story to tell!

13.4.1 Laying wooden floors

The key to laying good softwood floors is to store the material in a heated environment for about one week to let it shrink. If you do not, you will end up with gaps of at least 3-5mm. These gaps will vary according to different shrinkages and will accumulate dirt.

Hardwood floors can be laid as a solid wood or as a wood laminate product. Technically, the products should look the same and act the same. In practice, the following applies:

- **The laminated floor is very stable** which means shrinking and warping are almost non-issues.
- **The natural floor conversely may move** around a little with changing conditions.
- **The laminate floor is usually finished with many coats of lacquer**. This makes it look a little like plastic.

A natural floor needs to be kept natural with the right choice of finish.

Select from the following:

- **Tung Oil** – quite hard and waterproof.
- **Linseed Oil** – Not so hard, looks almost wet.
- **Wax** – Irregular buffing gives an aged look. Cannot be re-finished with a product other than wax unless the wax is first stripped.

The benefit of oil and wax is that it can be "topped up" whereas a varnish hardens and has to be sanded off before re-application.

In the case of hardwoods, yellowing is less of a concern with the darker woods such as Oak. The best approach is to experiment with small samples.

Natural wood trim is a great asset even in low cost material. It is incredible with better materials such as Oak. It is harder to fit unpainted woodwork however as there is no coat of paint to hide unsightly gaps!

Skirting board has a significant impact on finished look. Use board up to 150mm for a really great finish.

Key Tip

Use the best materials you can afford. Fit them and finish them naturally to highlight their beauty

13.5 Find and Evaluate a Pro - carpentry

To find a great carpenter, look at two aspects of the person's work:

- How the doors are hung
- The quality of the joints

13.5.1 Look at how doors are hung.

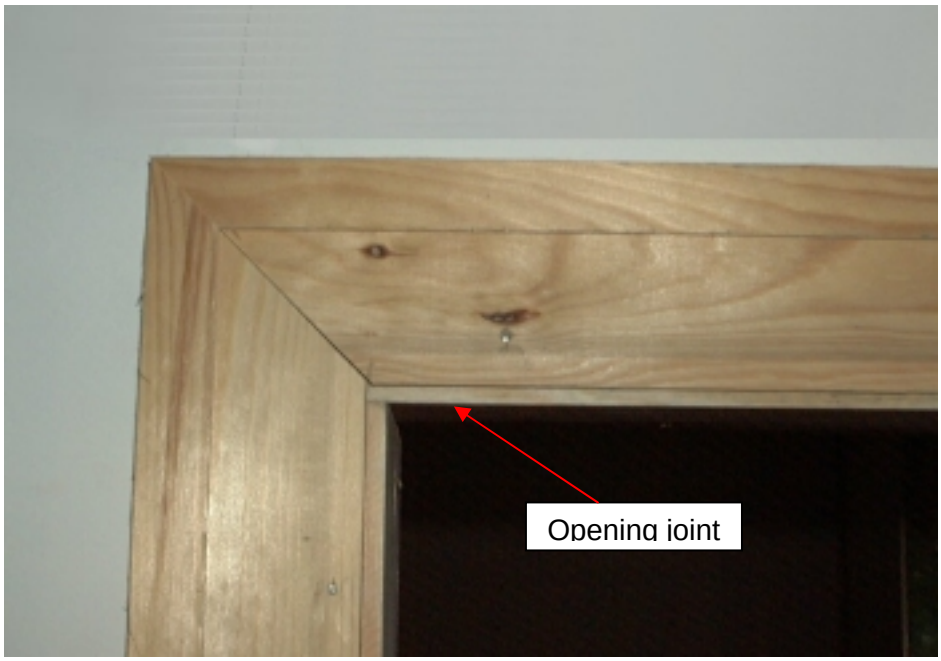
They should have the following features:

- The recesses around the hinges and other door hardware should fit snugly around the hinge.

- The door should fit neatly into its frame. The gap all around should be consistent and certainly not tapering in any way.

13.5.2 Look at the joints in the work.

The joints should be razor sharp.



Notice how the joint opens up toward the inside, this is due to shrinkage. Always preshrink wood by storing in the actual property with heating on for one week before use. If you intend painting with gloss, this is less of an issue.

13.6 Time and cost issues - carpentry

A “room” for the case of this table is assumed as 14m^2

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Fit 150mm “knotty” softwood skirting*	4	£100	£50	£150
Fit same as dado rail*	3	£75	£40	£115
Fit same as picture rail*	3	£75	£40	£115
Fit door trim (architrave)*	1	£25	£10	£35
De-paint 1 room (skirting + dado + architrave)	10	£250	£30	£280
Strip one door (chemically)				£25

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

*For any of the above in a good quality hardwood or 1st softwood, multiply the material cost by a factor of 3!

13.7 DIY recommendations.

Finish carpentry is not really that difficult. Follow these key tips:

- **Be patient**. Good results take time.
- **Preshrink your wood** in a heated environment.
- **Use a good mitre saw** for all your work. Use a compound mitre saw for wider pieces like skirting (see later).
- **Be careful with measuring and marking**. Practice cutting to length and measuring this length to check for accuracy. The key thing is to cut the right side of your pencil line. Get into the habit of marking your line so that it is (just) removed by the cutting blade. The side to the right of your line should always be your waste!

The other way to get parts to fit perfectly is to make a template first and to get this right before going on to make the final piece. Measuring an alcove for example can be tricky. The way to do this is to make a gauge with two

pieces of overlapped wood clamped in the middle and to measure the gauge.

Yet another approach in tricky situations is to cut oversize by a little, fit in position, measure the oversize amount and cut this off. Sound bizarre but it has its uses!

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Fit skirting	3	40%	2
Fit architrave (door surround)	4	40%	2
Fit Dado and picture rail	4	40%	2
Building large scale carcassing (first fix)	3	40%	2
Paint stripping	2	80%	1
Floor refinishing	5	40%	4
Fixing squeaks	2	80%	2

The DIY productivity assumes you are properly equipped. You need a powered compound mitre saw. You will otherwise take at least 3x as long.

Follow these key tips for great results:

- **Dry the wood** to be used for 1 week in a heated space.
- **For skirting, dado and picture rail, cut outside and inside corners by mitring at 45 degrees**. A little trial and error may be required to get the angles right. If possible, leave the section a little long to allow more than one attempt at mitring. If you have a mitre saw you will quickly learn two things:

  a) The part must be held upright on the saw to get the right cut.

  b) You cannot do this with a 6" skirting as you run out of throat on the saw (unless you get a really expensive one).

That's where a compound mitre saw comes in. It can cut angles in the other plane so that the work can be set flat on the saw.

- For architrave, first cut the top rail with a 45 degree angle to both edges. Next make an over-long vertical part (by about 10mm) and cut its top angle at 45 degrees. Try for fit and re-cut with slightly different angles until the gap is tight. Next trim the bottom to length.

To fit these parts to a solid wall, follow these steps:

- Use a spirit level and mark the wall with a pencil to show the underside of the dado / picture rail (no need to mark for skirting!). If the line ends don't meet then adjust out the difference. If the difference is more than 5mm your spirit level (or your use of it) is suspect.
- Lightly pencil mark hole positions on the wood by measuring and marking with a rule and a square.
- Drill a small (3mm) pilot hole through the wood in the locations marked.
- Place the wood in its final location holding in place with masking tape if required. Run the same drill through the same pilot holes and mark the wall behind. Do not drill deeply as the drill bit will be damaged,
- Remove the wood and re-drill in the same holes using a 10mm wood drill to a depth of ½ the thickness of the wood (this will allow the screws to be countersunk and plugged).
- Drill out the holes marked on the wall using a masonry drill to match your available Rawlplug size (6mm is a good size). Be careful when using a hammer drill to stay in the marked position. These drills do have a tendency to move around!
- Place Rawlplugs into the holes.
- Refit the wood and screw into the Rawlplugs.
- Plug the holes in the wood using plugs cut using a plug cutter.
- If the screws don't pull tight, then switch to a wider screw. The screw must make the Rawlplug expand to hold.

To fit wood to wood, simply leave out the Rawlplug stage and screw directly, wood to wood.

To fit to plasterboard, use a “nail free” glue and tack into position using a small nail gun (about £35 for 35mm brad nails). Make sure you don’t hit any pipes or electrical wires!

13.7.1 Carcassing and large-scale carpentry.

There are three essential tools required for this type of work:

- A portable circular saw.
- A roofer's square.
- Some sawhorses.

And a good cordless drill with TXD (TORX) bits fitted (for driving large screws)

Now follow these steps:

First **decide whether the finished work is going to be exposed to view**. If yes, then think about using planed wood. If not, unplaned is cheaper.

Next **will the wood be exposed to moisture** (as in rain or ground contact). If yes, get treated timber to prevent rot.

The rest is pretty straightforward.

- Use the roofers square to set angles.
- For right angles use the square as a saw guide.
- Otherwise just follow a pencil line.

Carcassing does not usually require complex joints unless it is holding a significant load (like an old oak truss).

The one joint that may be useful is the ½ lap joint. Just use your circular saw with its depth set to ½ that of the timber and make score lines 10mm apart on the area to be removed. Then chip out the wood with a chisel.

Otherwise, just offer timbers to one another and use long woodscrews to connect. A good carcassing material is 50x100mm unplaned. This should be available to you for around 60p per m length. Use 100mm TXD (TORX) screws to join. Use a T25 or T30 screw heads for best drive.

13.7.2 Restoring old floors.

It's always a pleasure to rip up a dirty old carpet and find a magnificent wood floor underneath. If the floor is pre WW2, it is likely to be of a much higher quality than a more recent attempt. Look for the following flooring types:

- **Pine boards**. Fewer knots is better but not essential. Look at the gaps. 3mm or less is great. 5mm is not so good. Are the boards all intact? Very often, heating and electrical wiring are added to a home and the floors are cut to pieces to accommodate. Look for voids between boards (instead of tongues). Look for boards that have been sawn through.

- **Parquet**. If it's old and its parquet, it's probably great! Lighter colours tend to be softwood (often endgrain).

- **Hardwood boards**. Probably Oak. Look for the open pores (see **Section 13.3.2 - Hardwoods**).

The first step in restoring a floor is to make it structurally complete.

This may mean re-nailing some boards and replacing others. If a floor is badly damaged, you can pull it all up and re-lay it. This results in closer gapping (as the boards are as shrunk as they will ever be) and a wonderful mixing of patina. This effect is so powerful that it's almost worth doing to enhance the look! Make sure that the nail heads are all well below the surface as the next step is sanding. Nails will almost certainly rip the sandpaper so check carefully.

The key to good sanding is to remove a layer of grimy topwood but not go so deep that all the character is taken away. This critical point is less than 1mm from the surface so be careful. Otherwise you'll end up with new looking wood. The best effect is obtained if the sanding results in wood of different colour tone. This will happen naturally as the sander cuts to differing depths.

The best approach to sanding is to use a drum sander (looks a bit like a lawnmower) for the large areas and work up and down the length of the boards. Once you've done all the large areas, finish the corners etc with a small belt sander and then a small orbital sander. You must sand several times (using different coarseness of sandpaper) to get the best finish:

- 24-40 grit for initial removal.
- 60-80 grit to smooth out scratches.
- 120-150 grit to finish.

It is important to step through a range to properly remove scratches from previous stages. It is also important to brush up dust between sandings to remove sharp particles (off the sandpaper) that will re-introduce scratches.

To finish, use a water based product on softwood like pine and either an oil based or water based finish on hardwoods like Oak. The advantages of water based finish are as follows:

- Low VOC content (volatile organic solvents).

- Quick drying (about 20 minutes)
- Non-yellowing.
- Easy clean up using water.
- Can wash the floor with water before finishing (allow to dry though).

You need to apply three to four thin coats to floors. To get best results, follow these rules:

- Brush then wash (don't over-wet!) the floor to get rid of dust.
- Allow to dry.
- Apply finish, spreading quite thinly (do not over-brush).
- Allow to dry properly between coats.
- Lightly sand between coats with a grade 400 or finer sandpaper. You don't need to strip the finish, just do enough to take the roughness off the surface.
- Leave the area for at least 24hrs if possible for proper hardening of the finish.

The above advice, if properly followed will give an exceptional finish!

13.7.3 Paint stripping.

So…you have a house full of woodwork that has ten layers of paint on it. Contemplate that you may have as much as 50-60 linear metres of wood per room!

And you want to strip the paint? Yes, of course you do…

There are several approaches you can take to removing the paint:

- Take the wood off and get it chemically stripped.
- Use a chemical agent in situ.
- Use heat.

If you've done renovation for long enough you will have tried all these methods and been frustrated with each!

Consider the following:

Taking the wood off will leave a mess on the walls. The parts will likely not fit back together without cutting and reworking. You are in effect reclaiming the wood rather than stripping it! Caustic treatment will strip much of the resin from softwood leaving it a dirty brown colour. It will respond well at this stage though to oil based finish without yellowing.

Using caustic soda in situ will do the job very effectively, but is very hazardous to use. It will destroy skin on contact and because of its watery consistency it is certain to splash! If you are determined to use it, buy a sack of the stuff from a professional stripper (the kind that strips paint) and take their advice on its use. Use elbow length nitrile gloves, goggles, overalls, wellies and anything else you can think of to protect you!

As an alternative to caustic, use a viscous chemical such as Nitromors. It is much safer. It seldom removes all the paint in one go but it will do the job eventually. Interestingly, it works better on painted metal than painted wood and is the ideal solution for de-painting metal of any kind. This is a slow and messy process. You must also use a respirator designed to take out solvent fumes. The alternative is a week in hospital!

Heat is probably the quickest solution. If using a hot air gun be careful not to burn the wood and again use a respirator against the nasty fumes generated (including lead based vapours).

Key Tip

A good all round approach is to use heat to remove the bulk of the paint and Nitromors to clean out the pores. Apply this while rubbing with a coarse wire wool**.**

Ultimately, your choice of approach depends on your labour cost. If you are paying good money for labour rather than DIYing, then removing the wood may be a better (cheaper) option.

In the case of doors, it's a no brainer. Just take them off and get them stripped by a specialist.

13.7.4 Fixing squeaks.

Floorboards squeak for one of two reasons:

- The boards are moving on the nails that hold them.

- The boards are moving relative to one another and “rubbing”.

There are two solutions:

- **Stop the movement by fixing the boards more securely**. Try using screws rather than nails.

- **Stop the whole floor from moving**. The joists will certainly flex under load. This will cause movement between boards even if they are secured properly. You can do one of two things:

    1. Increase the joist depths.
    2. Build a supporting wall underneath.

You are of course unlikely to want to go to this extent to fix a squeak. So try to fix the boards first.

Key Tip

If you have squeaky floorboards, sprinkle talcum powder onto them and brush it into the cracks and nail-heads. The squeaks will go away (no money back guarantee on this tip!)

14. Roofing repairs.

The apparent effects of a roof leak often exaggerate the severity of the fault that you may have. The most common signs of leaks will be:

- Wet patches on ceilings.
- Wet patches running down walls.

It is rare that a roof is so badly damaged that it needs total replacement. Roofers however will prefer total replacement to fiddly repairs and may encourage you in this direction. The most common failures that will require a new roof to be fitted are:

- Severe rot to wood structure particularly to battens.
- Large areas i.e. more than 20% of tiles loose and significantly misaligned (usually caused by the above).
- Improper pitching. The tiles have to be overlapped by the correct amount to avoid leakage. Check the supplier links for technical data to confirm this.
- Roof tiles worn beyond repair.
- Brittle underfelt (may not be a problem, as tiles should hold water out).

None of the above are likely except the last one which is common in older homes (50yrs+). These older buildings usually have small plain tiles that have significant overlapping. In this case, the underfelt does not have a significant role to play.

Multiple loose tiles will make a roof look terrible but be objective about the number of tiles concerned and it will probably be a fairly low percentage that can be replaced.

Don't be tempted to change plain tiles for inferior interlocking concrete tiles. Some dodgy roofers out there will sell your "worthless" old plain tiles for 35p each! They are in fact, even in their used state, far more valuable than new interlocking tiles.

This beautiful roof is about 250 years old; it has at least two makes of clay tile, many of which are broken. It is certainly capable with a minimum of work of lasting another 250 years. A concrete tile roof is likely to last less than 50 years.

Things you will learn in this section:

- Some common defects to look out for.
- Tips on finding and assessing a tradesman.
- Time and cost assessments for common tasks with tips and warnings.
- DIY options.

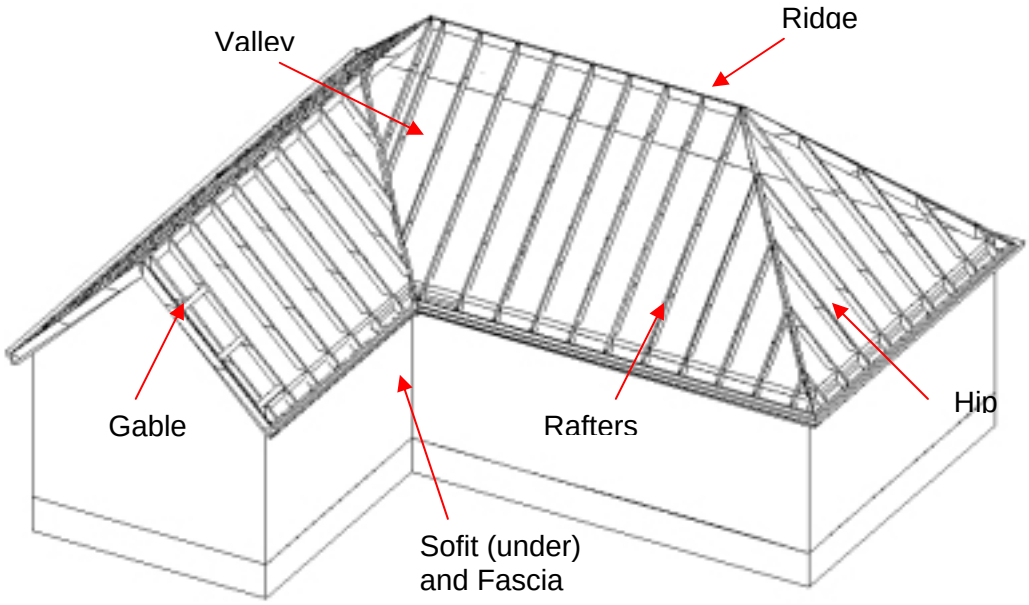
14.1 Locating and understanding common defects.

Look closely for the following defects:

Defect	Reason
Broken roof tiles.	People or storm damage.
Wet chimney breast.	Blocked chimney (ventilation is required to keep them dry). Failing lead flashing. Inspect this by all means. Remember its job is to guide water over and downwards. It should be clear why it is failing to do this. You may need to call on help however!

Defect	Reason
Many loose tiles.	Lack of nailing or rotting battens. Take off some tiles to examine underneath.
Washed out look in the tiles.	You get what you pay for. Best materials are Clay tile and natural slate. Next best are concrete plain tiles (small size). Worst are large concrete tiles as they lose colour quickly.
Leaks.	Poor overlapping of tiles (the tiles above must over lap the gap between the two below + a bit). Poor design around valleys, roof windows chimneys etc. The underfelt is there as a second defence and for water blowing between tile gaps in strong winds. Poor underfelt. Check for brittle felt and for lack of overlap (should be at least 100mm. Punctured underfelt.
Damage pointing	Ridges, verges and valleys should be pointed to make them watertight. Look for gaps as mortar does tend to fall out in time.

Leaks very seldom occur on regular roof sections. They are much more likely in places like valleys or around chimneys. They can also occur on gables were the mortar joint has come away.



Generally, the structure of the regular roof should be as per the diagram above.

The main theme is that the lower layers are fitted first and overlapped by the higher ones. This makes water flow seamlessly from one section to the next. This theme applies to the underfelt as well as the final roof covering.

Valleys should either have a lead or GRP lining or be made of specially shaped tiles. The latter is unlikely to leak. If you have the former, check carefully for damage to the lead or plastic. Where the tiles are cut into the gutter, make sure there is a mortar bed under the tiles and that it is smooth and intact.

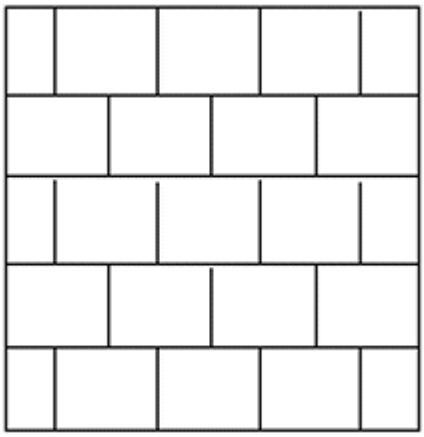
Where a roof meets a vertical wall (called an abutment), there should be a lead flashing cut into the brickwork of the wall. This lead should lap up the wall and over the tiles by 150mm or so. The lead may in fact lap under the tiles; this is also OK and often neater. Generally, the neatness of the lead-work will tend to go hand in hand with the performance so look closely!

Ridges are usually capped with a ridge tile (shaped as a 1/3 round) that are fixed traditionally with mortar. They are more likely to blow off than leak.

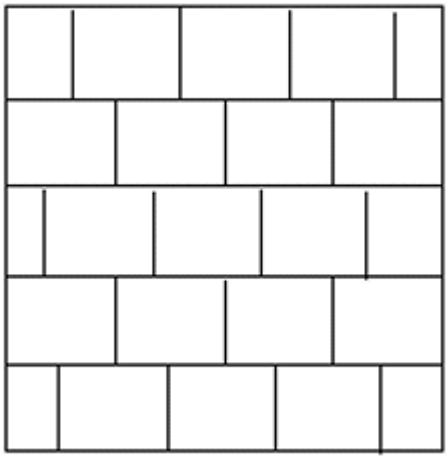
14.2 Find and Evaluate a Pro - roofing

Look for the following features in a first class roofing job:

Look at the interlace pattern of the tiles (looking up the roof). The pattern will ideally look like this…



And not like this.



Look closer at the lines that are formed by the tiles. See how the lines with the first align. This is a sign of first rate work! It applies to brickwork as well by the way. It is not a serious issue if the misalignment from one row to the next is 25% or less. Beyond 25% is very poor work. Good work will be within 15mm for the whole height of the roof!

Look at the lines made by the ridges, valleys and hips. They should be dead straight!

Look at the cement-work finish to ridges. It should be mess-free and either toned with a colourant to subdue its effect or toned up to white to highlight its effect.

Check if you can for nailing (difficult to do!). The roof suppliers clearly indicate how many tiles should be nailed. This information is available on their web-sites. See www.marleyroofing.co.uk/ and www.redland.co.uk

If the valleys have a valley tile (rather than a lead or plastic gutter); look at how the tiles meet the valley on both sides of the valley tiles. They should match very closely. There should be a smooth transition around the valley with no bumps in the tiles.

14.3 Time and cost issues - roofing

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Replace 20 broken tiles	5	£100	£10	£110
Re-set 1 loose ridge.	1	£20	£5	£25
Replace a 5m lead valley	30	£600	£200	£800
Re-point a 5m gable	8	£120	£20	£140

There is one thing that can significantly affect the cost of any roof repairs. If a scaffold is required then you can add £300 to each repair regardless of its size!

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

14.4 DIY recommendations - roofing

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Replace broken tiles.	3	50%	3
Replace a broken ridge.	5	30%	3
Re-point a gable.	5	30%	3

14.4.1 Replacing broken tiles.

Look again at the roof section drawings.

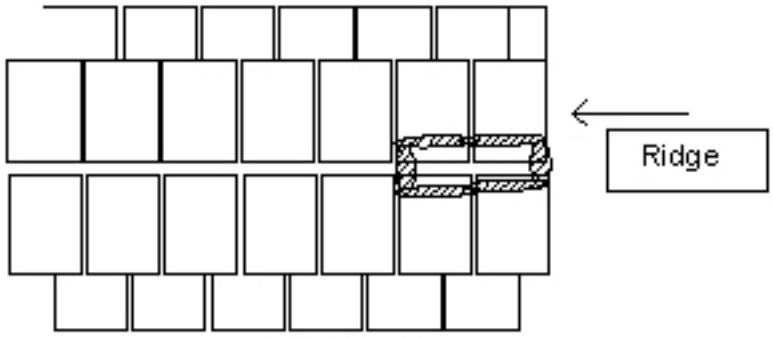
Plain tiles are hung from the top on timber battens and you can usually lever them up and remove. It's a fairly simple knack that you can master quickly.

If your tiles are larger interlocking type then push two tiles upwards along the pitch of the roof to reveal the top of the tiles below. Then simply lift out and replace. Tiles are often nailed or clipped in place that makes life a little trickier. If a tile will not move, try one in the next row.

14.4.2 Replacing a broken Ridge.

Strong winds often damage roof ridges. Ridges are usually bedded with a mortar mix onto the top of the tiled roof. To replace, follow these simple steps:

- **Remove signs of old mortar**.
- **Make a bucket of cement mix using 3 parts sand to 1 part cement, water and plasticiser**. Add a cement colour if you need to de-tone the cement (a good idea!)
- **Create a cement bed at both ends of the ridge** and along its edges as shown.



Top of roof
(plan view)

- **Bed the ridge firmly and remove excess mortar**.
- There is really only one crucial thing to get right (apart from the obvious not falling off the roof). That is, **when you make the cement, make a very stiff mix**. This will stop any overage from

clinging to the surrounding roof-work and will therefore make for a much neater job! Use plasticiser (like Febmix) to make this stiff mix more workable.

14.4.3 Re-pointing.

The cement-work on a roof will erode with time raising potential for leaks.

Follow these simple tips to repair:

- Clean out the old, you cannot simply put a fresh layer on the old, as it will fall off!
- Make again a stiff cement mix as for ridge setting.
- Fill with a trowel and clean off excess.

The key to clean work is in the cement so, again, get it right!

Try these websites from the leading two suppliers for lots of good graphics and advice:

www.marleyroofing.co.uk

www.redland.co.uk

15. Outside the property.

15.1 Things you will learn in this section:

- An insight into the importance of external appearance.
- Knowledge of the key things to look for when assessing a property.
- Some tips on improvements that will add value.

15.2 Why outside is an important opportunity

It is possible to build a beautiful property and under-achieve its potential by 20% because the outside is shabby.

A pile of clay and bricks instead of a front lawn will put off all but the hardiest buyers! Imagine putting Blenheim Palace right smack bang in the middle of a 5 mile wide rubbish tip (or Civic Amenity Site to regulars).

It is not necessary and may in fact be a disadvantage to create something ornamental and pretentious. It isn't necessary to create a theme like "Nepal in Nottingham". The outside just needs to satisfy a few basics:

- Clean and tidy.
- Well-defined areas with clear lines dividing them.
- Pleasant to look at and somewhat colourful.
- Practical in terms of the use required of it.

In fact, you can apply the same principals to the outside as you do the inside!

CLEAN-BRIGHT-WARM.

15.3 Decking - partly outside!

One of the innovations to hit the UK in recent times is the concept of a deck. It's just like the common potato really in the sense that….

- It came from America.

- It had always been there but hadn't been discovered.

If you lived in the US and had had the foresight to see the opportunity, you could have made a million. Some of us achieved half of the requirement and made nothing! But it always feels good to be able to say, "I told you that would sell!"

The whole point about decking is that it is somewhere between outside and inside.

It isn't quite standing in a field and it isn't sitting in the bath tub. It is somewhere in between. This is an important point.

It is crucial to understand the concept of "partly outside" There is a huge opportunity to create alternative living space at very little cost. The conservatory for example is a low cost option compared to bricks and mortar and can be regarded in the mind of a buyer as real floor area.

Consider then extending this concept of low cost extra living space to other options:

- A Walk out porch.
- A Deck.
- A permanent structure like a gazebo.
- A summerhouse.

- A sun trap.
- A traditional patio.
- A good lawn.
- A cosy BBQ area with table, coloured lanterns etc.

The reason decking is popular is that it is closer to the house in mental terms than a stone patio. It is a cleaner material that dries quickly after its been raining. You can just about walk out to it in your socks.

The point being made is a philosophical one. The outside spaces are as important as the inside ones.

Create "rooms" for different occasions, outside as well as inside and don't forget the 'partly outside areas' too!

15.4 Locating and understanding common defects - outside

Look closely for the following defects:

Defect	Explanation
Broken steps.	Wear and tear.
Uneven kerbing.	Kerbing set on soft ground will often move around.
Uneven fencing.	This usually is the result of insufficient support to posts.
Derelict bushes.	Shrubs, when in a post mature state get very "woody" looking. Best dug out, it's a little work that can open up a lot of space.
Irregular patio area.	Usually because of settling due to insufficient base.
Painted brickwork.	Paint of bricks is hard to remove. Sandblasting is effective but damages bricks.
Broken or poorly supported gates.	Same as fencing. There is a substantial load applied to supporting pillars and they require substantial support.

15.5 Opportunities that will add value.

It isn't necessary to create a designer garden to create a positive look. The key is to present a perception of order. Just focus on the following simple improvements:

- **Generate clean lines**. If grass is growing over paved areas cut it back to get a straight line.
- If kerbing is irregular, run a nylon cord line supported by hammered pegs at each end and **realign the kerbing** by lifting and under-filling or forcing back into place.
- **Dig out any dead looking bushes**.
- **Replace a dead looking patio with decking**. Set 100x50mm pressure treated rafters onto the ground at 600mm spacing. Bed on concrete at least 100mm deep for stability and align with a spirit level. Screw 25mm x 150mm decking into the rafters using yellow passivated TXD (TORX) screws (corrosion proof and easier to screw in). Create a gap between decking boards using a wooden spacer of 10mm or so width. Make sure the bottoms of the rafters are above surrounding ground level or they will sit in a pool of water!

- **Clean up all litter**.
- **Dig out all weeds**.
- **Fix steps** by building a wooden partition around them and filling with compacted concrete. Once dry, fit quarry tiles.

Rotting fence posts should be replaced. There are two key things to achieve:

- **A good concrete base**. Use 1 barrow full for each post.
- Make sure you **buy pressure treated wood**. If you cut it, immerse the cut end in timber treatment for ten minutes. Make sure that water flows away from the base rather than accumulating in a pond around the timber.

To realign a fence, push it into the correct position and fix with temporary batten angled from the ground and nailed to the top of the fence. Dig around the base of the post and re-fill with concrete.

15.6 Time and cost issues - outside

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Repair 1 section of irregular fencing.	2	£40	£5	£25
Building a new fence 6m long.	5	£100	£35	£135
Resetting kerb per m	2	£40	£5	£45
Resetting patio stones per m^2	1	£20	£5	£25
Digging out a mature shrub, 1.5m tall	1	£20		£20

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

Follow the links for inspirational ideas.

www.greatbritishgardens.co.uk

www.bbc.co.uk/gardening/

16. Structural Faults.

Structural faults are the most serious category of faults to deal with.

As the renovation market tightens, you may find that these properties (that otherwise have great profit potential) are the best you can get.

This is because structural faults are the most intimidating of all the things a renovator will come across.

Most would be renovators will steer clear of structural faults! There is no overwhelming reason why this should be the case however. One possible reason though is the cost of making structural repairs particularly if you are not a builder, can be very high.

16.1 Things you will learn in this section:

- Some understanding of a property's structure.
- Knowledge of the key things to look for when assessing a property.
- A view on structural defects, how to find them and how to fix them.
- An explanation and fixes for common causes of dampness.
- Rot, its causes and its cures.
- Insect attack, its causes and its cures.
- Tips on finding and assessing good tradesmen.
- Time and cost assessments for common tasks with tips and warnings.

16.1.1 Some understanding of wall structure.

The external walls will usually have one of the following structures (working from the inside out):

Inside Wall	Middle	Outside Wall
Stone	Stone	Stone
Brick	Brick	Brick
Brick	Cavity	Brick
Block	Cavity	Block - Render
Block	Cavity	Brick
Block	Cavity	Stone
Timber	Timber	Timber - Render

Timber	Timber	Cladding
Timber	Cavity	Stone

The cavity is an air gap of 50-75mm (usually) that was introduced around 1930 as a means of preventing damp penetration. Many older properties do not have a cavity and do just fine. Many others do not!

With a cavity construction, the inner layer bears the weight of the roof, ground floors and upper floors. Generally, the outer layer, be it block, brick or timber is decorative and forms a cladding that resists water penetration.

Bricks are made of fired clay and are usually 100mm or so wide. Blocks are made of concrete or aggregates. They are also commonly 100mm wide. A common external wall arrangement is therefore a 100mm inner layer with a cavity (commonly of around 50mm) and an outer layer again of 100mm.

It is easy to recognise the wall type by examining two features:

- **Look at the wall thickness**. A solid (no cavity) wall will have a thickness of 100mm, 200mm or 300mm (all multiples of brick widths).

- **The pattern made by the bricks** will rotate long-short in a solid wall whereas they will follow a long-long pattern in a cavity wall. This long-long pattern is called “stringer bond” whereas the solid wall options may be called “Flemish bond”, “English bond” or others depending on the exact nature of the pattern.

Solid stone walls are usually common only in very old properties. The walls can be as much as 600mm wide! Stone can also be used as a cladding material with more modern cavity construction.

Some homes are made from a timber frame.

16.1.2 Old style timber frame

Timber frame has proven to be a most durable form of construction with many buildings from the twelfth century still in use. This type of building consists of oak “post and beam” structures with brick infills.

The frame is usually evident internally and externally and used substantial timbers of perhaps 250mmx250mm. It is very typical for the frame to have deformed significantly over time and this phenomenon adds significantly to the charm of the buildings.

This type of construction is common with traditional barns although the external cladding in this case is commonly wood.

An original Tudor home, not to be confused with modern “mock” Tudor homes. Those exposed timbers are part of the frame of the home. The bricks simply fill the gaps in the frame.

16.1.3 Modern style timber frame

Modern timber frames tend to be very capable in terms of strength and insulation. The post and beam frame approach is still used although the “platform” method is more common. This relies on much less substantial vertical timbers of perhaps 100mmx50mm at intervals of 400-600mm.

This method has evolved into a very robust solution. In its infancy, however, it had many failings.

It is worth looking out for older properties (perhaps 50 years old and more often bungalows) that used timber frames with a wood or render cladding. You should be concerned with the following potential issues:

- Rotting, particularly at low level.
- Asbestos panels in walls.
- Poor insulation.
- Poor sound insulation e.g. road noise passing through walls.

Modern timber frame structures should have the following composition (working from the inside):

- A plasterboard/plaster finish.
- A thin plastic membrane to stop moisture passing through walls.
- The timber frame with insulation between timbers.
- 12mm or so OSB sheet cladding (gives lateral support).
- A breather membrane that allows moisture to escape but stops water coming in
- A cavity with a possible insulation fill or partial fill.
- An outer cladding of brick or block with render.

A modern timber frame under construction. The paper shown is breather paper that keeps rain out and allows moisture to escape. The wood frame sits under this and holds windows and roof structure. Brick cladding attaches to frame afterwards.

16.1.4 Mortar types.

There are two types of mortars in use. They have very different structural properties:

- Lime mortar
- Cement mortar

Lime based mortar tends not to harden completely. It tends in fact to turn back into a powder in many circumstances. Lime mortar is typically quite white in colour and can be scraped out with a fingernail.

Cement based mortars are much stronger. They tend to have much higher adhesion. They tend to be greyer in colour.

Generally, lime mortar is a superior product for the following reasons:

- It allows a building to breathe.
- It allows for movement without cracking.
- It looks great!
- It's environmentally friendly. Bricks can be re-used as the lime will break off easily.

Cement is a superior engineering product and is therefore a better choice where strength is crucial. A retaining wall would be a good example.

Cement type mortars dominate nowadays for reasons of cost, strength and ease of use.

The picture above shows typical mortar joints - very white. Look at how the wall has bowed structurally without cracking due to the compliance of the lime joint.

16.1.5 Damp control measures.

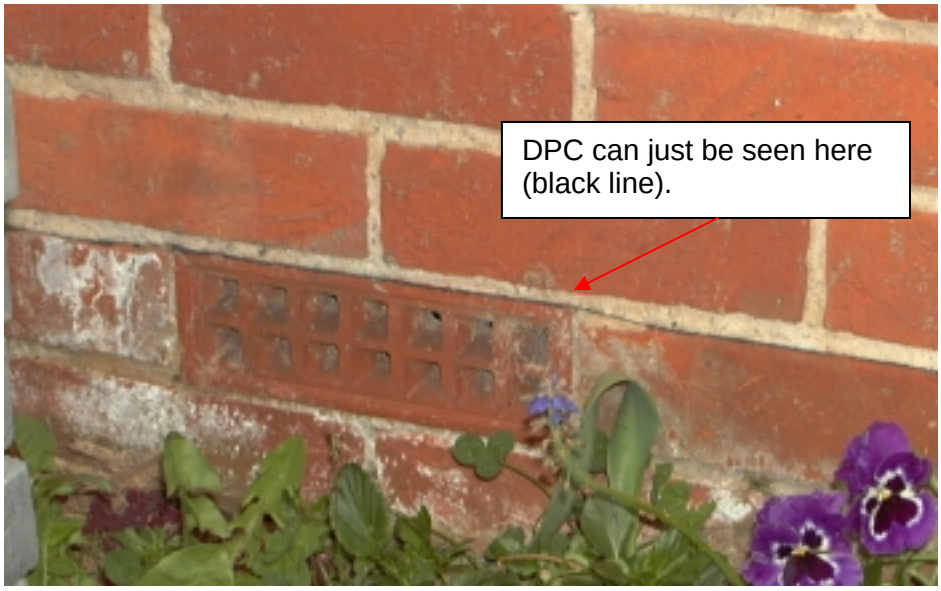
There are two common ways dampness (water in vapour form) will penetrate walls to an extent that it becomes a nuisance.

It is normal for water to penetrate into and out of a building, it only becomes troublesome if it does so in such quantities that the water vapour

turns into water droplets (condenses). The two forms of penetration are listed below:

- Through walls and floor from ground below (rising damp).
- Through walls above ground level (laterally).

Most buildings have a vapour check layer (damp proof course or DPC) laid between brick courses above ground level. This stops water wicking up the bricks and into the building. This is a black plastic strip if provided at the time of building or a silicone based chemical (injected) if not. The damp proof course (DPC) should be at least 150mm above the ground level to stop splashing water penetrating into the wall.



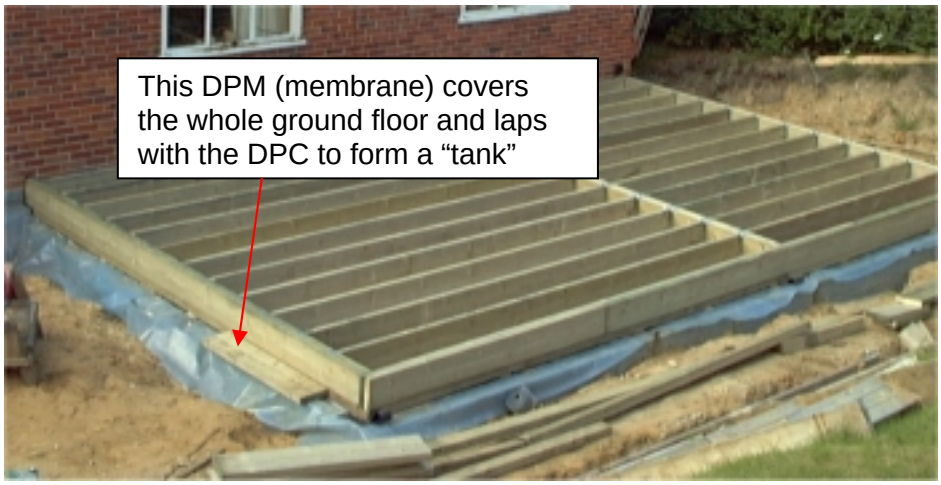
The vent is used to provide airflow beneath suspended floors.

Most new buildings have a plastic membrane below the floor that laps over the DPC to form a continuous barrier to water. This is absent in most older buildings.

It is, however, far more likely for damp to pass through floors than it is through walls. The resultant mildew and dampness often appear on the wall at low level and this confuses as to the source. Check for dampness using your own investigation to find out the real source of damp.

Key Tip

To detect dampness coming through floors for example, tape a piece of polyethylene to the floor. If it is “misted” a day later, there is water coming through the floor.



Generally, in a good watertight building, all areas within 150mm of the ground and below will be enclosed – rather like a swimming pool working in reverse! A basement is a particularly good example of this.

In any situation where this “swimming pool” is not working, dampness may enter. The way to cure this is the treat walls with a “tanking” treatment of epoxy or bituminous material up to or above an injected chemical DPC.

There are several other conditions that will promote dampness. Their elimination may well cure the problem so give it a try!

- Ground built up around or above the DPC.
- Objects leaning against the building (like sheet materials, planks etc).
- Areas sheltered from sunlight by objects like hedges.
- Areas sheltered from the wind by fences etc.
- Areas exposed to severe winds and driving rain.
- Areas with evidence of splashing onto walls (like water splashing off decking onto walls above DPC)
- Leaking guttering (water can blow back onto walls).

16.1.6 Dry rot, wet rot and infestation.

Wet rot occurs when wood gets wet without opportunity to dry out in a reasonable time.

The cell structure of the wood breaks down in a way that is familiar to most people. It is prevented by two means:

- Protection of wood. Treated timbers (particularly pressure treated timbers are highly resistant to water attack).

- Good design. A typical example of rot will be with fence posts at their base. If the concrete is designed for example so that a small puddle of water forms around the base then rotting will be accelerated. Similarly, wood endgrain at the bottoms of doors and windows (where water accumulation is more likely) can be designed in ways that avoid exposure to the water.

Dry rot is a fungal attack that relies on the following conditions.

- Wet wood (does not need to be very wet).
- Poor air circulation.

The classic place for dry rot to take hold is in wooden floors suspended at ground level. Its symptoms go from wispy strands to mould that looks like cotton wool and typical rusty coloured fungus. Wood will deteriorate and fail rapidly.

Dry rot cure requires removal, chemical treatment and removal of conditions that caused the problem (i.e. poor ventilation).

Woodworm is the effect of insect larvae inhabiting wood. Most homes will have seen signs of this at some time in their lifetimes. The common pattern of holes 1-2mm in diameter is caused by the larvae of furniture beetle. If your holes are 3-6mm in diameter then you have either Death-watch or Longhorn beetles and a more serious problem!

See **Section 16.6 - DIY recommendations.** for advice on treating woodworm.

16.2 Some understanding of a floor structure.

There are two generic floor types in use:

- Ground bearing.
- Suspended.

Ground bearing floors are of concrete and stone construction.

They sit on subsoil. Modern ground bearing floors sit on a layer of insulation and a plastic membrane. The plastic membrane stops dampness penetrating the concrete floor. In fact, water passes through concrete by capillary action much more readily than through most brick. Dampness that is evident at low down on walls is much more likely to be caused by damp rising through the floor than through the walls.

Suspended floors have a gap between themselves and the subsoil.

The gap between floor and subsoil should be ventilated so that mould growth is inhibited. The vents around buildings with timber floors are crucial for this reason. If they are blocked (as they often are to prevent drafts passing through gaps in floorboards); the sub-floor can deteriorate rapidly due to dry rot.

16.3 Locating and understanding common defects - structural faults

Look closely for the following defects when you visit properties:

Defect	Reason
Roof sagging.	Improper support. Not necessarily a problem. If the sagging has occurred over a significant period of time or is not progressive then it may be OK. Look for signs of progress i.e. recent movement that may lead to serious outcomes.
Cracks or deformations over windows and doors.	Very common. Modern lintels support the outer skin of the house very well. Older systems may not and this will be the result. Again, If the sagging has occurred over a significant period of time or is not progressive then it may be OK.
Walls undulating.	If the walls are undulating (like a wave) then the foundations are moving or have moved. This problem may become serious or it may just reach a point and stop moving.
Vertical cracks. Most severe are cracks that pass through bricks rather than around them.	Again the foundations are moving or have moved.
Bowing of walls.	Lack of lateral support. You cannot fix it but you can stop it progressing further with metal bracing!
Open or recurring cracks in walls.	Again the foundations are moving or have moved.
Floors sagging in middle (wood).	Improper design.
Floors sagging in corners of room (wood).	The support system has failed. This may be caused by rotting.

Defect	Reason
Floors sagging (concrete)	Settlement of under-floor fill. Or of concrete slab is suspended.
Chimneys leaning.	Very common. Water penetrating mortar and weakening.
Underground drainage failed.	Clay pipes damaged by load from above (vehicles), ground movement or roots. Root damage is very common in older properties!
Dampness at low level on walls.	There are three common causes ranked in order of likelihood. • No floor membrane. Water is being carried through the floor to the base of the wall. • Absent or bridged cavity with wet conditions on outside of building. • Missing DPC. Look for dpc felt sticking out of brickwork near ground level. Chip out mortar to find it if required. Round holes (plugged) at regular intervals in the mortar joints at low level signify a chemical DPC has been injected. The same markings at higher levels indicate foam insulation has been pumped into the cavity.
Dampness at high level on walls.	There are three common causes: • Condensation. • Roof leaks • Water passing through wall (more likely with non-cavity walls).
Dampness around windows (reveals).	Condensation due to cooler surfaces near windows. Address window effectiveness or remove humidity from air.
Spalling.	This is caused when water penetrates bricks, freezes and splits the face off the bricks. Address the cause of the water and treat the bricks with a water repellent sealant.
1-2mm woodworm	Look for signs of activity (sawdust around holes). Treatment is not a major issue although removal of very damaged timber is! The extent of the damage needs to be assessed by close examination. Damage to inaccessible areas like floor voids is a major concern if the structure is being compromised.

Defect	Reason
3-6mm woodworm	Serious problems are more likely. You must speak to your local authority about this. Damage may be extensive.
Dry rot	Evidenced by fungal growth. Effect may be hidden so look for causes. Under-floor space and roof-space should be properly ventilated by wall vents or eaves vents.

Structural defects will come in one or more of the forms below:

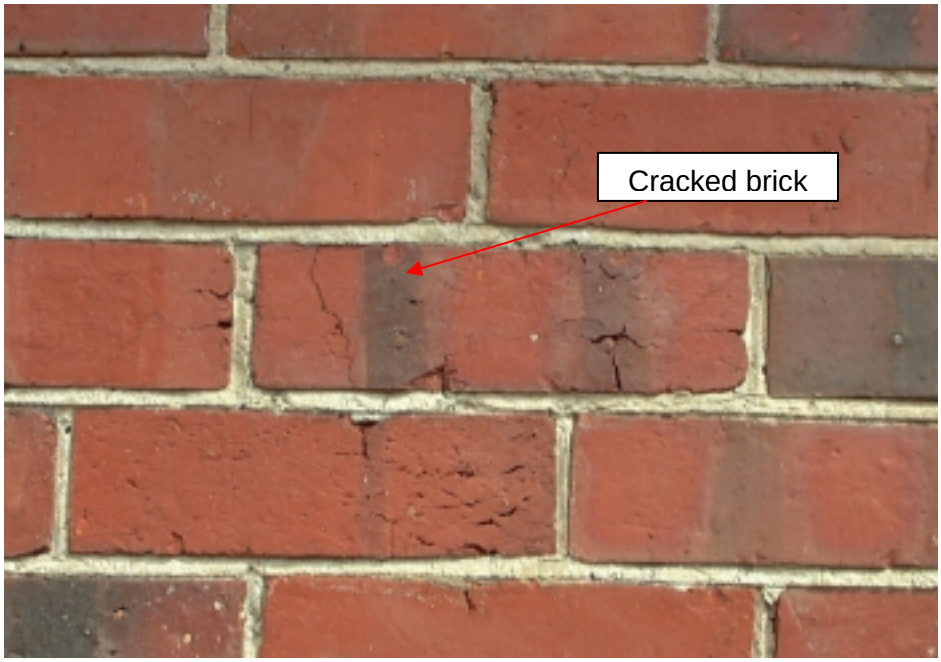
- Foundations failing and the knock on effects (like walls cracking).
- Components like lintels failing.
- Parts coming apart from one another (a good example is a wooden floor separating from a brick wall. Wood is typically difficult to attach to brick and failures are common).
- Dampness penetrating.
- Insects attacking.
- Roof sagging.
- Chimneys failing.

It is very easy to confuse structural failure with cosmetic failure.

Look at the following photographs for example.

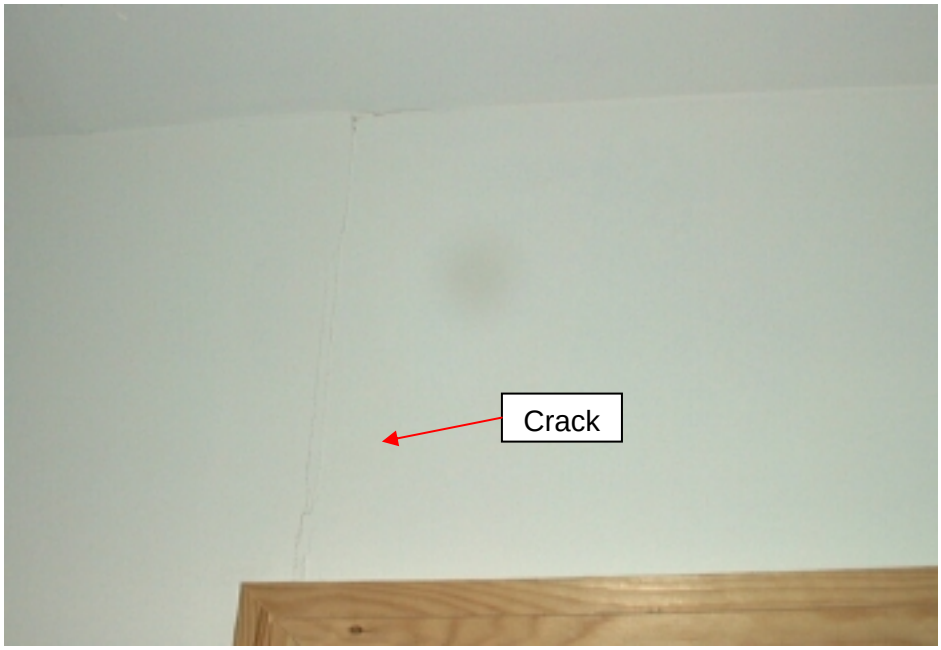
All kinds of internal and external cracks will look threatening but are minor in nature. By the time you have read this chapter you will be able to tell them apart!

See how the crack has split the bricks. This building is sinking!



This brick is cracked (probably due to frost attack). The fracture is isolated and hence clearly not structural.

This picture (looking up towards ceiling) looks serious. It is in fact just a severely cracked ceiling with no particular underlying problem.



This crack is a very typical one with dry lining. It has occurred at a board joint. If you have a dry lining crack, try establishing if it's on a joint (look for ridges, tape etc). Corners are a great place to find this type of non-structural crack. Fixing these problems with filler is pretty easy.

Look at how this truss has separated from the wallplate. This is the kind of thing that can cost a packet and that you need expert help with!

16.3.1 How serious is that cracked or bowed wall or sagging floor?

To understand the seriousness of cracks, it is necessary to understand how a property is built. From this, the relationship between various parts can be understood and defects soon categorised.

Establishing whether a crack is structural or not is a complex matter but relies of a couple of things:

- **The likelihood of the crack occurring without external influences**. An example would be a piece of wood cracking after becoming very dry. A column of bricks is unlikely to do this without help!

- **Some evidence that the crack has been caused by some movement elsewhere**.

There are two types of crack or fault:

- Slowly progressing or dormant.
- Active or rapidly advancing.

Many older properties moved around quite a bit when they were new and then settled down. Very old properties do this in a very elegant way. The roof bows inwards, the walls undulate and bow, the areas above the window sag gracefully.

Look how this purlin has deformed. It would hold this shape if removed. Its an example of graceful ageing and is not a problem.

Newer properties are much more rigid structures. They tend to break rather than bend.

The main reason for this is that modern cement joints are very inflexible whereas traditional lime mortar joints are very forgiving. If the foundation of a new property were to sink, the walls above would crack like a wafer.

Having said this, new properties are much less likely to suffer a failure unless they are very badly built or built on unstable ground.

When assessing a property more than 100 yrs. old, expect to see the signs of graceful ageing. A house that has stood this long is likely to outlive most new homes that are built today!

However, you may need to prevent further movement in several ways as you may be reaching practical limits. An excellent example of this is bowing of walls. At some point, this will cause floor joists to pull away from their mount and this will result in the floor falling in. In this instance, steel rods (torsion rods) are drilled through opposing walls at ceiling level and a

nut and spreader plate are applied to each end. The whole thing is then tightened up until the rod comes into tension.

When looking at properties less than 100 years old, you can reasonably expect the walls to be regular and the roof to have minimal sagging. If your external walls have cracks that run through the brickwork, you may have a serious issue. Again, make reference to the age of the building. If it's stood 99 years, it's probably OK unless it is seriously out of whack!

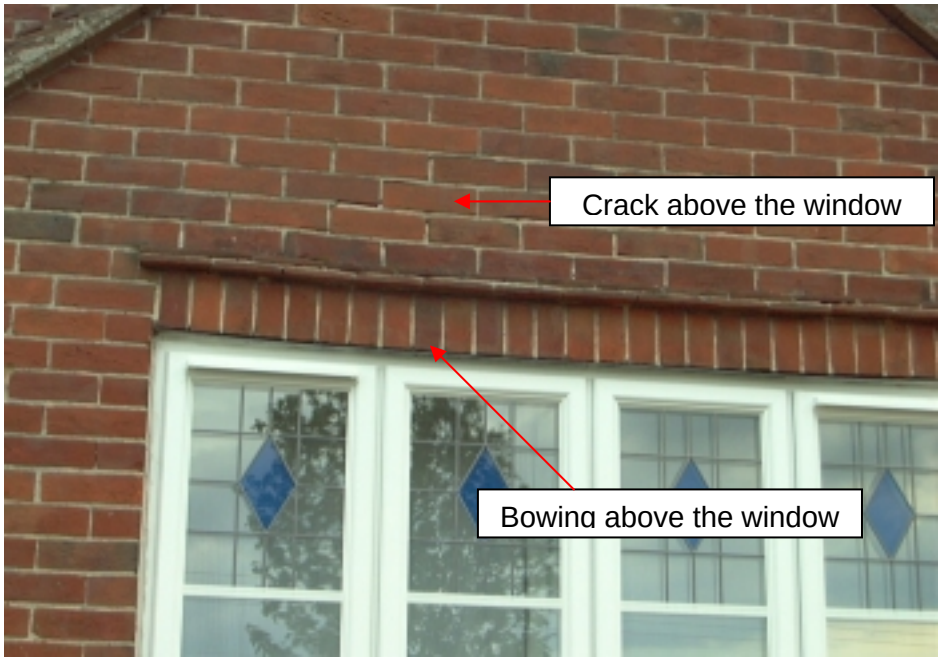
If a newer building is showing signs of distress, the solution is to underpin the foundations.

If one section of a building is collapsing, you must identify the cause and fix it. If you cannot identify the cause and establish that it is highly localised, the building may be a lost case, so beware!

Key Tip

If you see any signs of considerable distress in walls, particularly if there is evidence of localised sinking or cracking through bricks, get the best expert you can to establish the extent of the problem.

Cracks over windows and doors are common. Look at the crack and assess its message. Generally, the bigger and more angry looking displacement will be more serious. Gentle sagging is more likely and not serious until things start to crack (which could be years or never).



Look at
a) the bowing above the window.
b) The crack developing above the window.

In this instance the inner skin has a concrete lintel and the outer skin has wires bedded in the lintel trying to hold the outer skin up. It has held for 75 years in this case and will probably be OK for another 20! It is definitely a structural failure however.

Bowing roofs are common. As a rough guide, expect 5-10mm per decade of age for at least its first 200yrs of life! After this things may settle down! New houses may have a little (10-20mm) undulation built in. This should only be the case if they have cut as opposed to trussed roof design.

Sagging floors, if the sagging exceeds a small amount (i.e. highly apparent) they will need to be replaced. Floors which move up and down will also need to be replaced.

16.4 Find and Evaluate a Pro - structural faults

A professional tradesman will recognise that any faults involving the foundation of the building will require a structural engineers intervention. If they say otherwise, stay away!

Faults over windows, with floors and with drains are more elementary.

Roof faults should also be referred to a structural engineer if they are severe looking.

To locate a professional damp-proofer (and there are plenty of crooks in this game), try the following:

- Ask technical questions about the make up of chemicals used.
- Ask about pumping pressures and penetration expected for injection DPC.
- If DPC is being pushed, ask how the supplier has discounted moisture through floor (it may be that the floor is suspended and this would be a good answer).
- Do your own checks to see if they match with those of the damp-proofer.
- Ask, for the case of floor treatments how it bonds to the wet floor and how a floor finish is bonded to the treatment once complete.

- Check for membership of BWPDA (British Wood Preserving & Damp Proofing Association).

16.5 Time and cost issues - structural faults

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Foundation failing on one corner of a house	200	£4000	£500	£4500
Roof sagging unacceptably	80	£1600	£1000	£2600
Walls bowing	40	£800	£400	£1200
Floors sagging (wood 150m^2)	100	£2000	£500	£2500
Floors sagging (concrete)	100	£2000	£300	£2300
Chimney tilting	60	£1200	£200	£1400
1500mm window new lintel.	40	£800	£300	£1100
Provide a chemical DPC	10	£200	£100	£300
Provide a sealant membrane to a floor (using an epoxy on system) provided by a specialist firm				£1200
Wet rot treatment	Depends on extent.			Not usually major
Dry rot treatment	Removal can be significant			£2000 for 20m^2 under-floor
Worm treatment				£1000 per property
Replacing 3m underground drainage	20	£400	£30	£430

You can see how expensive these types of repair can be in terms of labour time and cost!

Imagine if you need to re-support four windows, one failing foundation and two failing floors. The bill could easily come to £14000! So get specialist advice!

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

16.6 DIY recommendations.

Type of solution.	Skill level.	DIY productivity.	Knowledge level.
Replace lintels (internal)	5	50%	5
Replace lintels (external)	7	40%	7
Wet rot treatment	3	50%	3
Worm treatment	3	50%	4

Replacing lintels is a challenging job, see **Section 17.2.2 - Structural Safety.** for more information.

Wet rot treatment requires some simple actions:

- Take away source of water.
- Otherwise, treat the wood to reduce damage.
- Harden rotted areas with “wood hardener”.
- Fill with a repair product like exterior wood filler.

Woodworm attack, if localised or not severe can be easily treated.

To identify whether the wood is very damaged hammer the wood and watch the result:

- Damaged wood (which is no use anyway) will break away to reveal that which is left of the structure.
- If there is enough wood left, simply treat with a spray treatment as advised by the supplier.

If the attack is in areas difficult to access, simply get a pump dispenser and spray the affected areas. The challenge with woodworm is with finding the damage rather than with actually treating it, which makes it ideal for DIY work.

17. Modifying the layout of your property.

Modifying the internal layout of a property is widely regarded as a significant thing to do i.e. not for the faint hearted!

Most changes involve either

- **adding walls** or parts of walls or
- **removing walls** or parts of walls

Removing walls is of course more likely these days. It is also the most challenging of the two options for reasons that will be explained later. In truth, this kind of work is more bark than bite.

Once you've made the commitment to go for it, you'll find it not as daunting as it looks. Having said this, there are potential hazards in the sense that your property can actually fall down if you get it wrong! Follow the approach in this ebook and this will not happen!

17.1 Things you will learn in this chapter:

- A view on some of the re-layout opportunities available to you.
- An understanding of the term "structural" and its implications.
- An understanding the other legal requirements of such changes.
- An understanding of the costs of various options.
- Some DIY options that you could consider for yourself.

…and much, much more!

17.2 Opportunities that may add value - modifying layout

Outside of the roof-space, there are really two opportunities for you to consider:

- Removing walls.
- Adding walls.

The table explains some of the changes in more detail. The DIY sections (see **Section 17.5 - DIY recommendations.**) at the end of chapter then take you into more detail as to how to make these changes yourself.

Opportunity	Benefit
Removing or reducing openings in internal walls.	You may have unnecessary openings that just prevent furniture placement etc. You may want to make two rooms from one. Be careful not to create two "unreasonable" sized rooms. Rooms should be at least 100m^2 and turning one big room into two small ones can seriously erode the value of a property!
Adding or enlarging openings in internal walls.	To improve circulation. It is important for the feeling of space that you can "flow" freely in an unobstructed way from space to space. Also, if you can see further, the property will feel bigger. You may alternatively be making one big room from two small ones.
Removing or reducing openings in external walls.	You may have excessive window area (on a cold North side perhaps?) or one door too many?
Adding or enlarging openings in external walls.	More likely, gather as much natural light as possible, particularly from windows along the path of the sun!

Creating openings is harder than filling openings, for at least two reasons:

- Demolition is hard, dirty work.
- The structure of the building is more likely to be compromised with removal over addition.

Nevertheless, once you've understood a few key concepts creating openings can be done to a high standard by a relative novice.

You are most likely, by the way, to add value to a property by creating openings, adding or enlarging windows etc. than reducing and compartmentalising. That's the current trend at least! There are four issues that you need to be aware of when considering either of these options:

- Fire safety.
- Structural safety.
- Ventilation.
- Protection from falling.

Compliance with these matters is a legal responsibility that is written into the building regulations www.construction.detr.gov.uk/bregs/index.htm. They are explained briefly in the sections that follow:

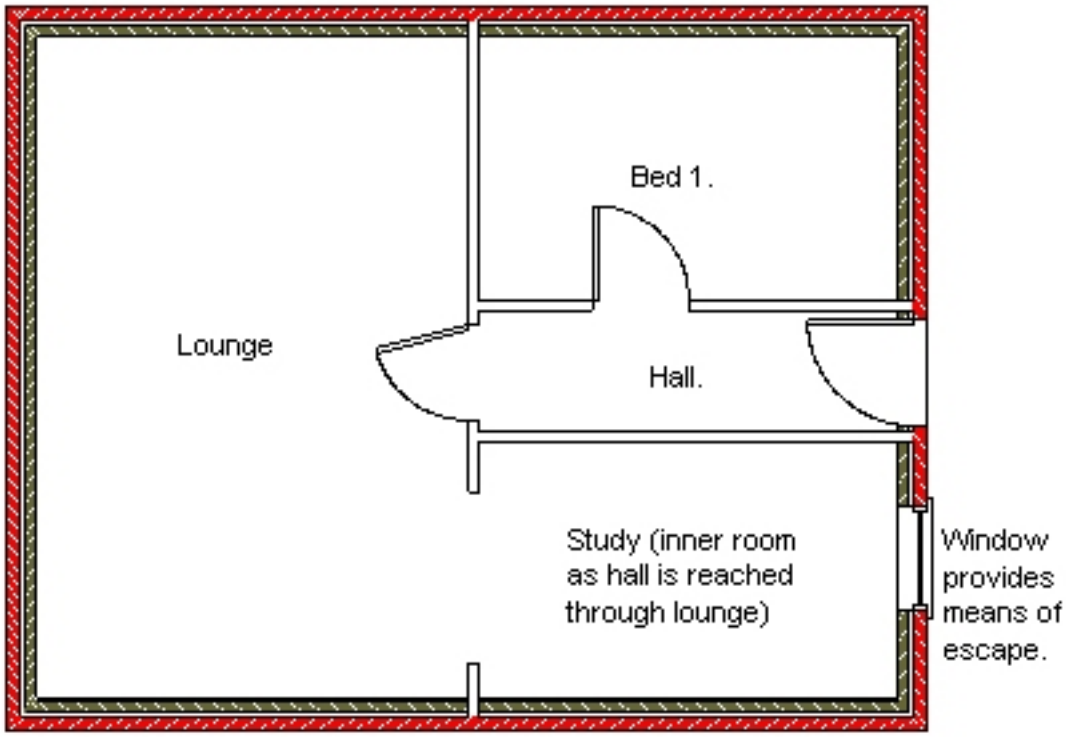
17.2.1 Fire safety.

This is a technically complex area.

Generally, rooms should be linked directly to a hallway that leads to a means of escape. In open plan layouts, rooms are often linked to one another rather than to a hallway. A room that is linked to a hallway through another room is called an “inner room”. This applies even though the opening between them may span almost the whole wall width! This situation is usually acceptable as long as the following applies:

- The room is a kitchen or bathroom or…
- The room has a window that can be opened as follows:
  - Its openable area is an unobstructed 0.33m^2.
  - It has a minimum height and width of 450mm.
  - It is less than 1100mm above the floor level to the bottom of the window.

Also beware that another part of the building regulations (prevention of falling) **requires that windows on upper floors are at least 800mm above the floor** to stop someone falling out of them. This dimension is changed to 600mm for windows that access a sloping roof.



17.2.2 Structural Safety.

There are two concerns you should have with structural safety:

- What happens to the **weight above any opening** that you create.
- How does the building deal with the **weight of any new wall** you build.

Read on for more advice!

To give you an idea of the kind of weight you are dealing with, consider the following “typical” figures for a brick built house:

- Roof weight per m^2 – 100kg
- Brick Wall weight per m^2 – 120kg
- Wooden 1^{st} floor weight 4 bed house – 2 tonnes
- Weight of a 4 bed house – 100 tonnes?

Get the point?

Some walls in your property will be structural and some will not:

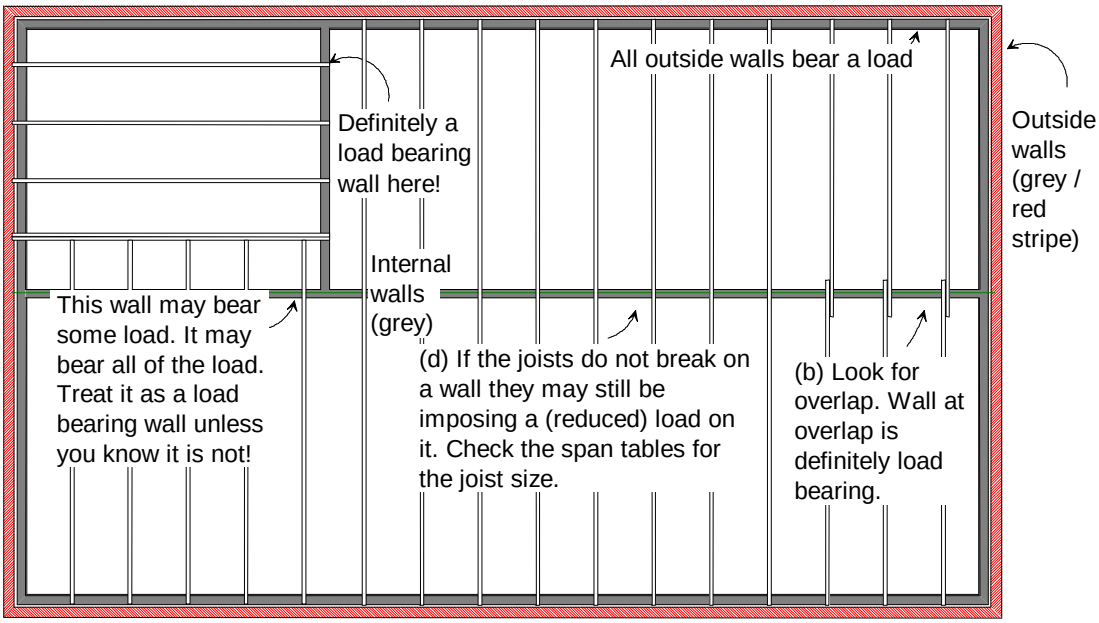
- The **outside walls are always structural** as they bear the weight of the roof.
- **Some internal walls only carry their own weight** and are therefore not structural.

If your main concern is removing structure then you must establish if the wall is load bearing or structural. Look for the following signs using the diagram to help you.

- The floor boards of the rooms above and near the wall run in the same direction as the wall (meaning that the supporting joists that run opposite to the boards, rest on the wall).
- The ceiling joists are broken / overlapped with other joists over the wall.
- There is a wall directly above the wall in question (particularly if the wall has a solid rather than timber framed construction (tap wall to verify solid of hollow).
- Any timber spans greater than about 4.5m will be supported at some point between ends. This does not apply to custom designed roof trusses that usually bear weight only on the outside shell of the building. Look closely if you can at the structure of the house in the context of it being broken up into

load bearing components. The example plans that follow describe more about what to look for.

- A timber wall can be structural.
- The outside walls are always load bearing. They carry the roof load and usually floor loads (depending on directions of rafters).
- Windows always (!) have lintels over them. These are usually concrete or more latterly steel forms that bridge the opening so the wall above doesn't sit on the window frame. Extending a window opening downwards is not structural but extending it widthways is.



If your main concern is bearing the weight of new elements then consider the following:

- Brick walls are heavy - very heavy (about 120kg per m^2).
- Concrete blocks are also heavy.
- Thermal blocks are much lighter.
- Timber frame partitions are lighter still.
- Generally, closing up a doorway does not present any structural issues.

- Building a brand new wall does, particularly if it uses "traditional" construction as opposed to timber frame, add a great deal of weight. Ideally the wall needs to be supported from below right through to a foundation. Read the **Section 17.5.2 - Building timber partitions** for more info on this.

Generally, if you make any structural changes to your property, you can seriously compromise the structure of your building. For this reason, you cannot do this type of work without getting approval from your local building control department (part of your local council).

You local building control department will ask for calculations to prove the property will remain standing once you've done your stuff! Unless you are an engineer, you are unlikely to resolve structural design issues alone. In this instance, contact a structural engineer. He will, for a fee, provide a design that will be proven, theoretically at least, to work. The solution to this type of challenge is always the same. Some type of structural member (like a lintel or RSJ/ I-beam) will be specified. This will sit above the opening and transmit the weight from above to the parts of the wall left standing.

Key Tip

Even if you decide not to do the work yourself, understanding the structure of your property is crucial if you are planning any changes to it!

Builders have been known for example to avoid submitting details to the local authority. This is a criminal offence and may lead to your house being unsafe and un-sellable. The local authority must approve all structural changes.

If the change is structural, or if there is ANY doubt, then get a structural engineer in.

If you are employing a builder to do the job, they will commonly do this for you. They will also submit the application to the local authority for approval.

Key Tip

An alternative to getting a structural engineer to calculate a beam design is to fit a box lintel. You can try calling one of the lintel suppliers with details of the proposed work and see if they will provide the maths for you. They usually will!

17.3 Find and evaluate a Pro - modifying layout

A good general builder will usually have little trouble with this type of work. Look for the following in relation to this type of work:

A builder who….

- Will understand the need to establish whether the work is structural or not. If it is structural he will know that the local authority must approve the work.
- Understands the mess than can be made during this kind of work and has a good plan to minimise the impact. (See **Section 20.1 - Safety and housekeeping.** for more advice).

17.4 Time and cost issues - modifying layout

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Make an internal wall opening 1.8m wide in a structural (and solid) wall.	24	£480	£130	£610
Do the same to an external wall.	30	£600	£180	£780
Build and finish a partition wall 3m long	12	£240	£100	£340
Do the same with one doorway included	14	£280	£200	£480

* Add £100 for a structural engineer to prove the design. Add £75 for local authority charges to approve the structural engineer's work.

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

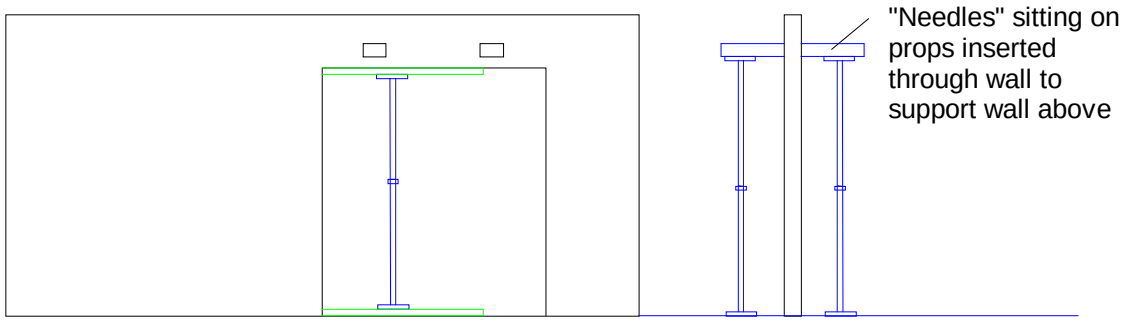
17.5 DIY recommendations.

Type of solution	Skill level	DIY productivity	Knowledge level
Make an opening in a wall.	5	50%	8
Build a partition.	5	50%	5
Build a partition with an opening.	5	30%	8
Filling an opening	5	50%	4

17.5.1 Create an opening in a structural wall.

Follow these steps.

- Establish if you are doing structural work by following the guide at the start of this chapter.
- If yes, then once the man from the council agrees the design (in writing!) you can start the work. This takes several weeks usually.
- The first step is to protect the rest of the house from dust. Follow the advice in the housekeeping chapter for this.
- If your floors are of any importance to you, they should be protected with plywood or similar. The falling bricks will dent the floor if unprotected!
- Next, mark out the opening with a soft pencil. Use a spirit level to draw the vertical lines. Make sure the top of the opening allows room for the beam to fit in and is in keeping with other opening heights to the room. The beam will overhang the opening by an amount specified by the designer. This will be 150mm typically.
- Identify and remove all electrical, plumbing, skirting boards etc from the opening.
- Before you remove any of the wall, you must redistribute the weight above it to the floor. Talk to your hire shop about your job and they will advise a propping system that will work. These systems normally are fitted into the wall above the section to be removed.



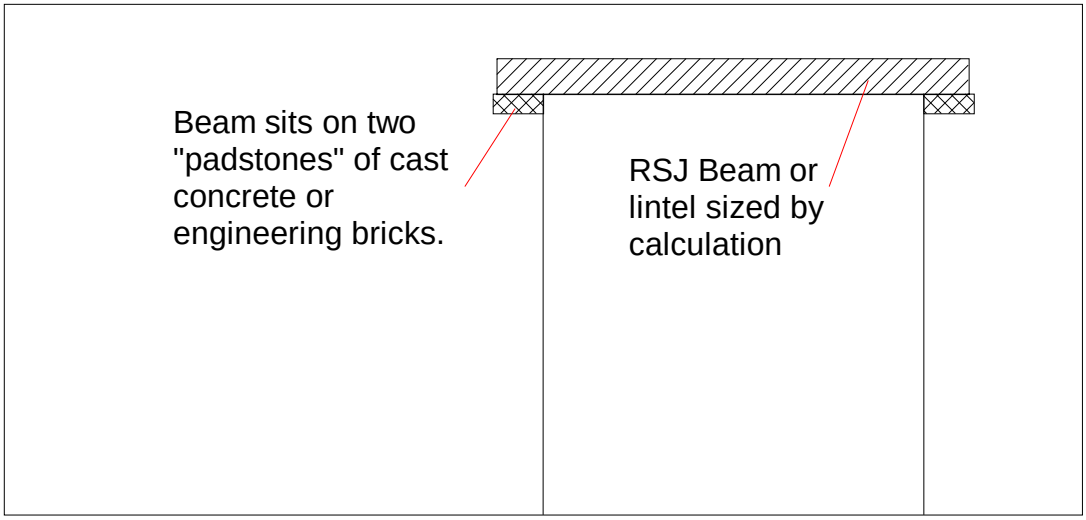
Front view outlining opening and needles positioned maximum of 900mm apart. Position internal props as opening develops

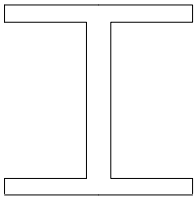
Side view of wall stradled by two props and needles inserted through wall.

- **Fit the propping system** by knocking through holes so that a needle can be fitted every 900mm maximum. Use 150mm high x 100mm wide timber needles as a minimum and keep them as short as possible (they will get more in the way as they get shorter).

- **Cut out the opening**. You can either do this with a powered rotary saw (grinder with a diamond blade) or you can use a sledge hammer. The latter method makes so much dust you will not be able to see but it is fast. The alternative is to get hold of a specialist wet cutting machine (unlikely). These saws make little dust but do leave a lot of water mess around which tends to get trodden around. Additionally, if you do decide to cut the opening with a diamond saw, make sure you leave a small perforation intact so the wall does not fall on you! Then break this small section with a sledgehammer to bring the wall down! If you decide to hammer the whole job, be careful not to damage the remaining wall. Be aware also that when using this method, the edges of the opening will need to be cleaned up by breaking with a hammer and bolster.

- **Fit the beam**. Fit correctly onto a prepared surface (called a pad-stone) which will be as specified by the Engineer. Make sure the beam is tight up against the weight it is supporting otherwise this will eventually drop onto the beam and leave a chasm! Do this by propping up the beam with wooden supports and filling under the padstones with a dry cements mix (mix 1 part cement, 3 parts sand and enough water only to make a very thick paste. Leave for 24hrs for the cement to dry in this position and then remove the props.



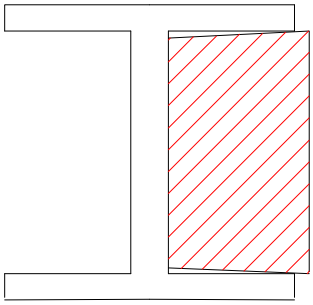


RSJ Beam cross section

Fix around the opening by plastering (see **Section 7.2 - Solid walls and plastering**). An RSJ needs to be prepared for plastering by using the following method:

- Prepare vertical timber sections that are just longer than the height of the beam and hammer into position every 450mm or so.

- Fit galvanised expanded metal mesh to these timber “soldiers”. Always treat cut ends of wire with a rustproofer so that it doesn’t corrode later and discolour the plaster / paint finish.



RSJ Beam with soldiers fitted

Finally, get your plasterer to finish the job. It's not worth trying this yourself as it's pretty tricky to get the right finish (see Section 7.2 - Solid walls and plastering)

You can use the above approach to widen internal and external openings. You can enlarge a window in this way for example. Remember that the outer walls of a house usually have two "skins".

In this case, you either fit an RSJ beam to each skin or you fit a lintel that is shaped to hold both skins see www.igltd.co.uk

17.5.2 Building timber partitions

You cannot build solid wall (concrete or brick) without some structure such as a foundation or underlying wall to support it.

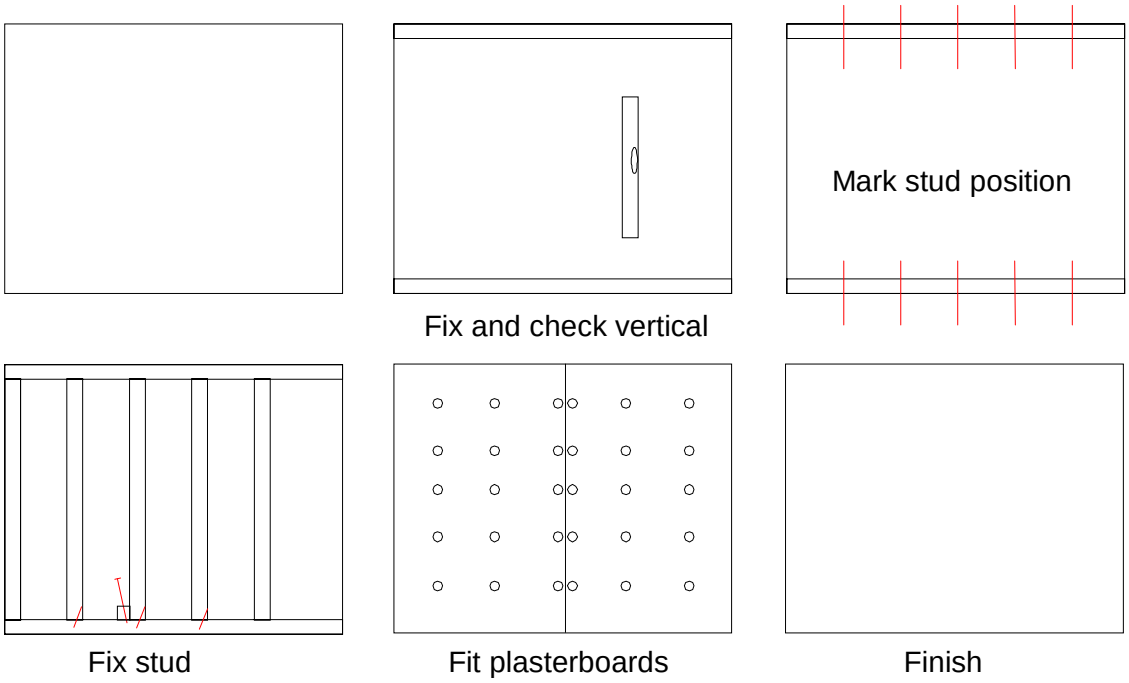
Even then, the supporting structure may not be adequately strong. An engineer should be consulted in this instance.

A simpler approach is to build a lightweight partition wall using timber frame and plasterboard. Even then, you should technically prove the underlying structure is able to bear the load. Since the wall in this instance is very light however, you probably will not! Partition walls of this kind in fact can often simply sit on floors even upstairs, rather than have an underlying structure.

Follow these key tips for building timber partitions:

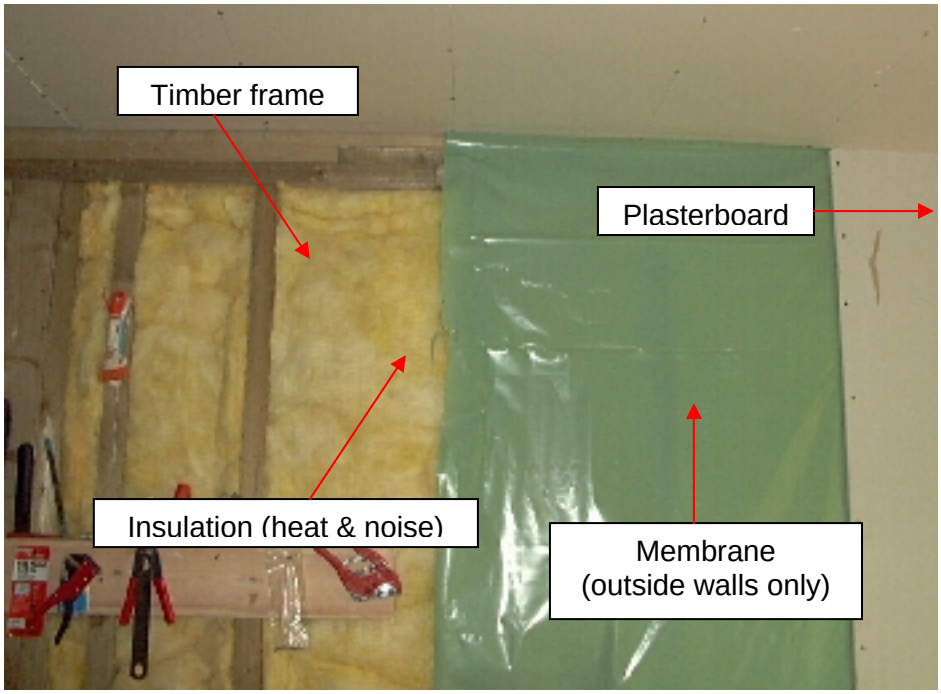
- Measure the dimensions of the hole to fill.
- Select 100mm x 50mm unplaned timber.

- Cut the sole plate and header plates (the top and bottom horizontal members of the frame).
- Measure and cut the vertical stud members. Cut enough to space at 600mm intervals.
- Fix the sole and header timbers in position by using woodscrews or hammer fixings depending on the medium to fix to. Use a spirit level to ensure they are vertically aligned.



6 stages of fitting a timber partition'

- Mark positions of studs on top and bottom members.
- Place the upright timbers in place one by one. Fix a block temporarily to one side of the stud and screw diagonally through the other to attach. The block will stop the stud moving as the screws are driven.
- Cover with plasterboard and fill and feather tapers



17.5.3 Filling in openings.

Use the same approach as with building partitions.

You will have the option in this case to match the material used in the surrounding wall since you know that it has support from underneath.

There is no reason as well why you cannot brick this up yourself if you so desire and then get a plasterer to come in and finish it. Since this type of bricklaying is not going to be seen by anyone (once plastered) you don't have to be a pro to get it right. Just follow the advice that follows:

- Attach your new brickwork to the existing using a wall starter system. Your Builders Merchants will know what you mean. This metal kit simply ties one wall to another so that your new section is bonded to the old section.
- Use a mix of Portland cement to builders sand of 1:3. Use mortar plasticiser in the correct amounts and add enough water to make a workable mix that has a whipped cream texture.
- Use a spirit level to ensure you build vertically rather than in a bow shape!

18. Loft Conversions and the Inner Roof Space.

A loft conversion is a great opportunity to add space at a lower cost than say a conventional extension.

Loft extensions, when done right, can be a significant feature. **Their greatest asset is their ability to gather natural light** and this should be exploited fully to give maximum returns.

A loft can also be a space that is isolated from the remainder of the property due to the floor separation. This can generate a **private and pleasant sanctuary that will be immediately attractive to a broad cross section of buyers**.

A loft conversion in progress. Look how the skylights suck in daylight

18.1 Things you will learn in this section:

- Recognising a loft with potential for conversion.
- Consideration of stair types.
- Understanding roof structures.
- Locating roof structure defects.
- Legal requirements.
- Window opportunities.
- Ventilation and insulation issues.
- Tips on finding and assessing a tradesman.

- Tips for specifying a solid contract.
- Time and cost assessments for common tasks.

18.2 Looking for potential.

There are several key things that you should look for in a potential loft conversion:

- Headroom
- A convenient stairway location
- A “cut roof” structure as opposed to a trussed roof structure

This loft is ready made for conversion.
It has a steep unobstructed roof and a robust Oak frame under the wallpaper.

As the roof slopes down from the ridge, it becomes low enough that any space beyond that point will have little practical value. It is worth remembering that this 'low headroom' space is not entirely “dead” however. It has at least two uses:

- It makes the room look bigger.
- It can be used for storage.

Key Tip

'Low headroom' space can also be used for applications that do not require full headroom like space for little kids to play or space for a

bath-tub.

18.2.1 Establishing usable space

In order to establish usable space, measure the floor width at which the rafters (roof members) are 1800mm above the floor. This will give the effective size of the room.

Now put a staircase in. Is there then room left for a bed for example?

Work on the plan carefully and make sure you have a scheme that works.

18.3 Stairs.

It is rather an obvious point, but remember; you need room for a stairway at both levels!

A stairway needs careful planning for it to work properly. Do this in a plan view i.e. looking from above and as an elevation (from the side). The plan view will clarify that the stairway can be practically navigated. The elevation will ensure you have sufficient headroom.

Be careful to recognise two things:

- **As you get to around tread 2 or 3 your head will reach the ceiling**. The ceiling has to be open at this point. With a spiral for example, you will have a ¾ circular hole in the ceiling that is the same diameter or bigger than the stair diameter. You have to account for this loss of floor space in your planning.

- **Generally, the steeper the staircase, the less of a hole will be required in the ceiling above**. Consider also however that the steeper the staircase the more reluctant it will make several segments of purchasers. Pensioners will be very reluctant to buy a property with anything other than a low-pitched conventional staircase.

The stairway can be one of many types:

- A convention straight or dogleg.
- A spiral.
- A square spiral (there is such a thing!).
- A space saver.

Follow this link for examples of the latter three: www.spiralshop.com

A space saver staircase is a half way house between a conventional staircase and a ladder. This type of staircase is only allowed under specific conditions that will be dealt with later.

18.4 Roof types

The diagrams will help you understand the common terminology. You should be able to work out how the weight of the roof is transmitted to the walls of the house in concept. The roof load is largely transmitted to the outer walls although internal walls can have a role to play.

A "cut roof" is a roof that has been cut on site to fit the property.

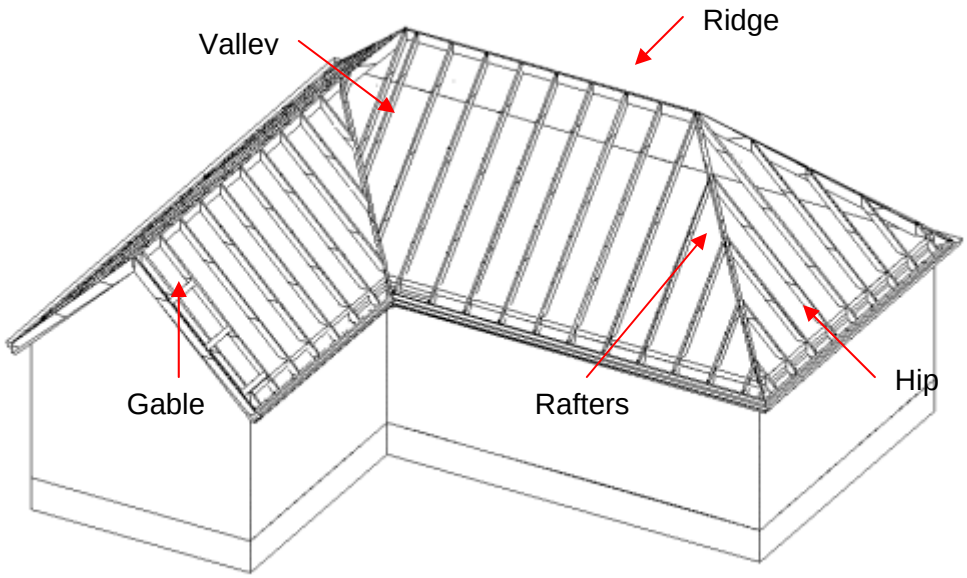
A trussed roof has a pre-made structural system that commonly follows a formation as shown. The trussed roof does not usually have ample room for a room unless it was designed as an attic room truss. In a trussed roof design, the load is usually all applied to the outer walls i.e. there is no support from internal walls.

There are two things to remember if you are considering altering the roof structure:

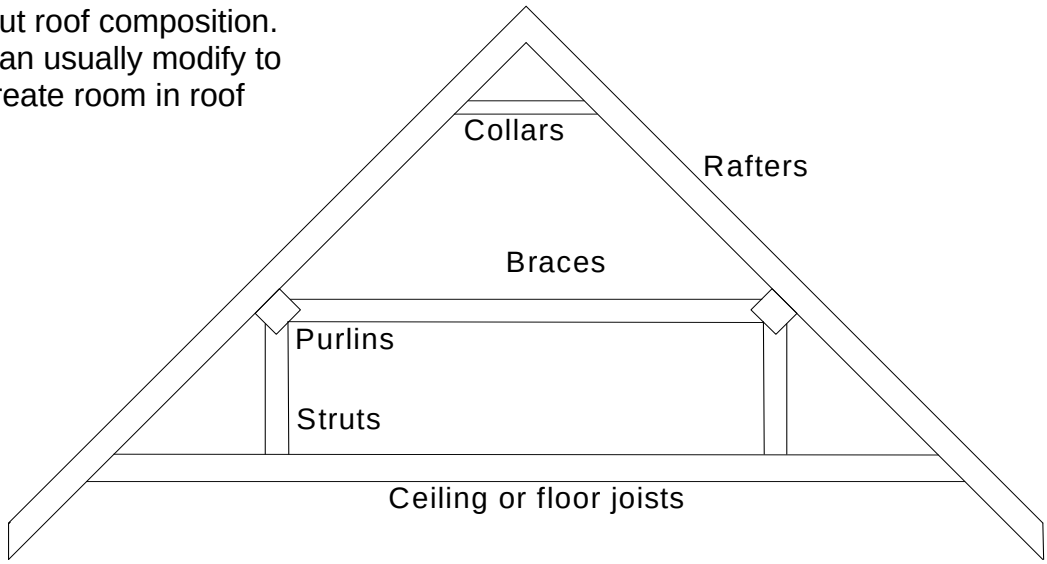
- In all cases ask a structural engineer to design your conversion so that your roof doesn't fall down later.

- **A trussed roof requires considerably more design** and requires very expert calculations. You cannot simply cut out sections, as the load distribution is quite subtle.

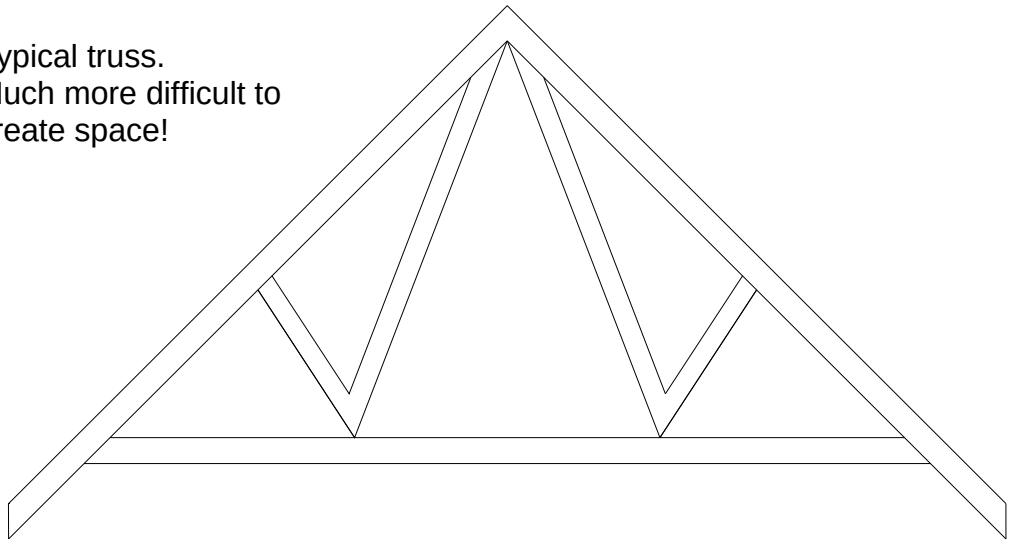
Remember, a roof weighs as much as 100kg per m^2 (or more for a traditional and rare stone roof). Be respectful of this massive weight. Don't leave it unsupported. It will collapse!



Cut roof composition.
Can usually modify to
create room in roof



Typical truss.
Much more difficult to create space!



As well as “clearing out” a space within the roof structure, it is almost certain that the new “floor” will need to be strengthened.

Traditional ceiling joists are typically 100mm deep. A floor joist is typically twice this depth. This 100mm depth gives strength to the floor. One of the challenges always with a loft conversion is lugging heavy joists up to the loft to provide a new floor.

Often the best way to bring materials into the loft space is to remove roof tiles, battens and felt over a 1m^2 section so that the new timber can be fed through.

Floor joists usually rest on “load bearing” walls that run internally in the property. Ordinary timber joists do not usually span more than 4500mm. Modern properties may have “truss” type floor joists although these are very rare.

18.5 Locating and understanding common defects.

Look closely for the following defects:

Defect	Reason

Defect	Reason
"Sagging" roof	It may be that the load is excessive. Perhaps the roof tiles were replaced with a heavier option? Generally, any house more than about 80 yrs. old will have some roof deformation. Newer properties usually don't unless they are poorly designed or modified. An old Oak framed house from the 1500s will commonly have purlins with 300mm+ of sag in them! If you are concerned, get a good structural engineer to take a look.
Wet Rot	Water penetrating or condensation. If your loft is insulated at rafter level it must be properly ventilated or trouble is inevitable.
Dry Rot	Again a symptom of poor ventilation. In this instance, the lack of air circulation encourages mould to develop. The solution is to add ventilation before its too late.
Insect attack	Most old properties will have signs of woodworm. Unless its significantly apparent its probably not active. Look at all the bore-holes. Fresh holes will commonly have "sawdust" resident around them. Treatment is fairly simple. For small areas a spray can be used. For large areas, call an expert.
No underfelt (sarking felt)	If your roof has slates or small format tiles rather than larger tiles its will probably function perfectly well without underfelt. The underfelt is an effective secondary measure in all cases for moisture that occurs through wind pressure, melting snow blowing under tiles and capillary action drawing moisture through gaps. It is not possible to add felt without removing tiles, which is a big project! Other options include using a bonded spray insulator.
Water leaks	Look for broken tiles or otherwise for missing underfelt. Small areas can be effectively fixed. Don't listen to roofers who want to replace the whole roof. Seek expert advice from a surveyor if this option is presented to you!

18.6 Legal requirements.

There are some strict legal requirements for loft conversions. Talk to your local authority about planning and building control requirements. The issues fall into at least the following categories:

- Fire safety.
- Structural safety.
- Ventilation.
- Protection from falling.

Compliance with these matters is a legal responsibility that is written into the building regulations. They are explained briefly below:

18.6.1 Fire safety.

The list below gives you a flavour for the kind of rules you'll have to comply with:

- a) Fire safety – You need a means of alerting people of a fire (a mains powered smoke detector system) and two means of escape (a stairway and a window). The means of escape is discussed in further "Modifying the layout" (see **Section 17.2.1 - Fire safety.**).

18.6.2 Structural Safety.

To reiterate three points on structure:

- If you cut out, you have to put back in some other way.
- If the floor was previously a ceiling it will need upgrading.
- You must consult an expert. Look in your yellow pages under "Structural Engineers".

18.6.3 Ventilation and Insulation.

It would be possible to write a whole ebook on either subject. Let's try and summarise it into a few words:

- The government is hell bent on energy conservation.

- This means that the shell of a house is nowadays wrapped in a “tea cosy” type-insulating cell.
- Upgrading a loft means upgrading the insulation and fitting this between or over rafters. You have several options:
  - Removing the roof and **fitting a rigid insulator** like extruded polyurethane.
  - **Cutting and fitting similar** between rafters from the inside.
  - **Fitting fibreglass** / mineral wool to the inside.
  - Spraying a **bonding insulator**.

You may not much like “fitting a rigid insulator” as it’s a substantial option. “Fitting fibre-glass” is the cheapest but requires up to 100mm to comply with regulations plus a 50mm air-gap. 'Cutting and fitting similar' comes in at twice the price but occupies half the thickness. 'Spraying a bonding insulator' is messy but quick. It costs about 5 times as much as option “fitting fibre-glass”.

There are also several specialist insulants that come in a roll of as little as 25mm thickness. They are easiest to apply but again are expensive.

Insulation performance is measured in terms of a “U” value. You will be expected to comply with the following “U” values for any new work (which includes loft conversions).

You may be able to persuade the local authority for a waiver where things like insulation cannot be accommodated without unreasonable work.

Element	U Value required
Floor	0.25
Roof (uninhabited, insulator above ceiling)	0.16
Roof with room in (insulator in rafters)	0.3
Flat roof	0.25
Walls	0.35

Insulation type	Example	Performance per 100mm	Cost m^2 to get U=0.3
Rockwool / Glass	Rockwool	0.4	£2
Expanded polystyrene	Jablite	0.35	£5
Extruded polystyrene	Styrofoam	0.25	£6

Polyurethane	Kingspan	0.18	£12
Multi-reflective	Actis	0.05	£14

18.6.3.1 Ventilation

As a result of the need to increase insulation performance, maintaining ventilation has become increasingly important.

If you've heard the term "**dew point**" then you may understand that air contains water.

The higher the temperature of air the more water it can carry. If air at a fairly elevated temperature is cooled, it may reach its dew point. This is the temperature at which it cannot hold the water it is carrying and this water turns from a vapour into a liquid.

The air on the hot side of the roof (the living space) can pass through the roof covering and through the insulation until it hits the cold side of the insulation.

If the point where the hot air hits the cold sold of the insulation it turns to water then it will damage the roof. There are two measures used to prevent this:

- **A plastic sheet (called a vapour check)** attempts to limit the amount of warm air passing through the wall covering.

- The **ventilation path** allows air to flow through the space and this carries any water vapour away.

If you build a room in the roof, you will need to add insulation, ventilation and a vapour check.

18.7 Window opportunities.

There are three options for getting natural light into a roof-space:

- A dormer
- A skylight
- A light tube

18.7.1 Dormers

Dormers have several advantages:

- They extend out the roof level and give a little more space.
- They have a good traditional look in the right application.
- A gable dormer (one with a peaked roof) will command a premium. Avoid “shed” roof dormers.

18.7.2 Skylights

The skylight market is dominated in the UK by one company – Velux. However, there are alternatives that are just as good. Andersen windows (USA) for example are also a first class company with great products.

See **Section 18.10.3 - Fitting a skylight.** for web addresses and more advice.

Skylights have several advantages:

- They are easy to fit
- They are subtle
- They don’t usually require planning approval
- They are reasonably inexpensive compared to a dormer
- They gather great amounts of light as they face the sky

A Skylight offers considerable light and is fairly easy to install. This example can be fitted with a bottom panel that opens.
The top section gull-wings to form a walk in balcony.

Skylights come in a range of sizes and options.

At one end of the scale you can get a ½m^2 unit for £150. At the upper end you can get huge windows that hinge at their top end and create walk in balconies. These come in at around £1600 each. They are worth every penny!

Key Tip

Get hold of some catalogues and use their web-sites to build up some great creative solutions involving this type of window.

18.7.3 Light tube

A light tube is a small done that sits on the roof and a highly reflective tube that carries light from the dome into a room.

They are more effective that you might imagine. In a situation where natural light is required and options are limited they are a very good solution.

18.8 Find and Evaluate a Pro - lofts

Look at the workmanship of potential loft converters. Here are some good tips:

- Look at the finish as per the “walls, floors, ceilings” chapter (see **Section 7 - Walls Ceilings and floors.**)

- Check for ventilation paths and note that they are present and clear.
- Look at the plumbing (see **Section 11 - Plumbing and Central Heating**) and electrical installation (see **Section 10 - Electrics**)
- Check the floor for deflection and squeaks by bouncing (gently!).
- Look for a mains smoke detector system (a legal requirement).
- Look at roof window installations and observe for squareness and clean installation into roof.

Additionally, ask to see the designs and look for…

- Calculations that prove the design.
- A specification that describes the level of work and compliance with the building regulations.

18.9 Time and cost issues - loft conversions

This is based on a two-room conversion.

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Fitting 30 floor joists of about 3.5meters and floor decking boards	60	£1800	£500	£2300
Fitting between rafter insulation 60m^2	25	£500	£3000	£800
Fitting roof vents 60m^2 roof	10	£200	£300	£500
Fitting wall boards on new partition walls and vapour check 100m^2	80	£1600	£400	£2000
Fitting one large roof skylight.	20	£400	£400	£800
Spiral stairs	20	£400	£1500	£1900
Bathroom and drainage	50	£1000	£1200	£2200
Floor finish (hardwood)	30	£600	£1200	£1800
Trim work	20	£400	£300	£700
Total cost per m2				£550

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

18.10 DIY recommendations.

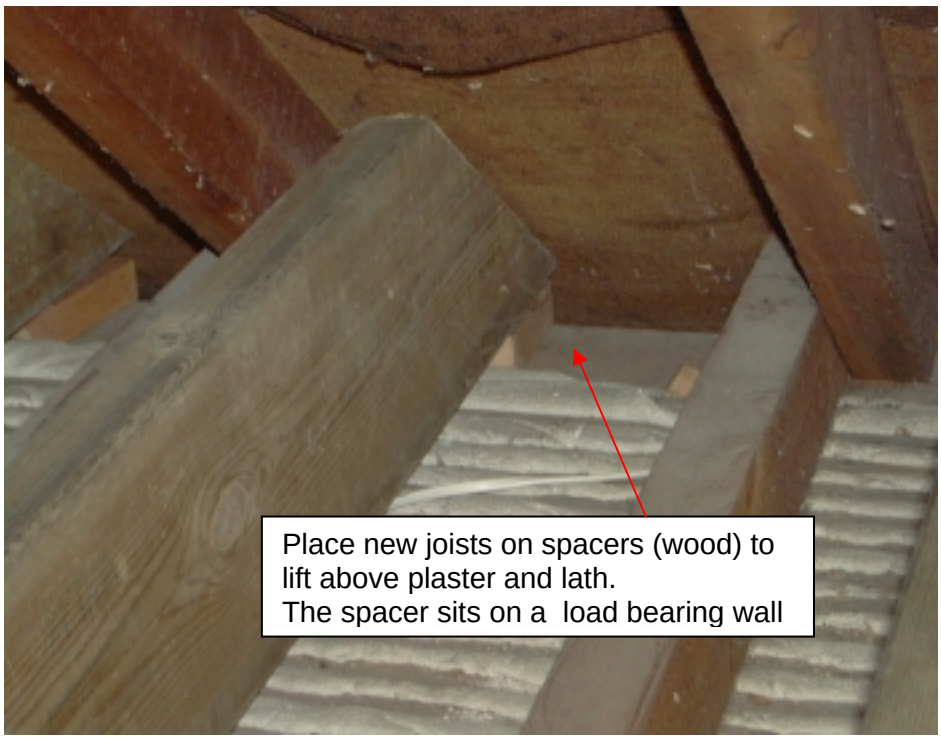
Type of solution	Skill level	DIY productivity	Knowledge level
Fit new floor joists and decking.	4	70%	4
Insulating roof.	2	70%	4
Fitting wall-boards (plaster boards).	6	30%	3
Fitting Skylights.	7	50%	6

18.10.1 Fitting Floor joists and decking.

In order to fit new floor joists to a loft, you must locate opposing walls that will take the load. These are normally the same walls that take the ceiling joists. There may or may not be a substantial foundation below one of these walls (particularly if it's internal) and specialist advice and investigative excavation may be requested by the council. In either case, follow these steps:

- Understand your structure (with help if required) and measure spans etc for timbers.
- Come up with a design and submit plans to your building control department. Use tables in the building regulations (see www.buildingcontrol.org for the latest information) to size your rafters.
- Fit joints adjacent to existing ones. Get them in the loft by taking some of the roof off if necessary!
- If you have plaster and lath, it will be necessary to space the new rafters off the surface as shown in the photograph.

Think about the number of cables and pipes that will have to uproot when you place new floor joists.

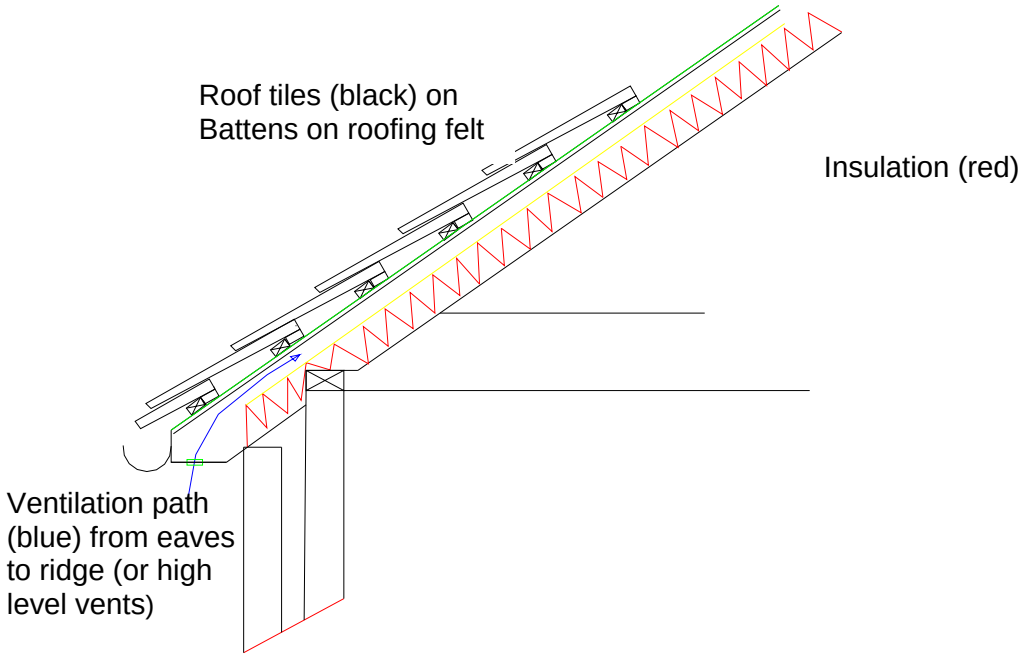


- Fit noggins between rafters to make sure they don't twist.

- Screw fasten P5 grade chipboard flooring panels (come in 19mmx2400mmx600mm size) placing screws every 200mm.

18.10.2 Insulating your roof.

Since your loft space will be living accommodation, your insulation needs to be shifted from its normal position (on top of the ceiling rafters) to the sloping part of the roof. A loft conversion now needs a U-value of 0.3 (see **Section 18.6.3 - Ventilation and Insulation.**) which corresponds to about 150mm of fibre-glass wool or 86mm of a rigid board insulator like Celotex.



The insulation in the loft should meet the insulation in the walls so that the property is completely surrounded by it.

It is critically important that the air gap is maintained. This passes through vents in the eaves up to ridge vents or vents at high level in the roof.

The path exists to allow condensation to be minimised by a flow of air. Roofs can deteriorate very quickly without this feature so check carefully!

Look particularly at the “tight spot” as the roof goes over the outside wall of the building. The insulation usually needs to be guided through this section with the use of a plastic moulding so it doesn’t block the air path. There are several options to fit and support the insulation:

- Remove the roof, fit insulation over the rafters and re-tile.
- Insulate between rafters using a product like Jablite.

Fibreglass is not really an option for lofts any longer (with the 2002 regulations), as its thickness would require substantial shoring up of the rafter thickness. Taking a roof off is a good approach if you have to do it in any case (to fit new tiles for example). Otherwise, follow this approach for fitting rigid insulation between rafters:

- Make a large workbench close to the point of application.
- Create a backstop for the insulation by nailing a 30x12mm (or so) batten to the inside of the rafter. Make sure you have a 50mm clear gap.
- Mark the foam with a marker pen and cut with a large handsaw being reasonably careful to get a good fit.
- Fit and staple or tack to hold in position. Once the ceiling is installed, the insulation will be fixed between this and the battens.

There is one important misunderstanding about gaps around insulation. It is often said that if the insulation does not fill the gap between the rafters fully then it will be useless. This is not entirely true. The reality is more like this:

- If there are gaps and air can and does flow through these gaps, then the insulation will indeed be useless. If however there is no airflow, then the insulation value will be compromised in proportion to the uncovered area.

For example, if 5% of the area is not covered, then the total U value will be reduced by 5%. This assumes that there is zero airflow however!

The importance of the above is that it states that airflow prevention is a priority. If there are gaps around the cut insulation therefore, pack these firstly with slithers of insulation if practical and then tape up all gaps using a foil backed tape.

Again, make sure there is a clear ventilation path. You may have to…

- Create vents at eaves (in the Sofit board that as shown in the diagram). There must be an equivalent to a continuous 25mm of ventilation here. You can buy kits for installing round vents. Do not simply cut holes as you will get all kinds of wildlife moving in!
- Fit ridge tile vents or fit tile vents at lower level.

18.10.3 Fitting a skylight.

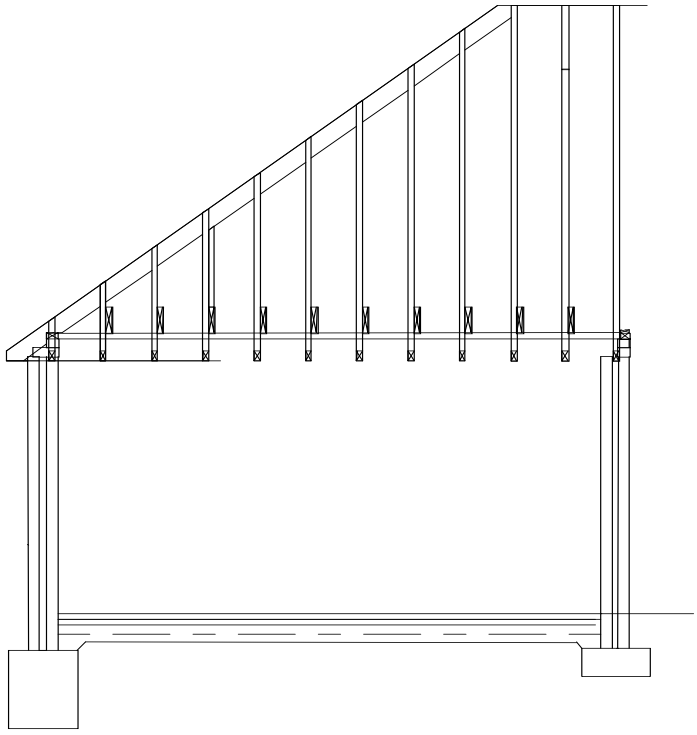
The best approach here is to fit an off the shelf unit like a Velux. The Velux website gives every bit of info you will need to fit one. Their technical people will also give you a great deal of help over the phone.

www.velux.co.uk
Telephone: 01592 772211

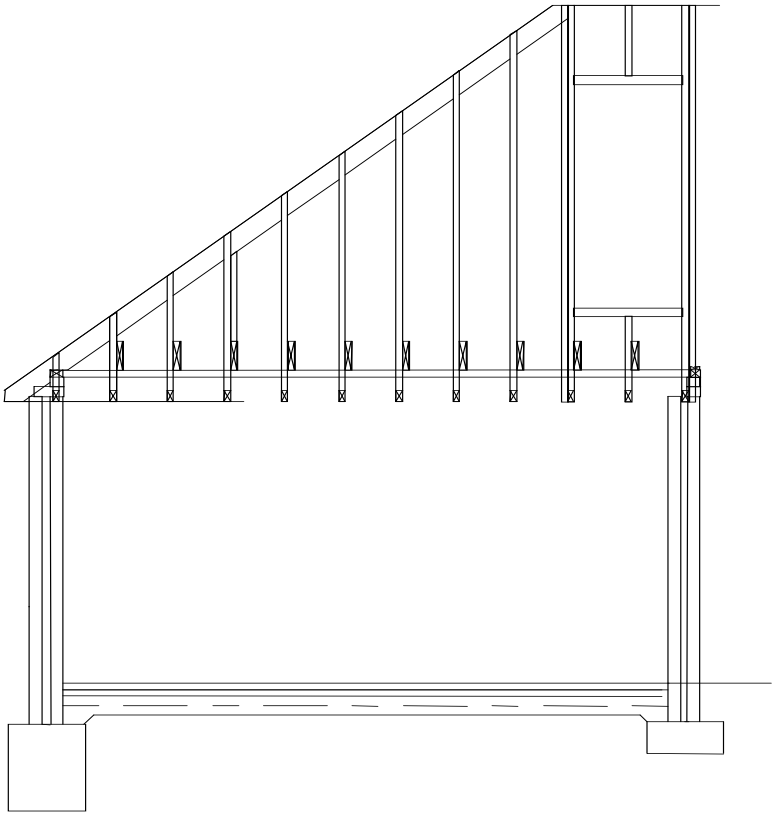
www.houseofanderson.co.uk
Telephone: 0800 590003

Here's a summary of important tips:

- Remove the roof covering and decide how many rafters are "in the way" of the window. You will start out with a scheme like this:



…and move towards a scheme like this.



- **For every rafter that is taken out (by cutting the opening), another has to go back**. If you take one out, put two back (a double on either side of the window). If you take three out, put four back (three on either side of the opening). This idea does not extend indefinitely so be careful and use an engineer if you are in doubt.

The remainder of the insulation sequence goes like this:

- Reframe the opening, as discussed to give an oversize hole.
- Prepare the window by adding the required bracketry.
- Fit the window (they tend to sit half way “in” the opening with the weight applied on top of the rafters through the fixing brackets.
- Square up and screw in position.
- Fit underfelt, and flashing parts.

- Fit cladding so that water is guided into flashings.
- Tile back up to the window cutting tiles if required.
- The whole process makes sense when you look at the instruction manual.

The most major parts of the exercise are…

- **Modifying the roof structure.**
- **Getting the window up to the roof** (the big ones way about 100kg).

The rest is a piece of cake!

Check out…

www.spiralshop.co.uk/planet.htm – Staircases.

www.loft-centre-products.co.uk - Staircases and more.

www.velux.co.uk – Velux roof windows.

www.houseofanderson.co.uk - Roof windows and more

19. Conservatories.

19.1 Things you will learn in this section.

- Some understanding of conservatories and what makes them work well.
- Knowledge of the key things to look for when assessing a property.
- Some tips on approaches that will add value.
- Tips on finding and assessing a supplier.
- Time and cost assessments for common tasks with tips and warnings.

19.2 Conservatories – What the salesman doesn't tell you.

Conservatories can be one of two things:

- A cold, damp leaky eyesore.
- Rotting carpet.
- Smelly.
- An expensive overspend with little return.

Or ...

- Bright-Clean-Warm.
- Great space at a low cost.

With conservatories it is as easy to get it wrong as it is to get it right!

There is one crucial thing you need to know about conservatories….

…glass is a poor insulating material.

If you are heating this room, it will be costly.

If you do not heat it and the sun is not around much, it will be a poor asset.

To have the sun around depends on a little luck and a good orientation. **Do not under any circumstances build a conservatory that faces North!**

Conversely, if you build it with the right orientation i.e. facing somewhere towards South, you will be surprised how much sun is actually around!

The next question is to integrate or not to integrate? The answer is 'integrate'!

You will benefit from the perception of a sunny room that is part of the house rather than that of a greenhouse attached to the house.

A 3x4m conservatory kit costs about £3000 Add £2000 for a base, radiator, electrics and installation. Total cost approximately £5,000.

Compare this to a normal extension costing £12000 upward. And now you can see why conservatories make sense!

19.3 Locating and understanding common defects - conservatories

Look closely for these common defects.

Defect	Reason
Mould, dampness	Look for signs of these in corners. Good heating, from sunlight or otherwise is crucial.
Leaks at connection to house	This is the most likely fault. There is usually a lead flashing that must divert water safely away. Look for damaged or uneven lead or lots of painted-on sealant. Lead is very recognisable as a thick flexile metal. Other materials will not be as effective so be sceptical
Rot in timber work.	If the building is wood, look for signs of rot particularly around window sills.
Settlement	Look for sign of uneven walls. Conservatories are light and should not cause too much stress. Their construction is largely outside the building regulation scheme however and therefore foundations could be suspect. If necessary, dig a hole to verify the depth and width of foundations. All foundations should be at least 450mm wide and should have a substantial concrete form of at least 150mm depth. Look for uniformity as a sign of good work.

Defect	Reason
Poor glass	Glass should be double glazed. Look for 20 or 28mm glazing units in a good installation. Single glazing will be a problem and should be apparent with condensation or condensation damage apparent.
Door and windows that don't close.	Check all openers carefully. If they are not smooth, either the panel is out of shape or the whole building is out of shape. Use a square and spirit level to verify alignment.
Poor orientation or excessive shade.	A conservatory needs good light. A large tree or poor orientation are issues. A tree will also leave all kinds of debris over the roof. Use your compass to check for an orientation away from North.
Dampness to lower walls or floor. See **Section 16 - Structural Faults.**	Due to the large window area, there is going to be a lot of colder surface around for condensation to develop. A de-humidifier is a good idea. Remove it prior to sale to avoid major negative perceptions!

19.4 Opportunities that will add value - conservatories

The key things to achieve are:

- Good integration / connection into the property.
- A design, usually with a peaked roof, that fits aesthetically with the property.
- Good materials – high quality glass and hardwood or UPVC.
- A good connection with neat and highly overlapped lead flashing.
- A good structure with solid foundation.

19.5 Find and Evaluate a Pro - conservatories

You can buy a reasonably good kit from the likes of Wickes, B&Q and Screwfix. These are certainly good places to visit to check out quality.

Most of the double glazing companies do conservatories as well so follow the tips in the “windows” chapter for more advice (see **Section 12 - Windows and doors.**)

19.6 Time and cost issues - conservatories

A "room" for the case of this table is assumed as 14m^2. The tasks are those that are required to build a conservatory. It is worth remembering that there is much more to it than just adding the frame! The option considered here is the type that has a frame going onto the ground rather than a knee high wall and then a frame.

Task	Labour Hours	Labour cost	Material Cost	Total Cost
Clear ground and build a foundation base.	40	£800	£200	£1000
Create an opening to existing property of 1.8M wide. Fit RSJ and make good.	30	£600	£80	£680
Create a lead flashing to the property (assumes a peaked roof). A shed roof connection will cost much less as the flashing simply follows the line of the brickwork (the other steps up the brickwork).	20	£400	£200	£600
Adding 1x radiator (and assuming your boiler is big enough - you can suck it and see!)	4	£80	£20	£100
Adding lighting and 2x sockets.	12	£240	£20	£260
Adding tile flooring.	10	£200	£250	£450

Look out for drainage that runs under the proposed layout.

Follow the line of manhole covers to trace. Moving this can be an expensive change particularly if the pipe belongs to the water company and not you (as in the case of a sewer line that runs through a series of back gardens). Again, trace the line made by the manholes and map out. You may have the option of casting the pipe in concrete rather than moving it.

See **Section 6.3 - Using the 'Costings' sections** to adjust these costs for your local area.

19.7 DIY recommendations - conservatories

For electrics see **Section 10.9 - DIY recommendations - electrics** and plumbing see **Section 11.11 - DIY recommendations - plumbing**. There are no other DIY recommendations. The people that build these buildings do it every day and they are highly productive. Rely on your “Pro detector” to get good quality work. Inspect work closely in every detail.

Follow these links for supplier info and other great advice.

www.almostimpartialguide.co.uk/conservatories.htm

www.conservatoriestoday.co.uk

20. Lastly…

20.1 Safety and housekeeping.

20.1.1 Why building sites are dangerous.

It's hard to find a building material that isn't harmful. Sand is perhaps a good example of one possibly! There are many more materials that are hazardous - for example

- Wood (preserved with CCA Arsenic treatment)
- Cement (irritant)
- Fibre glass (irritant)
- Paint (irritant)
- Glue (solvent hazard)
- Concrete and clay products (dust hazard)

The health and safety executive issued the following statistics for fatal injuries in construction during 1999/2000.

Cause of Death	Number
Fall from ladder	11
Falls from edges / openings	11
Falls from scaffolds / platforms	10
Falls through fragile materials	8
Falls of loads or equipment	8
Demolition / collapse	5
Site plant	6
Electrical	11
Others	16

Needless to say, falling is a considerable cause of injury in building. So follow these safety tips and create some of your own:

- **Set ladders at a reasonable angle**. Sixty degrees is usually a good number.
- **Tie off the top of ladders**.

- **Hold on to the bars** not the side rails.
- **Have scaffolding professionally installed**. It should feel secure; have safety rails and kick plates to stop bricks dropping on heads.
- **Check daily for loose connections** damaged or misplaced boards and things left lying around.

Good housekeeping is essential.

20.1.2 Taking responsibility for one's own safety

Accidents happen for one of several reasons:

- You have an unsafe approach in the first place because you have not thought things through to minimise risk. Not using a scaffold when working on a roof is in this category. Always have a safety plan even if it is just a mental note of dangers and approaches.
- You consciously or carelessly take shortcuts that are dangerous and your luck runs out. Not wearing or forgetting to wear safety equipment is in this category. It may take years but at some point you will get a brick in your eye!
- You are the victim of an unexpected occurrence. You are not expecting a car coming the wrong way down a one-way street. It is outside of your definition of "likely" so you're not looking for it.
- You are concentrating on one thing and get into trouble with another. You just have too many things to look out for. You are looking for cars and don't see a motor-cycle. This is why good housekeeping is important. If you are concentrating on not tripping over your own mess you may miss something else.
- Something you are interacting with fails. A chain saw lets go of its blade for example.

If all of the above are dealt with you have maximum protection from this type of event as you are both expecting it to happen and you have protected yourself in its event.

To stay safe, you have to do three things:

- **Be methodical - take no shortcuts**. Design an approach that minimises the possibility for dangerous circumstances and stick to it. Keeping a safe distance when driving fits in this category.
- **Anticipate all other possibilities and have an escape plan ready**. These are the hazards you cannot prevent from arising from time to time. See the hazards coming! If the car in front suddenly spins around towards you, you should know how to respond before it happens.
- **Wear protective equipment** in the event that there are too many boulders and you don't see one!

20.1.3 Dust.

If you breathe enough of most building materials you will damage your lungs.

It's hard to avoid the hazards however. Let's say for example you are cutting hardwood in a workshop. You may be sensible enough to wear a respirator when cutting. Once done cutting you take the mask off. The most hazardous dust particles are the smaller ones (less than 6 micron). You cannot really see them. They will hang in the air for 2-3 hours after you are done cutting.

The best approach to dust is to wear a good quality respirator and work outside!

20.1.4 Glasses.

Your eyes are the area most likely to get damaged if you disregard your personal protective equipment (PPE). It's also the area least likely to repair itself!

Always wear eye protection.

Not all safety glasses are made the same. As the risk of flying fragments goes up, so should the coverage. Use a full face visor or goggles for high risk jobs like grinding for example.

20.1.5 Loose clothing and power tools

There is not much to say here - other than don't do it!

If you use power tools, you must be free of loose cuffs, baggy clothes, long hair and anything else that get pulled in. If a tie for example, gets pulled into a 5HP sawbench you can kiss you head goodbye!

One thing that is worth mentioning is the use of gloves. Gloves will protect your hands from flying debris.

However gloves will also get pulled into rotating machinery in the same way as loose clothing. You need to assess this depending on what you are doing. If you are using a hedge cutter, gloves are fine, if you are using a power drill they most certainly are not!

20.2 Buying your own materials and negotiation.

Buying through builders merchants can be an unpredictable business. The general theme that you will encounter is as follows:

- Items will not have a published price.
- You will ask for a price and get a (ridiculously high) one.
- You will then ask for a discount and get a generous 20%.
- You will push for more and get 25%.
- You will pay your money and feel good about it. You will have paid over the odds.
- Your feel-good will however be reinforced by the salesperson who will tell you what a great deal you got!

Small builders, with relatively large accounts, will often pay much more to builders merchants than they need to. They think 40% off list is a great deal. That depends on the list price of course. A discount has no real relevance. It is only relevant when compared to the very best price available to you on the open market!

Negotiation is an art that comes with practice. Follow these tips to get excellent results:

- **Be polite and apologetic about "pushing" for a deal**. Explain that however bad it makes you feel to push for a deal, that your budget makes it essential and you cannot and will not compromise.

- **Agree with the salesman's view that his quality is higher.** Compliment his firm and his product as much as you can. Reiterate that this is a bonus but you have a price limit that cannot be exceeded.
- **Know what a good price is for the items you wish to buy**. Do this by benchmarking. Get trade catalogues from at least three places:

  - Screwfix www.screwfix.com
  - B&Q (trade warehouses) www.diy.com
  - Wickes www.wickes.co.uk

These first two organisations have very keen prices. They are actually the same company. Screwfix has keen prices across the board. Most products are very good quality, some are not.

B&Q still sell 'convenience' three packs of screws for the same price as you can pay for three hundred. This is not as common as it used to be however and their prices are now much keener than ever before.

Wickes are competitive across a whole range of products as well.

Now that you have benchmark prices, go to a builder's merchant with your shopping list.

- Ask for a price.
- Push them down towards the benchmark prices.
- Then tell them to stop messing about (politely).
- Tell them you can get much better prices than that at B&Q! Don't tell them the exact price.
- **Just reinforce that you expect them (as trade suppliers) to be in a different league. This will be a matter of pride for them**. They know you're serious!
- They will then bring their prices down.

Tell them you are not just another DIYer. Tell them you are a pro with a growing business. Future business from you will be significant!

- **Build a relationship with one seller**. Ask for him personally when you place orders.
- **Bundle together all your purchases.** Ask for item level costing. If any items are higher than you like, simply decline those items but demand the quoted price on the others. If the

seller offers these items as part of a larger bundle only, then decline the offer.

- **If you don't have an account, tell them that you don't believe in loyalty except where the supplier offers the very best value**. You would like to be a loyal customer but you need excellent prices across the board to do this.
- **You don't have to make a deal there and then**. Take away their offer, give it some time, call them back and ask again for a little more! They may get tired enough of you to give a little.

If you are not happy, do not close for the sake of it. BE PREPARED TO WALK AWAY.

(Of course, walking away is hard - but you can do it!)

20.2.1 Sourcing common materials – how to shop

Material.	How to source and how much to pay.
Concrete	Price the big players against each other.
Cement	Shop for prices better than B&Q benchmark.
Bricks and blocks	Build-centre are commonly strong (not at their list price!). Look for prices better than B&Q benchmark.
Paving type goods	Build-centre are commonly strong. Look for prices better than B&Q benchmark.
Plumbing Materials	Try Plumb-centre, Harrison Mcarthy and others against Screwfix benchmark.
Electrical materials	Price against Screwfix benchmark.
Lumber (Softwoods)	Jewson are commonly king. Expect to pay the following prices or better: 225x47mm £1.80 per m (add 10% for treated) Pro rata for different sizes. Decking should come in about 60p per m not the silly prices the garden centre charges.
Lumber (Hardwoods)	Go to lumber yard for domestic woods (Oak for example). Otherwise buy from a wood dealer.

Material.	How to source and how much to pay.
Lumber (man made boards)	Use Wickes as benchmark.
Fasteners	Screwfix are king. Use TXD (TORX) screws in T25 bit size for best results.
Plasters	Benchmark B&Q
Sand	Local quarries. Try your builders' merchants (who will go to the same supplier and may give you a lower price!)
Kitchens	DIY outlets, Screwfix (big stuff catalogue), MFI are very competitive. Builders' merchants. Ask for an all in price and negotiate it down. At the higher end there are many specialist suppliers.
Bathrooms	As above.
Lighting	Screwfix as benchmark.
Stairs	Screwfix do a small range of spirals for cost benchmark if nothing else.
Tools	Screwfix, B&Q, Rutlands at the higher end. See tools in **Section 20.5 - Tools.**
Roofing materials	Specialist roofing suppliers or builders merchants.
Insulation	Shop through the yellow pages.
Lintels	Try the internet. Prices are listed for companies like IG. Buy through your builders merchants and expect 20% of the manufacturers list.
Wooden Floors	Get some of the renovation magazines for contacts. Pay about £35 per m^2 for good reclaimed Oak.
Plants	Suggestions by email please!
Grass	Shop through the yellow pages.
Decking	Jewson.
Fencing	Jewson.
Windows	Screwfix as benchmark for UPVC. Check the renovation magazines for others like Oak.

Material.	How to source and how much to pay.
Safety Equipment	Screwfix.

www.Screwfix.com – For tools, screws, plumbing, electricals etc.

www.jewson.co.uk - Builders merchant.

www.hirepoint.co.uk/flash4/index.html - Jewson hirepoint

www.buildstore.co.uk - Builders merchant with lots of other links.

www.diy.com B&Q including internet shopping.

www.wickes.co.uk - Wickes.

20.3 Planning permission.

Planning permission is a means of controlling development so that it doesn't negatively impact at community. It is run by the council and is a highly political process. It covers the following:

- New building.
- Any physically obvious and significant changes to a how a property looks (from the outside).
- Over-use of a property (too much building to plot size).

It is not concerned with:

- Internal alterations.
- Safety or quality issues.
- Small additions like (commonly) small conservatories and porches.

…although the rules are complex and depend on location. For instance a listed building cannot be altered in any way without permission. It is a criminal offence to do so.

Follow this link for a list of local planning authorities. Their web-sites vary in quality. Some have downloadable application forms and technical guidance notes.

See

www.gwydir.demon.co.uk/uklocalgov/localtxt.htm

for a list of UK local authorities.

The planning process is essentially to produce drawings that show the elevations (side views), plan views and view of the property and its relationship to the surrounding area.

These plans are produced to various scales and submitted for you by a designer, architect or similar.

Expect to pay £500 upwards for plans. Architects will cost more as they are more qualified. The complexity of the project will usually help you decide on the best type of help.

20.4 Building control approval.

Building control approval is concerned with the technical part of your building. Its concerns are as follows:

- Structural safety.
- Fire safety.
- Safety from falling, glass breaking.
- Hygiene.
- Toxic materials.
- Ventilation.
- Disabled access.
- Sound.
- Energy efficiency.
- Damage due to the elements.

You cannot extend your property, change its windows or change its heating system for example without operating under building control (unless you fall into except categories):

- a) Very small buildings (check with your council).
- b) Conservatories (buildings with two or more walls and a roof of glass).

You can opt for one of two approaches when submitting a building control application, either:

- **Full plans** – where you submit plans to the council and they pass or fail them based on your technical design.
- **Building Notice** – where you call in the council and they tell you if you've done it right or not. You must advise them of the work ahead of starting!

In both cases, visits from the council are likely. This is a privilege that you will have to pay for.

Typically, a small extension will cost about £300 to pay for the building control. That is on top of any planning costs which will require a designer, architect or engineer's help.

You will deal with technical people when you make this type of application and it is typically a low hassle process. It is largely a matter of compliance or non-compliance with little in between.

Follow the link for more advice. You can visit other authorities by following the link in the "planning" section.

www.solihull.gov.uk/wwwes/BC/Default.htm - building control example

www.buildingcontrol.org - for building control regulations.

20.5 Tools.

It is almost inevitable that you will do some DIY. Most people do! You could spend your whole budget hiring or buying tools. That's fine if it's what makes you tick. Otherwise consider the following advice:

There are two types of people when it comes to buying tools:

- Those who buy the best they can afford.
- Those who buy for £9.99 at Woolworth's.

Neither is right or wrong. You can expect a £9.99 drill to under-perform a £350 drill. Surprisingly, the performance gap is not as much as the price gap on many tools! One thing you can expect from high-end equipment is robustness.

I have an 18v DeWalt cordless drill that has suffered the following abuse:

- 5 days outside in the rain.
- 2 falls from at least ten feet on to concrete.
- 1 fall from a roof.
- Hour upon hour hammer drilling, screwing 150mm self tapping bolts and cutting 35mm holes through concrete

…and it has lasted all this for at least five years.

A £9.99 drill is unlikely to survive any of these but then you could replace it at least twenty times! The final choice is in how you feel about

the equipment you use, how much use it is likely to get and how much interruption you can tolerate if it fails.

You should buy premium tools if you are likely to use them all the time. Cordless drills are usually in this category.

If you choose to buy at the premium end, consider at least the following top of the range brands in no particular order (my personal opinions only!):

- Porter Cable (USA)
- DeWalt
- Atlas Copco
- Hilti
- Metabo
- Millwalke
- Hitachi
- Makita
- Bosch Pro
- Paslode (nail guns)

All of the above should last a lifetime of DIY.

20.5.1 Building your DIY tool kit

If you do decide to take a DIY route and want to know where to start investing, then consider buying in the following sequence:

20.5.1.1 Tools for general work

- A hammer £10.
- A crow bar £8.
- A 5M tape measure £5.
- A square £4.
- A spirit level £10.
- A sledge hammer £8.
- Some sawhorses for cutting and making a bench (get the lightweight plastic ones for portability).
- A heavy hammer £8.
- A Stanley knife £5.
- Halogen work-lights £30.
- A barrow £30.
- A shovel (not a spade!) £10.
- A pick or mattock £12.
- A good cordless drill / screwdriver with TXD (TORX) screwdriver bits (18v minimum with hammer action if possible) £12 to £300.

- A good circular saw with at least a 180mm blade. £30 to £300.
- A reciprocating saw (for demolition work) £40 to £300.
- A detail sander £40.
- A belt sander £40-300.
- A shop vac £60 up.

20.5.1.2 Tools for electrical work:

- A mains tester £10.
- A set of screwdrivers (insulated is better) £5.
- A wire stripper £5.
- A cable cutter £10.

20.5.1.3 Tools for carpentry:

- A framing square £5.
- A compound mitre saw £50 up.
- A jog saw £30 up.

20.5.1.4 Tools for working with bricks, blocks, ceramic and clay tiles:

- An SDS plus drill for fast hammer drilling, breaking and channelling. £100 up.
- An Angle grinder with a diamond blade £50 up.
- A cement mixer £250 up.

20.5.1.5 Tools for plumbing:

- Stilsons £8 up.
- Adjustable wrenches £5.
- Pipe cutters £5.

20.5.1.6 For dry lining:

- Auto-feed screwdriver £230.

20.5.1.7 Tools for tiling work:

- Portable tile cutter. £35 up.

20.5.1.8 Tools for plastering repairs:

- A plasterers trowel. Get a good one for about £25.
- A “hawk” (square pad with handle to hold plaster) £10.
- A drill mixer attachment (fit to power drill 750w minimum) £8.
- Plenty of buckets; buy disposables from B&Q for £1 each.

3 Key renovator power tools:

- SDS drill (top)
- Reciprocating Saw
- Cordless drill

Portable tools are convenient to use and reduce clutter of multiple extension leads

20.6 A final note to set you on your journey!

So…if you're inclined to read ebooks backwards (as I've always done with magazines for some reason) then hello, and welcome to **Renovation Secrets**! Otherwise, you are done for now, although I genuinely hope you have viewed the ebook as a positive experience and as an ongoing source of good ideas!

As a final note, here are a few things that you should always carry with you even if you forget everything else in this ebook.

The tips below are the best that I can offer to set you on your way…

- **Enjoy yourself**. Take pleasure in the pain, the struggle, the frustration, the hard work and the success. We are all the sum of our experience. Enjoy it!

- **Life is in the journey**. In one sense the outcome matters less that the experience you went through! The profit you make will soon be spent. The experience will be with you forever!

- **Make sure you take good care of yourself**. Be aware of what you are doing physically and mentally. Be safe!

Sincerely!

Sean

21. Appendix One - Spreadsheet Software

Once you've read and digested this section, you will be able to:

- use the **Renovation Secrets** project planning software

21.1 Project Costs Spreadsheet Software

Start by opening the **'Project Cost'** spreadsheet software depending on your computer. If you have:

- Excel 97 or later **click here** to open the spreadsheet
- Excel 95 **click here** to open the spreadsheet
- Microsoft Works **click here** to open the spreadsheet

Use this sheet to calculate the full cost of your project.

This spreadsheet will help you by

a) making you consider ALL potential costs (in fact it lists 266 likely cost items)

One of the reasons that many projects over run on costs is because many costs are overlooked at the planning stage.

This key tool will encourage and cajole you into considering every potential cost that you might face

b) calculating the cost of capital

Once you've figured out all your cost items you then need to factor in the cost of borrowing money to enable you to pay for those items.

Depending on how long your project takes (if it is your own home it might be upto 2 or 3 years) will affect the length of time that you'll borrow the money before selling and realising your profit.

Therefore, by entering the likely date on which you'll incur the cost in the first place and your anticipated date of selling the property, the spreadsheet will calculate the additional cost of capital (or carry costs) on your development work.

21.2 Inspection Checklist software

Start by opening the **'Inspection Checklist'** spreadsheet software depending on your computer. If you have:

- Excel 97 or later **click here** to open the spreadsheet
- Excel 95 **click here** to open the spreadsheet
- Microsoft Works **click here** to open the spreadsheet

Before you can offer on a development property, you need to quickly gauge two things

- a) **is it a property in a good location?** (after all, now you've read Renovation Secrets you can handle any structural or building problem - but you can never change the location, so you must get this right!
- b) **how much it will cost to 'do up'**. This requires you to conduct a full assessment of the condition of the property

Use the Inspection Checklist software BEFORE you instruct a surveyor. That way you can:

- a) **identify a suitable price for the property** before you incur costs
- b) **hand your Inspection Check list to the surveyor** and ask him to cost out the repairs to the items / problems you've identified

By beginning your project in a professional and business like manner you'll not only be able to manage your development costs more accurately, but also you'll be in a better position to negotiate on the property price.

21.3 Property Scoring Software - or beginning with the end in mind!

Start by opening the **'Property Scoring'** spreadsheet software depending on your computer. If you have:

- Excel 97 or later **click here** to open the spreadsheet
- Excel 95 **click here** to open the spreadsheet
- Microsoft Works **click here** to open the spreadsheet

In order to develop and improve a property you need to begin with the end in mind.

In other words, do you expect to sell your development to:

- a) Single males/ females
- b) Young couples
- c) Young couples with children
- d) Growing family couples
- e) Middle aged couple with mature family
- f) Mature family, kids leaving nest
- g) End of career couple
- h) Widow/ widower

Open up and use the Property Scoring Software to assess

- a) how does the property stack up in terms of location
- b) how strongly does the property appeal to each 'Buyer Group' and what improvements can you make that would appeal to the most relevant Buyer section?

So, use the 'Property Scoring' software to focus your mind on your target market.

Then, for each potential improvement you consider; ask yourself:

'does this improvement make my property more or less attractive to my target buyer/ market?'

Remember that if the improvement does not fit the market group that your property naturally appeals to, then you probably wasting your money!

So, use this spreadsheet to establish a clear picture of which market group you are aiming at and then plan your developments with that market in mind.

Don't make any improvement unless it clearly appeals to that your key buyer/ market group!

For instance, 'Young Single Buyers' (males or females) will pay extra for Extra Features whereas 'End of Career Couples' will not!

21.4 Opening the Spreadsheets on an Apple Mac

According to Apple's website, www.apple.com/appleworks, the latest version of Appleworks software should be able to read Microsoft Excel spreadsheets.

If you have Appleworks 6.04 then there is a small file to download to upgrade it to accept Excel files at: www.apple.com/appleworks/update, instructions are on the webpage.

If you have an earlier version of Appleworks (6.0 or 6.03) then please go to www.info.apple.com/usen/appleworks to upgrade to Appleworks 6.04, then use this link to upgrade to Appleworks 6.1.

www.apple.com/appleworks/update

It seems a little complex – but all the info is on Apple's support page for Appleworks. At the time of writing, all the upgrades are free.

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