

# TIP62 – Construction Industry

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## Warning

These notes are not intended to provide an exhaustive or definitive picture. Any tactical tips must be treated with a 'health warning' as the BIU cannot test or validate theories or ideas submitted to it, but merely supplies information to be used with **common sense and discretion**.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

### Links to the Internet

There are a number of **references to Internet** addresses scattered throughout this note. These are not linked and need to be accessed separately from this TIP.

### Reference to commercial organisations and products

This TIP may contain references to commercial organisations, together with reference to specific products or services. Please note these are included for example purposes only and are not endorsements of the organisations, products and services.

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## Introduction

The Construction industry accounts for a significant proportion of gross domestic product. Not only is it a major contributor to the UK economy, it is also a major employer and plays a significant role in the social and environmental development of the UK.

This TIP deals with both the general builder who offers a range of small scale building services to private householders and private commercial clients, as well as those operatives working within the Construction Industry Scheme.

There are also further TIPs on related trades such as electricians, plumbers, painters and decorators etc.

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## General Features of the Industry

- The sector covers a diverse range of trades and comprises the full spectrum, from one-man operations through to multi-national concerns.
- The general builder is the most common type of construction firm with around 45,000 in the UK.
- Contracting and sub-contracting are particular features of the industry. A trader, whether a company or a small firm, can be at any one time both a contractor and a sub-contractor. The Construction Industry Scheme is a major influence on the organisation of construction operations.
- The industry is made up of a small number of large construction companies and many small building firms. Most firms within this sector are small with over 50% being sole proprietors and 25% of businesses having a turnover below £49,000.
- The majority of private contracting firms employ fewer than 4 people, but in terms of the value of work done, the industry is dominated by a small number of large companies.
- The construction industry is a relatively easy sector to enter, partly because of the nature of the work and the low level of capital expenditure required. Small firms tend to hire or lease expensive equipment, avoiding the need to have fixed overheads and keeping production costs variable and to reflect the volume and type of work undertaken. Unfortunately this is a double-edged sword as it also allows 'cowboy' builders to enter the industry.
- Contracts for larger companies are usually long term and extend for more than one year. Contracts may vary but either the contractor or the client may have to absorb the cost where there are changes from the original estimate.
- The industry is subject to disputes between customer and contractor due to misunderstandings, delays in completion of the work and customer dissatisfaction. This in turn can delay agreement on final cost and payment.
- A lot of work is obtained by competitive tender and thus puts pressure on profit margins.
- Following on from the above point, especially in smaller concerns, work is obtained by word of mouth and personal recommendation where the builder has proved the work is of good quality and value for money.
- Major home improvements such as loft conversions usually involve a sizeable payment/investment and therefore homeowners, after receiving a quote or estimate, may decide to postpone or cancel the work altogether.
- Projects are often financed by borrowing and therefore can be influenced by interest rates.
- Because of the hazardous nature of the industry and that this is frequently close to the general public, contractors need to have public liability and employee insurance.

## **Contracting and Subcontracting**

Contracting and sub-contracting are particular features of the industry. A trader, whether a company or a small firm can be at any one time, both a contractor and a sub-contractor.

The Construction Industry Scheme is a major influence on the organisation of construction operations.

Sub-contract work for other construction contractors is generally tendered for on a competitive basis – see Tenders. As such, rates may have to be low in order to secure the contract. In some cases, the contractor will set the rates, terms and conditions for a particular job. Sometimes the main contractor holds a 'reverse auction' whereby sub-contractors are invited to tender a lower amount than the current published lowest bid.

Contractors are usually given credit but often the length of the credit period is beyond the control of the sub-contracting firm, as the contract includes a 'pay when paid clause'. This means the sub-contractor does not receive payment until the main contractor is paid and payment has eventually trickled down to the sub-contractor which can take time if there are several levels of sub-contractors.

On major contracts, part of the total payment will be held back until the work has been fully checked and found to be satisfactory. These retentions or set-offs may not be received until several months after the work has been completed and may sometimes be used in part or in full to fund remedial work.

A late completion penalty may also be included in the contract.

## Construction Industry Scheme (CIS)

CIS is mentioned within this TIP due to its impact on members of the construction industry, it does not provide guidance on the operation of the scheme. Full guidance on the scheme can be found in the CIS Manual.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

CIS commenced on 1 August 1999. All contractors and subcontractors within the industry are affected by the change, whether they are companies, partnerships or sole traders.

In order for subcontractors to carry out work within the CIS they must have either:

- A registration card - CIS4. Payments received will be net of tax and National Insurance, which will have been deducted by the contractor.

Or

- A tax certificate - CIS5 or CIS6. This will enable the subcontractor to receive payment gross.

Note that a redesigned scheme will dispense with cards, certificates and vouchers from April 2007. There will be a registration service, a verification process and contractors will be required to complete a monthly return.

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However where all the work carried out by a trader is for people who are not contractors, such as private householders, and payment is made directly to the trader, this is not within CIS so the above do not apply. The schemes will also not apply if the trader is classed as an employee and so having tax and National Insurance deducted under PAYE.

# Scope of the Construction Industry

The largest sector of the construction industry is Housebuilding which comprises four distinct sectors: the public sector; the private sector; and within each, a new work sector and a repair, maintenance and improvement sector. The UK has a tradition of high home ownership which, coupled with an old housing stock, means that repair and maintenance work is an important part of the construction industry.

Other key sectors of the construction industry:

- Commercial construction includes a wide variety of work such as offices, retail and entertainment.
- Infrastructure of which road building is the main source of work. Gas, air, communications, water and sewerage activities are other significant areas of the market.
- Industrial construction is the smallest of the basic sectors of the whole construction industry. The most significant type of work is that for factories, followed by warehouses.

The scope of activities covered by the housebuilding sector of the construction industry is wide ranging. To address this many firms are able to carry out the requirements of a particular project by having the necessary skills within the workforce, or are able to employ the services of a subcontractor who is skilled in specific areas, such as a plasterer, glazier or roofer.

Examples of the work undertaken can include all or any of the following:

- 1. Buildings**
  - Private sector housing
  - Public sector housing
- 2. Improvements and repairs**
  - Home improvements - garages, extensions
  - Commercial alteration/refurbishments
  - General repair and maintenance
- 3. There is also interior building work, finishes and services to be provided, such as**
  - Cavity insulation
  - Plastering and artexing
  - Painting and decorating
  - Plumbing
  - Electrical installation and repair

As the above list indicates, because of the wide variety of services that can come under the umbrella heading of 'Construction Industry' it is essential to establish with the trader exactly what work is undertaken and services provided.



## Effects of the Economy

The construction industry is considered to be an indication of the state of the UK economy. It is particularly susceptible to the ups and downs in the economy as a whole, both on a national level and locally. Government figures illustrate the fluctuating nature of the new housing market on which the sector largely depends:

Permanent dwellings started and completed in the United Kingdom

YEAR	STARTS	COMPLETIONS
1994/95	205,442	197,169
1995/96	174,828	198,213
1996/97	194,395	185,626
1997/98	198,056	190,709
1998/99	185,499	176,640
1999/00	191,988	184,656
2000/01	185,642	176,499
2001/02	194,983	175,104
2002/03	195,360	183,777
2003/04	212,056	190,186
2004/05	225,955	205,961

**Source: Office of the Deputy Prime Minister**

The UK construction industry has experienced high levels of growth in recent years. After the recession of the early 1990s, construction output began to pick up towards the end of 1996. However a serious shortage of skills coupled with a slow housing market meant that recovery was slow and it was not until 1999 that there was any considerable growth in the industry. 2000 saw further improvement, helped by strong public sector investment in major projects. The years since 2000 have seen a sizeable expansion in construction output. Despite the threat of a global recession in 2002, the construction industry did well due to continued investment in the public sector and a buoyant housing market. Low interest rates have seen this trend continue to the present day, although successive interest rate rises and a slowing of the housing market have slowed growth in 2005 and 2006.

The following table shows this growth in annual construction output:

Total annual construction output (Great Britain)

	£million
1994	49,349
1995	52,643
1996	55,243
1997	58,351
1998	62,060
1999	65,704
2000	69,676
2001	74,690
2002	83,592
2003	91,894

2004	102,363
2005	106,604

**Source: Office of National Statistics**

Reports also indicate that there can be significant variations in construction activity and trends between regions. Therefore it is advisable to keep in mind developments that have taken place regionally and within your area, e.g. new house building policies adopted by Councils, the construction of trading estates, or large high profile projects such as Heathrow Terminal 5 and the 2012 Olympics.

Housebuilding within the private sector is the largest area of the industry due to relatively low interest rates, an undersupply of housing, low levels of unemployment and poor returns on savings, stock and shares. The majority of key housebuilders have seen profits rise as the average value of property also rises. The trend now seems to be towards larger three and four bedroom detached houses. Although growth in the private new work sector has been strong in terms of output, the actual level of housing completions is too low to meet demand, constrained by a lack of suitable land for residential building.

### **Economic Factors**

There are numerous economic factors, which have significant consequences on the construction industry; the following are just a sample for consideration:

- Trends in inflation, wages and interest rates
- Fluctuations in property prices
- Shortage of skilled labour in the construction industry will force wages up
- Regeneration initiatives by Government and regional development agencies will tend to provide an improved economic background
- Sustainable development is an important issue and will have a bearing on the construction sector
- Planning permission can be a slow process and can have a restrictive effect on the growth and expansion of the industry.

## House Construction

As house building is a major part of construction work carried out in the United Kingdom, below is an outline of the stages from start to finish in the construction of a house.

Please note this is a very general overview and is included purely to give readers an idea of the order in which activities take place. Of course these may slightly vary from job to job, or there may be additional stages required due to the individual nature of the property or methods used in different regions.

1	Site preparation - clearance and excavation
2	House layout is set out and footings dug, subsequently concrete foundations laid
3	Concrete ground floors laid
4	Block and brick walls, both inner and outer built up to first floor level
5	Scaffolding required to continue building
6	When walls completed then wall plates (wood) placed on top of brickwork
7	Commence preparation for roofing, requires joiner to fix trusses and woodwork
8	Build gable ends
9	Roofing tiler - tiling of the roof
10	Drainage - fitting of wastage pipes and sewer connection. If property is built on land where no drainage/sewerage system in place, will require sewerage treatment equipment, septic tank etc and then connect to main sewer.
11	Joiner required for front and back doors, and glazier for windows, then property is secured. Window and doorframes are built in as work progresses.
12	Once property secured, fit upstairs wooden floors and studded walls. There may be occasions when brick walls required for one or two of the walls - supporting/stairs. Otherwise studded walls are used and these are rough sawn timber and plasterboard, which is then plastered.
13	Electrician/Plumber/Joiner - to carry out 'first fix' this includes wiring, pipes for radiators, door casings.
14	Property plastered throughout
15	Electrician/Plumber/Joiner - to carry out 'second fix'- activities such as fixing the radiators to the walls and pipes, hanging internal doors, electrical fittings, fixtures such as kitchens and bathroom.
16	Decorators

## Forms of Construction

**Traditional** construction means building with external walls which have 2 skins of masonry with a cavity between them. The internal skin, invariably built of lightweight insulating blocks, is the load-bearing part which carries the weight of the roof and any upper floors. The external walls keep out the weather and give a building its character. The internal walls are either plastered or can be dry lined.

The most obvious disadvantages to a masonry construction relate to the fact that there is very little that can be pre-fabricated off site and therefore the construction process is largely dependant upon the weather. Despite the many advantages of timber frame, most homes in the UK are built using the traditional method. In Scotland the situation is reversed and most new homes are built using a timber frame.

There are many varied forms of traditional construction. Blocks take many different forms. Dense concrete blocks have a high strength factor and they are therefore used for foundations, external leafs of walls that are to be rendered and for internal load bearing partitions. They do not, however, have a very high insulation value, so lightweight aerated blocks have been designed for use as the inside leaf of the cavity wall, with or without the need for extra insulation within the cavity.

Thin joint blocks have been designed to speed up the build process. These are lightweight blocks engineered to exact sizes that, instead of being put together with the traditional sand and cement mortar, are stuck together with a propriety-glue like material spread onto the blocks using a special applicator. This allows a single leaf to be taken up to roof height without waiting for the external leaf, mimicking and matching the speed and process of a timber frame. There are also thin joint blocks that do away with the need for the cavity, creating a solid wall construction. Most blockwork construction is subsequently rendered on the outside.

Most **timber frame** systems are based on walling panels which are securely fixed together to provide a rigid structure which is enormously strong in spite of being constructed of relatively light timber. Another system has massive timber uprights supporting beams which take the weight of the superstructure, and there are other systems which employ Tudor-style framing for the walls. Timber frame houses are usually finished by cladding the frame with masonry which can be brick, stone or blocks for a rendered finish. Behind the cladding is a system of insulation material and waterproof membranes which keep the wall dry while enabling the structure to breathe. The inside faces are lined with plasterboard.

## **Bricks**

Bricks come in many varied forms and colours. Common clay bricks can be used in foundations and for internal load bearing walls. Common concrete bricks are used to course blockwork. Facing bricks are common clay bricks that have a sand face added to them in order to provide them with a weathering surface. They are only suitable for use within a wall and cannot withstand exposure to frost. Stock bricks are dense clay hard fired bricks that are suitable for most applications and can usually present any face to the weather. Wirecut bricks are similar but are faced on one side and both ends.

Handmade bricks are made from clay thrown by hand into a mould to create the desired creases, known as 'smiles'. Engineering bricks are very hard bricks that are used in high load bearing situations and in manhole construction. They can also be used as part of a damp proof course and as the capping for a wall.

## **Lintels**

Lintels are needed to support brick or block work above openings. 'I' or 'T' steel lintels and concrete lintels used in external walls require a cavity tray or damp proof course to be built over them. Combined steel lintels act as a cavity tray. A cavity tray is essential where there is an abutment to a house and the cavity wall is interrupted. This channels any moisture that might find its way into the cavity, through weepholes harmlessly to the outside.

## Groundworks

Groundwork is the term used to describe site work that takes place in the ground including excavation, drainage, service connections, concreting and some brickwork. It also conventionally includes the laying of the ground floor.

Groundworks are one of the areas of housebuilding most prone to mistakes being made and so most builders choose to subcontract all the groundworks.

### Site Preparation

Site preparation includes the removal of trees and their roots, tree stumps, bushes, scrub, undergrowth and hedges. Tree stumps can be removed either by digging or pulling them out. Disposal of trees may be to a tip or firewood merchant. Turf, if of suitable quality, may be lifted at this stage for preservation. Lifting turf is a skilled operation using special equipment.

Site preparation may also include demolition of an existing structure.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

### Excavation

Not all excavation is possible using machinery, nor is there one type of machine which is suitable for all classes of machine excavation. Further, it is not possible to dig to a precise level and depth with sufficient accuracy: machinery can remove the bulk of excavated machinery but the hole has to be trimmed by hand. Hand excavation may also be necessary for small isolated pits for pads and manholes, excavations for foundations to entrance steps etc, either because it is uneconomical to bring a machine to the work or because access is restricted.

The following table shows the number of hours needed to excavate 1 m<sup>3</sup> by hand:

Depth Stage (m)	To excavate and get out	To throw one stage	To clear sides	Total
< 1.5	2.4	0.0	0.0	2.4
1.50 to 3.0	2.4	1.4	1.4	5.2
3.0 to 4.5	2.4	2 x 1.4	1.4	6.6
4.5 to 6.0	2.4	3 x 1.4	1.4	8.0

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The above table assumes ordinary soil conditions. Some materials are easier to remove than others which will have the greatest bearing on hand excavation. Excavation time will increase if the ground is of rock, heavy clay or sand etc.

Besides a tractor with a backhoe, excavation machinery ranges from giant earth moving and excavating equipment to miniature machines that can be driven through a 1m gap. Machine excavation is not subject to the same variation on output as hand work, providing the correct type of plant is used.

Excavation needs to take into account whether any part of the excavation is below ground water level as excavation outputs are generally halved. Care is needed if the excavation is adjacent to, across or under existing services (water mains, oil pipelines, gas pipes, electrical cables,

telephone wires, sewers etc). Besides presenting a hazard to construction operatives, damage to services may result in heavy penalties and costs for repairs or replacement.

### Breaking Out

This is the term applied to the removal of material from the excavations which requires the use of equipment other than pick or shovel. Such material includes rock, concrete, brickwork, blockwork or stonework and coated macadam or asphalt against which hand tools are of little use. A compressor and pneumatic drills are commonly used to break these materials up. Once broken up, the material may be loaded for disposal with either a hand shovel or a machine. Breaking out with explosives is very rare in building works.

### Disposal of Excavated Material – Muck Away

Some excavated material can be recycled for backfilling and general filling. Topsoil can be set aside and used for levelling or filling holes. Other demolition wastes have various uses.

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Other materials may have no value and have to be sent to landfill on which Landfill Tax will have to be paid.

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However, because of the costs of disposing construction waste at landfill, illegal tipping is a major problem within the industry.

Note that as soon as excavated material is removed from the ground where it is compacted, it increases in volume. This is known as bulking. The following table shows the range of increase in bulk for various soil types:

Type of Soil	Rate of Bulking (%)
Vegetable Soil	25-30
Gravel	10-20
Sand	10-12.5
Clay	25-50
Chalk	33-50
Rock	40-50

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As an example, soil which bulks up by 30% means that just under 12m<sup>3</sup> dug out of the ground will fill a 15m<sup>3</sup> space on a 20-tonne lorry.

### Foundations

There are two main techniques for putting down foundations:

- Traditional Footings - the minimum amount of concrete possible is put into the foundation trenches and then built upwards in brick or blockwork.

- Trenchfill – as much concrete as possible is put into the trench before starting on the bricklaying. The trenchfill method is usually used in clay soils.

Both methods have advantages and disadvantages. The traditional method is cheap on materials but heavy on labour; it is also slower. Trenchfill is faster and comparatively easier. Also, a high proportion of the labour element goes into setting levels for the concrete to be poured to; this involves the same amount of work whatever the concrete level.

Concrete is a mix of cement, fine aggregate, coarse aggregate and water. The strength and durability of concrete are dependent on the proportions of materials in a particular mix. During the process of mixing materials to form concrete, a reduction in bulk occurs.

Only small quantities of concrete will be mixed on site by hand. Larger quantities will arrive on site ready mixed by an independent producer, or will be mixed on site using a machine.

Concrete is normally transported from its point of mixing to the required position on site by ordinary wheelbarrow or more commonly nowadays, by pump or diesel-powered dumper.

## Services

It is possible to lay drains and services in the same trench and this is usually the cheapest option.

The water pipe needs to be laid at least 750mm below ground so as to avoid frost. If the main drain runs in the same direction it can be laid in the same trench as the water pipe. Plastic ducting is used to carry electricity wires to buildings. These should be buried at least 450mm below ground level. The incoming gas service pipe which connects the gas main to the meter should be buried at least 375mm below ground level. There is no specified depth for telephone and cable wiring.

Mains water, electricity, gas and telecoms are often laid in ducting which is laid across the site during the drain-laying excavations.

## Drains

It is normal to lay two separate drain systems to dispose of foulwater (the waste generated by normal household usage) and rainwater in different ways. Rainwater drains typically cost more to install than foulwater drains. Drains should be run in a straight line as every time there is a bend it is accepted practice to have access to the drain and the addition of chambers, gullies, rodding access etc can significantly add to the cost of laying drains.

Pipes used are made of clay or plastic (uPVC). Normally drains are bedded in pea shingle (a particularly fine grade of gravel) but with trenchfilled foundations they have to be concreted in. Approximately one tonne of pea shingle is needed for every 8 linear meter of drain and 80% of excavated material can go back into the trenches once the pipes are laid.

### Foul Drains

The foul drains of most houses run into the main drains. A pump may be necessary if the main drain is higher than the property or if the main drain is a long distance from the property. The **Infrastructure Charge** was introduced in England and Wales in 1990 as a method of attributing the cost of additional capacity required in the system as a consequence of a new connection. It is payable at the same time as payment is made for the water connection. Each water company sets its own rate. No infrastructure charge applies in Scotland or Northern Ireland.

In many rural areas, mains drainage is not available. Various alternatives are available including septic tanks, mini-treatment works and cesspools. As there is no mains sewer connection, the property is exempt from the sewage part of the Infrastructure Charge.

## **Rainwater Drains**

Rainwater drains collect in soakaways under the property's drive. A soakaway is a 1m deep hole in the ground, usually filled with free-draining hardcore or brick rubble. Storm drains are common in urban areas but rare in the country. They are designed to stop the roads flooding but can sometimes be used for house rainwater. Most authorities discourage rainwater being allowed to run into the main drains and this method of rainwater drainage is only used as a last resort.



## Brickwork and Blockwork

See Appendix 1 for examples of labour output for bricklaying.

First Lift	From the foundations to the height of the doorway (generally 22 courses of brickwork). The first lift is essentially the height that can be built without using scaffolding.
Second Lift	From the first lift to the first floor joists
Third Lift	From the second lift to the top of the wall where it meets the roof
Top-out	Roof brickwork such as corbels and chimneys.

## **Jointing and Pointing**

Jointing is the term applied to finishing of the joints between bricks, usually using the same mortar as for the building. Jointing is done as the walls are built using the mortar used for laying the bricks. No material is added at a later date.

Pointing is the term used to describe the procedure where a separate mortar – often of a different mix and even colour from the building mortar – is applied to the joints between the bricks. As the bricklayer lays the bricks, they rake out a little of the bedding mortar to leave space for this additional application.

Re-pointing is carried out to older buildings where the existing mortar has eroded. Some of the existing mortar will be scraped out to remove any loose material and to achieve an even surface on which to repoint.

## Plastering and Rendering

There are two principle methods of finishing internal walls: dry lining and hard plaster. In the past the choice was largely dictated by whether the house was constructed in timber frame or masonry as hard plaster can only be used with the latter. However, as hard plaster puts enormous amounts of water into the structure whereas dry lining is a relatively dry process, the latter is more often used today. Hard plaster requires plenty of time to dry out naturally before decorating.

Dry lining uses plasterboard fixed to the walls by either tacking directly to the studs of a timber frame or, in the case of masonry construction, by dabs of plaster or by fixing to battens. It can be taped and jointed or it can be skim coated to provide a smooth finish. Hard plaster requires one, sometimes two, coats of sand and cement render with a finish coat of plaster skim. The sand and cement render can be replaced by proprietary plasters of differing types, each one of which is formulated for use with a different substrate.

Ceilings are usually tacked with plasterboard. If it is intended to Artex them they are tacked cream side down and taped with paper scrim. Any decorative mouldings or covings are put up before the Artex. Set or plastered ceilings are tacked grey side down and jointed with a silk scrim. Mouldings and the coving are put up afterwards.

Plasterers may also screed floors and render the outside of buildings. Rendering is normally carried out with a two or three coat render of sand and cement. For a smooth finish, the final coat is rubbed up with a float or trowel. Pebbledash is created by thickening the final coat and then dashing (throwing) pebbles into the mixture and pushing them home with a trowel. Tyrolean is created by a hand held machine that dashes a mixture of pebbles and render onto a first coat of render.

Appendix 2 gives some examples of labour output for plasterboard taken from "Estimating for Builders and Surveyors" published by Butterworth-Heinemann.

## Joinery

Carpentry and joinery are among the main building trades. There are many types of jobs that a carpentry and joinery business might offer, for example structural work such as joists and roof timbers; making and fitting new and replacement windows; fitting wooden doors and door frames; making skirting boards and custom-made furniture. It might also offer a shop fitting service which involves the fitting of fronts and interiors in commercial premises such as shops, hotels, restaurants, banks, etc. Traditionally, joiners and carpenters carried out different tasks but now the terms are virtually synonymous.

Most have skills in all aspects of carpentry and joinery work, although they may choose to specialise in one particular area. Joints may be cut by hand or by machine, and are fitted and glued together. Carpenters and joiners are experts in using hand tools but are quite likely to also do wood machining and polishing.

## Driveways and Paths

Off-road car parking is often a requirement of planning permission for new homes. Driveways are included on the list of external works which are exempt from VAT on new buildings and so most building contractors lay these at the same time as constructing the new building. Work is also available in replacing existing driveways. Block paving has been increasingly popular in recent years with many homeowners replacing their traditional tarmac or concrete drives.

All driveways require a suitable sub-base, ideally 100 to 150mm of hardcore (e.g. crushed stone and broken bricks). A geo-membrane may be placed beneath the hardcore layer to act as a soil reinforcement agent and as a filter medium. Foundations under pathways and patios designed for foot traffic only do not require foundations as deep as those under driveways.

The set-up costs of transporting materials and plant to a site can be expensive. Contractors may therefore try to obtain work at neighbouring properties to help spread costs out over several jobs. In such instances, only one delivery address may be shown on purchase and skip hire invoices with the second job kept off-record. Omissions might be detected by comparing the level of purchases for a particular job. If it seems too high then the possibility of such off-record work should be examined.

Consider also the possibility that road construction contractors with surplus materials may undertake cash jobs on the side.

## Asphalt

Asphalt, or coated macadam, is the generic name for all road construction and maintenance materials which are produced by mixing a binding agent, either bitumen (Bitmac) or tar (tarmac), with various aggregates which provide the strength. Although technically incorrect, tarmac has become a popular term for all asphalts and macadams used to surface pavements and roads.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

Although there are many different types depending on the type and size of aggregate, binder etc used, macadams fall into two classifications:

- Open graded macadam is composed of aggregate with very little fines and may be permeable. It is used as the base course. It can also be hand-laid as it remains workable for longer at lower temperatures.
- Close graded or Dense macadam contains a significant proportion of fines (material of 3mm or less). As such is it usually impermeable and looks better and is thus popular for the surface layer, more commonly known as the wearing course.

The first stage of laying a new asphalt drive is to clear and excavate the ground. The edging kerbs are then laid on a bed of suitable concrete and once these have set, the sub-base material, e.g. crushed rock, is added (the sub-base layer is the main load-bearing layer). The sub-base material is levelled out, topped up as required and then compacted with a mechanical roller. Some smaller jobs may use a vibrating plate compactor to consolidate the sub-base. In wet weather or in winter, the sub-base material may be placed before the edgings are laid.

The base course is the first of two asphalt layers used in a typical footpath or residential driveway. The base course is rolled as soon as it is laid. To prevent the asphalt sticking to the roller, water is continuously dripped over the drums from an on-board storage tank.

Finally the wearing course is laid. This is laid in much the same way as the base course. If the wearing course is laid immediately following or a short time after the base course, the two layers will bond together naturally. But if there is a significant delay (more than one week), the base course should be sealed with a sealing grit and then painted with a bonding emulsion to ensure proper adhesion. The wearing course (uppermost surface) can be coloured by using a coloured binder, often with coloured aggregates, or by incorporating coloured, coated chippings into a hot rolled asphalt wearing course.

Hot rolled asphalt may occasionally be used as a wearing course on footpaths or driveways. Once the asphalt has been spread out and levelled, chippings are scattered over the surface and rolled into the asphalt to improve skid resistance.

The material for asphalt surfaces is laid when hot and viscous, levelled and compacted as quickly as possible before it gets too cool and becomes unworkable. It is then allowed to cool and set. On hand-lay jobs using wooden floats to spread the material, the asphalt is normally treated with an oil-based compound known as 'cut back' that helps to keep it workable for longer at lower temperatures. Containers used to carry asphalt are painted with red diesel (fuel-tax exempt and so relatively cheap) as this helps prevent the hot asphalt sticking to the cold metal and building up over time. Tools will occasionally be dipped in diesel for the same reasons.

Laying tarmac requires specialist tools and techniques and is beyond the reach of most DIY enthusiasts. Generally all tarmac should be machine-laid using a paving machine, which gives a superior finish to hand-laid material, except where it is impractical to use one, e.g. small and confined areas, and footpaths.

A wearing course may be laid over an existing asphalt or concrete surface. This is known as an 'overlay'. The overlaying surface should be a minimum of 25mm thick and must be bonded to the existing surface with a bonding emulsion, commonly referred to as a 'tack coat'.

Asphalt cannot be invisibly repaired and patching will be obvious to the eye. If a sizeable area is to be patched, homeowners sometimes prefer to resurface the entire area.

Surfacing contractors normally charge by the weight or area of material laid, but for smaller areas they may charge on a daywork basis that includes transporting the requisite equipment to the site. A typical surfacing gang consists of a rake-hand, roller driver and 2 labourers.

### **Coverage Rates**

Coverage rates are variable according to the thickness of each layer. According to trade websites, standard coverage rates range from 6m<sup>2</sup> to 19m<sup>2</sup> per tonne.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

## **Paving**

**Concrete block paving** is becoming increasingly popular and has been the growth area in the UK paving industry over the last 10-15 years. Two popular methods of paving are block paving (a dry process i.e. without any cement) and concreting (a wet process using cement). With block paving, patterns can be reproduced on the paved surface through laying the concrete blocks in a sequence or using pre-decorated blocks. While this requires attention to detail it is widely regarded as the easiest type of paving to complete due to the flexibility it provides during installation. There are several types of blocks, with different compositions offering unique benefits and various colours. Blocks can be installed and extracted with relative ease, making it easier to retract errors. Concreting, on the other hand, has less flexibility once the concrete is mixed and poured. Aesthetic patterns can be designed using concrete impression tools, but as concrete sets quickly, errors may impose greater correction effort.

Alternative methods of paving include paving slabs, stone flags and cobbles.

Demand for paving services shows seasonal fluctuations. Generally, most enquiries are made in February, with most work being undertaken in March and April. Following an enquiry, an estimate may be provided free of charge. In March the demand for patio paving is highest, and in November driveway paving provides a substantial amount of the work contracted as home owners are eager to make these improvements to their property before the Christmas break.

Interpave, [www.paving.org.uk](http://www.paving.org.uk), the website of the Precast Concrete Paving and Kerb Association, provides up-to-date and comprehensive information on concrete block paving, flags, kerbs and decorative slabs. Interlay is the Association of Block Paving Contractors. Its website, [www.interlay.org.uk](http://www.interlay.org.uk), gives details of contractors who have falsely claimed to be a member of the association. Please note these are included for example purposes only and are not endorsements of the organisations, products or services.

## **Concrete**

Concrete is cheap and easy to lay. It is not visually appealing but it has its uses for those areas where a cheap, low/no maintenance pavement is required, such as for caravan storage and garage or shed bases.

Decorative patterned concrete is becoming more popular and a number of specialist operators now offer patterned concrete paving. The most popular technique is Pattern Imprint, sometimes known as 'Stamped', 'Imprinted' or 'Textured' concrete. From a sluggish start in the late 1980s this technique has slowly but steadily grown in popularity. The basic construction for this type of paving consists of a concrete layer laid over a suitable sub-base or sub-grade. There may be an edging or restraining kerb, or a temporary formwork or shuttering can be used and removed once the concrete has set, usually 3 to 7 days after pouring. Special colour dyes combined with a surface hardener are applied, usually by hand, to the concrete once it has been poured. Texture mats are then used to create the pattern required. A special Release Agent is applied to the concrete prior to placing the mats so as to prevent it from sticking to the mats or lifting as they are removed. After the concrete has dried thoroughly, one or two applications of a transparent sealant are made, to safeguard the concrete from spills and stains, and to protect the colours from UV light fading.

In recent years, refinements and developments of this technique have emerged and given rise to stencilling techniques, high-strength textured overlays, colour staining, and sandblasted concrete surfaces, as well as imprinted bitumens and resins.

## **Shingle and Gravel**

This is the cheapest option and is particularly suitable for long drives. However gravel driveways are labour intensive as they involve laying 3 or 4 layers of stones, each rolled and then left for a day or two between applications. Edgings need to be placed and a good hardcore laid.

## **Resin Bonded Driveways**

These work by sticking small stones into a rigid sheet to give a shingle-look driveway which is as hard and durable as concrete or asphalt.

## National House-Building Council

The NHBC is the standard setting body and leading warranty and insurance provider for new and newly converted homes in the UK. It is the largest building control body in the UK. The NHBC has approximately 18,000 registered builders who agree to comply with its Rules and Standards. Builders who apply for registration with the NHBC are checked, not only on their technical ability, but also on their financial affairs. Failure to comply with NHBC rules or standards can lead to deletion from the register.

### Application Fees

To become an NHBC registered builder there is an initial fee and an annual renewal fee. The initial fee covers administration charges; the renewal fee is based on the number of homes registered in the previous calendar year.

#### Renewal fees in England, Scotland and Wales

No of homes built in previous calendar year	1 April 2001	1 April 2004
	£	
0 - 2	252 + VAT	276 + VAT
3 -10	504 + VAT	552 + VAT
11 - 50	756 + VAT	828 + VAT
51 and over	1,260 + VAT	1,380 + VAT

In Northern Ireland and the Isle of Man, the renewal fees at 1 April 2001 were £210 plus VAT for no new houses built and £390 plus VAT for 1-10 houses built. Thereafter the same fees apply.

### Home Registration Fees

In addition to the fees as mentioned above, there are also fees payable for each plot registered and for which the properties will be subject to the Buildmark cover. Registration is required for each individual plot, therefore even where a number of houses are being built to form one small estate, say 10 houses, there will have to be 10 separate registrations and payment for each.

The home registration fee is determined by two factors:

- how long a company/builder has been on the NHBC register
- how a company/builder's claim record compares with the national average.

The amount of the home registration fee is made up of the following elements:

- fixed cost, calculated by reference to the number of years on the register
- variable insurance premium, dependent on selling price, number of years on the register and past claims record
- inspection cost, dependent on selling price of home
- VAT chargeable on inspection cost.

The typical fee for a good long-serving builder will be about 60% less than that for a long-serving builder with a bad claims record. Further information on home registration fees can be found on the National House-building Council website: [www.nhbc.co.uk](http://www.nhbc.co.uk).



## **Building Control**

The NHBC's building control system is aimed at helping builders meet their obligations under the Building Regulations. Builders submit their Building Regulations Initial Notice and copies of their initial construction plans to the NHBC who checks these before submitting them to the Local Authority. The NHBC also checks the working drawing and structural designs for Building Regulations compliance, carries out statutory consultations (e.g. with the Fire Authority if appropriate), issues site approval certificates, makes inspections during the course of construction and issues the Building Regulations Final Certificate.

## **Buildmark**

The NHBC's Buildmark Cover provides insurance for builders' customers against major structural problems. All properties which are to be constructed with NHBC Buildmark cover must be registered at least 21 days before work commences on site. Construction should begin within one year of the date of registration and completed within three years. If this is not achieved additional fees may be payable.

# Home Extensions/Conversions

## General

Home extensions can take various forms. Property experts say that the way to increase the value of a home is to add rooms, and that the best way to achieve this is to build an extension, garage or have a loft conversion.

The need for extra space is one of the main reasons for wanting to move home. However, because of rising house prices and lifestyle changes, building industry reports indicate more people are choosing to extend their existing residence rather than move home. Single-storey extensions are about 15-20% more expensive to build than two-storey ones due to the extra foundations and roofing required.

Extensions to residential properties are usually the domain of sole traders and smaller building firms, and of course the Cowboy Builder.

## Loft Conversions

Loft conversions have grown in popularity in recent years, as traditional extensions are often impractical due to planning restrictions or lack of space.

Most conversions of this nature do not usually require planning permission, especially if purely using the space within existing roof height and shape. However all conversions must comply with the Building Regulations. These can be obtained from the local council's Building Control Surveyor.

However it should be noted that certain conversions do require permission and in these cases will appear on a planning application list. As the planning applications are in the public domain they can be accessed by a visit to the local council. Some Areas are sent these voluntarily and free of charge; other Councils only provide applications if payment is made.

The work involved in a full loft conversion includes:

- fitting stairs, floor, windows, supports and walls
- insulation
- fitting skirting, doors, architraves etc
- installation of plumbing and electrics
- plaster finish and possibly decorating.

The type of window used in a loft conversion, i.e. Dormer or Velux, will affect the price. Velux is the brand name for a window fitted flush into a sloping roof. A dormer window is one that protrudes from a roof in a squared-off or gabled structure. A dormer window is more complicated to construct than a Velux window and will cost more. A dormer will also usually require planning permission.

One company quotes, as a rough guide, prices starting at £26,000 for a Dormer conversion and £18,000 for a Velux conversion, both including a bathroom (2004). However, prices can vary greatly due to the size of the conversion and complexity. No information is yet known about regional costs.

On average, a loft conversion takes 6 to 8 weeks. Loft conversions are generally easier in houses built before the 1960s. In 1962 trussed rafters were introduced to the UK which reduce the potential loft floor area by up to one third: although loft conversions in modern properties are possible, the cost increases.

Many builders undertake loft conversions as part of general construction work. The materials and skills required are generally within the scope of the general builder. A review of Yellow

Pages clearly indicates the high level of activity in this field as many builders indicate that they undertake this type of conversion work.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

## **Extensions**

The extensions mainly found on residential dwellings are of one and two storeys. A built-on extension can sometimes be the only viable option, as on many modern houses the closely spaced roof trusses make converting to a loft expensive and impractical.

This type of work usually falls within that undertaken by sole traders and small building firms. Again a review of such publications as Yellow Pages shows the vast array of builders available who carry out such work.

Planning permission will be required, therefore a review of the planning applications gives an indication of the size and potential value of the work being undertaken.

## **Garages**

Many of the costs attributable to building a garage, whether integral or detached are the same as building a house. Garages do not have to meet standard building regulations with regards insulation or damp, therefore they can be constructed with thinner single skin walls. However the groundwork and roofing costs are very similar to that of a house.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

## **Conversion of old buildings**

Redundant commercial and other buildings can be converted to make individual and sought-after homes. There is a wide range of specialised structures retired from their original purpose and suitable for conversion into homes.

The main type of buildings which have potential for or have undergone conversion are:

- farm buildings
- mills, water mills, factories and warehouses
- churches and chapels
- schools
- transport and service buildings - such as railways stations or old police station houses.

Old farm buildings are a major source for conversion, barn conversions being particularly popular. The types of farm buildings used could depend on the region concerned. For example a certain type of farm building may be found in the Lake District which would not in the south of the country due to the differing landscape and type of agricultural activity specific to those regions.

Barns are often the main target of farm building conversions as they provide the largest volume of area of the non-domestic buildings found on an original farmstead and farmland, which in turn provides many options for the design of an individual home. Barn conversions cost more than

new housing on a square metre basis. On a like-for-like basis, the unit area works out at between 30% and 50% more than new builds. Stone barns tend to be more expensive than brick as stone is time-consuming and therefore expensive to work with. Most barns are not listed unless they are located in the grounds of a listed farm.

Former stables and cow houses are potential buildings for conversion, although many were originally built cheaply and not as a permanent structure. However stables attached to large town houses in such cities as London and Bath lend themselves to conversion into Mews houses, as living accommodation for grooms and coachmen would have been included in the original design.

In many cities conversions of warehouses and old factories have taken place usually producing high quality and sought-after apartments.

Conversion of such properties into private houses is exempt from VAT, and so builders are able to claim refund of VAT on purchases.

This area of guidance has been withheld to protect third party data.
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## **Planning Permission**

To construct a new building, convert an existing building or add significantly to an existing one, planning permission must be obtained. Planning permission is given by Local Authorities who have a planning department to deal with planning applications and queries and keeps planning records.

Planning permission relates to the site and not to the person who makes the application. Nor does the person have to own the plot before applying for planning permission. An owner can appoint an architect, solicitor or builder, for example, to act as their agent. Planning permission does not mean that the owner has to build the house or guarantee that a house can be built as there might still be legal or practical reasons that prevent it.

There are three stages in applying for planning permission:

### **Outline Planning Consent**

Outline planning consent establishes the principle that a house can be built on a plot, leaving the design and layout to be settled later. An outline planning permission might specify the type of house and can be subject to a wide range of conditions including the position of the access, and the height or size of the house. Outline consent does not allow the work to commence but rather to move on to the next stage of the planning process. Outline planning consent is valid for a period of 5 years from the date of its granting but that application must be made within a period of 3 years from the date of its granting, for approval of reserved matters.

### **Approval of Reserved Matters**

The next stage is to give details of siting, layout, design, access and landscaping (the reserved matters) to the local authority. Approval of reserved matters is sometimes referred to as 'Detailed Permission'.

### **Detailed or Full Permission**

Detailed planning permission includes all the details of the proposal – size, style, layout, position within the plot, materials, access and foul and water disposal arrangements. Detailed planning permission is normally given subject to conditions which sometimes specify further things that have to be approved before construction starts, like landscaping scheme and samples of building materials.

Detailed planning permission expires after 5 years unless work is started within that period.

## Building Regulations

The Building Regulations are a set of minimum requirements designed to ensure that buildings are constructed to adequate standards, to secure the health, safety and welfare of people in and around buildings and to conserve fuel and energy. The regulations apply to any building work that involves:

- erecting a new building
- altering or extending an existing building
- the provision of hot water storage, sanitary conveniences or heating appliances
- the change in use of all or part of a building.

Applications are made to the Local Authority and are made separately to Planning Permission. There are two methods of applying for Buildings Regulations approval:

- **Full Plans Application** – fully detailed plans, specifications, calculations and other supporting details are submitted to enable the Building Control Surveyor to ascertain compliance with the Building Regulations. This type of application can be used for any type of building work but must be used where the premises are to be used as a factory, office, shop, hotel/boarding house or for railway premises.
- **Building Notice** – more suited to small works e.g. the installation of extra sanitary accommodation, and so detailed plans are unnecessary.

The Local Authority will issue a Completion Certificate if it is satisfied the work meets the Buildings Regulations standards.

## Building Costs

A detailed guide to housebuilding costs is given at Appendix 4.

Alternatively, the cost of building a new home can be calculated simply by multiplying the area of the building by the cost per square foot of building on it. These costs can be taken as for average-sized bungalows and houses, built on single sites by individual selfbuilders, on normal strip foundations, including fittings and fixtures appropriate to the size of the property, central heating, double glazing, connection to the drains or septic tank, garage, short length of drive and no landscaping. Costs do not include stamp duty, valuation fees, architect's fees, service connection fees, building warranties and building insurances.

This area of guidance has been withheld to protect third party data.

A bungalow has a larger footprint and roof area than a two storey house of the same internal floor area. As foundations and roofs are two of the most expensive elements, a bungalow will be more expensive to build than a house of the same area over two storeys.

This area of guidance has been withheld to protect third party data.

Brickwork/blockwork and woodwork are the largest costs involved in building houses. Individually they might account for around 30% of total costs. Plumbing and plastering are generally the next largest costs at around 10% and 7% respectively.

## Estimating and Pricing Structure

Accurate estimating is essential to any business: too low an estimate and the business will make a loss on the job; too high and the business will not get the contract. Estimating is the process of pricing work based on the information/specification and/or drawings available in preparation of submitting an offer to carry out the work for a specified sum of money. This specified sum is known as the 'tender sum' and will be made in the context of a form of contract. This will include the condition under which the specified sum may be varied.

As with the industry as a whole, this sector is perhaps best looked at in two separate and distinct ways. On the one hand there is the highly efficient company (not necessarily large) that costs projects scientifically and employs skilled labour. On the other, there is the small concern, typically one or two persons often sub-contracting their labour, operating either as a limited company, partnership or as a sole trader. This group of traders will often not use the traditional trade methods of working out what a job really costs, but will simply charge what the market will stand. The efficient organisation works on the basis that profitability depends on charging the right price for the job. The right price is a blend of competitiveness and skilful costing. Many firms have gone under due to too low estimates, bad labour relations and factors such as unexpected inflation.

The most basic step is an understanding that when work is carried out in the building trade that cannot be valued in any other way, it is customary to assess the value on a cost basis with an allowance to cover overheads and profits. The basis of costing is a matter between the parties involved, but it does not have to be a hit and miss affair as definitions of prime costs (or unit rates) are prepared and published by the Royal Institute of Chartered Surveyors and the National Federation of Building Trades Employers.

For simple, low value work, the builder will normally visit the client's premises, price the work required and provide an estimate. Where the work to be undertaken is more complex, such as the construction of a house, the client may well approach an architect in the first instance. The architect will undertake the design work, and submit drawings to a builder together with a specification and details of a standard form of contract. The builder will then measure and price the quantities of work and submit the estimate to the client. Alternatively, the builder may offer a complete package of "design and build".

For larger scale and more complex works, an architect is normally approached to carry out the design and drawings in accordance with the client's requirements. The architect then works in conjunction with a quantity surveyor who produces a "bill of quantities" based on a set of rules for measurement. The bill of quantities is sent with the drawings to the builder who then prices the items described in preparing the estimate. In doing so, it may well be necessary for the builder to obtain estimates from prospective sub-contractors undertaking specific segments of the work required.

At each level of activity, the concern to cover prime cost is the major consideration, although it naturally assumes lesser importance the lower down the scale of operative trades. The labour-only sub-contractor, for example, is only concerned to recoup "wages" and out-of-pocket expenses.

**Prime cost/Building cost** is basically a marriage of the following items:

- Labour
- Materials and goods
- Plant

To which is added incidental costs, overheads and profits - often expressed as percentage adjustments.

**Tender Price** is the price for which a builder offers to carry out the work in question. This price includes the Prime/Building costs and an amount for overheads and profit element. As the profit element has to be taken into account the builder also has to consider the prevailing economic situation. This means that in 'boom' periods where there is a surfeit of building work to be done



tender prices will increase at a greater rate than building cost, however when work is scarce tender prices are likely to fall.

**Overtime** - It will be necessary to establish how any overtime is dealt with. Where a quote/price has been given at the outset, then any additional labour costs incurred by the trader are necessarily not recouped as an extra payment from the customer (although they are likely to have some adjustment /headroom in original quote), unless it is in some way caused by the customer requiring additional work or a change in circumstances.

**Contingency** – This is an addition to cover unforeseen costs. A sum should be calculated upon experience or on a calculation of risk factors. As any addition reduces competitiveness, the contingency addition has to be carefully considered.

**Call out charges** - Although the majority of the work undertaken by builders will be prearranged, there are still instances where a call-out fee may be charged. The charge may vary depending on the circumstances of the call-out or the complexity and seriousness of the job in question. Charges may be imposed when demand is high, such as due to storm damage or winter weather causing burst pipes, and on occasions when urgent attention is required. It is worth establishing with the trader their policy on such occasions and if this is reflected in records.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.
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## **The Construction (Design and Management) Regulations**

The CDM Regulations 1994 came into force on 31 March 1995 and apply to virtually all construction works from concept designs through to project completion and beyond. The regulations impose a management structure for construction sites with the aim of improving health and safety in the UK construction industry. They require contractors to consider safety at the tendering stage and at all stages of the construction project. The regulations apply where construction work is to take over 30 days or involve more than 500 person days of construction work or where the work involves five or more persons.

## Labour

The contractor has to price the time it will take for an operative or gang to complete an item of work. By totalling the hours and multiplying this by a cost of labour per hour, the contractor can determine the labour cost associated with the work item.

This is one of the major outlays in the construction industry and can account for between 40% - 60% of the overall building costs. As discussed at Effects of the Economy, there has been a rise in workloads of the builder. As widely reported in the press, builders have in recent years had difficulty in recruiting qualified and trained craftsmen to help meet the demand. The areas affected are bricklayers, carpenters, plasterers and plumbers.

It would follow, that if this is the case, subcontractors specialising in areas of work where there is a skilled labour shortage can command a higher fee.

It is likely that any operative will expect remuneration within the traditions and agreements of the trade. Therefore it is worth bearing in mind that the labour-only sub-contractor is unlikely to work for less than could be received as an employee – see Standard Wage Rates below. Builders may use these wage rates as a starting point on which to base their own hourly rates. The amount by which labour costs are marked up varies from firm to firm and depends upon local conditions and competition.

When engaging sub-contractors a general builder may or may not apply a mark-up on their hourly rate to the client. Mark-ups, if applied, tend to be less than 20%.

### Standard wage rates

Standard wage rates, emoluments and expenses are negotiated by several organisations representing different sectors of the construction industry. The main bodies for building operatives are as follows:

- the Construction Industry Joint Council sets rates of pay for around 600,000 construction workers
- Building and Allied Trades joint Industrial Council (BATJIC)

Other skilled trades such as electrical contractors and plumbers are often represented by organisations specific to the trade.

Negotiated wage rates are shown at Appendix 6. Please note that these are guidelines and the wages actually paid may be substantially greater or smaller. Figures of wages paid obtained from the Office of National Statistics are also shown for various trades within the construction industry.

### All-in hourly rates

The complete cost of labour is calculated as an hourly figure, which is widely known as the “all-in hourly rate”. This should not be confused with the term “all-in rate”, which is sometimes used instead of “bill rate” to describe the price attached to an item in a bill of quantities and which includes labour, plant, material, profit and overhead costs.

There are basically two ways to calculate the all-in hourly rate. The first is to consider what a particular class of operative will cost the building employer for one year, and to divide this by the total hours worked in that year. The second is to consider what the same group will cost for one week, and to divide by the hours worked that week. The former is widely used by various general sources of bill rates such as pricing books, computerised libraries of rates and some building magazines. The all-in hourly rate produced can only be a typical average rate, as the producer of the data has no contract in mind, and must therefore assume:

- how much, if any, overtime is being worked

- the ratio of tradesmen to labourers in squads
- the amount of supervision, and whether this is done by working or non-productive foremen; and so on.

There is no notion of distance from site, so averages can only be given for items like travelling time, fares, lodgings, transport, etc.

Where estimates of the all-in hourly rate are based on a week's work, the builder:

- knows how large the contract is
- how far away it is
- and what work is required to be done.

The estimator therefore knows the resources necessary in terms of operatives, supervision, overtime, travelling, etc. In other words, a lot of averaging and guesswork becomes a matter of judgement based on the employer's records of previous contracts.

The annual prime cost of labour comprises the following:

- guaranteed minimum weekly earnings and other payments (such as travelling time)
- differentials or extra payment
- payments in respect of public holidays
- Employers' National Insurance Contributions, annual holiday credits, death benefit scheme and any contribution or levy imposed by statute e.g. the CITB levy.

Guaranteed minimum earnings are fixed for the full normal working hours whether work is or is not provided by the employer and regardless of stoppages through inclement weather or other unavoidable causes. Extra payments may contain the following elements:

- discomfort, inconvenience or risk
- continuous extra skill or responsibility (e.g. using particular equipment)
- intermittent responsibility
- tools allowance/storage of tools and clothing
- special provision on servicing of mechanical plant
- expenses in respect of travelling and subsistence.

Overtime is paid at varying rates, ranging from time and a quarter to double time depending on the period worked.

All the above relates, of course, to workers employed by the builder.

This area of guidance has been withheld to protect third party data.

The sub-contract labourer costs are unlikely to include anything beyond a basic hourly or daily rate, although when pricing up or charging out work to the customer, the builder may apply a notional mark up rate of between 5% and 20%. Supply and demand however are more likely to be the deciding factors at the 'bottom end' of the market. An additional cost to be borne in mind is that of adequate supervision of the workforce.

## **Per Job Rates**

Certain operatives are paid, not by the hour, but per job or per the amount of job done. For example:

- Brickies are usually paid per 1,000 bricks. On average an output of 55 to 65 common bricks per hour is achievable on straight runs of walling without excessive cutting for bond and without anything unusual. Output might be a little higher on thicker walls simply because the bricklayers are spending proportionately less time moving along the wall. Blockwork may be paid per m<sup>2</sup>. See Appendix 1 for examples of labour output for bricklaying.
- Plasterers are generally paid per the area covered. See Appendix 2 for examples of labour output for plastering.
- Joiners may be paid for each of the first and second fixes plus for other jobs such as rehanging doors and constructing porch canopies.
- Groundworkers may be paid for site strip and cart away, excavation and filling, the amount for which will depend on the size of the plot. Jobs such as laying pipes and cables may be paid per metre.

## **Non-productive Time**

Builders (and their staff) will generally incur some time which can be classed as non-productive rather than productive i.e. revenue generating, because of:

- pricing/quoting/tendering for work
- travelling to and from and between jobs
- buying/ordering materials, plant, skips etc and waiting for them to be delivered
- collecting and chasing up payment
- correcting faulty work or poor workmanship
- resolving disputes with customers/staff/suppliers
- inaccurate pricing or estimating resulting in jobs taking longer or involving more materials
- similarly, unforeseen problems (for example poor access or structural insecurity) may also result in jobs taking longer than expected; it will often be difficult to recoup the extra cost in such circumstances from the client
- clients often change their mind part way through a project which may involve more work for a builder who may carry out this extra work for no extra charge so as to maintain a good relationship with the client
- bad weather - it may not always be possible to undertake suitable alternative work during such times
- paperwork
- carrying out repairs to machinery and vehicles
- accidents (roofing work is particularly hazardous) and illness.

## **CITB Levy**

The CITB-ConstructionSkills collects an annual levy from liable employees, and grants are then made available to those employers who ensure their staff receive training. The levy-grant system shares the cost of training for the industry. Large and medium size companies pay a higher proportion of the levy, but it is the smaller firms who receive a higher proportion of the grant, the reason being that it is considered that it is smaller firms who train the vast majority of new entrants to the industry.

Every April, each construction employer on the CITB-ConstructionSkills' register is asked to complete a CITB Levy Return. The employer gives information on its workforce (and wage bill) for the fiscal year so that a levy assessment can be made.

## Materials and Goods

The building materials used within the industry are extensive. The following selection is representative of those used:

- Sand and gravel
- Bricks and blocks
- Cement
- Ready mixed concrete
- Clay and concrete roofing tiles
- Concrete building blocks
- Structural steel
- Sawn and laminated wood

The price for materials is based upon its purchase price with allowances for delivery, off-loading, storage and placing in position.

Distribution of building materials tends to be through builders' merchants. The prime cost of materials and goods obtained from stockists or manufacturers is the invoice cost after deduction of trade discounts but including cash discounts not exceeding 5%. It includes the cost of delivery to site, off-loading charges, storage and placing in position. Where the contractor supplies goods from stock, the cost is normally based upon the current market price plus any appropriate handling charge (VAT exclusive). Most contractors will receive discounts on purchases ranging up to 25%.

## Wastage

In addition, an allowance must be made to cover wastage which may arise from:

- Handling/breakages – brittle materials such as bricks, clay tiles and precast concrete paving slabs etc have a high breakage rate even allowing for the advances in mechanised handling of material which is wrapped and delivered to site on pallets.
- Site losses – an allowance has to be made for loose materials such as sand and aggregate which, when delivered and tipped on site will, to some extent, be trampled into the ground, washed away by rain etc.
- Cutting losses – sheet materials are manufactured in standard sizes. Therefore plasterboard, plywood, glass, carpet etc must be cut to fit. Where the material is patterned or has to be cut to a difficult shape, losses can be considerable.
- Excessive usage – trainees and apprentices are likely to use more materials due to inexperience.

## Mark-ups

As in other aspects of the building trade, there can be substantial variations in the way materials are marked up by the trader. It must be remembered that considerable variation occurs between firms, between jobs and according to the state of the market and that different mark-ups may be applied by the same builder to:

- materials
- plant hire

- major fixtures e.g. bathroom suites and new kitchens – these are usually supplied at cost or with a very low mark-up if on a supply–and–fix basis; a higher mark-up is normally applied if provided on a supply-only basis
- different types of customer e.g. a lower mark-up may be applied to sales to friends, charities, employees and other builders

In some cases materials and equipment may not in fact be marked up by the trader and will be passed on to the customer at cost.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

## **Expected Quantities**

Whilst many builders claim to operate a rough and ready method of estimating quantities and prices, certain norms or ratios are generally accepted in the trade.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

## Plant

Prime cost includes a figure for the use and transport of mechanical plant and non-mechanical plant. In some cases the hire charges for particular types of specialist equipment will include the cost of hiring an operator.

Generally plant is priced on the same basis as labour if the plant is used for a specific task, i.e. priced on the basis of the amount of work that it can do in one hour. Static plant which cannot be associated solely with one item of work, such as scaffolding or site hutting, is priced on the basis of the time that it is required on site. The cost is added to the tender as a lump sum and is not priced per unit of task.

There are two main categories of plant used by a builder:

- small plant and tools
- large mechanical plant and scaffolding.

Builders normally purchase tools such as hand-held power drills and saws, whereas small firms tend to hire or lease expensive pieces of machinery unless they are used on a regular and daily basis. This minimises capital outlay and avoids fixed overheads.

Where equipment is required for a longer term, but not beyond the end of a particular contract, the builder may enter into a contract hire arrangement with a specialist contract hire company, or alternatively may lease the equipment. Where the equipment is leased, the builder will normally have to pay for its maintenance during the period of the lease. Often the plant or vehicle is sold at auction at the end of the lease period. Where there is a reserve price on the vehicle, the builder is required to pay this sum to the leasing company on disposal. If there is a shortfall on the proceeds received, the builder has to pay the difference to the leasing company. If, however, there is a surplus, this is retained by the builder.

There are several ways in which the builder may purchase their own plant:

- outright purchase
- bank or finance company loan
- hire purchase
- lease purchase.

### Outright purchase

Whilst this is the simplest form of transaction, drawing on available cash reserves, the calculation of the cost for the purposes of estimating or cost value comparison is not so simple. It involves calculating the interest that the builder forgoes in applying cash reserves in this manner, and also consideration of the depreciation of the item purchased.

### Bank or finance company loan

In this form of transaction the builder obtains a loan, secured against capital assets, for the purchase of purchasing plant. The loan may be for the full or part cost of the plant. The builder then owns the plant in the same way as if purchased outright from their own resources. The cost to be taken into account requires consideration of the interest payable on the loan and the depreciation of the plant.

### Hire purchase

Under a hire purchase agreement, the loan obtained is secured against the item of plant being purchased. The hire purchase company has title over the plant until payment is complete,

although unlike with a bank or finance company loan, in the event of default, it has no direct recourse to the builder's assets generally.

## **Lease purchase**

This is similar to leasing except that the plant is owned by the builder and therefore appears on the balance sheet. The total value of the plant is written down to zero by virtue of monthly payments or by means of a pre-determined termination payment. The arrangement may include a legal requirement that the initial payment be a number of months of lease in advance. The value of the plant is normally depreciated over the period of the lease so that at the end of the lease the plant has a nominal value on the balance sheet.

Whichever method of finance is employed, the builder must incorporate a calculation of the cost of the plant required for the particular job which is being estimated or costed which will normally be translated into a rate per hour. The plant rate is built up from the following:

- initial cost and finance
- depreciation
- interest on capital borrowed
- life of plant
- hours worked per annum
- repairs and renewals
- insurances and licences
- fuel, oil and grease
- inflation.

Consideration must also be given to the transportation of plant to site, and, where applicable, costs relating to plant operators.



## Overheads and Profits

Overheads will be added to the cost of all work items to cover the cost of running the business and to provide a profit. The amount added for overheads and profits is normally given as a percentage. The amount of percentage can vary according to the competitive nature of any tendering process. The contractor has 4 choices for the distribution of overheads and profit:

- percentage addition to all individual rates
- add the total amount to one item in the preliminaries section
- addition to the summary total at the end of the bills of quantities
- add the amount selectively to specific items in the bills of quantities.

# Tenders

## The Invitation to Tender

The method by which a client invites a contractor to tender can arise on various ways depending upon how simple or complex, and the value of the work to be carried out is.

### Verbal or Written Outline Description

For straightforward low-value work, the client generally invites the contractor to view the work, detail the specification/requirements to be carried out and wait for the contractor to submit an offer. The contractor measures the work, prices it and provides an estimate/offer based on the contractor's own terms and conditions.

### Drawings, Specifications and a Form of Contract

As work becomes more complex, clients appoint an architect to design and complete drawings along with a specification and details of the standard form of contract. This information is submitted to a contractor who will measure the quantities of work, price it and make an offer based upon the information.

### Complete Design and Build Service

As an alternative to the above, the client can approach a contractor and invite an offer for the complete works including the design and construction. This method of tendering is becoming more common as the scale of projects becomes more complex.

### Drawings, Bill of Quantities and a Form of Contract

Medium and large-scale projects require a structured procedure to monitor and control the various aspects and individuals involved in the construction of projects. The client supplies the contractor with a list of requirements, known as a 'client's brief' which is used to produce the initial sketch designs. This allows the quantity surveyor to arrive at a cost estimate or tender value based on the client's brief. Depending upon how specific the information obtained from the client is and the details of the sketch design, the initial tender value may differ considerably from the final account due to the minimal detail available at the initial stages.

If the client is happy with the predicted tender value, an architect proceeds with the detailed design in conjunction with structural, mechanical and electrical engineers etc. Using this design, a quantity surveyor prepares a list of all works involved called the 'bill of quantities' which contains the specification and the measured items of work calculated in accordance with a set of rules for measurement. The quantity surveyor also prepares a breakdown of the costs from which the contractor can price the work.

The set of rules for measurement, the Standard Method of Measurement for Building Works, has been agreed between the Royal Institution of Chartered Surveyors and the Construction Confederation.

## The Tender Procedure

The method employed to select a contractor can be done in one of three ways:

- **Open tendering** where details of the proposed project are advertised in the local or trade publications. The advert would include outline details of the type, scale and programme of work. In some cases, contractors may be required to pay a deposit to cover the cost of documentation and discourage time-wasters. The deposit is refunded upon receipt of a bona fide tender. Local authorities generally use open tendering but its use has been declining in recent years.

- **Selective tendering** is the traditional method of awarding construction contracts. The client selects a number of contractors to submit a price for the project or job.
- **Negotiated tendering.** Only one contractor is approached, normally because the skills of the contractor are such that the client wishes to take advantage of the contractor's specialist knowledge at the design stage.

## **Compulsory Competitive Tendering**

Compulsory Competitive Tendering (CCT) was introduced in the UK throughout the 1980s in an attempt to bring greater efficiency to local government through the use of competition, submitting local authority services, such as road maintenance, to competitive tender. Since 2000 CCT has largely been replaced by Best Value which is the process by which Local Authorities ensure that the services provided are in tune with the needs of local residents and offer best value for money.

## Contracts

Small building contracts, e.g. between a householder and a local builder, are often conducted on an informal basis. The client generally invites the contractor to view the work, detail the specification/requirements to be carried out and wait for the contractor to submit an estimate. Usually no written contract is ever drawn up, both parties treating the estimate as the basis for the work done.

This section deals with the larger works in which formal procedures and proper documentation play an important part.

Although there are many forms of contract used in the construction industry, one of the most common appears to be those issued by the Joint Contracts Tribunal Ltd ([www.jctltd.co.uk](http://www.jctltd.co.uk)).

### Contract Conditions

The following are the most common types of contract:

#### Fixed Price Contracts

A fixed price contract is one where payment is on the basis of a predetermined estimate, irrespective of the actual cost incurred by the builder. A fixed price contract might consist of a single lump sum, a series of elemental or trade totals or a multiplicity of unit rates, all with or without quantities. Depending on the exact form of the contract, other items needed to complete the contract documentation include performance specification, specification and drawings, schedule of rates, bills of quantities and bills of approximate quantities.

Often fixed price contracts contain optional clauses to allow for an element of reimbursement of fluctuations in the prices of labour and materials.

Fixed price contracts account for the majority of building contracts.

#### Cost Reimbursement Contracts

A cost reimbursement contract is one in which the contractor is reimbursed actual costs plus a fee to cover overheads and profits. The fee can either be a percentage or fixed fee applied to the prime cost.

#### Target Cost Contracts

A target cost contract is one in which the contract sum is calculated by comparing the actual prime cost with an estimate of the cost (target) made in advance, the difference between the two being shared between the parties according to the actual terms of the contract. Target cost contracts are expensive to manage as they involve accurate measurement and careful costing on the client's behalf, and are therefore quite rare.

#### Management Contracts

This is a form of contractual arrangement whereby a contractor is paid a fee to manage the building of a project in behalf of the client. It is therefore a contract to manage, procure and supervise rather than a contract to build. In terms of the value of construction in the UK, management contracting now accounts for a significant proportion.

#### Design/Build Contracts

This is a contractual arrangement whereby the contractor offers to design and build a project for a sum inclusive of both the design and construction costs. Design and build contracts can be on a fixed price or cost reimbursement basis. They can in certain cases, include the total financing of the project, in which case they are often described as turnkey.

**Continuity Contracts**

These are used where a client requires the same repetitive type of work to be undertaken on a number of buildings and/or for a certain period of time.

## E-commerce

The traditional view held of the smaller builder and construction firms is unlikely to include consideration of their usage of e-media. Electronic trading plays a major role in an increasing number of trades and professions and this aspect should now be given some consideration and not just for the larger or national companies.

A report has been prepared by the Department of Environment, Transport and Regions which promotes the wider use of e-media covering the whole range of activities carried out by the commercial property sector, including property negotiations and transactions, billing and invoicing.

A review of advertisements in newspapers gives the indication that not many traders within the construction industry have their own website or can be contacted electronically. However a trawl on the Internet can produce another story.

Traders' websites may provide useful information into the services, products and sample prices, showing more information than would normally appear in a newspaper ad.

<p>This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.</p>
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## Seasonality and the Weather

A builder will try to arrange work so that inside jobs are undertaken during the autumn and winter when the weather is generally cold and wet and daylight hours are shorter, whilst outside work is done during the spring and summer. Generally speaking, the quietest period for business is winter, although many householders want redecoration work completed in time for Christmas which can boost workloads during the otherwise quiet months of November and December. Most new housebuilding generally commences during the period from April to September.

Unusual weather patterns can have an adverse affect on business and disrupt plans, for example exceptionally heavy rain or strong winds during summer may delay work. It may not always be possible to find alternative indoor jobs or work during such weather. Rain has the effect of rendering the soil unusable as it becomes too soft and sticky to maintain the integrity of the construction built upon it, thus hindering earthmoving operations.

Adverse weather though can have a positive affect on business e.g. repairs necessitated by storm, frost and flood damage. Such repair work is often urgent and cannot be postponed until spring arrives.

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## Effects of Foot and Mouth Disease

Although reports reflect the economic well-being and good health of the construction industry in general from the mid 1990s and continuing into the 21<sup>st</sup> Century, it is clear that some businesses suffered due to the effects of the Foot and Mouth disease outbreak (February 2001 to January 2002).

A report from the Federation of Master Builders (FMB) refers to North Devon:

' Anyone who has had work on farms has had that stopped. Builders are managing to find alternative work but are only just keeping their heads above water.'

The FMB's Welsh regional director advised that members:

'...are consequently having to find other work to tide them over until the outbreak finishes, because the Welsh region is primarily a rural area. More specifically west and mid Wales are affected and it could soon prove difficult for members and affect their cash flow.

Master Builder - Trade magazine April 2001

In badly affected areas especially dependent on tourism, hoteliers, holiday centres etc may not have spent money on improvements or invested in their properties during this time which could have had a negative effect on the trade of those builders operating in those areas.

Obviously local knowledge and awareness of the situation affecting traders plays an important part. However some builders were less affected and undertaken work elsewhere, e.g. in urban areas.

Specific FMD contextual advice is available in Tax Bulletin - Foot and Mouth Disease Special Edition issued in May 2001.

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## Skip Hire

Builders often hire out skips for large jobs. Where the skip is to be sited on the public highway a licence is required under the Highways Act 1980 Section 139. The Local Authority issues the skip permits to the skip operator as the skip hire company applies for licences on behalf of builders/property owners. The licence will show the exact location of where the skip is located and the dates. The Local Authority keeps a record of this information.

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## Asbestos Licences

Builders undertaking work involving asbestos require a licence from the Health & Safety Executive. A HSE inspector will interview the applicant to ensure that the contractor has all the necessary plant and equipment and personal protective equipment for all employees who work with asbestos. The contractor must have adequate insurance to cover work with asbestos. Licences are normally granted initially for one year. If the contractor carries out work satisfactorily during the first year then a further licence, possibly up to three years, is issued.

The HSE website includes a list of asbestos licence holders.

## The Internet

<a href="http://www.findabuilder.co.uk">www.findabuilder.co.uk</a>	A searchable database of builders registered with the Federation of Master Builders
<a href="http://www.trustmark.org.uk">www.trustmark.org.uk</a>	A database of traders who are members of the Government's TrustMark Scheme
<a href="http://www.nhbc.co.uk">www.nhbc.co.uk</a>	A searchable database of National House-building Council members.
<a href="http://www.buildersguild.co.uk">www.buildersguild.co.uk</a>	This site includes a database of guild members
<a href="http://www.constructionline.co.uk">www.constructionline.co.uk</a>	The UK's largest register of local and national pre-qualified construction and construction-related services. The site is owned by the Department of Trade & Industry.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

## Ratios

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

### Material Costs

The nature of the work undertaken will dictate the amount of materials used and subsequently the ratio of turnover to material costs. In labour intensive trades, materials may account for less than 20% of turnover. In the case of excavation, for example, materials may only account for around 5%. Other trades such as joinery, glazing and roofing will have a higher proportion of their turnover accounted for by materials, often more than 55%. In jobs such as brickwork/blockwork and carpentry, materials may account for between 40% and 45% of turnover, whilst for plasterwork the figure is nearer 25%.

### Ratio Trends

Factors affecting GPRs and margins in the second half of the 1990s include:

- Acute labour shortages during the mid to late 1990s resulting in sharp increases in labour costs.
- Steady increases in the average cost of materials between 1985 and 1998
- Steady increases in the average cost of wages, also between 1985 and 1998

During 2000, margins improved slightly as output prices strengthened and prices of materials became competitive although strong competition within the sector has kept pressure on margins. Margins were adversely affected in 2001 due to further rises in prices of materials whilst 2002 saw shortages of both skilled labour and building materials, both of which drove up costs. However although competition is strong in the sector, demand for building services has been high in recent years. For example, rising house prices has meant that, rather than move house, many homeowners have chosen to extend their current properties.

### Factors Affecting Ratios

- Nature and size of the business.
- Nature of work undertaken.
- Pricing policy
- Level of subcontracting for other contractors and basis e.g. labour only basis.
- Whether subcontractors are engaged.
- Mark-ups applied to materials and subcontract labour (if supplied). When supplying materials and subcontract labour, some builders provide these at cost whilst others apply a mark-up. Materials may also be sold to employees and other traders, often at cost or at a smaller mark-up than would be applied to customers.
- Increase or decrease in labour costs and prices of materials. A builder may not always be able to pass on increased costs to customers.
- Amount of non-productive time and other wastage e.g. theft of materials

## Records

The types of records kept in the construction industry are similar to those for other trades, although particular to the construction industry but not for every trader, are those documents specific to the Construction Industry Scheme. However generally the types of records a general builder might keep include:

- copies of estimates, quotations and tenders given, as well as surveyors' bills of quantity
- copies of invoices (including details of any interim payments received)
- work diary/schedule (this may include details of days lost due to poor weather)
- Workload sheets
- Time sheets - these are likely to detail the job worked on, number of hours, name of customer
- details of labour/job rates
- staff and sub-contractors' time sheets
- contract agreements (although it is common for no formal contract to be drawn up for small private jobs)
- purchase invoices/suppliers' account statements
- expense vouchers
- sub-contractors' invoices
- plant hire agreements and invoices
- record of account customers, particularly larger contractors for whom sub-contract work has been carried out
- details of grant work carried out
- wages records
- cash book/sales ledger or equivalent
- purchase ledger and brief stock records (if any stock is held)
- VAT records
- Method statements detailing how a particular process will be carried out. Such a statement is commonly used to describe how construction/installation works can be carried out safely. More and more clients are asking builders, plumbers etc to produce a method statement as part of their Health and Safety policy or Construction (Design and management) Regulations.

Also submitted may be statements from suppliers as it usual for traders within the industry to have an account with suppliers. These should not be confused with the actual purchase invoices.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

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## Cowboy Builders

The term 'Cowboy' builder generally means a person who:

- operates entirely or partially for cash
- provides poor quality work
- charges excessive rates for the nature of the work; doing the deal in cash does not always mean the customer is saving money
- is not registered with HMRC
- is not registered with any trade associations - although this is not compulsory.

Information suggests that the type of work undertaken is smaller, usually domestic jobs such as extensions, garages, walls, internal repairs and guttering, but cowboys may be involved in any aspect of the construction industry.

This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.

Although cowboy builders exist whatever shape the economy is in, when the construction industry is buoyant, rogue traders are able to take advantage of this and easily pick up work. See Effects of the Economy. Customers are often reluctant to have to wait for a reputable builder and are also attracted by the possibility of getting the job done cheaper.

### Combating the Rogue Builder

Recent legislation provides protection for the consumer as agencies can now pursue rogue traders through the courts gaining an order to prevent them from trading. Failure to comply with the order is punishable by fines or even imprisonment.

The Government introduced a 'Quality Mark' scheme in 2000 in the hope that it would guide consumers away from cowboy builders. The scheme provided a list of builders who had demonstrated to an independent certification body that they were competent and financially sound as well as having an insurance-backed warranty and a complaints procedure. The scheme closed on 31 December 2004 because too few firms joined and was replaced by the TrustMark scheme on 30 January 2006.

Another step that has been taken is the reduction of VAT on certain aspects of building work, see Appendix 10, although trade associations believe this will only have a very limited effect as it does not include domestic repair and maintenance work, which is the main market of the cowboy builder.

**This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.**

## Useful Publications

This section includes some books, borrowed from Nottingham Central Library, that were used in compiling this TIP. You may also find these useful in your own project or enquiry and that your own local library holds copies.

- Laxton's Building Price Book, published by Laxtons
- Spon's Architect and Builders Price Book, published by Spon Press
- Converting Old Buildings: Author Alan Johnson, published David and Charles
- Hutchins UK Building Cost Price Book
- The Housebuilder's Bible: Author Mark Brinkley, published by Ovolo Publishing
- Estimating for Builders and Surveyors published by Butterworth-Heinemann

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## **Associations and Organisations**

Please note the following are included for example purposes only and are not endorsements of the organisations or their products and services.

### **Federation of Master Builders**

Gordon Fisher House  
14-15 Great James Street  
London  
WC1N 3DP

[www.fmb.org.uk](http://www.fmb.org.uk)

The Federation of Master Builders is the construction industry's largest trade association and represents 13,000 firms. The role of the FMB is to provide an industry focus for small and medium sized building firms, to promote excellent standards in craftsmanship and assist builders to continually improve levels of building performance and customer service.

### **Housebuilders Federation**

1st Floor  
Byron House  
7- 9 St James Street  
London  
SW1A 1DW

[www.hbf.co.uk](http://www.hbf.co.uk)

The HBF is a trade federation for private sector housebuilders. Its members include companies of all sizes, ranging from multi national, household names through regionally based businesses to small local companies. Its website includes a directory of members.

### **The Guild of Builders and Contractors**

Crest House  
102-104 Church Road  
Teddington  
Middlesex  
TW11 8PY

[www.buildersguild.co.uk](http://www.buildersguild.co.uk)

### **National House-building Council**

Buildmark house  
Chiltern Avenue  
Amersham  
Bucks  
HP6 5AP

[www.nhbc.co.uk](http://www.nhbc.co.uk)

The NHBC is the standard setting body and leading warranty and insurance provider for new and newly converted homes in the UK. Providing risk management services to the house-building and wider construction industry, NHBC has approximately 18,000 registered builders who agree to comply with its Rules and Standards.



Its website includes a searchable database of NHBC members.

## **National Home Improvement Council**

125 Kennington Road  
London  
SE11 6SF

[www.nhic.org.uk](http://www.nhic.org.uk)

The NHIC represents companies and organisations that work in the home improvement sector.

## **Union of Construction, Allied Trades and Technicians**

177 Abbeville Road  
Clapham  
London  
SW4 9RL

[www.ucatt.org.uk](http://www.ucatt.org.uk)

The UK's only trade union specialising in construction, UCATT is involved in negotiations concerning pay, terms and conditions of employment in all the main agreements, including the Construction Industry Joint Council agreement, covering the construction industry. UCATT's website includes news on current pay rates.

## **Construction Confederation**

55 Tufton Street  
London  
SW1P 3QL

[www.constructionconfederation.co.uk](http://www.constructionconfederation.co.uk)

A representative body for contractors.

## **Construction Industry Joint Council**

Construction House  
56-64 Leonard Street  
London  
EC2A 4JX

## **Construction Industry Training Board-ConstructionSkills**

Bircham Newton, Kings Lynn, Norfolk, PE31 6RH

[www.citb-constructionskills.co.uk](http://www.citb-constructionskills.co.uk)

CITB-ConstructionSkills aims to provide a fully skilled and professional UK construction industry.

## **Construction Industry Training Board Northern Ireland**

Nutts Corner Training Centre  
17 Dunrod Road  
Crumlin

County Antrim  
BT29 4SR

[www.citbni.org.uk](http://www.citbni.org.uk)

The aim of CITBNI is to encourage adequate training of persons employed or intending to be employed in the construction industry.

### **Scottish Building Apprenticeship and Training Council**

Carron Grange  
Carrongrange Avenue  
Stenhousemuir  
FK5 3BQ

[www.sbatc.co.uk](http://www.sbatc.co.uk)

### **British Constructional Steelwork Association Ltd**

4 Whitehall Court  
London  
SW1A 2ES

[www.steelconstruction.org](http://www.steelconstruction.org)

BCSA Limited is the national organisation for the Steel Construction Industry; its member companies undertake the design, fabrication and erection of steelwork for all forms of construction in building and civil engineering.

### **The Steel Construction Institute**

Silwood Park  
Ascot  
SL5 7QN

[www.steel-sci.org/](http://www.steel-sci.org/)

The Steel Construction Institute develops and promotes the effective use of steel in construction.

### **Institute of Carpenters**

Third Floor D  
Carpenters' Hall  
1 Throgmorton Avenue  
London  
Ec2N 2BY

<http://carpenters-institute.org>

## Glossary

bill of quantities	A document usually prepared by a quantity surveyor detailing the terms and conditions under which a contract is to be let, and itemises all works to enable a contractor to price the work for which they are bidding.
bond	A client may require a contractor to provide a bond for the duration of the contract, which would become available to the client to meet any additional expenses that might result from a failure on the part of the contractor to meet their responsibilities. Such bonds are normally 10% of the contract value and are obtained from banks or insurance companies.
clerk of works	A person, usually with wide building experience, often resident on a site and acting on behalf of a client, in inspecting work, quality of materials etc during the course of a contract.
contingency	A sum set aside to cover the cost of any additional or unforeseen work which may be encountered once the project is proceeding on site. Contingencies are also used to pay for changes which a client may request or meet extra payments which the contractor may be entitled to.
contract sum	The sum defined in the contract to be paid to the contractor for work to be carried out.
contra	A charge for goods or services supplied to the subcontractor, e.g. on a contract worth £200, the contractor gives the subcontractor some surplus materials and restricts payment by £50.
CSCS	Construction Skills Certification Scheme - <a href="http://www.cscs.uk.com">www.cscs.uk.com</a> – a voluntary scheme whereby construction workers receive an individual identification and registration card (similar to a credit card) which lasts for three or five years. The CSCS card shows that the holder is considered to be competent at their, lists any relevant certificates and also shows that the holder has undergone health and safety awareness training or testing.
Design and Build	Where the contractor designs and builds the project. Normally the architect designs and the contractor builds.
formworker	Formworkers make temporary wood or metal structures, used like a mould into which wet concrete is poured. Once the concrete is set, the form is removed to reveal perfectly shaped pieces of concrete. Formwork is used in the construction of anything made from concrete, including bridges, foundations, suspended floors, beams and staircases.
gangmaster or gangleader	A sub-contractor who supplies work force to a contractor. It is not unusual for a gangmaster to act as both a contractor and sub-contractor at the same time.
lump sum	A fixed price for contract work, not intended to be adjusted in any way either by variation or remeasurement. A lump sum contract therefore is a contract for an agreed amount of work for a lump sum of money.
mini-treatment works	A type of high-tech septic tank which uses macerators to speed the chemical digesting process and does not need an extensive drain run to leach away the outflow.
mortar	A material composed of sand and cement (and possibly other additives) used to build brickwork or blockwork with.
prime cost sum	An amount included in a bill of quantities to cover a particular bit of work or supply of materials to be carried out by a nominated sub-contractor or a supplier.
provisional sum	A sum included in a bill of quantities for work that is required but cannot be sufficiently designed or specified at the outset of the contract.

retention or retention money	An amount, usually 5-10% held back from the sum due to a contractor, for payment at a later date. The amount will be specified in the conditions of contract. Retentions are usually released on the basis of half at the issue of the certificate of practical completion, the remainder at the issue of the final certificate.
reverse auction bidding	Process whereby a construction procurer (end user client or main contractor) publishes the current lowest bid for a contract (often on a website), while inviting other bidders to put in a competitive tender within a fixed period.
RMI	Repair, maintenance and improvement work
schedule of rates	A list of works activities usually priced at a rate per unit, e.g. price might be included for building in common brick at so much per square metre.
septic tank	A large round vessel buried in the ground which digests sewage and releases the outflow into a leaching field.
set-offs	When a contractor does not make payment because they believe there has been a breach of contract e.g. the work has not been completed or is below standard.
skin: inner	The structural load-bearing part of the external walls.
skin: outer	Bricks and blocks, render, timber, stone, roof slates etc.
snaggers	A variety of professionals who are qualified to carry out snagging inspections, including chartered surveyors and experienced construction industry professionals.
snagging	The term used to describe unsatisfactory work or small items of work still to be completed which are discussed/discovered during final site inspections.
snagging list	Also known as a snag list, a list of defects in a new build property.
stage or interim payment	An agreed percentage or part of the contract price, which is payable when specified stages of completion/delivery have been reached.
supply and fix	Contract where all materials and labour are supplied by the builder.
tender	An offer (usually in writing) that contains a costed proposal to perform the works, services or supplies required, and is provided in response to a tendering exercise. This normally involves submission of the offer to a specified address by a specified time and date.
tender documents	Documents provided to prospective tenderers when they are invited to tender and that form the basis on which tenders are submitted, including instructions to tenderers, contract conditions, specification, pricing document, form of tender and tenderers' responses.
tendering procedure	The process whereby a contractor is selected to carry out work and the basis of settlement of an offer on which a contract may be let.
underpinning	The transference of the load of a building to a lower stratum of the ground.

**This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.**

**This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.**

# Appendix 1 - Examples of Labour Output - Bricklaying

The information in this section is taken from “Estimating for Builders and Surveyors” by Butterworth-Heinemann.

## Bricklaying

Costs depend first on the make-up of the squad – i.e. the number of craftsmen and labourers. The second factor is the number of bricks which each bricklayer can lay per hour. A good average - every day, 5 days a week, 47 weeks per annum - is 55-65 common bricks per hour. This is for a straight run of walling without excessive cutting for bond and without anything unusual. Output may be a little higher on thicker walls simply because the bricklayers and their labourer are spending proportionately less time moving along the wall.

## Bricks per wall area

Bricks can be obtained in a number of sizes and various compositions, strengths and shapes, to mention only the more obvious factors. A typical brick has dimensions of 215 mm long, 102.5 mm wide and 65 mm thick.

If bricks have no perforations or hollows, are absolutely rectilinear, and are laid on a bed of mortar 10-mm thick and have each end jointed 10 mm thick, then 1,000 bricks require the following volume of mortar:

$$1000 [(0.215 \times 0.1025 \times 0.01) + (0.1025 \times 0.065 \times 0.01)] = 0.287^3$$

The amount of mortar taken by estimators varies from 0.5 to 0.8 m<sup>3</sup>. This makes allowance for the mortar that disappears into frogs, hollows or perforations in the bricks, and also the large amount of waste generated. This waste occurs throughout the process: cement, lime and sand are dumped on the ground and trodden in; mortar is left in the drum of the mixer, in the barrow, on the mortar board and on the scaffold; and mortar is squeezed out of the bed and joint of every brick.

## Bricks per wall area

For a half brick wall laid using metric bricks with dimensions of 215 x 102.5 x 65 mm, and mortar joints of 10 mm, the number of bricks per square metre is given as:

$$\frac{1000 \times 1000}{225 \times 75} = 59.25$$

$$225 \times 75$$

One brick wall needs 118 bricks per sq. metre; one and a half brick walls need 177 bricks and so on.

The waste on bricks can vary as with any other material. 5% is considered modest.

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## Appendix 2 - Examples of Labour Output - Plasterboard

The information in this section is taken from “Estimating for Builders and Surveyors” by Butterworth-Heinemann.

### Plasterboard

Plasterboard is available in various types for different uses and in various widths, lengths and thickness. The main manufacturer of plasterboard in the UK is British Gypsum Ltd.

#### Gyproc wallboard and plank

Gyproc wallboard is a dry lining plasterboard consisting of an aerated gypsum core encased in a durable paper liner, suitable for application to internal surfaces. The boards have one face of an ivory coloured finish for use where decoration will be applied direct, that is where joints are filled and taped, and the other face of a grey finish which can be coated with plaster.

There are three types of edge profile for differing joint requirements:

- tapered edge for smooth seamless joints
- square edge for cover strip jointing or plastering
- bevelled edge for V jointing.

Wallboards are manufactured in thicknesses of 9.5 mm and 12.7 mm and in widths of 600, 900 and 1200 mm, with the exception of square edge boards, which are produced in widths of 900 and 1200 mm only. The most commonly used lengths of board are 1,800 and 2,400 mm, although boards are produced up to 3,500 mm long.

Gyproc plank is a dry lining board manufactured to similar specifications as the wallboard. The main differences are that plank is produced either with both faces in grey or with one grey and one ivory, and that it is only available in 600 mm widths and in one thickness of 19 mm.

#### Gyproc Duplex plasterboards

Gyproc Duplex plasterboards combine the same qualities as ordinary plasterboards with a vapour resistant lining on one face for compliance with current building regulations.

#### Thistle baseboard and Gyproc lath

Thistle baseboard is a lining board for use as a base for gypsum plaster to timber ceiling, partition and wall members. It is normally supplied in 1200 x 900 mm boards.

Gyproc lath is used in the construction of a suspended ceiling system.

#### Gyproc Thermal Board

Gyproc thermal board is a laminated board composed of a Gyproc wallboard bonded to a layer of expanded polystyrene to give a lining board with good insulation. It is manufactured in 25, 32, 40 and 50mm thicknesses.

#### Gyproc Fireline Board

Gyproc Fireline Board is a gypsum plasterboard with the addition of glass fibre and vermiculite in the core, resulting in improved fire protection properties. The boards can be used as a lining to walls, partitions and ceilings and as a casing to steel beams and columns, increasing the structure's fire resistance. Fireline boards are manufactured in one thickness of 12.7mm and in widths of 600, 900 and 1,200mm. The most commonly used length of boards are 1,800 and 2,400, although boards up to 3,600mm are produced.



## Range of labour outputs for plasterboards

The following is based on a squad consisting of 2 tradesmen and 1 labourer)

Description	Application	Thickness (mm)	Squad hours per 100mm
Wallboard	Walls	9.5	10-15
		12.7	12-18
	Ceilings	9.5	11-17
		12.7	13-20
Plank	Walls	19.0	15-20
		19.0	17-23
Duplex wallboard	Walls	9.5	10-15
		12.7	12-18
Baseboard	Walls	9.5	10-15
		9.5	11-17
Gyproc lath	Walls	9.5	11-16
		12.7	13-19
	Ceilings	9.5	12-18
		12.7	15-21
Thermalboard	Walls	25.0	14-19
		50.0	17-23
	Ceilings	25.0	16-22
		50.0	19-26
Fireline board	Walls	12.7	13-19
		12.7	15-21
Filling joints and scrim	Walls		6-10
		Ceilings	
Filling, tapping joints, slurry coat	Walls		8-12
		Ceilings	

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## Appendix 4 – Building Costs

The information on this page is taken from Homebuilding & Renovating Magazine, (www.homebuilding.co.uk) and shows the average build cost (£/m<sup>2</sup> for gross internal floor area).

### Level of Build Quality:

**Standard:** This represents a basic build quality equivalent to that offered by most speculative developers/housebuilders. Cavity walls: facing bricks (£250/1000 or £45/m<sup>2</sup> laid), insulation, 100mm blockwork; concrete interlocking tiles (£28/m<sup>2</sup>); off the shelf softwood joinery; studwork partition walls; basic range contract kitchen; basic range white sanitaryware; radiator central heating.

**Good:** This represents a superior level of quality equivalent to that offered by quality developers. Cavity walls: facing bricks (£450/1000 or £56/m<sup>2</sup> laid) insulation, 100mm blockwork; clay machine made interlocking tiles (£36/m<sup>2</sup> laid); high performance off the shelf softwood joinery, blockwork partition walls; top of the range contract kitchen; quality sanitaryware; underfloor heating.

**Excellent:** This represents a very high standard of build quality. Cavity walls: facing bricks (£650/1000 or £67/m<sup>2</sup> laid) insulation, 100mm blockwork; plain clay tiles (£45/m<sup>2</sup> laid); hardwood joinery, blockwork partition walls; bespoke kitchen; quality sanitaryware; underfloor heating.

### 2005/06

The following tables are taken from the June 2005/January 2006 editions of Homebuilding & Renovating Magazine and show the average build cost (£/m<sup>2</sup> for gross internal floor area).

#### DIY & Subcontractors

The costs for building on a largely DIY basis, substituting around a third of labour costs with own labour, employing local tradespeople to help with the rest of the building work. Materials purchased directly from suppliers/merchants.

		Build Quality		
		Standard	Good	Excellent
<b>Single Storey Houses</b>				
Small 59m <sup>2</sup> -90m <sup>2</sup>	Greater London	834/889	964/1029	1160/1237
	South East	731/780	846/902	1017/1085
	NW SW East & Scotland	665/709/	770/821	925/987
	Mids Yorks NE & Wales	636/678	736/785	885/944
Medium 91m <sup>2</sup> -160m <sup>2</sup>	Greater London	763/814	926/988	1204/1284
	South East	670/714	812/866	1055/1126
	NW SW East & Scotland	609/650	739/788	961/1025
	Mids Yorks NE & Wales	583/622	707/754	919/980
Large 161m <sup>2</sup> +	Greater London	680/725	891/951	1118/1193
	South East	596/636	781/833	981/1046

	NW SW East & Scotland	542/578	711/758	893/953
	Mids Yorks NE & Wales	518/553	680/726	853/910
<b>Two Storey Houses</b>				
Small 90m <sup>2</sup> -130m <sup>2</sup>	Greater London	802/855	928/990	1140/1216
	South East	704/750	814/868	1000/1066
	NW SW East & Scotland	640/682	741/790	910/971
	Mids Yorks NE & Wales	612/652	709/756	870/928
Medium 131m <sup>2</sup> -220m <sup>2</sup>	Greater London	675/720	818/872	1037/1106
	South East	593/632	718/765	910/970
	NW SW East & Scotland	539/575	653/697	828/883
	Mids Yorks NE & Wales	516/550	624/666	791/844
Large 221m <sup>2</sup> +	Greater London	623/665	798/851	1002/1068
	South East	547/584	699/746	879/938
	NW SW East & Scotland	497/531	637/679	800/853
	Mids Yorks NE & Wales	476/508	608/649	765/816

## Subcontractors

The costs for building using local tradespeople hired on a direct labour basis. Minimal DIY involvement. Most materials purchased directly from suppliers/merchants.

		Build Quality		
		Standard	Good	Excellent
<b>Single Storey Houses</b>				
Small 59m <sup>2</sup> -90m <sup>2</sup>	Greater London	883/941	1021/1089	1228/1310
	South East	774/825	896/955	1077/1149
	NW, SW, East & Scotland	704/751	815/869	980/1045
	Mids, Yorks, NE & Wales	673/718	779/831	937/999
Medium 91m <sup>2</sup> -160m <sup>2</sup>	Greater London	808/862	981/1046	1274/1359
	South East	709/756	860/917	1117/1192
	NW, SW, East & Scotland	645/688	783/835	1018/1085
	Mids, Yorks, NE & Wales	617/658	748/798	973/1038
Large 161m <sup>2</sup> +	Greater London	720/767	944/1007	1184/1263
	South East	631/673	827/882	1039/1108
	NW, SW, East & Scotland	574/612	753/803	946/1009
	Mids, Yorks, NE & Wales	549/585	720/768	904/964
<b>Two Storey Houses</b>				
Small	Greater London	849/906	982/1048	1207/1287

90m <sup>2</sup> -130m <sup>2</sup>	South East	745/795	862/919	1059/1129
	NW, SW, East & Scotland	677/723	784/837	964/1028
	Mids, Yorks, NE & Wales	648/691	750/800	921/982
Medium 131m <sup>2</sup> -220m <sup>2</sup>	Greater London	715/763	866/924	1098/1171
	South East	628/669	760/810	963/1027
	NW, SW, East & Scotland	571/609	691/738	876/935
Large 221m <sup>2</sup> +	Mids, Yorks, NE & Wales	546/582	661/715	838/894
	Greater London	660/704	845/901	1060/1131
	South East	579/618	741/790	931/993
	NW, SW, East & Scotland	527/562	674/719	847/903
	Mids, Yorks, NE & Wales	504/538	644/687	810/964

## Builder + Subcontractors

Costs for building using a main contractor (builder) or package supplier to complete the structure to a weathertight stage, with the remaining work being undertaken by subcontractors with most materials purchased by self-builder direct from suppliers.

		Build Quality		
		Standard	Good	Excellent
<b>Single Storey Houses</b>				
Small 59m <sup>2</sup> -90m <sup>2</sup>	Greater London	932/994	1078/1150	1296/1382
	South East	817/871	945/1008	1137/1213
	NW, SW, East & Scotland	743/792	860/918	1034/1103
	Mids, Yorks, NE & Wales	710/758	822/877	989/1055
Medium 91m <sup>2</sup> -160m <sup>2</sup>	Greater London	853/910	1035/1104	1345/1435
	South East	748/798	908/968	1180/1258
	NW, SW, East & Scotland	681/726	826/881	1074/1146
	Mids, Yorks, NE & Wales	651/695	790/843	1027/1095
Large 161m <sup>2</sup> +	Greater London	760/810	996/1063	1250/1333
	South East	666/710	873/931	1096/1169
	NW, SW, East & Scotland	606/646	795/848	998/1065
	Mids, Yorks, NE & Wales	579/618	760/811	954/1017
<b>Two Storey Houses</b>				
Small 90m <sup>2</sup> -130m <sup>2</sup>	Greater London	896/956	1037/1106	1274/1359
	South East	786/839	909/970	1118/1192
	NW, SW, East & Scotland	715/763	828/883	1018/1085
	Mids, Yorks, NE & Wales	684/729	792/845	972/1037
Medium 131m <sup>2</sup> -220m <sup>2</sup>	Greater London	755/805	914/975	1159/1236
	South East	662/706	802/855	1017/1084

	NW, SW, East & Scotland	602/642	730/779	925/987
	Mids, Yorks, NE & Wales	576/615	698/744	884/943
Large 221m <sup>2</sup> +	Greater London	697/743	892/951	1119/1194
	South East	611/652	782/834	982/1048
	NW, SW, East & Scotland	556/593	711/759	894/953
	Mids, Yorks, NE & Wales	532/567	680/725	855/912

## Main Contractor

Building using a main contractor, typically a small regional building firm, or a design and build package supplier.

		Build Quality		
		Standard	Good	Excellent
<b>Single Storey Houses</b>				
Small 59m <sup>2</sup> -90m <sup>2</sup>	Greater London	981/1046	1134/1210	1364/1455
	South East	860/917	995/1062	1197/1277
	NW, SW, East & Scotland	782/834	906/966	1089/1161
	Mids, Yorks, NE & Wales	748/798	866/923	1041/1110
Medium 91m <sup>2</sup> -160m <sup>2</sup>	Greater London	898/958	1090/1162	1416/1510
	South East	788/840	955/1019	1242/1324
	NW, SW, East & Scotland	717/764	870/928	1131/1206
	Mids, Yorks, NE & Wales	686/731	832/887	1081/1153
Large 161m <sup>2</sup> +	Greater London	799/853	1049/1119	1316/1403
	South East	701/748	919/980	1154/1231
	NW, SW, East & Scotland	638/680	836/892	1051/1121
	Mids, Yorks, NE & Wales	610/650	800/854	1004/1071
<b>Two Storey Houses</b>				
Small 90m <sup>2</sup> -130m <sup>2</sup>	Greater London	944/1006	1092/1164	1341/1430
	South East	828/883	957/1021	1176/1255
	NW, SW, East & Scotland	753/803	872/930	1071/1143
	Mids, Yorks, NE & Wales	720/768	834/889	1023/1092
Medium 131m <sup>2</sup> -220m <sup>2</sup>	Greater London	795/848	962/1026	1220/1301
	South East	697/744	844/901	1070/1141
	NW, SW, East & Scotland	634/676	768/819	974/1039
	Mids, Yorks, NE & Wales	607/746	734/783	931/993
Large 221m <sup>2</sup> +	Greater London	733/782	939/1001	1178/1257
	South East	644/687	823/878	1034/1103
	NW, SW, East & Scotland	585/624	749/799	941/1003
	Mids, Yorks, NE & Wales	560/597	716/763	900/960

## 2007

The following tables are taken from the January 2007 edition of Homebuilding & Renovating Magazine and show the average build cost (£/m<sup>2</sup> for gross internal floor area).

### DIY & Subcontractors

The costs for building on a largely DIY basis, substituting around a third of labour costs with own labour, employing local tradespeople to help with the rest of the building work. Materials purchased directly from suppliers/merchants.

		Build Quality		
		Standard	Good	Excellent
<b>Single Storey Houses</b>				
Small 59m <sup>2</sup> -90m <sup>2</sup>	Greater London	940	1,088	1,308
	South East	824	954	1,148
	NW, SW, East & Scotland	750	868	1,044
	Mids, Yorks, NE & Wales	717	830	998
Medium 91m <sup>2</sup> -160m <sup>2</sup>	Greater London	861	1,045	1,358
	South East	755	916	1,191
	NW, SW, East & Scotland	687	83	1,084
	Mids, Yorks, NE & Wales	657	797	1,036
Large 161m <sup>2</sup> +	Greater London	767	1,06	1,261
	South East	672	881	1,106
	NW, SW, East & Scotland	612	802	1,008
	Mids, Yorks, NE & Wales	585	768	963
<b>Two Storey Houses</b>				
Small 90m <sup>2</sup> -130m <sup>2</sup>	Greater London	905	1,047	1,286
	South East	794	918	1,128
	NW, SW, East & Scotland	722	836	1,027
	Mids, Yorks, NE & Wales	690	799	981
Medium 131m <sup>2</sup> -220m <sup>2</sup>	Greater London	762	923	1,170
	South East	669	810	1,026
	NW, SW, East & Scotland	608	735	932
	Mids, Yorks, NE & Wales	582	704	893
Large 221m <sup>2</sup> +	Greater London	703	900	1,130
	South East	617	789	992
	NW, SW, East & Scotland	561	718	902
	Mids, Yorks, NE & Wales	537	686	863

### Subcontractors

The costs for building using local tradespeople hired on a direct labour basis. Minimal DIY involvement. Most materials purchased directly from suppliers/merchants.

		Build Quality		
		Standard	Good	Excellent
<b>Single Storey Houses</b>				
Small 59m <sup>2</sup> -90m <sup>2</sup>	Greater London	996	1,152	1,385
	South East	897	1,010	1,215
	NW, SW, East & Scotland	794	919	1,105
	Mids, Yorks, NE & Wales	759	879	1,057
Medium 91m <sup>2</sup> -160m <sup>2</sup>	Greater London	912	1,106	1,438
	South East	800	970	1,261
	NW, SW, East & Scotland	728	883	1,148
	Mids, Yorks, NE & Wales	696	844	1,097
Large 161m <sup>2</sup> +	Greater London	812	1,065	1,336
	South East	712	932	1,172
	NW, SW, East & Scotland	648	849	1,067
	Mids, Yorks, NE & Wales	619	813	1,019
<b>Two Storey Houses</b>				
Small 90m <sup>2</sup> -130m <sup>2</sup>	Greater London	958	1,108	1,361
	South East	840	972	1,194
	NW, SW, East & Scotland	764	885	1,088
	Mids, Yorks, NE & Wales	731	846	1,039
Medium 131m <sup>2</sup> -220m <sup>2</sup>	Greater London	807	977	1,239
	South East	708	857	1,087
	NW, SW, East & Scotland	644	780	989
	Mids, Yorks, NE & Wales	616	744	945
Large 221m <sup>2</sup> +	Greater London	744	1,196	1,196
	South East	654	1,050	1,050
	NW, SW, East & Scotland	594	955	955
	Mids, Yorks, NE & Wales	568	914	914

### Builder + Subcontractors

Costs for building using a main contractor (builder) or package supplier to complete the structure to a weathertight stage, with the remaining work being undertaken by subcontractors with most materials purchased by self-builder direct from suppliers.

		Build Quality		
		Standard	Good	Excellent
<b>Single Storey Houses</b>				
Small 59m <sup>2</sup> -90m <sup>2</sup>	Greater London	1,051	1,216	1,462
	South East	921	1,067	1,283
	NW, SW, East & Scotland	838	971	1,167



	Mids, Yorks, NE & Wales	801	928	1,116
Medium 91m <sup>2</sup> -160m <sup>2</sup>	Greater London	962	1,168	1,517
	South East	844	1,024	1,331
	NW, SW, East & Scotland	768	932	1,212
	Mids, Yorks, NE & Wales	735	891	1,158
Large 161m <sup>2</sup> +	Greater London	857	1,124	1,410
	South East	751	985	1,237
	NW, SW, East & Scotland	684	896	1,126
	Mids, Yorks, NE & Wales	653	858	1,076
<b>Two Storey Houses</b>				
Small 90m <sup>2</sup> -130m <sup>2</sup>	Greater London	1,011	1,170	1,437
	South East	887	1,026	1,261
	NW, SW, East & Scotland	807	934	1,148
	Mids, Yorks, NE & Wales	771	893	1,097
Medium 131m <sup>2</sup> -220m <sup>2</sup>	Greater London	852	1,031	1,308
	South East	747	905	1,147
	NW, SW, East & Scotland	679	823	1,044
	Mids, Yorks, NE & Wales	650	787	998
Large 221m <sup>2</sup> +	Greater London	786	1,006	1,263
	South East	690	882	1,108
	NW, SW, East & Scotland	627	803	1,008
	Mids, Yorks, NE & Wales	600	767	964

### Main Contractor

Building using a main contractor, typically a small regional building firm, or a design and build package supplier.

		Build Quality		
		Standard	Good	Excellent
<b>Single Storey Houses</b>				
Small 59m <sup>2</sup> -90m <sup>2</sup>	Greater London	1,106	1,280	1,539
	South East	970	1,123	1,350
	NW, SW, East & Scotland	882	1,022	1,228
	Mids, Yorks, NE & Wales	844	977	1,174
Medium 91m <sup>2</sup> -160m <sup>2</sup>	Greater London	1,013	1,229	1,597
	South East	889	1,078	1,401
	NW, SW, East & Scotland	809	981	1,275
	Mids, Yorks, NE & Wales	773	938	1,219
Large 161m <sup>2</sup> +	Greater London	902	1,183	1,484
	South East	791	1,037	1,302

	NW, SW, East & Scotland	720	944	1,185
	Mids, Yorks, NE & Wales	688	903	1,133
<b>Two Storey Houses</b>				
Small 90m <sup>2</sup> -130m <sup>2</sup>	Greater London	1,064	1,231	1,513
	South East	934	1,080	1,327
	NW, SW, East & Scotland	849	983	1,208
	Mids, Yorks, NE & Wales	812	940	1,155
Medium 131m <sup>2</sup> -220m <sup>2</sup>	Greater London	896	1,085	1,376
	South East	787	952	1,207
	NW, SW, East & Scotland	715	867	1,099
	Mids, Yorks, NE & Wales	684	828	1,050
Large 221m <sup>2</sup> +	Greater London	827	1,059	1,329
	South East	726	928	1,167
	NW, SW, East & Scotland	660	845	1,061
	Mids, Yorks, NE & Wales	632	807	1,015

**This area of guidance has been withheld to protect third party data.**

## Appendix 6 - Labour Rates

There are a number of organisations which negotiate wage rates within the construction industry on behalf of their members. The following is a selection of some of the various wage agreements.

### BATJIC - Building and Allied Trades Joint Industrial Council

The members of this organisation are craftsmen/women and general building operatives.

	Craftsmen	General Operatives
	£	£
14/6/99 – 11/6/00	6.05	5.00
12/6/00 – 10/6/01	6.32	5.22
11/6/01 – 9/6/02	6.70	5.42
10/6/02 – 8/6/03	7.30	5.65
9/6/03 – 6/6/04	7.75	6.00
7/6/04 – 12/6/05	8.38	6.42
13/6/05 – 11/6/06	9.25	6.80
12/6/06 – 10/6/07	9.67	7.12
11/6/07 – 8/6/08	10.06	7.40

### Construction Industry Joint Council

The CIJC (formerly the National Joint Council for the Building Industry and Building and Civil Engineering Joint Negotiating Committee) agreement sets rates of pay for around 600,000 construction workers on the UK's major building and infrastructure sites.

#### Hourly

	General Operative	Skill Rate 4	Skill Rate 3	Skill Rate 2	Skill Rate 1	Craft Operative
1998	£4.23	£4.56	£4.84	£5.16	£5.36	£5.50
1999	£4.55	£4.90	£5.20	£5.55	£5.76	£6.05
2000	£4.78	Not Available				£6.35
2001	£5.04	Not Available				£6.70
2002	£5.49	Not Available				£7.30
30/6/03	£5.77	£6.21	£6.59	£7.04	£7.30	£7.67
28/6/04	£6.18	£6.65	£7.06	£7.54	£7.83	£8.22
27/6/05	£6.77	£7.29	£7.73	£8.26	£8.58	£9.00
26/6/06	£7.01	£7.55	£8.00	£8.55	£8.88	£9.32

#### Weekly

	General Operative	Skill Rate 4	Skill Rate 3	Skill Rate 2	Skill Rate 1	Craft Operative
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24/6/98	£164.97	£177.84	£188.76	£201.24	£209.04	£214.50
28/6/99	£177.45	£191.10	£202.80	£216.45	£224.64	£235.95
26/6/00	£186.42	£200.85	£212.94	£227.37	£235.95	£247.65
25/6/01	£186.56	£211.77	£224.64	£239.85	£248.82	£261.30
24/6/02	£214.11	£230.49	£244.53	£261.30	£271.05	£284.70
30/6/03	Not Available					
28/6/04	£242.02	£259.35	£275.34	£294.06	£3045.37	£320.58
27/6/05	£264.03	£284.31	£301.47	£322.14	£334.62	£351.00
26/6/06	£272.39	£294.45	£312.00	£333.45	£346.32	£363.48

## Scottish Building Apprenticeship and Training Council

The following weekly wage rates are effective for building trade apprenticeships in Scotland.

	Stage			
	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year
From 30 June 2003	£98.71	£127.42	£210.91	£261.74
From 30 June 2004	£105.79	£136.57	£216.39	£280.50
From 27 June 2005	£115.83	£149.53	£236.93	£307.13
From 26 June 2006	£119.73	£154.83	£245.31	£317.85

Note: the above rates may be affected by the Young Persons' National Minimum Wage depending on the age and year of apprenticeship being served.

## Annual Survey of Hours & Earnings (New Earnings Survey pre-2004)

This is a streamlined analysis of full time **employees** in the construction industry.

2000	Average gross annual	Average gross weekly pay	Average hourly pay
	£		
Bricklayers masons	17322	340.20	7.82
Plasterers	No info	308.10	7.44
Builders building contractors	16470	345.60	7.76
Other construction	17158	325.90	7.50

2001	Average gross annual	Average gross weekly pay	Average hourly pay
	£		
Bricklayers masons	17780	357.70	8.07
Plasterers	No info	311.10	7.76
Builders building contractors	19440	361.60	7.93
Other construction	17732	340.50	7.93

<b>2002</b>	Average gross annual	Average gross weekly pay	Average hourly pay
	£		
Bricklayers masons	19229	381.10	8.87
Plasterers	16225	330.40	8.20
Builders building contractors	19262	376.50	8.34
Other construction	18124	354.30	8.18

<b>2003</b>	Average gross annual	Average gross weekly pay	Average hourly pay
	£		
Bricklayers masons	19950	393.00	8.97
Other construction	21658	423.80	9.64

<b>2004</b>	Average gross annual	Average gross weekly pay	Average hourly pay
	£		
Bricklayers masons	20215	-	-
Plasterers	20026	425.90	10.52
Carpenters & Joiners	20406	403.50	9.33

<b>2005</b>	Average gross annual	Average gross weekly pay	Average hourly pay
	£		
Bricklayers, masons	21,139	404.00	9.59
Plasterers	19,536	382.30	9.65
Carpenters & Joiners	20,903	415.50	9.83

**This area of guidance has been withheld to protect third party data.**

## Appendix 8 – Selfbuild Housing

### Introduction

Selfbuild is where an individual has direct involvement in the design and construction of their new home. Selfbuilders usually use a builder to erect a shell and use sub-contractors to fit it out limiting their own involvement to managing the job. The principal attraction of selfbuild is the acquisition of a residence tailored to individual specification together with the likelihood of a “cost/value differential” (the difference between cost and open market value) when the work is complete. Typically savings can be made of up to 25% against the market value of the finished property.

Around 17000 to 20000 selfbuild homes are built each year in the UK (including renovations and plot shares) representing 12% to 15% of the new house build market.

In the South and Home Counties individual homebuilders usually spend at least 40% of their total budget on a building plot (including legal costs stamp duty etc.). The figure can be as much as 60% in a few areas while in the North Scotland and Wales it is more likely to be around 30%.

There are land-finding agencies who specialise in finding sites for selfbuilders. Most offer a subscription service that pays for them to send out details of plots. Builders commonly sell selfbuilders a plot on one of their own developments providing that the builder builds the house.

All selfbuilt homes involve a financial plan and before any money is spent this usually has to be approved by any bank or building society which is providing the building finance and a mortgage.

### VAT Refunds

An important aspect of selfbuild budgeting is the right to claim a refund of VAT paid in the construction of a new home providing that it is not built for a business reason. The Refund Scheme puts DIY builders and converters in a broadly similar position to a developer selling a zero-rated property by refunding them the VAT on their main construction or conversion costs. VAT Notice 719 - “VAT refunds for builders and converters” provides full details of the scheme but the basic rules are:

- **New Buildings**

If a new building that is designed as a dwelling is constructed the VAT paid on the building materials may be claimed back but not VAT paid on any services e.g. architects and surveyors fees and hire of plant tools and equipment.

- **Conversions**

For conversions of non-residential buildings into residential ones VAT can be claimed back on the materials and on construction services such as those of a plumber electrician etc.

VAT Notice 719 includes a full list of those goods and services that can be claimed for and those that cannot.

Claims must be submitted within 3 months of completion. There is however no time limit in respect of the duration of a building/conversion project and on occasions such projects may for one reason or another span a considerable number of years. It is worth noting however that planning permissions normally specify a time limit for completion of approved works. If the time limit is exceeded then generally a further application to the planning authorities is required to set a new date.

This area of guidance had been withheld because disclosure would prejudice the assessment
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or collection of taxes/duties or assist tax/duty avoidance or evasion.

## Planning Permission

The value of a building plot is determined by its planning permission.

Planning permission creates development value in a plot. If a plot has permission for say a bungalow or a modest three-bedroom house its value is less than if the permission is for a large five-bedroom house.

Existing planning permissions do not however always reflect the full potential of the plot. Additional value can be obtained by spotting and exploiting the potential of plots with limited planning permission.

A common misconception is that an individual can buy a piece of cheap agricultural land, obtain planning permission and create a building plot. If the land has no planning permission but has potential for obtaining it, this is normally reflected in the price.

The value of a piece of land depends on what can be built on it less the cost of carrying out the building. Market conditions - supply and demand - are the determining forces.

## Building Warranties

Any selfbuilder needing to borrow money for their project has to provide details of an approved warranty scheme on their new home if they are to obtain a mortgage. Even those not needing a mortgage may still have a warranty scheme.

A warranty is designed to insure against faulty workmanship involved in the design and construction of a dwelling. Warranties are offered by the National House Building Council (NHBC) and other organisations.

## Package Companies

Package companies provide an integrated service of design, advice, the provision of a full set of drawings, handling of planning permission and building regulation applications, and the supply of all the structural shell materials for the building, and often the interior fixtures and fittings. They also help the selfbuilder find builders or subcontractors to erect the kit. Package companies have a wide range of standard design and some design especially for the selfbuilder. Most specialise in timber frame construction but some provide a service for traditional buildings.

Package companies usually demand a substantial deposit when the order is placed and require the balance of the contract sum in advance of delivery of the materials. Some companies operate client accounts into which customers pay money in advance but where it still belongs to the customer until authority is given to pay it across to the company.

Using a package company will have little significant effect on cost but may provide a useful saving in design fees. Trade sources estimate that less than 20% of selfbuilders use a package company.

## Useful Websites

<a href="http://www.self-builder.org.uk">www.self-builder.org.uk</a>	Association of Self Builders
<a href="http://www.selfbuildanddesign.com">www.selfbuildanddesign.com</a>	Selfbuild & Design magazine
<a href="http://www.homebuilding.co.uk">www.homebuilding.co.uk</a>	Homebuilding & Renovating magazine – published monthly includes an Average Build Costs Guide.

<a href="http://www.self-build.co.uk">www.self-build.co.uk</a>	Build It magazine
<a href="http://www.selfbuildcentre.co.uk">www.selfbuildcentre.co.uk</a>	The website for Landbank Services a land finding agency. The site includes general information for selfbuilders including latest news bookshop and useful contacts.
<a href="http://www.plotfinder.net">www.plotfinder.net</a>	Another land-finding agency
<a href="http://www.selfbuild.armor.co.uk">www.selfbuild.armor.co.uk</a>	DMS Services and Ryton Books - sister companies that specialise in selfbuild. The site provides some useful general information about selfbuild.
<a href="http://www.potton.co.uk">www.potton.co.uk</a>	Potton Homes is a timber frame package company primarily serving individual self builders in the supply and erection of timber frame homes.

**This area of guidance had been withheld because disclosure would prejudice the assessment or collection of taxes/duties or assist tax/duty avoidance or evasion.**

## Appendix 10 - VAT Rates

The construction of a new building is normally zero rated and work (e.g. renovations extensions conversions repair and refurbishments) to an existing building is normally standard-rated for VAT. There are however various exceptions to this:

Construction of new qualifying dwellings and communal residential buildings as well as certain new buildings used by charities	0%
Conversion for a housing association of a non-residential building into a qualifying dwelling or communal residential building	0%
Other conversions of premises to a different residential use (prior to 12/5/01 the standard rate of VAT applied)	5%
Renovation or alteration of empty residential premises (prior to 12/5/01 the standard rate of VAT applied)	5%
Approved alterations to listed dwelling and communal residential buildings and certain listed buildings used by charities	0%
Alterations to suit the condition of people with disabilities	0%
Installation of energy saving materials; and grant funded heating system measures and qualifying security goods	5%
Development of residential caravan parks	0%
First time gas and electricity connections	0%

Full details can be found in VAT notice 708 Buildings and Construction which can be viewed at <http://customs.hmrc.gov.uk>.