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Foundations
The type of foundation used on any particular site is dependent upon the ground conditions of that site and the design of the foundations is based upon the results of a site and ground investigation. It is quite possible, on a site with variable ground conditions, to have several different types of foundation.

With all types of foundation, the purpose is to transfer the weight of the dwelling to the ground in such a way as to minimise the risk of any future movement of the structure.

Throughout the following descriptions the word 'soil' is used to denote the different types of ground encountered commonly in the UK e.g. clay, sand, gravel, chalk, rock etc.

On clay soils, near trees, it may be necessary to excavate deeper than would normally be the case due to the potential movement of the clay due to changes in its moisture content. In dry periods trees may draw moisture from the clay causing it to shrink resulting in subsidence of the foundation. Where trees are removed, the reverse can be the case. The clay can recover moisture and swell causing heave to the foundations.

Notes:

Site strip
This is the process by which all vegetation and organic soil is stripped from the area where the dwellings will be sited. All vegetation and organic material should be removed from under the dwelling to prevent the material rotting causing a possible build up of methane gas below the ground floor.

Notes:
Strip foundation
This is the simplest form of foundation and consists of a strip of concrete, usually approximately 225mm thick, laid in the bottom of a relatively shallow trench excavation. This type of foundation is used where the type of soil which will support the weight of the dwelling is near the surface of the ground.

Notes:

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Trench fill foundations
This is a relatively narrow trench excavation filled with a greater thickness of concrete. It is used where the type of soil which will support the weight of the dwelling is deeper (up to approximately 3 to 4 metres) or where the dwelling is to be situated near trees on a clay soil.

Notes:

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Piles

A piled foundation is used where the soil that will support the dwelling is deep (usually in excess of 4 metres). Commonly they are formed by two methods. Firstly by drilling holes to a specified depth, inserting a hollow shell, and filling the shell with concrete and steel reinforcement.

A second method is to use pre-cast concrete piles driven through the poor bearing ground into the soil that will support the dwelling.

Piles are inserted under all the load-bearing walls of the dwelling, usually at approximately 3 metre spacing. Around the top of the piles a reinforced concrete ring beam is cast upon which the walls of the dwelling are built.

Notes:

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Raft

A raft is a one piece, reinforced concrete slab which is designed to spread the load of the dwelling over a greater area of ground and minimise the risk of uneven settlement where soft soil conditions exist. An example of such a soil type is silty clay commonly found in the bottom of valleys.

Additionally, raft foundations are frequently used in areas of deep mining where there is risk of surface settlement due to the collapse of deep mine workings. The raft foundation allows a small amount of settlement without causing any damage to the dwelling.

Notes:

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Substructure is the term used for the work required below ground to raise the dwelling construction from the foundations to ground floor level. This section also includes the different types of ground floor construction.

Walls below ground
The walls of the dwelling below ground can be of either solid or cavity construction. For both methods concrete blocks are usually used. If built of cavity construction, the cavity must be filled with concrete to just below ground level to prevent the cavity collapsing due to pressure from backfill. If built of trench blocks (large blocks forming the full width of the cavity wall) separate concrete cavity fill is obviously not required. This can speed up the construction process.

Notes:

Ground bearing floor
The simplest form of ground floor is an un-reinforced concrete slab which rests on and is supported by compacted hardcore laid on the ground below. This type of floor is cost effective where good ground conditions exist. There is, however, a risk of settlement of the floor if the hardcore is not properly compacted. This risk increases with greater depths of hardcore and NHBC recommends a maximum depth of 600mm of hardcore fill.

Where greater than 600 mm of hardcore would be required some form of suspended floor should be used.

Notes:
Beam and block suspended ground floor
A proprietary system of reinforced concrete beams designed to span between the load-bearing walls of the dwelling. Concrete blocks are placed between the beams to form the floor. With this form of construction a void is left beneath the floor beams. This void should be ventilated by the provision of air bricks in the external walls. This reduces the risk of condensation causing dampness in the floor and prevents the potential build up of gas within the void. As this is a ‘dry’ form of construction, there is no reliance on the weather for construction to continue.

Notes:


Reinforced concrete suspended ground floor
An in-situ reinforced concrete floor which is supported by the load-bearing walls of the dwelling. Backfill within the dwelling provides temporary support to the concrete while it cures.

Notes:


Timber suspended ground floor
This is the traditional method of ground floor construction with timber joists spanning between the load-bearing walls of the dwelling. Ventilation is provided, by airbricks in the external walls, to the void below the floor to reduce the risk of decay in the timber joists. To further minimise the risk of dampness in the void, the surface of the ground is covered by a layer of oversite concrete. To prevent ponding of water under the timber floor, the oversite concrete should be at ground level or above.

Notes:

Damp Proof Membrane (DPM)
Sheet material, generally of polythene, laid under solid concrete floors to prevent moisture rising from the fill below causing dampness in the floor construction.

Notes:
Underground drainage

Modern drainage systems usually have separate networks of drains for the disposal of foul water and rainwater. Foul water is discharged into sewers leading to treatment works whereas rainwater is usually discharged to a stream or river or, alternatively, a soakaway.

Modern materials for drainage systems are either plastic or clay. Both types of drain pipes are connected using plastic collars with rubber seals to ensure watertightness. Plastic pipes are the most common being easier to handle and, as they are manufactured in lengths of 5 metres, require less joints. All drainage systems are laid to a fall to ensure adequate flow and reduce the risk of blockages.

All drain runs should be accessible for rodding if blockages occur. The type of access provided is usually determined by the depth of the drain run.

If drains run across an area where a future extension is likely, the drains must be kept 5 metres away from that elevation of the building.

Notes:

Access and inspection chambers

Depending upon the materials used for the drain runs these are usually formed of plastic or clay. The diameter of the chamber is determined by the depth of the drain run. The simple rule is that the deeper the drain run the larger the chamber in order to allow effective access.

Notes:
Manhole
Where drains are more than 1 metre deep. Manholes are usually formed with a concrete base and pre-cast concrete rings to form the chamber. Step irons are provided in the wall of the manhole to allow access.

Notes:

Gulley
The means by which foul water (other than from WCs) is discharged to the foul drain. The gulley contains a water trap which prevents smells and gases escaping from the drain.

Notes:

Soil stack
Discharge from WCs (usually by a soil stack) is via a direct connection into the foul drain. The trap on the WC itself prevents smells and gases escaping into the house. All other connections into the soil stack (bath, wash hand basin, showers, bidet and kitchen sinks) also have traps for the same purpose.

The soil pipe is open at the top to allow ventilation to prevent the build-up of explosive gases in the drainage system and to prevent syphonage. If soil pipes terminate within the dwelling then an air admittance valve is provided to allow air into the system to prevent syphonage. Obviously, in this location, ventilation of the drain is undesirable as it would allow smells into the dwelling.

Notes:
This stage includes the construction of the shell of the house and internal load-bearing walls.

Cavity walls
The external walls of most new dwellings are of cavity construction with an outer leaf of facing brick and an inner leaf of concrete blockwork separated and tied together with wall ties. The outer leaf of facing brickwork is porous, allowing driving rain to penetrate to the inside of the bricks. The purpose of the cavity is to prevent the moisture crossing to the inner leaf and causing dampness within the dwelling.

Wall ties are made from stainless steel or plastics and have a drip which is positioned centrally in the cavity to prevent moisture crossing the tie to the inner leaf.

Notes:

Facing bricks are usually of fired clay and can be of varying qualities relating to their frost resistance and sulphate content. The best quality bricks, designated FL, are fully frost resistant and suitable for more severe exposure areas.

The inner leaf can be of various block types depending upon the specification for the external walls of the dwelling. In all cases the design must comply with minimum Building Regulation requirements for thermal insulation. This can be achieved by building with a clear cavity and using the appropriate thermal blocks for the inner leaf. These are commonly Autoclaved Aerated Concrete Blocks.

Cavity insulation
An alternative to building with a clear cavity is to use some form of cavity insulation. This can be where the cavity is fully filled with insulation, either at the time of construction or blown into the cavity afterwards. Cavity insulation materials are designed to prevent moisture crossing the insulation to the inner leaf.

Notes:
Another method is to use partial fill cavity insulation where an insulation board or sheet is installed within the cavity, clipped back to the inner leaf, during construction. The use of partial fill allows a clear (min. 50mm) cavity to be maintained.

The horizontal joint between courses of bricks or blocks is called the bed joint and the vertical joint is called the ‘perpend’ or cross joint.

Notes:

Pointing
The method of finishing/weatherproofing the surface of mortar joints to brickwork. Common methods include bucket handle and recessed joints. The bucket handle joint gives a polished surface to the mortar joint to increase its weatherproofing properties. Recessed joints are designed to give a decorative finish.

Notes:

Not all new dwellings have facing brick for the outer leaf. Other methods include rendering, tile hanging or weatherboarding. In all cases the external leaf of the dwelling is usually built of concrete blockwork and the finish applied later.

Render is a mixture of sand and cement applied in layers to the wall. Additives to the render mix can increase the wall’s resistance to moisture. Rendered external walls are therefore commonly used in the more exposed areas of the country.

Tile hanging and weatherboarding also increase the weather resistance of the external walls. Weatherboarding is commonly of painted softwood but, increasingly, PVCu is being used to reduce maintenance.

Notes:
Damp Proof Course (DPC)
A waterproof barrier, usually of plastic material, built in to the walls of the dwelling just above ground level to prevent moisture rising from the ground into the dwelling.

Notes:

Windows
Traditionally of softwood or hardwood but increasingly PVCu is being used to reduce maintenance. All new dwellings are double glazed to meet the thermal insulation requirements of the Building Regulations.

Notes:

External doors
Traditionally of softwood or hardwood material. Increasingly, insulated metal doors are being used to provide additional security and reduce the risk of warping of the external door. Alternatively, PVCu can also be used.

Notes:

Lintels
Installed to provide support to brickwork and blockwork over an opening in a masonry wall. Can be of concrete or steel with the most common being combined steel lintels providing support to both leaves of the external cavity wall. Combined lintels can incorporate a cavity tray to guide moisture within the cavity to the outside.

Notes:
Cavity trays
Where the lintel does not incorporate a cavity tray then a separate tray, usually made from wide DPC material, must be provided over the top of the lintel.

Notes:

Other cavity trays are provided at abutments of roofs to external walls.

Notes:

DPCs around openings
Other DPCs are installed at the side of (vertical DPC) and below openings (horizontal DPC) to prevent moisture penetration where the cavity is closed.

Notes:
Separating wall
Walls between attached dwellings (terraced, semi-detached houses or flats) are called separating walls or commonly ‘party walls’. Constructed of dense concrete block (or sometimes brick) they are designed in accordance with Building Regulations, to provide adequate sound insulation and fire resistance between dwellings.

Notes:

Timber and steel framed dwellings
An alternative to masonry construction for the load-bearing shell of the dwelling is to use a framework of steel or timber. The framework is pre-fabricated in panel sections which are fixed together on site. The advantage of this method is the speed of erection compared to masonry. The frame forms the inner leaf of the external cavity wall. The external leaf is usually of facing brickwork or rendered, tile hung or weatherboarded blockwork as described for masonry walls.

Notes:
The intermediate floors within dwellings.

Timber floors
In two storey houses, most commonly formed with timber or composite joists spanning between the external and internal load-bearing walls of the dwelling.

Notes:

Trimmer
This is the term used for the joists which support the joists which have been 'trimmed' to form the opening for the staircase. The most common method of connection for the floor joists to the trimmers is by metal joist hangers.

Notes:

Concrete floors
In the construction of flats the intermediate floors are most commonly formed with pre-cast reinforced concrete planks again spanning between the external and internal load-bearing walls of the dwelling. The planks are designed to suit particular dwelling types with pre-formed openings for staircases and services.

Notes:

Lateral restraint strap
Galvanised steel straps fixed to the floor structure and built into gable and separating walls to provide additional stability to these walls (also provided at roof level).

Notes:
Trussed rafters (roof trusses)
Prefabricated timber or metal frames supplied by specialist manufacturers to engineering design specifications. They are usually only supported on the external walls of the dwelling. This removes the need for internal load-bearing walls to support the roof giving freedom of room layout design. An additional advantage is that, as most of the roof frame is prefabricated, the process of roof frame construction on site is quicker than with traditional roof construction. One perceived disadvantage to the homeowner is that there is reduced space for storage in the roof space.

Note: Heavy or large quantities of material should not be stored in the roof space.

Notes:

Wallplate
The trussed rafters are fixed to the wallplate which is a timber beam bedded on cement mortar on top of the load-bearing walls. Wallplates are anchored to the walls by holding down straps. The straps are generally made of galvanised steel and are shaped to hook over the wall plate and be fixed to the wall below.

Notes:

Bracing
Timber boards which are fixed to the trusses within the roof space. The exact positions are determined by the design and span of the roof trusses. Their purpose is to prevent the trusses distorting under the load of the roof covering and possible snow loading. In addition they also help provide resistance against wind pressure.

Notes:
Lateral restraint strap
Galvanised steel straps fixed to the trussed rafters and built into the gable and separating walls to provide additional stability to these walls (also provided at intermediate floor levels).

Notes:

Verge
The verge is the term used for the edge of the roof which projects beyond a gable wall. This projection provides weatherproofing protection to the top of the gable wall. The undercloak is the term for the board used to support the projecting tiles.

Notes:

Barge board
Barge boards are the sloping boards sometimes used beneath verges. They are traditional of timber but increasingly made from PVCu to reduce maintenance. They can be either fixed flush to the wall or in a box construction with a soffit beneath.

Notes:
Eaves
The term for the bottom of a pitched roof. The most common form of construction is an eaves box formed by a fascia board and a soffit board.

Notes:

Fascia
Traditionally timber boards fixed to the projecting foot of the trussed rafter. Again, increasingly made from PVCu to reduce maintenance. Rainwater gutters are normally fixed to the fascia board.

Notes:

Soffit
The board forming the underside of the eaves box. Traditionally formed from plywood or other composite board material but again increasingly made from PVCu to reduce maintenance.

Soffit ventilation
Condensation can be caused if warm moist air from the dwelling rises up through the insulation and is trapped within the cold roof space. Slots or holes are therefore cut into the soffit board to allow cross ventilation of the roof space. The slots or holes have a mesh covering to stop birds and insects gaining access.

To be effective, the ventilation must be on opposite sides of the roof. With other than normal roof shapes additional methods may be required to provide adequate cross ventilation.

Warm roof designs have no cold space and so do not require any ventilation.

Notes:

Ventilation spacer
A timber or proprietary baffle, fixed between the roof trusses, so that ceiling insulation can be installed over the wall plate without blocking the ventilation.

Notes:
Sarking felt
The term used for the additional weatherproofing layer below roof tiles or slates. Traditionally made of bitumen felt but modern materials include plastics and other synthetics. Its purpose is as a second line of defence should wind driven rain or snow penetrate the roof tile covering.

Notes:

Tile battens
Timber battens fixed on top of the sarking felt to allow support and fixing of slates or roof tiles. They are impregnated with preservative to prevent rotting.

Notes:

Roof tiles
Manufactured from various materials, most commonly clay or concrete but can be formed from other composite materials. Interlocking tiles overlap along the long edge to provide a weatherproof joint. This reduces the number and therefore weight of the roof covering when compared to slates or plain tiles. In normal circumstances only every third or fifth row of interlocking tiles will be fixed to the tile battens. The security of the remainder of the tiles relies on the weight of overlapping tiles and the downstand on the back of the tile which hooks over the tile batten.

Notes:

Slate
Natural rock split into thin layers to form the roof covering. As slates do not overlap along their long edges a double layer of slates is required to provide a weatherproof roof covering. Also, as slates do not have a downstand on the back, all slates must be fixed to the tile battens.

Notes:
Flashing

A junction between a roof and a wall is weatherproofed by the provision of a suitable flashing. This is usually made from lead or other non-ferrous metal positioned over the roof tiles or slates with an upstand fixed into the wall.

Notes:

Valley

Lead, supported by a timber board, is the traditional material used to weatherproof valleys. Increasingly, modern materials such as glass reinforced plastic (GRP) are used as they are easier to handle and are more stable than lead.

Notes:
Ridge and hip
Weatherproofing to ridges and hips is achieved by the fixing of ridge or hip tiles to cover the cut or top edge of the roofing tile, traditionally simply bedded on cement mortar. Hip tiles are prevented from sliding down the roof by a decorative hip iron fixed at eaves level. An alternative method of fixing ridge or hip tiles is to use a proprietary mechanical system which provides positive attachment of the tiles to the roof frame.

Notes:

Verge
The traditional method of finishing the sloping edge of the roof is to use cement mortar to 'point-up' the gap between the tiles and the undercloak, providing a weatherproof and pest proof finish. Alternative methods include the use of special verge tiles or proprietary, plastic verge covers which directly seal the gap and avoid the need for mortar pointing.

Notes:

Flat roofs
Little used in modern house building. The term ‘flat roof’ is actually incorrect as flat roofs are laid to falls to allow rainwater to drain to the gutter at the side of the roof. The roof is fully boarded to provide support to the weatherproof covering which is usually of one or more layers of bitumen based felt fixed with bitumen adhesive. Flat roofs are usually covered by a layer of white stone chippings to reflect heat and protect the felt from being affected by sunlight.

Notes:
Carcassing or first fix are the terms generally used to cover all the work carried out internally prior to plastering or dry-lining. The trades involved are plumber, electrician and carpenter.

Electrician - wiring carcass

All the main electric cable runs for power, lighting, central heating and alarm systems. The positioning of the cables is limited to safe zones so purchasers can be aware of the location of the wires after occupation.

The safe zones for cables in walls are:
- Horizontally or vertically from any switch or socket
- Within 150mm of internal corners of walls
- 150mm below ceilings.

Within intermediate floors, wiring runs are positioned through holes drilled on the centreline of the floor joists to prevent damage when floor boards or plasterboard ceilings are nailed to the joists.

Notes:

Plumber - plumbing carcass

All the main pipe runs for hot and cold water services and central heating. Traditionally copper pipes are used with soldered joints. One drawback of copper is that it expands and contracts substantially with temperature changes leading to creaking and groaning as systems heat up or cool down. A modern variation is plastic pipes which reduce this risk of noise.

Within intermediate floors, pipe runs are positioned in notches cut into the top of the floor joists.

Additionally, waste pipes and internal soil stack(s) are fitted at this time.

Notes:
Carpenter
Timber strutting
This is fixed between the floor joists to prevent twisting. The strutting can be herringbone or solid. An alternative is to provide proprietary metal straps.

Notes:

Noggings
Small pieces of timber fixed between the floor joists to support the edges of the floor boards above or plasterboard ceilings below.

Notes:

Flooring
Traditionally of tongue and groove softwood boards but now nearly always of tongue and groove chipboard sheets. Softwood boarding is prone to shrinkage and ‘cupping’ after laying as it dries out. Modern chipboard flooring gives a very flat and stable floor finish and is moisture resistant to prevent damage during the construction process or from spillage after the house is occupied.

Concrete ground floors are sometimes finished with tongue and grooved chipboard flooring on battens or polystyrene insulation boards. This provides thermal insulation to the floor, gives a smooth and level finish and also allows some movement to give a little ‘spring’ in the floor.

Notes:
Door linings
These are the internal door frames and are traditionally of softwood. Increasingly, other materials such as medium density fibreboard (MDF) are being used. The advantages of this material over natural softwood are that it does not shrink or twist on drying out and gives a very smooth finish.

Notes:

Window boards
The board which is used to form the internal ‘cill’ of the window opening. Traditionally of softwood but increasingly formed from MDF.

Notes:

Glazing
Depending on the method used to calculate the thermal value of the property (SAP value) ‘Low E’ glazing should be fitted to all glazed areas.

Notes:
Partitions
Non load-bearing partitions are commonly of vertical timber studs with plasterboard to each side or a proprietary partitioning system. Most of the proprietary systems include timber or metal vertical struts with a composite board material between.

Partition walls may also have insulation quilt in the centre to reduce the amount of sound passing through the wall, as required by the Building Regulations.

Notes:

Staircase
Traditionally of softwood but, increasingly, MDF and other composite board materials are being used to minimise problems caused by shrinkage.

Notes:
Wet plaster
The traditional method of internal finishing to masonry walls. Can be of various mixed materials including sand and cement but more commonly, in modern times, of premixed gypsum plaster basecoat with a harder topcoat of similar material to give a smooth finish. As this is a wet process requiring a substantial volume of water, the dwelling takes a long time to dry out and is more prone to shrinkage cracking and condensation problems in its early life.

Notes:

Dry lining
This is, by far, the most common method of finishing the internal walls in modern use. Plasterboard is fixed to the masonry walls by bedding the boards on adhesive plaster dabs and is fixed to timber partitions by galvanised nails or screws.

True dry-lining relies on the surface of the plasterboard to provide the finished wall surface. Board edges are taped, filled and sanded to provide a smooth, joint free surface.

An alternative method is, after taping and filling the joints, to skim the boards with a thin layer of hard plaster.

Notes:

Ceilings
Usually of plasterboard, nailed or screwed to the underside of the intermediate floor or roof structure. The same finishes as for dry-lined walls can be used. One risk of a skimmed ceiling is that with the natural movement of the floor above, cracking to the ceiling can occur. The use of a decorative finish such as Artex can reduce the risk of this cracking as the Artex material is flexible, even when dry.

Notes:

Floor screeds
Concrete floors are often finished with a layer of sand and cement screed. This is to give a level and smooth finish to the concrete floor.

Notes:
The term used for all work to complete the internal fixtures and fittings prior to decoration. As with first fix the trades involved are plumber, electrician and carpenter.

**Electrician**

The electrician fits all the switches, socket outlets, lighting outlets, smoke alarms, central heating controls, earth protection and the consumer unit connected to the wiring carcass installed at first fix stage.

The Building Regulations now require, energy efficient light fittings for any external lighting and a number of internal fittings (equal to one energy efficient light for every three rooms).

**Notes:**

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**Consumer unit**

The consumer unit forms the junction between the main supply and the electrical circuits within the dwelling. It contains circuit breakers which automatically trip to switch off individual circuits should there be a fault. Circuit breakers are more sensitive than the old style fuses and can even be tripped by the slight power surge caused when a light bulb fails.

In consumer units, the circuits supplying all of the socket outlets are protected by an Residual Current Device (RCD). This is a special type of circuit breaker which provides additional protection against injury from electric shock. The RCD can be identified by the test button by the switch in the consumer unit.

**Notes:**

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**Smoke alarms**

New dwellings must be fitted with smoke alarms. The number and position of alarms is determined by the size and internal layout of the dwelling. The alarms are connected to the mains electricity supply but have battery back-up should the mains supply fail. Modern alarms usually have a fixed rechargeable battery to prevent removal.

**Notes:**
Mechanical ventilation
It is a requirement of the Building Regulations that all kitchens, bathrooms and WCs are provided with mechanical ventilation. In kitchens this is usually achieved by the provision of a cooker hood, ducted to the outside.

Notes:

Carpenter/Joiner
At this stage the carpenter/joiner fits the kitchen units, internal doors, finishing timber items such as skirting boards and architraves around doors. These are traditionally of softwood or hardwood but, increasingly, MDF is being used due to its stability and smooth finish.

Notes:

Plumber
The plumber fits all the sanitary ware - baths, wash hand basins, WCs, bidets and kitchen/utility room sinks including all traps, waste, and hot and cold water connections.

Additionally the central heating installation is completed including boiler, radiators, hot water cylinder and header tanks in the roof space (if fitted). There are many different types of heating and hot water systems some of which do not require header tanks. Central heating systems are usually regulated by thermostats. These can be fitted to radiators to control individual room temperatures or be room thermostats to control the whole of the heating system or various zones within the dwelling.

Notes:

Hearths and flues
If either of these are provided by the builder, a Safety Notice Plate must now be fitted within the dwelling (e.g. next to the consumer unit) giving details of the hearth and/or flue.

Notes:
Finishes

Internal finishes to timber can be either paint or stain. It should be noted that MDF should only be painted. Walls are normally finished with a water-based emulsion paint to allow drying-out of construction moisture within the dwelling. Drying out periods vary depending upon the form of construction.

Other finishing items include:
• door furniture (letter plates, handles, latches, knockers etc.)
• installation of kitchen appliances (white goods)
• floor tiling or other covering.

Notes:
External works is the term used for all work to complete the finishes around the dwelling. This work includes the laying of drives and paths, boundary fences, free standing walls and retaining walls.

Drives and paths can be constructed using various materials such as coated macadam, brick pavers, paving slabs or concrete.

Notes:

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Retaining wall

Retaining walls are used where there is a need to resist lateral pressure or 'hold back' ground on one side of a wall on sites with differing ground levels. The wall may be built from brick, blockwork, concrete or a proprietary system.

Drain holes are provided at low level to prevent build-up of water pressure behind the wall.

Notes:

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<td>Noggings</td>
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<td>Pointing</td>
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<td>Ridge &amp; hip</td>
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<tr>
<td>Roof tiles</td>
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<tr>
<td>Sarking felt</td>
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Notes:

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