

**SPECIFICATION**



**PROJECT NO:** FA-R20-17

**SITE:** Land to the Rear of Deerhurst,  
The Shrave, Four Marks, Hampshire, GU34 5BH

**Specification**

**VERSION:** DRAFT

REVISION	APPROVED BY	NOTES & SCHEDULE OF CLAUSES	DATE

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**1.00 GENERAL NOTES**

This specification indicates general construction notes / components and should be read in conjunction with the prepared General Arrangements, Elevations, Sections and Details by Fredrick Adam Architects. Attention is drawn also to the Structural Engineer's Design and Calculations, Drainage Engineer's Design and Calculations together with standard details produced by Specialist Manufacturer's. Landscaping is indicative only and subject to a full detailed design by others.

This specification & associated drawings are not an exhaustive list of all the works to be carried out, nor do they constitute full working drawings. The plans & specifications have been prepared for Building Regulations approval only.

No liability is accepted for any loss of any sort or additional expense incurred consequent on any failure, real or alleged, of the drawings and specification to meet the requirements of any other body, statutory or otherwise, neither is any liability accepted whatsoever for the works so erected. The reader must ensure they are referring to the latest revised drawings & specifications in all cases as supplied by the Client.

DO NOT SCALE from drawings. Work to figured dimensions. All dimensions are to be checked on site prior to fabrication of components / setting out. Report any discrepancies to Fredrick Adam Architects Ltd immediately.

The drawings & specifications are a guide as to what is required to comply with the current building regulations. This does not imply that this is the only acceptable way of achieving building regulations approval. Alternative 'similar approved' products may be used at the discretion of the Building Inspector only. No liability is accepted for any loss of any sort or additional expense incurred consequent on any variation to the layout or specification that may be required as a result of site conditions, availability of materials, custom or practice, the requirements of the Building Inspector or any other circumstances.

Contractor to inform Local Authority Building Control at least two working days before commencement of work, and at all stages as required by the Local Authority Building inspector.

Appointed contractor is responsible for notifying all statutory authorities including all utility companies (electric, oil, telecoms, water etc) as necessary throughout the duration of the works & should obtain record drawings from utility companies to ensure care is taken during excavation work to protect any existing services.

**Any work carried out prior to obtaining Building Control approval is at the clients own risk.**

Comply with all Electricity, Gas, Water Telephone and Cable governing bodies current and approved Regulations and Bylaws where applicable.

Comply with all Planning Conditions.

All works are to be executed neatly in a workmanlike manner; all construction must be fit for its intended purpose. All materials and workmanship must comply with Regulation 7 of the Building Regulations, all relevant British Standards, European Standards, Agrément Certificates, Product Certification Schemes (Kite Marks) etc. Products conforming to a European technical standard or harmonised European product should have a CE marking.

Materials used are to be an "environmentally friendly" type wherever possible: - timber to be selected from sustainable / managed resources. Tropical hardwoods of any sort are not to be used without prior agreement. All timber to be fit for purpose, insect free and to comply with TRADA guidelines for internal / external use. All new timber to be pressure impregnated with preservative prior to fixing. All cut edges to be treated with brush applied preservative. All insulants to be CFU / UF free materials. All fibres, i.e., insulation quilts etc.... to be minimum 3 microns diameter, min length of 200 microns and are to be stabilised to avoid fibre migration. Paints to be toxic free / water-based type whenever possible.

It remains the responsibility of the building contractor to ensure that all components and materials used are of specification and size etc to suit the proposed application and are installed/used in strict accordance with the relevant manufacturer's recommendations.

Provide all adequate and necessary temporary supports, security, weather protection, dust sheets, temporary screening etc.... including plant and welfare facilities for operatives to facilitate the works. All completed areas are to be protected until project completion and handover.

Minimum nuisance and disturbance to be caused to the respective owners and neighbouring properties/owners at all times with particular reference to dust and noise.

Remove and clear away all debris arising from new / alteration works constituting Health and Safety and Fire Risk and leave works neat, clean and tidy on completion.

Storage of materials will be permitted on site in an agreed location.



Allow for temporary electrical feed/generators to facilitate the works.

### **1.01 CDM REGULATIONS 2015**

The client must abide by the Construction Design and Management Regulations 2015. The client must appoint a contractor, if more than one contractor is to be involved, the client will need to appoint (in writing) a Principal Designer (to plan, manage and coordinate the planning and design work) and a Principal Contractor (to plan, manage and coordinate the construction and ensure there are arrangements in place for managing and organising the project).

Domestic clients

The domestic client is to appoint a Principal Designer and a Principal Contractor when there is more than one contractor, if not your duties will automatically be transferred to the Contractor or Principal Contractor.

Fredrick Adam Architects Ltd can take on the duties, provided there is a written agreement between the client and Fredrick Adam Architects Ltd to do so.

The Health and Safety Executive is to be notified as soon as possible before construction work starts if the works:

(a) last longer than 30 working days and has more than 20 workers working simultaneously at any point in the project.

or:

(b) exceeds 500 person days.

### **1.02 THE BUILDING SAFETY ACT**

Regulations made under the Building Safety Act define new Duty holders who will have specific duties in relation to ensuring that building work complies with the Building Regulations.

They are key roles (whether fulfilled by individuals or organisations) that are assigned specific responsibilities at specific phases of the building life cycle.

#### **Domestic Client**

Domestic Client means a client for whom a project is being carried out which is not in the course or furtherance of a business of that client.

### **Duties of a Domestic Client**

- To ensure suitable arrangements are made for planning, managing, and monitoring building work to ensure compliance with the Building Regulations
- Ensure that these arrangements are maintained throughout the life of the project.
- Must take all reasonable steps to ensure any designers or contractors they appoint are competent to carry out the work they are being appointed to do.

**N.B.** The above duties must be carried out by the contractor/principal contractor and not Fredrick Adam Architects Ltd unless the domestic client agrees in writing that Fredrick Adam Architects Ltd as the principal designer shall carry out these duties.

### **Principle Designer**

The Principal Designer is the designer appointed under regulation 11D (Principal Designer and Principal Contractor) to carry out the responsibilities of a Principal Designer according to these Regulations.

### **Duties of a Principal Designer**

- Plan, manage, and oversee design work during the design phase.
- Coordinate design-related matters to ensure that if construction follows the designs, it complies with Building Regulations
- Ensure all Duty holders collaborate with each other.
- Ensure designers align their designs so that construction following these designs meets Building Regulations
- Ensure designers fulfil their duties.
- Communicate and collaborate with the Principal Contractor
- Consider input from the Principal Contractor regarding compliance with Building Regulations
- Assist the client in providing information to designers.
- Review the arrangements made by any previous Principal Designer.

## Principal Contractor

The Principal Contractor is the contractor chosen to carry out the responsibilities of a Principal Contractor under these Regulations when multiple contractors are involved.

### Duties of a Principal Contractor

- Plan, manage, and oversee building work during the construction phase.
- Coordinate matters related to building work to ensure compliance with Building Regulations
- Ensure all Duty holders collaborate with one another.
- Coordinate all building work to ensure it adheres to Building Regulations
- Ensure contractors fulfil their duties.
- Communicate and collaborate with the Principal Designer
- Take into account comments from the Principal Designer regarding compliance with Building Regulations.
- Assist the client in providing information to contractors and review the arrangements made by any previous Principal Contractor.

### 1.03 NOTICE OF COMMENCEMENT

A notice of commencement is to be submitted to Building Control within 5 days of work being regarded as commenced, under regulation 16 of The Building Regulations etc. (Amendment) (England) Regulations 2010.

Work will be deemed to have commenced when the build has been constructed to 15% of the overall work.

### 1.04 NOTICE OF COMPLETION

A Notice of Completion to be given to Building Control not more than 5 days after the work has been completed. The notice to contain the following information:

- The name, address, telephone number and (if available) email address of the client, principal contractor, and principal designer.
- A statement from the applicant to say that the works have been completed and complies with all the applicable regulations to the best of their knowledge.
- A statement from both the principal contractor and principal designer to confirm they have fulfilled their duties under Part 2A (duty holders and competence).

### **1.05 HEALTH AND SAFETY**

The contractor is reminded of their liability to ensure due care, attention and consideration is given regarding safe practice in compliance with the Health and Safety at Work Act 1974.

### **1.06 SITE INVESTIGATION**

A survey of the site is to be conducted by a suitably qualified specialist including an initial ground investigation that includes trial pits to accurately determine soil types, a desk study and a walk over survey. a copy of all reports and surveys to be sent to building control for approval before works commence on site.

Where the initial assessment and basic investigations identify suspected hazards, further detailed investigations and remedial reports are required from a specialist and copy sent to Building Control and approved before works commence on site.

Any remediation, treatment and/or redeposit of contaminated waste soils should also be in accordance with Environmental Permitting Regulations.

All new buildings, where there may be elevated radon emissions may need to incorporate precautions against radon. Guidance can be obtained from BRE Report BR211, Public Health England and Radon Risk Reporting from UK Radon.

### **1.07 ASBESTOS AND OTHER CONTAMINANTS**

Prior to work on site, an asbestos survey should be conducted in accordance with the Control of Asbestos Regulations 2012. If asbestos is identified and requires removal, this should be done by a competent licensed contractor.

<https://www.hse.gov.uk/asbestos/regulations.htm>

Suitable precaution should be taken prior to commencement on site to assess the risk, identify and remediate statutorily defined contaminated land under Part 2A of the Environmental Protection Act 1990, in accordance with Approved Document C: site preparation and resistance to contaminants and moisture and Local Planning Authority requirements.

An initial ground investigation assessment should be carried out including a desk study and walk over survey which should be recorded and evaluated by a suitably qualified and experienced person, and where necessary, further basic geotechnical and contamination investigations should be carried out by a suitably qualified and experienced person.

### 1.08 HAZARDOUS WASTE

The appointed Contractor has a duty of care to ensure any hazardous waste produced by the demolition and/or construction does not cause harm or damage.

A waste management plan should be in place to identify and deal with any hazardous waste including how to handle waste, from the point the waste is created, through transportation, treatment, and storage, right up to disposal.

Hazardous waste includes but is not limited to; insulation and materials containing asbestos or other hazardous substances, materials such as concrete, bricks and metal containing hazardous substances, treated wood, glass, plastic containing hazardous substances, bituminous mixtures containing coal tar, unused or un-set cement, paint including cans, varnish remover, adhesive or sealant containers.

### 1.09 DEMOLITION AND GROUND WORKS

Measures to be put in place during and after the demolition and excavating works to ensure the protection of the site, the public and any adjoining properties. Such measures to include but not limited to:

- The control of dust and noise generation.
- The repairing and making good any damage to any adjacent building effected by the demolition/ ground works.
- The removal of material or rubbish resulting from the clearance and demolition and ground works of the site.
- The disconnection, sealing or removal of any drain or sewer, as required.
- The making good of any disturbed ground.
- Any arrangements necessary for the disconnection of all services (e.g., water, telephone, oil, electricity).

Consultation with the Health and Safety Executive, and Fire Authority should be sought if burning structures or materials on site. If the demolition is more than 50m<sup>3</sup> in volume a formal notice of demolition is to be given to building control at least six weeks before any demolition work starts, in accordance with the Building Act 1984: Sections 80-83. Consultation to be undertaken with the occupiers of adjacent buildings where applicable. All demolition work to comply with the Construction (Design and Management) Regulations 2015 and a Health and Safety plan is to be provided by the principal contractor.

### 1.10 SITE PREPARATION

Ground to be prepared for new works by removing all unsuitable material, vegetable matter and tree or shrub roots to a suitable depth to prevent future growth. Seal up, cap off, disconnect, and remove existing redundant services as necessary. Reasonable precautions must also be taken to avoid danger to Health and Safety caused by contaminants and ground gases e.g., landfill gases, radon, and vapours etc. on or in the ground covered, or to be covered by the building.

All existing elements, including ground conditions and services are assumed only & should be checked / analysed on site prior to commencement of work.

Positions of any existing services and drains etc are assumed only. The investigation/research and excavation of same remains the responsibility of the building contractor.

Ground to be prepared for new works as described including location and alteration/modifications to all existing services as necessary, including sealing up, capping off, disconnecting, removing redundant services as necessary.

All necessary scaffolding, ladders, hoists, temporary protection, working platforms, etc. are to be erected, maintained, certificated, dismantled and removed by suitably qualified and insured specialists.

### 1.11 THERMAL BRIDGING

Care shall be taken to limit the occurrence of thermal bridging in the insulation layers caused by gaps within the thermal element, i.e. around windows and door openings. The building fabric to be constructed so that the insulation is reasonably continuous across newly built elements.

Drawings to be provided for junctions to prevent thermal bridging, guidance in Building Research Establishment's BR 497 or other independently assessed thermal junction details to be followed.

Before elements are concealed, photographs of the details and an on-site audit to be undertaken to confirm that the designed details have been constructed in line with the guidance in Appendix B of Approved Document L.

### 1.12 CONDENSATION

Walls, floors, and roof of the building to be designed and constructed so that their structural and thermal performance will not be adversely affected by interstitial condensation, surface condensation or mould growth.

Account to be taken of the building's form and orientation in relation to topography, prevailing winds, sunlight and over-shadowing, and the rate at which humidity is generated.

Materials with the highest vapour resistance should be located on the warm side of a thermal element.

Vapour control layers to be provided where necessary. The junctions between elements are designed to accredited construction details or guidance of BRE IP17/01] and BS 5250:2011+A1:2016 Code of Practice for control of condensation in buildings to be followed.

### **1.13 REGULATION 25A: CONSIDERATION OF HIGH EFFICIENCY ALTERNATIVE SYSTEMS**

Analysis of the use of high efficiency alternative systems to be undertaken, considering the technical, environmental and economic feasibility of the provision of such systems.

A copy of the analysis to be available for inspection by building control to on request.

The document to state whether high-efficiency alternative systems have been included in the dwelling design.

### **1.14 TARGET AND DWELLINGS EMISSIONS RATES REGULATIONS 26, 26A AND 26C ENERGY PERFORMANCE**

The below to be submitted to building control before the work starts:

- Target primary energy rate and the dwelling primary the emission rate.
- The target emission rate and the dwelling emission rate.
- The target fabric energy efficiency rate and the dwelling fabric energy efficiency rate.
- A list of specifications to which the dwelling is constructed.

The dwelling primary energy rate, dwelling emission rate and dwelling fabric energy efficiency rate must not exceed the target primary energy rate, target emission rate and target fabric energy efficiency rate, respectively.

No later than 5 days after the work has been completed building control to be provided with:

- The as-built target primary energy rate and as-built dwelling primary energy rate.
- The as-built target emission rate and as-built dwelling emission rate.

- The as-built target fabric energy efficiency rate and as-built dwelling fabric energy efficiency rate.

- A list of specifications used in the as-built calculations, and whether the specifications have changed from those used in the design stage calculations.

All to be calculated using the Standard Assessment Procedure for Energy Rating of Dwellings, SAP 10.

BREL report to be given to building control along with photographic evidence of compliance.

Energy Performance Certificate (EPC) accompanied by a recommendation report in compliance with Regulation 29, is to be given to the owner of the building and submitted to building control, no later than 5 days after the work has been completed.

#### **1.15 REG 40 AND 40A PROVIDING INFORMATION**

On completion of the works the owner of the dwelling shall be provided with:

- Information about the fixed building services and on-site electricity generation and their operating and maintenance instructions, including timing and temperature control settings, and a home user guide.
- A recommendations report generated with the 'on-construction' energy performance certificate.
- A signed copy of the Building Regulations England part I Compliance report (BREL).
- Information to be easy to understand and in an accessible format.

#### **1.16 REGULATION 43 - AIR PRESSURE TESTING**

An air pressure test to be carried out on each dwelling.

Certificate to be given to building control by a person who is registered by Elmhurst Energy Systems Limited or the Air Tightness Testing and Measurement Association.

Air pressure tests to be performed following the guidance in the Approved Airtightness Test Methodology CIBSE TM23.

The measured air permeability to be not worse than  $5 \text{ m}^3/(\text{h} \cdot \text{m}^2)$  at 50 Pa.

If the required air permeability is not achieved, then remedial measures should be undertaken and a new test carried out until satisfactory performance is achieved. The results of all pressure tests, including any test failures, should be reported to building control. A copy of the test results to be sent building control no later than 7 days after the test has been carried out.



**1.17 REG 44 AND 44ZA - COMMISSIONING OF FIXED BUILDING SERVICES**

All fixed building services to be commissioned and a commissioning plan to be produced identifying:

- Systems that need to be tested.
- How these systems will be tested.

Commissioning plan to be given to the building control body with the design stage dwelling primary energy rate, dwelling emissions rate and dwelling fabric energy rate calculation.

At completion a commissioning certificate to be given to the building control body confirming that the commissioning plan has been followed and that all systems have been inspected and conform with the design requirements.

**1.18 AIR TIGHTNESS**

Drawings to be provided which identify the position, continuity and extent of the air barrier.

Incoming and penetrating services, ducts and cables, wherever possible, to be grouped to minimize how often the air barrier is penetrated. Grommets or flexible collars to be used around flexible services and sealed to the air barrier with air-sealing tape or sealant.

**APPENDIX B: REPORTING EVIDENCE OF COMPLIANCE**

BREL report

The Building Regulations England Part L (BREL) report and photographic evidence to be provided to building control and to the building owner.

Photographs to show thermal continuity and quality of insulation to be made available to the energy assessor and building control of the following details:

- At ground floor perimeter edge insulation
- At external door threshold
- Below damp-proof course on external walls
- Ground floor to wall junction
- Structural penetrating elements
- Joist/rafter level

- Eaves and gable edges
- Window positioning in relation to cavity closer or insulation line
- External doorset positioning in relation to cavity closer or insulation line
- Air tightness details where required
- Plant/equipment identification labels, including make/model and serial number
- Primary pipework and continuity of insulation
- Mechanical ventilation ductwork continuity of insulation (for duct sections outside the thermal envelope)

Each image file name to confirm location, date and time. Plot number and detail reference to be shown on image.

#### **1.19 RESISTANCE TO THE PASSAGE OF SOUND**

New floor and ceilings to receive adequate sound insulation. Use 100mm mineral wool insulation as required. New studwork partition walls to habitable areas to be full filled with mineral wool acoustic insulation as required. Internal soil pipes to be wrapped in insulation quilt and boxed in with plasterboard on SW framing.

#### **1.20 PLUMBING**

All plumbing works and sanitary fittings to be carried out by qualified competent persons. Ensure mains supply is wholesome water as defined in approved document G and provided to any sink where food preparation is to be carried out or drinking water required. Water supply to baths will not exceed 48°C by using inline blending valves or similar. Hot taps to be located on the left-hand side. All appliances to conform to maximum consumption of 125 litres per person per day.

#### **1.21 DRAINAGE**

All existing drainage to be checked on site. The re-use of existing manholes is dependent on-site inspection by a suitably qualified person. Contractor to ensure gutters and downpipes are sized to ensure sufficient flow capacity.

#### **1.22 COMBUSTIBLE APPLIANCES**

All new works to be in accordance with approved document J of the building regulations.

### 1.23 PARTY WALL NOTICE

A Party Wall Notice is required for:

- Any excavation within 3 metres of any part of a neighbouring owner's building or structure, where any part of that work will go deeper than the neighbour's foundations; or
- Any excavations for a new building or structure, within 6 metres of any part of a neighbouring owner's building or structure, where any part of that work will meet a line drawn downwards at 45° in the direction of the excavation from the bottom of the neighbour's foundations, see diagram 7 in the following Government guidance,  
[https://www.gov.uk/government/publications/preventing-and-resolving-disputes-in-relation-to-party-walls/the-party-wall-etc-act-1996-explanatory-booklet#para\\_28](https://www.gov.uk/government/publications/preventing-and-resolving-disputes-in-relation-to-party-walls/the-party-wall-etc-act-1996-explanatory-booklet#para_28)

A Party Wall Agreement is to be in place prior to start of works on site.

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## 2.00 STRUCTURE

### REFER TO STRUCTURAL DESIGN AND CALCULATIONS

The building shall be constructed so that:

- The combined dead, imposed, and wind loads are sustained and transmitted by it to the ground, safely and without causing any building deflection/deformation or ground movement that will affect the stability of any part of the building.
- Ground movement caused by swelling, shrinkage or freezing of the sub-soil, landslip or subsidence will not affect the stability of any part of the building.

Supply and install new structural elements such as Retaining walls, beams, lintels, roof structure, floor structure, bearings, and padstones in accordance with the structural engineer's calculations and details.

## 2.01 FOUNDATIONS

Depth and width of foundations to be designed according to requirements of Part A including loading, and type of ground. Refer to Part A Section 2E. Provide concrete foundations in accordance with structural engineer's design & specification.

- Concrete mix to conform to BS EN 206-1 and BS 8500-2.
- All foundations to be a minimum of 1000mm below ground level, exact depth to be agreed on site with building control officer to suit site conditions.
- All constructed in accordance with 2010 building regulations A1/2 and BS 8004:1986 code of practice for foundations.
- Ensure foundations are constructed below invert level of any adjacent drains.
- Any foundations running parallel to sewers to be taken down to invert level.
- Base of foundations supporting internal walls to be min 600mm below ground level. sulphate resistant cement to be used if required.
- Foundations should be situated centrally below the wall.
- Foundation should be reinforced where necessary to suit localised ground conditions.
- Where the location of foundation is in an area of Radon exposure, the DPC and DPM should be upgraded for a gas resistant damp proof course and barrier with associated junctions in accordance with BS 8485:2015 + A1:2019.

Please note that should any adverse soil conditions be found or any major tree roots in excavations, the Building Control officer is to be contacted and the advice of a structural engineer should be sought.

## 2.02 PIPES PASSING FOUNDATIONS

The load-bearing capability of foundations must not be affected where services pass through.

The pipe work should be sleeved and be provided with 'rocker pipes' at a distance of 150mm either side of the foundation concrete.

The 'rocker pipes' should have flexible joints and be a maximum length of 600mm. alternatively...

Pipework should pass through a suitably strengthened opening in the foundation, i.e., foundation shuttered and a provided with suitable lintel over the pipe allowing for sufficient space for movement to ensure that the drain is capable of maintaining line and gradient.

Opening should be masked with granular backfill (pea shingle) around pipe.

DPC to be provided as required by BCO.

Advice from building control to be sought on suitability of pipe running through foundation before construction.

## 2.03 PIPES PASSING THROUGH WALLS

Walls above pipes passing through substructure walls to be supported on suitable lintel on semi-engineering bricks.

Pipe to be provided with a 50mm clearance all round, opening to be masked with granular backfill (pea shingle) around pipe. DPC to be provided as required by BCO.

## 2.04 STRAPPING FOR ROOF

All external walls running parallel to roof rafters to be restrained at roof level using 1000mm x 30mm x 5mm galvanised mild steel horizontal straps or other approved to BSEN 845-1 built into walls at max 2000mm centres and to be taken across minimum 3 rafters and screw fixed.

Provide solid noggins between rafters at strap positions.

## 2.05 LINTELS

Lintel and lintel installation to be in accordance with BS 5977-1 Lintels. Method of assessment of load and BS EN 845-2 Specification for ancillary components for masonry.

Lintel to be galvanised steel, powder coated lintel, such as Catnic, with a built-in damp-proof course.

The lintel to be wide enough to provide adequate support to the walling above, to be installed with a nominal 150 mm bearing area at each end and be fully bedded on a solid bed of mortar. Only full bricks or blocks to be part of the bearing area - lintels not to be placed directly onto part bricks. Padstones and spreaders to be provided under the bearings, where required. Installation to be in accordance with manufacturer's recommendations.

Overhang of any masonry to be a maximum of 25mm and lintel toe to project beyond window head externally.

Risk of condensation at potential cold bridges to be minimised, wall insulation should abut the head of the window frame and insulation to be provided at the underside of the lintel unless the manufacturer produces an alternative.

(In severely exposed locations or where the lintel does not offer a built-in DPC, a separate membrane to be fitted, turned up at the edge to ensure the water is not directed into the cavity.

#### **2.06 STEELWORK**

All in accordance with the Structural Engineer's Design and Calculations. All queries relating to Structure should be directed to the Structural Engineer.

#### **2.07 ROOF TIMBERS**

Roof Timbers to be constructed of kiln dried stress graded structural grade timber at sizes and spacing in accordance with Structural Engineer's Design and Details, TRADA Span Tables and all properly fixed together with approved fixings.

Roof and walls to be provided with lateral restraint straps to Structural Engineer's Design and Detail .

#### **2.08 FIRE PROTECTION OF STRUCTURE**

As a fire precaution, the spread of flame over the internal linings of a building and the amount of heat released from internal linings shall be restricted.

- All load bearing elements of structure of the building shall be capable of withstanding the effects of fire for an appropriate period without loss of stability.
- All openings in fire-separating elements shall be suitably protected in order to maintain the integrity of the continuity of the fire separation.

- Any hidden voids in the construction shall be sealed and subdivided to inhibit the unseen spread of fire and products of combustion, in order to reduce the risk of structural failure, and the spread of fire.

New steel beams to be encased in 2 x layers of 12.5mm Gyproc FireLine board with staggered joints, Gyproc FireCase or painted in Nullifire S or similar intumescent paint to provide minimum 1/2-hour fire resistance as agreed with Building Control. All fire protection to be installed as detailed by specialist manufacturer.

#### **2.09 OPENINGS AND RETURNS**

An opening or recess greater than 0.1m<sup>2</sup> shall be at least 550mm from the supported wall (measured internally).

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### 3.00 FLOOR CONSTRUCTION

The floors of the building shall adequately protect the building and people who use the building from harmful effects caused by:

- Ground moisture
- Precipitation
- Interstitial and surface condensation
- Spillage of water from or associated with sanitary fittings or fixed appliances.

All floors next to the ground should:

- Resist the passage of ground moisture to the upper surface of the floor.
- Not be damaged by moisture from the ground.
- Not be damaged by groundwater.
- Resist the passage of ground gases (including radon or methane).

Floors next to the ground exposed from below should be designed and constructed so that their structural and thermal performance are not adversely affected by interstitial condensation.

All floors should not promote surface condensation or mould growth, given reasonable occupancy conditions.

#### 3.01 FULL RADON PROTECTION

Provide a 1600g (400 micrometre) continuous polythene DPM radon-proof barrier over the slab, lapped and sealed at all joints, around service penetrations with radon gas proof tape and linked to DPCs in the cavity wall.

Provide a radon sump with a depressurization pipe, fixed either horizontally or vertically, and discharging to the outside of the building. Pump to be installed as manufacturers' details. If required by building control, a radon test to be undertaken after completion, and if unacceptably high levels of radon are found, provide an electrically powered fan to the pipework.

#### 3.02 LOWER GROUND FLOOR – GROUND BEARING SLAB

**FLOOR CONSTRUCTION TO BE CONFIRMED BY STRUCTURAL ENGINEER**

To meet  $u$  value of  $0.10 \text{ w/m}^2\text{k}$

Solid ground floor to consist of 150mm consolidated well-rammed hardcore, blinded with 50mm sand blinding. Provide 100mm ST2 or GEN2 ground bearing slab concrete mix to conform to BS

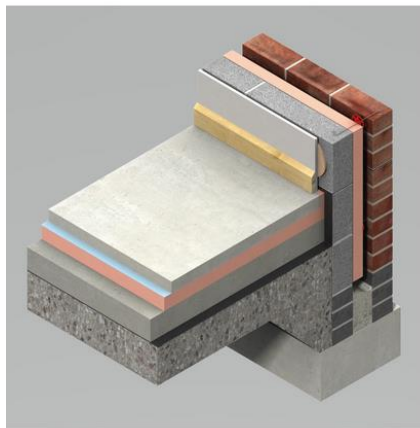


8500-2:2023 and BS EN 206 over a 1600 gauge radon polythene DPM 300mm double welded and taped with gas proof tape at joints and service entry points. DPM to be lapped in with DPC / RIW waterproofing in retaining walls.

Floor to be insulated over slab and DPM with min 150mm thick Kingspan Kooltherm K103 insulation. 25mm insulation to continue around floor perimeters to avoid thermal bridging. A VCL should be laid over the insulation boards and turned up 100mm at room perimeters behind the skirting, all joints to be lapped by 150mm and sealed. Finish with 75mm sand/cement finishing screed with light mesh reinforcement.

Where drain runs pass under the new floor, provide A142 mesh 1.0m wide and min 50mm concrete cover over length of drain. Screeds to be isolated at all edges, abutments and columns to allow for movement due to thermal loadings. joints to be filled with a suitable flexible filler. grout must not be used. The manufacturers' guidance for both the floor screed and the tiling must be followed to determine the minimum thickness of edge strip required to allow for expansion.

**Solid Ground Floor -  
Insulation Below Screed**  
Deerhurst



**Construction Summary**

Floor Finish  
SAND CEMENT SCREED

Separation Layer  
POLYTHENE SEPARATION LAYER

Insulation  
KOOLTHERM K103

> Thickness (mm)  
-----● 150 mm ▾

Floor Slab  
CONCRETE 1:2:4 2000 kg/m<sup>3</sup>

Damp Proof Membrane  
DAMP PROOF MEMBRANE

**Total thickness 376.4 mm**

U Value

**0.10**

W/(m<sup>2</sup>·K)

Total Construction Thickness  
**376.4 mm**

**3.03 INTERMEDIATE FLOORS (GROUND AND FIRST)**

PCC beams to be supplied and fixed to beam manufacturer's plan, layout and details (details and calculations to be sent to building control for approval before works commence). Beam to have a minimum bearing of 100mm onto load bearing walls. Provide concrete blocks to BS EN 772-2, wet and grout all joints with 1:4 cement/sand mix. Provide double beams below non-

load bearing partitions. Intermediate floors should have a layer of insulation to reduce downwards heat transmission with a thermal resistance of not less than  $0.75(m^2 \cdot k)/w$ .

Lay 25mm Kingspan k103 floor insulation over beam and block floor applied as a rigid material. 25mm insulation to continue around floor perimeters to avoid thermal bridging. Joints between insulation boards to be properly taped to prevent seepage of screed. Lay 500g separating layer over insulation and provide 75mm sand/cement screed over and prepare for floor finishes as required. Screeds to be isolated at all edges, abutments and columns to allow for movement due to thermal loadings. Joints to be filled with a suitable flexible filler. Grout must not be used. The manufacturers' guidance for both the floor screed and the floor finish must be followed to determine the minimum thickness of edge strip required to allow for expansion.

Allow 75mm service void below beam and block floor and finish with 15mm Gyproc FireLine plasterboard and 3mm skim ready to receive decoration.

### **3.04 SOLID GARAGE FLOOR**

Solid garage floor to consist of 150mm consolidated well-rammed hardcore blinded with 50mm sand blinding. Provide 150mm ST2 or GEN1 ground bearing slab thickened 300mm at garage entrance, concrete mix to conform to BS 8500-2:2023 and BS EN 206. 1 layer of 252 steel mesh to be provided within the slab. Slab to be laid over a 1200g (300 um) radon membrane lapped 300mm double welted and taped with gas proof tape at joints and service entry points. Carry membrane over cavity and provide suitable cavity tray and weep holes. Ensure a 1:80 fall is provide to floor from back of garage to front garage door.

#### 4.00 WALLS – GENERAL NOTES

To limit thermal bridging, junctions must be detailed to achieve continuity of insulation. External wall insulation should extend below the damp proof course and be at least one full block height (215mm) below the underside of the floor structure and beyond the depth of the floor insulation.

Care should be taken to reduce unwanted heat loss through air filtration. Refer to approved document Part L: Volume 1 Table 4.1 for minimum standards of air permeability.

Timber frame walls should include a vapour control layer with overlaps at seams and junctions and be taped to form the airtightness barrier.

#### 4.01 WALLS BELOW GROUND

All new walls to have class a blockwork below ground level or alternatively semi engineering brickwork in 1:4 masonry cement or equal approved specification.

Cavities below ground level to be filled with lean mix concrete min 225mm below damp proof course or provide lean mix backfill at base of cavity wall (150mm below damp course) laid to fall to weepholes.

#### 4.02 DPC

Provide horizontal strip polymer (hyload) damp proof course to both internal and external skins minimum 150mm above external ground level.

Vertical DPC to be installed at all reveals where cavity is closed.

DPC's should be of a flexible material that is suitable for its intended use and the DPC should have appropriate third-party certification. Blue brick or slates will not be accepted as a DPC.

DPC's should be laid on a mortar bed and correctly lapped at junctions and corners. The depth of lap should be the same as the width of the DPC.

DPM's should be linked to the DPC and be a minimum 1200g polythene.

#### 4.03 WALL TIES

All walls constructed using stainless steel vertical twist type retaining wall ties built in at 750mm cts horizontally, 450mm vertically and 225mm cts at reveals and corners in staggered rows. Wall ties to be suitable for cavity width and in accordance with BS EN 845-1:2013.

Overall length of wall ties must be long enough to ensure there is a 75mm overlap onto the outer leaf of masonry. Wall ties should be staggered in a diamond pattern and laid with a slight

fall towards the outer leaf. Wall tie spacing varies according to cavity width and tie specified. Check with manufacturer and standards. Wall ties for cavities over 150mm to be suitable for cavity width and installed as manufacturer's details.

#### 4.04 CAVITIES

Provide cavity trays over openings. All cavities to be closed around openings using Thermabate or similar non-combustible insulated cavity closers. Cavity trays to have watertight stop-ends to prevent water running into adjacent cavity.

All cavity trays must have 150mm upstands and suitable cavity weep holes (min 2) at max 900mm centres. Cavities must be clear of mortar spots, and the two leaves should be appropriately tied.

Cavities to be filled to ground level with lean mix concrete finishes with sloping batter towards outside leaf.

#### 4.05 CAVITY BARRIERS

30-minute fire resistant cavity barriers to be provided at tops of walls and vertically/horizontally at junctions installed according to manufacturer's details.

#### 4.06 MOVEMENT JOINTS

Movement joints to be provided at the following maximum spacing:

- Clay brickwork - 12m.
- Calcium silicate brick - 7.5-9m.
- Lightweight concrete block - density not exceeding 1,500kg/m<sup>3</sup> - 6m.
- Dense concrete block - density exceeding 1,500kg/m<sup>3</sup> - 7.5-9m.
- Any masonry in a parapet wall (length to height ratio greater than 3:1) - half the above spacings and 1.5m from corners.
- Movement joint widths for clay bricks to be not less than 1.3mm/m i.e., 12m = 16mm and for other masonry not less than 10mm.
- Additional movement joints may be required where the aspect ratio of the wall (length: height) is more than 3:1.
- Considerations to be given to BSE EN 1996-1-2:2005 Eurocode 6. Design of Masonry Structure.

**4.07 WT01 - EXTERNAL MASONRY WALL ABOVE RETAINING WALL**

To achieve u-value 0.13 w/m<sup>2</sup>k

20mm two coat sand/cement render to comply to BS EN 13914-1 with waterproof additive. 100mm 7.3N dense concrete blocks, 1.13 w/m<sup>2</sup>k. 55mm clear residual cavity. 120mm Kingspan K108 insulation board with insulation retaining clips. 100mm 7.3N dense concrete blocks, 1.13 w/m<sup>2</sup>k. 6mm parge coat to inner leaf of blockwork. Internal finish to be 12.5mm plasterboard on 10mm dabs. Stainless steel wall ties at 750mm cts horizontally, 450mm vertically and 225mm cts at reveals and corners in staggered rows. Walls to be built with 1:1:6 cement mortar.

**Cavity Wall - Partial Fill (total cavity 126 - 175mm)**

Deerhurst  
02/09/2024

U Value  
**0.13 w/(m<sup>2</sup>·K)**

Layer	Material	Thickness mm	Lambda W/(m·K)	R value m <sup>2</sup> ·K/W
Internal Surface Resistance				0.130
Internal Finish	PLASTER (LIGHTWEIGHT)	13	0.180	0.072
Inner Leaf	AERATED BLOCK (k-value = 0.15 W/mk)	100	0.150	0.667
Mortar Bridging	MORTAR		0.800	0.000
Bridge percentage	7%			
Insulation	KOOLTHERM K108	120	0.019	6.316
Wall Ties	STAINLESS STEEL WALL TIES		17.000	
	Number of Anchors per m <sup>2</sup>	3		
	Diameter of Anchors (mm)	5.46 mm		
Residual Airspace	UNV. A/SPACE; (LOW-E)	50		0.664
Outer Leaf	RENDERED DENSE BLOCKWORK 100mm (k-value = 1.13 W/mk) (10mm polymer render external finish)	110		0.175
External Surface Resistance				0.040
<b>Total Construction Thickness</b>				<b>393 mm</b>

**4.08 EXTERNAL MASONRY RETAINING WALL**

To achieve min u-value 0.18 w/m<sup>2</sup>k

RC retaining wall to structural engineer's design and detail with RIW waterproofing to both sides (see detail). 100mm 7.3n dense concrete blocks, 1.13 w/m<sup>2</sup>k e.g. stowell. 175mm cavity fully filled with rockwool full cavity batt. 100mm blockwork inner leaf - strength class to structural

engineer's design. 6mm parge coat to inner leaf of blockwork. Internal finish to be 12.5mm plasterboard on 10mm dabs. Stainless steel wall ties at 750mm cts horizontally, 450mm vertically and 225mm cts at reveals and corners in staggered rows. Walls to be built with 1:1:6 cement mortar.

**Application performance - Full Fill application 2:**

Render on 100mm medium dense block outer, ROCKWOOL Full Fill Cavity Batt, 100mm internal concrete block (medium dense or Standard Aircrete) Internal finishes: light plaster or plasterboard on dab.

Inner block W/mK Internal finish Cavity (mm)	Medium dense 1400-1450kg/m <sup>3</sup> 0.470 W/mK		Aircrete Hi Strength 750kg/m <sup>3</sup> 0.190 W/mK	
	Light plaster	P/board on dab	Light plaster	P/board on dab
	U-value W/m <sup>2</sup> K	U-value W/m <sup>2</sup> K	U-value W/m <sup>2</sup> K	U-value W/m <sup>2</sup> K
100	0.30	0.29	0.26	0.26
130	0.24	0.23	0.22	0.22
150	0.21	0.21	0.19	0.19
175	0.19	0.18	0.17	0.17

**4.09 EXTERNAL MASONRY WALL – COMPOSITE CLADDING**

To achieve u-value 0.13 w/m<sup>2</sup>k

50mm composite cladding panels to client approval. Note – cladding panels MUST be non-combustible. 25mm battens (and counter battens if required for vented and drained cavity). If required by BCO, line outer skin of blockwork with Tyvek house wrap. 100mm 7.3N dense concrete blocks, 1.13 w/m<sup>2</sup>k. 55mm clear residual cavity. 120mm Kingspan K108 insulation board with insulation retaining clips. 100mm 7.3N dense concrete blocks, 1.13 w/m<sup>2</sup>k. 6mm parge coat to inner leaf of blockwork. Internal finish to be 12.5mm plasterboard on 10mm dabs. Stainless steel wall ties at 750mm cts horizontally, 450mm vertically and 225mm cts at reveals and corners in staggered rows. Walls to be built with 1:1:6 cement mortar.

**4.10 INTERNAL NON-LOAD BEARING MASONRY WALL**

Construct non load bearing internal masonry partitions using dense concrete blocks built off thickened floor slab. Wall to be tied at 225mm centres with proprietary steel profiles or block bonded to all internal and external walls. Walls faced throughout with 6mm parge coat, 12.5mm plasterboard on 10mm dabs with skim plaster finish ready to receive decoration. Walls to be built with 1:1:6 cement mortar.

#### 4.11 WALL TYPE WT05 - INTERNAL WALL

89mm x 38mm SW treated studs at 400 - 600mm cts with head and sole plates and solid intermediate horizontal noggins at 1/3 height or 450mm. Provide min 10kg/m<sup>3</sup> density acoustic soundproof quilt tightly packed (e.g. 100mm rockwool or isowool mineral fibre sound insulation) in all voids the full depth of the stud. Line dry sides with 2 x layers of 12.5mm Gyproc FireLine plasterboard where forming a protected fire escape route and finish with 3mm skim ready to receive decoration. Elsewhere line dry sides with 2 x layers of 12.5mm Gyproc Soundbloc plasterboard with 3mm skim ready to receive decoration. Areas susceptible to high levels of moisture (e.g. kitchen) to receive moisture resistant plasterboard

Robust fixings, if required apply 1 x layer of 18mm WBP ply to act as robust fixing for cabinetry in lieu of 1 x layer of plasterboard.

#### 4.12 WALL TYPE WT06 - INTERNAL WALL LINING

Where indicated on plan line studs with:

12mm Hardibacker cement board installed in accordance with manufacture's recommendations. Apply tanking slurry suitable for wet room applications. 6mm tile adhesive (or depth as specified by tile manufacturer installation guidance). Finish with 12mm tiles & grout to client specification. If required for robust fixing include 1 x layer of 18mm marine grade ply to the rear face of cement board - for example - to receive shower control unit over bath.

#### 4.13 WALL TYPE WT07 - INTERNAL WALL

89mm x 38mm SW treated studs at 400 - 600mm cts with head and sole plates and solid intermediate horizontal noggins at 1/3 height or 450mm. Line dry sides with 2 x layers of 12.5mm Gyproc FireLine plasterboard where forming a protected fire escape route and finish with 3mm skim ready to receive decoration. Elsewhere line dry sides with 2 x layers of 12.5mm Gyproc Soundbloc plasterboard with 3mm skim ready to receive decoration. Areas susceptible to high levels of moisture (e.g. kitchen) to receive moisture resistant plasterboard

Robust fixings - if required apply 1 x layer of 18mm WBP ply to act as robust fixing for cabinetry in lieu of 1 x layer of plasterboard.

#### 4.14 DRAINED CAVITY WATER PROOFING SYSTEM

Type C drained protection in accordance with BS 8102:2022.

RIW Cavity Drain System as BBA certificate for use in new constructions.

Ensure that all materials and products are compatible. Assess structure for suitability of tanking system. The surface must be examined for defects and repaired in accordance with manufacturer's details if required. All retaining elements are to be detailed by a Structural Engineer.

All materials and products to be installed by a competent contractor strictly in accordance with the manufacturer's recommendations, BS 8102 and BBA certificate.

Prepare wall by cleaning with a stiff brush. Provide a high density polythene (HDPE) cavity drain membrane, e.g. RIW Cavity Drain, fixed using RIW brick plugs to wall and floor slab staggered at 1m centres. Fixings to be sealed using RIW Sealing Rope.

The horizontal and vertical sheets should be butt jointed at the base of the wall and the joint covered with a pre-formed RIW Wall/Floor Junction piece and sealed with proprietary sealing tape.

The floor membrane is to be covered by reinforced concrete or screed at least 65mm thick.

Provide a suitable drainage channel, e.g. RIW Aqua Channel within the slab around the perimeter of the floor and install a sump and mechanical pump as manufacturer's details with suitable access if required.

Drainage channel to be provided with an adequate fall to a suitable soakaway. Ensure suitable access points and rodding eyes at every 10m and every change of direction.

Penetrations through waterproofing to be kept to a minimum and filled with RIW flexible sealant or sealing rope detailed by RIW specialist waterproofing manufacturer where unavoidable.

In very high water table area an additional moisture barrier may be required.

Construct an independent timber frame with preservative treated timber studwork using 100mm x 50mm treated timbers with head and sole plates and noggins at 400mm ctrs ensuring an adequate clear cavity between wall and new stud for cavity drain membrane.



#### 4.15 PLASTERING

Plasters to comply with BS EN 13279 'Gypsum binders and gypsum plasters'.

Bonding Agents to comply with BS 5270-1 'Specification for polyvinyl acetate (PVAC) emulsion bonding agents for indoor use with gypsum building plasters'.

Metal laths and beads to comply with BS EN 13658-1/2 'Metal lath and beads. Definitions, requirements, and test methods'.

All surfaces to receive plaster are to be given an appropriate treatment in accordance with BS 8481 and BS 13914-2, suitably finished to provide an adequate key, checked to ensure adequate and even suction, sufficiently even to provide a reasonably flat plaster finish (excessive 'dubbing out' should be avoided).

Where there is a mix of background materials, differential movement can lead to cracks and should be avoided. Suitable precautions should be taken, e.g., using metal lathing.

Metal beads should be used to provide edge protection, and be fixed with zinc-plated fasteners, as recommended by the manufacturer.

Where services are to be concealed by plaster, they should be completed and tested before plastering and protected against the adverse effects of chemical action or thermal movement.

At localised areas to avoid surface cracking, metal lathing or wire netting should be used where there is an insufficient depth of plaster.

The plaster mix should be as specified, or as recommended by the plaster manufacturer for the particular location and use, appropriate for the strength and surface characteristics of the background, an appropriate quality for the intended finish, checked to ensure undercoats and finishing coats are compatible, applied by suitably trained operatives (specifically where plastic compound finishes are used), of a type that does not include Portland cement and gypsum plaster in the same mix.

Completed work, especially timber, chipboard and glazing, should be protected from damp and damage.

Dubbing out should be conducted well in advance of the application of the first coat.

Surfaces should be dry, clean and free from laitance, grease, loose material or substances likely to prove harmful to the bond or the intended finished appearance of the plaster. Ensure plaster is thoroughly mixed but avoid prolonged mixing. Avoid mixing excessive quantities of plaster (plaster should not be retempered).

The background surface of each coat should be fully set (the surface should not be overworked, and adequate time should be left between coats to allow strength and suction to develop.

The number of coats should be sufficient to achieve a reasonably plane finish.

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## 5.00 PROPOSED ROOFING

Structural roof design to Structural Engineer's Design and Calculations.

All roofing works to be carried out by a specialist roofing contractor and all materials to be fitted according to manufacturer's recommendations.

Insulation must be installed to meet current Building Regulations, avoiding cold bridges. Position of the air vapour control layer (AVCL) must comply with insulation manufacturer recommendations.

Ceilings should be well sealed to avoid the transfer of moisture into the roof space by means of moisture laden air. Gaps in the ceiling should be avoided. Any VCL must be installed on the warm side of the insulation. All joints should be lapped and sealed, paying particular attention to penetrations and punctures caused by fixings.

### 5.01 VAULTED PITCHED ROOF

Roof structure:

To be designed by an engineer in accordance with NHBC technical requirement R5 structural design. calculations to be based on BS EN 1995-1-1:2004 Eurocode 5: design of timber structures (+a2:2014). calculations and structural drawings to be submitted to BCO for approval.

Grade C24 rafters at max 400mm centres, span to engineer's details. rafters supported on 100 x 50mm SW wall plates. Tie beams all to structural engineer's design and detail.

Restraint strapping - Ceiling joists tied to rafters (if raised collar roof consult Structural Engineer). 100mm x 50mm wall plate strapped down to walls. Ceiling joists and rafters to be strapped to walls and gable walls, straps built into cavity, across at least 3 timbers with noggins. All straps to be 1200 x 30 x 5mm galvanized straps or other approved to BS EN 845-1 (+A1:2016) at 2m centres.

Roof covering:

Natural grey slate roofing tiles on 25 x 38mm tanalised SW treated battens and 25 x 38mm tanalised SW counter battens over Kingspan Nilvent breathable membrane

Ventilation:

Proprietary eaves carrier system to maintain 50mm above insulation layers and proprietary dry ridge vent tiles.

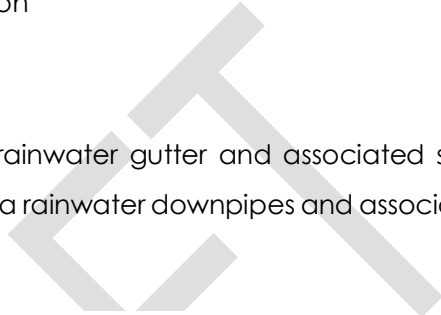
Insulation and Internal Finish:

To achieve u-value 0.11 w/m²k

150mm Kingspan k107 between rafters and 72.5mm Kingspan K118 insulated plasterboard below rafters all joints taped to form VCL. 35mm batten zone for services (total recess for downlighters = 50mm) and a further 15mm Gyproc FireLine plasterboard below. Finish 3mm skim coat of finishing plaster ready to receive decoration

Eaves and rainwater goods:

25mm SW treated fascia with Deep flow UPVC rainwater gutter and associated stop ends, corners, outlets and fixing brackets. 68mm UPVC dia rainwater downpipes and associated fixing brackets at locations shown on the drawings.



U Value  
**0.11** W/(m²·K)

Layer	Material	Thickness mm	Lambda W/(m·K)	R value m²·K/W
External Surface Resistance				0.100
Roof tiles	TILES / SLATES & BATTENS	30		0.000
Counter Battens	highly-ventilated	38		0.000
Membrane	KINGSPAN NILVENT BREATHABLE MEMBRANE	0.5		0.006
Insulation between rafters	KOOLTHERM K107 - (BETWEEN TIMBER RAFTERS)	150	0.019	7.895
Bridging rafters	TIMBER RAFTERS (47mm@400mm)		0.130	0.000
Bridge percentage	13%			
Insulated-Plasterboard	KOOLTHERM K118 72.5mm (12.5mm plasterboard internal finish)	72.5		3.224
Internal finish	PLASTER SKIM	3	0.180	0.017
Internal Surface Resistance				0.100
<b>Total Construction Thickness</b>				<b>294 mm</b>

### **5.02 FLAT ROOF OVER MASTER BEDROOM** TO ACHIEVE U-VALUE 0.11 W/M<sup>2</sup>K.

Minimum 75mm single ply membrane upstand abutting main dwelling (150mm preferable). Sarnafil single ply membrane installed to manufacturers details over 25mm Kingspan Thermaroom TR27 overlay board. 2 layers of Kingspan Optim-R vacuum insulation. Stagger joint between layers. Install to manufacturers details. Sarnavap roofing membrane over 18mm WBP ply or OSB. 38mm SW treated firrings laid to 1:40 fall. 50x120 C24 roof joists at 400mm cts. Vapour control layer with all joints taped, lapped and sealed. 2 x layers of 15mm Gyproc FireLine plasterboard. 3mm plaster skim coat ready to receive decoration.

Restraint strapping - 100mm x 50mm C16 grade timber wall plates to be strapped to walls using 1200mm x 30mm x 5mm galvanised mild steel straps at maximum 2.0m centres, straps to be fixed to internal wall faces.

Eaves and rainwater goods:

25mm SW treated fascia with Deep flow UPVC rainwater gutter and associated stop ends, corners, outlets and fixing brackets. 68mm UPVC dia rainwater downpipes and associated fixing brackets at locations shown on the drawings.

### **5.03 GARAGE ROOF**

Roof Structure:

Roof structure to be designed by an engineer in accordance with NHBC technical requirement R5 structural design. calculations to be based on BS EN 1995-1-1:2004 Eurocode 5: design of timber structures (+a2:2014). calculations and structural drawings to be submitted to BCO for approval.

Grade c24 rafters at max 400mm centres, span to engineer's details. rafters supported on 100 x 50mm SW wall plates

Roof covering:

natural grey slate roofing tiles on 25 x 38mm tanalised SW treated battens over Kingspan Nilvent breathable membrane. Finish underside with 2 x layers of 15mm Gyproc FireLine board.

Eaves and rainwater goods:

25mm SW treated fascia with Deep flow UPVC rainwater gutter and associated stop ends, corners, outlets and fixing brackets. 68mm UPVC dia rainwater downpipes and associated fixing brackets at locations shown on the drawings.

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**6.00 STAIRS**

Stair design to specialist manufacture design and detail - fabrication drawings to be submitted for approval prior to manufacture. Dimensions to be checked and measured on site prior to fabrication of stairs. Timber stairs to comply with BS585 and with part K of the building regulations.

Max rise 220mm, min going 220mm, two risers plus one going should be between 550 and 700mm. Tapered treads to have going in centre of tread at least the same as the going on the straight. Min 50mm going of tapered treads measured at narrow end. Pitch not to exceed 42 degrees.

The width and length of every landing should be at least as great as the smallest width of the flight. Minimum 2.0m headroom measured vertically above pitch line of stairs and landings. Handrail on staircase to be 900mm above the pitchline, handrail to be at least one side if stairs are less than 1m wide and on both sides if they are wider.

Balustrading designed to be unclimbable and should contain no space through which a 100mm sphere could pass. Allow for all structure as designed by a structural engineer.

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## 7.00 EXTERNAL WINDOWS AND DOORS

Aluminium Doors and windows. Style and manufacturer to be confirmed – provisionally allow for Velfac Energy 200. Windows to be triple glazed with argon filled gap and with a soft coat low-e glass. Window energy rating to be band 'a' or better and to achieve a minimum u-value of 1.2 w/m<sup>2</sup>k (actual achieved 0.8 W/m<sup>2</sup>k).

Opaque doors to achieve u-value of 1.0 w/m<sup>2</sup>k. Semi glazed doors to achieve u-value of 1.0 w/m<sup>2</sup>k. Glazed doors with greater than 60% glazed area to achieve u-value of 1.2 w/m<sup>2</sup>k. Glazed doors to be triple glazed with argon gap and soft low-e glass. Where indicated, glass to be toughened or laminated safety glass to BS 6206, BS EN14179 or BS EN ISO 12543-1:2011 and part K of the current building regulations.

All windows to first floor habitable rooms to be egress windows in accordance with part B of the building regulations. Windows should have an unobstructed openable area that is at least 0.33m<sup>2</sup> & at least 450mm high & 450mm wide. The bottom of the openable area should be not more than 1100mm above the floor.

Insulated plasterboard to be used in reveals to abut jambs and to be considered within reveal soffits. Fully insulated and continuous cavity closers to be used around reveals. Windows and door frames to be taped to surrounding openings using air sealing tape.

## 7.01 PROTECTION FROM FALLING AND ENTRAPMENT

Window handles on windows that open outwards are not to be more than 650mm from the inside face of the wall when the window is at its maximum openable angle.

Any guarding to be sized to prevent the passage of a 100mm sphere, to be 1.1m high from floor level, to be not easily climbable and to be capable of resisting at least the horizontal force given in BS 6180:2011.

## 7.02 SAFETY GLAZING

All glazing in critical locations to be toughened or laminated safety glass to BS 6206, BS EN 14179 or BS EN ISO 12543-1:2011 and part K of the current building regulations. i.e., within 1500mm above floor level in doors and side panels within 300mm of door opening and within 800mm above floor level in windows.

## 7.03 ESCAPE WINDOWS

Where indicated, provide emergency egress windows to all first-floor habitable rooms and ground floor inner rooms. Windows to have an unobstructed openable area that complies with:

- minimum height of 450mm and minimum width of 450mm.



- minimum area 0.33m<sup>2</sup>.
- the bottom of the openable area should be not more than 1100mm above the floor.
- the window should enable the person to reach a place free from danger from fire.

#### **7.04 ROOF LIGHTS**

Min U-value of 1.6 W/m<sup>2</sup>K – Actual with Velux MK06 1.3 W/m<sup>2</sup>K

Roof-lights to be double glazed with 16mm argon gap and soft low-E glass. Window Energy Rating to be Band C or better. Roof lights to be fitted in accordance with manufacturer's instructions, with rafters doubled up to sides and suitable flashings provided.

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## 8.00 ELECTRICAL WORK

All electrical work required to meet the requirements of Part P (electrical safety) must be designed, installed, inspected and tested by a competent person registered under a competent person self-certification scheme such as BRE certification Ltd, BSI, NICEIC certification services or Zurich Ltd. An appropriate BS7671 electrical installation certificate is to be issued for the work by a person competent to do so. A copy of a certificate will be given to building control within 30 days of completion.

### 8.01 INTERNAL LIGHTING

Internal energy efficient light to be fitted as calculated in the DER and in compliance with the domestic building services compliance guide. Provide low energy light fittings not less than three per four (excluding infrequently accessed spaces used for storage, such as cupboards and wardrobes). Low energy light fittings should have lamps with a luminous efficacy greater than 45 lamp lumens per circuit-watt and a total output greater than 400 lamp lumens. Fixed internal lighting to be pin based fluorescent or compact fluorescent lamps or low energy bayonet or Edison screw base compact fluorescent lamps.

### 8.02 EXTERNAL LIGHTING

All external lighting to comply with the recommendations set out in the Ecology Report.

Install low energy light fittings that only take lamps having a luminous efficiency better than 80 lumens per circuit watt. External light fittings to have both the following:

- automatic controls which switch luminaires off in response to daylight
- if luminous efficacy is 75 light source lumens or less automatic controls which switch luminaires off after the area lit becomes unoccupied, if luminous efficacy is greater than 75 light source lumens, manual control can be installed.

Dwelling primary energy rate and dwelling emission rate calculations to account for the efficacy of lamps installed in the fixed lighting locations.

### 8.03 PART S - CHARGING OF ELECTRIC VEHICLES

Electrical vehicle charge point to be provided as indicated on plan. If the connection cost is greater than £3600, two formal quotes to be given to building control, as detailed in approved document S, in which case, cable routes for electrical vehicle charge points to be agreed.

## 9.00 PLUMBING & HEATING

Generally, allow of wet underfloor heating system with dual fuel towel radiators where indicated on plan, sizing to specialist installer's recommendation.

Allow for all builders work in connection with new heating and drainage systems.

Drainage to be in accordance with BS 8000-0:2014 and BS EN 1401-1: 2009. All drainage to Local Authority approval and to be tested prior to handover. Install systems so that they comply with BS EN 806-2:2005 and water supply byelaws and are free from leaks and water hammer.

All installation work to be carried out by qualified operatives. In locations where moisture is present or may occur, use corrosion resistant fittings/fixings and avoid contact between dissimilar metals by use of suitable washers, etc. Isolating valves must be fitted to all new appliances and located for ease of access and use. Where pipe runs in solid floors are unavoidable, they should be in access ducts with removable covers. Pipe routes within floors should be indelibly marked and noted on the flooring surface. Allow for lagging pipes in unheated spaces.

The domestic hot water supply should be maintained above the level required to prevent the development of Legionella, but the delivery temperature must be below the level required to prevent scalding, both as stipulated by the registration authority. Where requirements contradict each other thermostatic mixer taps must be used. Allow for hot and cold-water supplies to Kitchen / Bathrooms. N.B Kitchen layout to be designed by specialist in conjunction with client. Install systems so that they comply with BS EN 806-2:2005 and water supply byelaws and are free from leaks and water hammer.

### 9.01 WET UNDERFLOOR HEATING SYSTEM

Underfloor heating installation to be designed and specified as an integrated package by the system manufacturer to ensure compatibility of all the components. Pipework loops design, layout and sizing of the system to be in accordance with BS EN 1264[1-5]. The most appropriate layout for a particular application should be confirmed by the system manufacturer. Maximum floor temperature to be 29°C, or 27°C where floor tiling or resilient floor is proposed in compliance with BS EN1264-2[1].

Insulation to be applied to the floor slab, the insulation type and thickness to be confirmed by calculations, considering the specific shape and size of the floor.

The resistance value of the insulation layer to be at least 10 times the resistance value of the floor finish. Intermediate floors should have a layer of insulation to reduce downwards heat transmission with a thermal resistance of not less than  $0.75(\text{m}^2 \cdot \text{K})/\text{W}$ .

Joints between insulation boards to be properly taped to prevent seepage of screed.

Pipework to be installed directly to rigid insulation using proprietary clip rails and clips. spaced in accordance with pipe layout design.

Pipework loops leading to and from the manifolds to be kept free of any sharp bends that could restrict the free flow of water. Where  $90^\circ$  bends are required, metal formers to be used to prevent twisting and constriction.

All joints between the manifold and pipework loops are to be accommodated above the level of screed. No joints to be embedded in the screed.

Pipework loops should not extend right to the edge of the floors and under the skirting boards. Pipework fixings to be maintained to maintain the integrity of the insulation and other materials.

Manifolds to be securely fastened on a wall at a reasonable height from the floor. Manifolds to be insulated or placed inside an insulated enclosure.

Min 65mm sand/cement screed to be provided over insulation and underfloor heating pipework, 75mm to be provided if required by building control and/or manufacturer. Prior to pouring the screed, 25mm edge insulation must be installed along the perimeter of the floor.

Movement joints to be provided to the floor screed and/or tiles in the following locations:

- Across door thresholds
- Where bay sizes exceed  $40\text{m}^2$  with a maximum of 8m on any one side
- Where sub floor construction joints exist or change of span occurs e.g., beam and block floors
- Between independently controlled heating zones
- Between heated and unheated areas of screed
- Additional joints should be considered in areas of high thermal gain

Screeds to be isolated at all edges, abutments, and columns to allow for movement due to thermal loadings. Joints to be filled with a suitable flexible filler. Grout must not be used.

The manufacturers' guidance for both the floor screed and the tiling/ engineered floorboards must be followed to determine the minimum thickness of edge strip required to allow for expansion.

Primary pipework and distribution pipework which does not provide useful heat to a room to be insulated to the standards detailed in paragraph 4.26 Approved Document L.

Heat loss to be minimised by following the guidance in paragraphs 6.29 to 6.32 and table 4.4 Approved Document L.

Each room should be provided with thermostatic room controls, capable of being used to separately adapt the heating output in each room served by the heating appliance.

Dwellings with a floor area of 150m<sup>2</sup> or greater to have a minimum of two independently controlled heating circuits.

Pipework loops to be charged with water and pressure tested prior before screed is poured.

Labelling to be provided to enable effective inspection, commissioning, maintenance, and repairs of the underfloor heating installation and to identify the rooms to which individual ports of the manifold are connected.

All installed equipment in underfloor heating systems to be commissioned in accordance with BS EN 1264-4 before floor finish is applied. A completion commissioning certificate to be given to the building control body confirming that the commissioning plan has been followed and that all systems have been inspected and conform with the design requirements.

On completion of the works the owner of the dwelling shall be provided with:

Information about the fixed building services and their operating and maintenance instructions, including timing and temperature control settings. Guidance material and handover procedures should be clear and easy to understand for a non-technical audience.

Proprietary underfloor heating system fixed to underside of chipboard deck in new first floor construction designed and installed in accordance with manufacturer's specifications.

### 9.02 AIR SOURCE HEAT PUMPS (ASHPS)

External pipework between the dwelling and the ground heat exchanger should be insulated following the TIMSA guidance.

Pipe sizes should be in accordance to manufacturer's recommendations.

The load-bearing capacity of surface to take the heat pump, hot water cylinder and thermal store (where fitted) equipment to be assessed and access for maintenance should be provided.

Increase the rating of the mains electrical power supply if required to accommodate the electrical current drawn by the heat pump.

Fix permanent labels and flow arrows to pipework, valves, etc.

Where the heat pump is to be backed up by another heat source, the control of that source must be interlocked to ensure that it can never operate as the priority or 'lead' device.

Ensure that the system is commissioned properly and tested for correct operation by a member of the Microgeneration Certification Scheme.

All electrical work to be undertaken by a Part P registered Electrician i.e. NAPIT, ELECSA and NICEIC.

Installation to be BS EN 14511: Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling (4 parts), BSI 20.

Provide operating instructions and maintenance recommendations for the homeowner.

Health and safety Care should be taken to address all issues, including: the risk of Legionnaires' disease.

### 9.03 WATER EFFICIENCY

The estimated water consumption not to exceed 125l per-person per day. Water efficiency to be calculated using the 'water efficiency calculator for new dwellings' or from the list of fitting from the 'table of fittings' in ADG to comply with part G. The results submitted to building control before works commence on site.

**9.04 COLD WATER SUPPLY**

There must be a suitable installation for the provision of a wholesome water supply in accordance with approved document g.

Cold water supply to be provided to washbasins, bidets, baths, WC's, showers, any place when drinking water is drawn off and to any sink provided in areas where food is prepared. Supply of cold water to comply with section 67 of the water industry act 1991 and the water supply regulations 2000.

**9.05 HOT WATER SUPPLY**

All bathrooms, washbasins, bidet, baths and showers to be provided with adequate hot and cold water supply in accordance with approved document G3. Washbasin with hot and cold water supply to be provided in or adjacent to all rooms containing a WC. a sink with hot and cold water also to be provided to any area where food is being prepared.

**9.06 CONTROL OF WATER TEMPERATURE**

The installation of the hot water supply to comply with approved document G3. All baths and showers are to be fitted with an inline thermostatic mixing valve to ensure that the temperature of the water delivered to the bath is limited to 48°C.

**9.07 HOT WATER STORAGE SYSTEMS - REQUIREMENT TO BE CONFIRMED BY SPECIALIST INSTALLER**

Hot water storage systems should be designed and installed in accordance with BS 12897 2006.

Hot water vessels, cisterns etc and must be adequately supported. Any hot water storage system including any cistern or other vessel shall incorporate precautions to ensure suitable pressure relief and that any discharge from any safety devices is safely conveyed to where it is visible but will not cause harm to persons in or about the building.

Precautions to be in place to prevent stored water stored exceeding 100°C. Hot water vessels to be fitted with a non-self-resetting energy cut out to instantly disconnect the power supply.

Outlets from domestic hot water storage vessels to be fitted with an in-line valve to prevent water temperatures exceeding 60°C. All pipes carrying hot water to be insulated where they pass through unheated spaces. Hot water storage system to be provided with suitable warning labels.

Relevant certificates for the heating system i.e., benchmark certificate, and commissioning certificates for fixed building services are to be given to the building owner and a copy provided to building control on completion.

### 9.08 SYSTEM CONTROLS AND ZONING

Domestic hot water circuits to have:

- Time control that is independent of space heating circuits.
- Electronic temperature control.
- Each room or agreed zone should be provided with thermostatic room controls.

### 9.09 LIMITING HEAT LOSSES AND GAINS

In accordance with table 4.4 approved document L Insulation to be provided to:

- Primary circulation pipes for domestic hot water.
- Primary circulation pipes for heating circuits where they pass outside the heated living space and voids to be insulated.
- Pipes connected to hot water storage vessels for at least 1m from the point at which they connect to the vessel.
- Secondary circulation pipework.

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## 10.00 DRAINAGE

**To be read in conjunction with Drainage design and calculations**

Foul drainage connected to new sewage treatment plant to be designed, specified, and installed by specialist. All drainage, foul & storm, to be designed by specialist in accordance with part H of the building regulations. Full details to be submitted to building control prior to work commencing on site and integrated with architectural and structural package.

### 10.01 RAINWATER DRAINAGE

Rainwater goods to be uPVC 110mm half round gutters taken and connected into 68mm dia downpipes.

Rainwater taken to new soakaway, situated a min distance of 5.0m away from any building, via 110mm dia UPVC pipes surrounded in 150mm granular fill.

### 10.02 SOAKAWAY USING CRATES

To be designed by specialist. Trench of soakaway to be provided slightly larger than designed depth after porosity test (if required) but just over 1m<sup>3</sup>/ min from invert level of pipe. Provide suitable geotextile over the base and up the sides of the trench over 100mm level and compact bed of coarse sand. Install aqua cell crate units or equivalent as manufacturer's details. Geotextile to be wrapped around crates. Provide 100mm of coarse sand between the trench walls and over the Aquacell structure. Backfill with suitable material.

### 10.03 UNDERGROUND FOUL DRAINAGE

Underground drainage to consist of 100mm diameter UPVC proprietary pipe work to give a 1:40 fall. surround pipes in 100mm pea shingle. Provide 600mm suitable cover (900mm under drives). Shallow pipes to be covered with 100mm reinforced concrete slab over compressible material. Provide rodding access at all changes of direction and junctions. All below ground drainage to comply with BS EN 1401-1.

### 10.04 INSPECTION CHAMBERS

Underground quality proprietary UPVC 450mm diameter inspection chambers to be provided at all changes of level, direction, connections and every 45m in straight runs. Inspection chambers to have bolt down double sealed covers in buildings and be adequate for vehicle loads in driveways.

### 10.05 ABOVE GROUND DRAINAGE

All new above ground drainage and plumbing to comply with BSEN12056-2 for sanitary pipework.

All drainage to be in accordance with part h of the building regulations. wastes to have 75mm deep anti vac bottle traps and rodding eyes to be provided at changes of direction.

Size of wastes pipes and max length of branch connections (if max length is exceeded then anti vacuum traps to be used)

- wash basin - 1.7m for 32mm pipe 3m for 40mm pipe
- bath/shower - 3m for 40mm pipe 4m for 50mm pipe
- w/c - 6m for 100mm pipe for single WC
- all branch pipes to connect to 110mm soil and vent pipe terminating min 900mm above any openings within 3m.

Or

- to 110mm UPVC soil pipe with accessible internal air admittance valve complying with BSEN 12380, placed at a height so that the outlet is above the trap of the highest fitting.
- Waste pipes not to connect within 200mm of the WC connection. supply hot and cold water to all fittings as appropriate.

#### **10.06 SOIL AND VENT PIPE**

SVP to be extended up in 110mm dia UPVC and to terminate min 900mm above any openings within 3m. Provide a long radius bend at foot of SVP. Internal soil vent pipes to be wrapped in 25mm unfaced mineral fibre and enclosed in minimum two layers of 12.5mm plasterboard (15g/m<sup>2</sup> mass per unit area) to provide adequate sound proofing. Soil and vent passing through floors to be enclosed in ducts comprising of timber framing faced with fire line plasterboard to achieve half hour fire resistance. All ducts to be fire stopped at floor levels using mineral wool quilt packing.

#### **10.07 AUTOMATIC AIR VALVE**

Ground floor fittings to be connected to new 110mm UPVC soil pipe with accessible internal air admittance valve complying with BS EN 12380, placed at a height so that the outlet is above the trap of the highest fitting and connected to underground quality drainage encased with pea gravel to a depth of 150mm.

#### **10.08 EXTERNAL SURFACE WATER DRAINAGE**

Drainage of paving areas to be carried out in accordance with BS EN 12056-3:2000 and Approved Document H.

Hard surfaces around the building should be provided with a proprietary nonslip permeable surface laid to manufacturer's details and in compliance with BS EN 1338:2003, to allow adequate drainage.

or be provided with a non-slip surface and cross fall of 1:40 – 1:60 draining away from the building (for a minimum of 500mm) to a suitable soakaway.

Paths, driveways and other narrow areas of paving should be free draining away from any buildings to a pervious area such as grasslands or to a suitable soakaway.

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## 11.00 VENTILATION

Ventilation provision to be in accordance with the domestic ventilation compliance guide.

### 11.01 PURGE VENTILATION

Minimum total area of opening in accordance with Table 1.4 Approved Document F1.

Hinged or pivot windows with an opening angle of 15 to 30 degrees to have an openable area in excess 1/10 of the floor area of the room.

External doors and sash hinged or pivot windows with an opening angle of equal to or greater than 30 degrees to have an openable area in excess of 1/20 of the floor area of the room.

Purge ventilation should be capable of extracting at least 4 air changes per hour per room directly to the outside.

Internal doors should be provided with a 10mm gap below the door to aid air circulation.

### 11.02 BACKGROUND VENTILATION

Controllable background ventilation at least 1700mm above floor level to be provided to habitable rooms and kitchens at a rate of min 8,000mm<sup>2</sup>, and to bathrooms at a rate of min 4000mm<sup>2</sup>.

Total number of ventilators installed in a dwellings habitable rooms to be at least 4 ventilators for one bedroom dwellings and 5 ventilators for dwellings with more than one bedroom.

Background ventilators to be tested to BS EN 13141-1.

Background ventilator equivalent area and operation to be measured and recorded.

Noise attenuating background ventilators should be fitted to facades with sustained loud noise.

### 11.03 EXTRACT FOR SHOWER ROOM

Provide mechanical extract ventilation to shower room ducted to external air capable of extracting at a rate of not less than 15 l/s. Vent to be connected to light switch. Vent to have a 15min overrun if no window in room. Internal doors should be provided with a 10mm gap below the door to aid air circulation. Intermittent extract fans to BS EN 13141-4. All fixed mechanical ventilation systems, where they can be tested and adjusted, shall be commissioned and a commissioning notice given to the Building Control Body.

### 11.04 EXTRACT TO BATHROOM

Bathroom to have mechanical vent ducted to external air to provide min 15 l/s extraction. Vent to be connected to light switch and to have 15 minute over run if no window in room. Internal

doors should be provided with a 10mm gap below the door to aid air circulation. Intermittent extract fans to BS EN 13141-4. All fixed mechanical ventilation systems, where they can be tested and adjusted, shall be commissioned and a commissioning notice given to the Building Control Body.

#### **11.05 EXTRACT TO WC**

WC to have mechanical ventilation ducted to external air with an extract rating of 6l/s operated via the light switch. Vent to have a 15min overrun if no window in room. Internal doors should be provided with a 10mm gap below the door to aid air circulation. Intermittent extract fans to BS EN 13141-4. All fixed mechanical ventilation systems, where they can be tested and adjusted, shall be commissioned and a commissioning notice given to the Building Control Body.

#### **11.06 EXTRACT TO UTILITY ROOM**

To utility room provide mechanical ventilation ducted to external air capable of extracting at a rate of 30 l/s. Internal doors should be provided with a 10mm gap below the door to aid air circulation. Intermittent extract fans to BS EN 13141-4. All fixed mechanical ventilation systems, where they can be tested and adjusted, shall be commissioned and a commissioning notice given to the Building Control Body.

#### **11.07 EXTRACT TO KITCHEN**

Kitchen to have mechanical ventilation with an extract rating of 60 l/s or 30 l/s if adjacent to hob to external air, sealed to prevent entry of moisture. Internal doors should be provided with a 10mm gap below the door to aid air circulation. Intermittent extract fans to BS EN 13141-4. Cooker hoods to BS EN 13141-3. All fixed mechanical ventilation systems, where they can be tested and adjusted, shall be commissioned and a commissioning notice given to the Building Control Body.

Height of Cooker hood to be as manufacturer's specification or between 650mm and 750mm.

**12.0 MEANS OF ESCAPE - Fire doors**

Form a protected escape stairway by providing half hour fire resistance to all partitions, floors and ceilings. Stairway to be protected at all levels and to lead directly to an external door at ground level (no inner rooms allowed). All doors on to the stairway must be FD20 rated fire doors to BS 476 (fitted with intumescent strips rebated around sides & top of door or frame if required by Building Control). Where applicable, any glazing in fire doors to be half hour fire resisting and glazing in the walls forming the escape route enclosure to have 30 minutes fire resistance to at least 1.1m above the floor level or stair pitch line.

**12.01 SMOKE DETECTION**

Provide a linked smoke alarm detection system to BS EN 14604 and BS 5839-6:2019 to at least a Grade D2 category LD2 standard. System to be mains powered with battery backup. Smoke detectors to be provided to:

- Each hallway and landing
- Every principal living room (as required by Building Control)

An interlinked heat detector to be provided in the kitchen.

In hallways exceeding 7.5m in length, no point within the hallway should exceed 7.5m from the nearest detector and no bedroom door should be further than 3m from the nearest smoke alarm. If ceiling mounted detectors to be 300mm from the walls and light fittings.

### **13.0 PART M ACCESSIBILITY**

#### **13.01 LEVEL APPROACH**

Provide a level approach to the principal entrance door no steeper than 1:20 and at least 900mm wide, with cross falls no greater than 1:40. Approach surface material to be firm, non-slip and capable of supporting the weight of a wheelchair and its user (loose material such as gravel and shingle would not be suitable).

#### **13.02 ACCESSIBLE LEVEL DOOR THRESHOLDS INTO THE BUILDING**

Entrance door to have an accessible level threshold provided with a weather bar (maximum height 15mm) with suitable drainage channel. Landings to have a fall of 1:40-1:60 away from the door. Principal entrance door to have a minimum 775mm clear opening between the door leaf and doorstops.

#### **13.03 INTERNAL CORRIDORS AND DOOR WIDTHS**

Doorway clear opening width and corridor clear passageway width to comply with the following:

750mm or wider doorway – corridor to be 900mm (when approached head on)

750mm doorway – corridor to be 1200mm (when approach is not head on)

775mm doorway – corridor to be 1050mm (when approach is not head on)

800mm doorway – corridor to be 900mm (when approach is not head on)

Door and corridor width to comply with Diagram 1.2 and to be measured in accordance with diagram 1.1, Approved Document M.

Any localised obstruction must not occur opposite or close to a doorway and should not be longer than 2m in length. The corridor must not be reduced below a minimum 750mm width at any point.

#### **13.04 ACCESSIBLE SWITCHES, SOCKETS, CONTROLS ETC**

All electric sockets outlets, controls and switches etc to be positioned between 450mm and 1200mm above floor level.

Accessible consumer units should be fitted with a child proof cover or installed in a lockable cupboard.

**13.05 ACCESSIBLE SWITCHES, SOCKETS, CONTROLS ETC**

All electric sockets outlets, controls and switches etc to be positioned between 450mm and 1200mm above floor level.

Accessible consumer units should be fitted with a child proof cover or installed in a lockable cupboard.

**13.06 PROVISION OF A GROUND FLOOR WC**

Wheelchair accessible WC to be provided on the principal entrance storey. A minimum 500mm clear space to be provided either side of the centre of the WC pan and 750mm minimum clear space in front of the pan to allow sufficient space for wheelchair approach and turning. The washbasin and door is to be positioned so as not to impede access or manoeuvrability. Door into WC to be outward opening.

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**14.00 APPROVED DOCUMENT R**

Developers to install at least one functioning gigabit-capable connection from a network distribution point to a network termination point at each new dwelling.

The Developer to provide gigabit-ready infrastructure necessary for gigabit-capable connections up to a network distribution point, or as close as is reasonably practicable where the developer does not have the right to access land up to that distribution point; and

Subject to a £2,000 cost cap per dwelling, a functioning gigabit-capable connection. Where the developer is unable to secure a gigabit-capable connection within the cost cap, the developer to install the next fastest connection available, provided this can be done without that connection also exceeding the cost cap.

Where the developer has no right to install the infrastructure in or on intervening land and no gigabit-capable connection is being provided, the developer is still required to install infrastructure to one of the following points in order of priority

1. As close as reasonably practicable to a location at which it is likely that a distribution point is to be installed with a 2 year period.
2. Where there is no existing network distribution point to which infrastructure can be built and where there is no likely future location for a distribution point, an access point in or on the building.

A connectivity plan to be submitted to building control as part of the building regulations application.

**15.00 PART Q - SECURITY**

Confirmation required that all doors and windows are to be installed in accordance with the advice stated in PAS24:2022 or alternatively comply with the requirements set out in Approved Document Q – Appendix B,

Doors to be manufactured to a design that has been shown by test to meet the requirements of British Standard publication PAS24:2022 or designed and manufactured in accordance with Appendix B or Approved Document Q

For example:

Doors to be fitted with a viewer, door chain and mechanically fixed as the manufacturer's installation guide.

The door set should be manufactured from solid or laminated timber with a minimum density of 600kg/m<sup>3</sup>.

Any panel in the door must be a min 15mm thick and suitably secured in place.

The smaller dimension of the panel must be no larger than 230mm in either width or height.

Main front doors should be fitted with multipoint locking system.

Windows:

Any part of a window or doorway, which is within 2m vertically of an accessible level surface such as the ground or basement level, or an access balcony, or windows within 2m vertically of a flat or sloping roof (with a pitch of less than 30 degrees) that is within 3.5m of ground level should be secure windows in accordance with paragraphs 2.2 and 2.3 of Approved Document Q.

Windows to be made to a design that has been shown by test to meet the security requirements of British Standards publication PAS 24:2022.

Frames to be mechanically fixed to the structure of the building in accordance with manufacturer's installation instructions.

#### **16.00 SOLID WASTE STORAGE (REFUSE)**

Bin storage to be in accordance with BS 5906:2005 Code of Practice for waste management in buildings to ensure that there is suitable spaces/enclosures for bins.

Adequate provision shall be made for the collection of waste as required by the Waste Collection Authority.

The new dwelling is to be provided with an area of 1.2m x1.2m for refuse storage containers. Separate containers are to be provided for recycling and non recycling household waste. Waste collections that are less than weekly may require increased capacity as agreed with the Waste Collection Authority. If a communal solid waste storage facility is used, storage to have a combined capacity of 0.25m<sup>3</sup> per dwelling or as agreed with the Waste Collection Authority.

Refuse storage areas to be sited within 25m of the waste collection point or as specified by the Waste Collection Authority, and placed so that the householder does not need to carry refuse more than 30m. Refuse storage areas are to be positioned away from any windows and ventilators and are not to impede access into the dwelling.

## 17.00 TRADITIONAL BALUSTRADES

Balustrades to balcony to be min 1100mm in height and capable of resisting at least the horizontal force given in BS 6180. No openings in any balustrading should allow the passage of a 100mm sphere and children should not readily be able to climb the guarding.

## 18.00 OVERHEATING MITIGATION

Adequate means of removing excess heat and limiting solar gains to be provided.

Compliance to be demonstrated by using either:

- The simplified method for limiting solar gains and providing a means of removing excess heat as set out in Section 1 of Approved Document O. Compliance check list (AD O Appendix B) to be provided to demonstrate compliance, or
- The dynamic thermal modelling method as set out in Section 2 of Approved Document O, using the guidance set out in - CIBSE TM59 methodology for predicting overheating risk.

Report to be provided that demonstrates that the building passes CIBSE's TM59 assessment of overheating. Consideration given to provision of adequate daylight as detailed in BS 8206 -2 Code of Maintaining Adequate Level of Daylight, noise pollution and security.

Solar gains in summer to be limited by fixed shading devices, which may be any of the following:

- i. Shutters.
- ii. External blinds.
- iii. Overhangs.
- iv. Awnings.

### 18.01 REMOVING EXCESS HEAT

Building with cross ventilation - moderate risk location.

Building or parts of the building with cross ventilation to be provided with:

Total minimum free area to be the greater of the following –

- a. 9% of the floor area.
- b. 55% of the glazing area.

Bedroom minimum free area to be 4% of the floor area of the room.

The equivalent area of the opening to be assessed by either of the following means:

- a. Measurement of the product to BS EN 13141-1.
- b. Calculation using Appendix D Approved Document L.

#### **18.02 DYNAMIC THERMAL MODELLING**

The following guidance to be followed to demonstrate compliance:

- a. CIBSE TM59 methodology for predicting overheating risk.
- b. The limits on the use of CIBSE TM59 methodology.
- c. The acceptable strategies for reducing overheating risk.

Building control to be provided with a report that demonstrates that the building passes CIBSE TM59 assessment of overheating.

#### **18.03 PROTECTION FROM FALLING AND ENTRAPMENT**

Window handles on windows that open outwards are not to be more than 650mm from the inside face of the wall when the window is at its maximum openable angle.

Any guarding to be sized to prevent the passage of a 100mm sphere, to be 1.1m high from floor level, to be not easily climbable and to be capable of resisting at least the horizontal force given in BS 6180:2011.

Any louvered shutters, window railing and ventilation grilles to comply with the following:

- Not allow the passage of a 100mm diameter sphere.
- All holes which allow the passage of an 8mm diameter rod should also allow the passage of a 25mm diameter rod, such holes should not taper in a way that allows finger entrapment.
- All looped cords must be fitted with child safety devices.

#### **18.04 PROVIDING INFORMATION**

The owner of the building to be given information to allow them to use the overheating mitigation strategy.

Sufficient information about the overheating mitigation strategy and its maintenance requirement to be given to the owner, information to include:

- Overall overheating mitigation strategy
- Location of each element of the strategy
- Instructions for the operation of each element of the strategy
- The time of day the different parts of the strategy should be used
- The time of year the strategy should be used
- Manufacturer's contact details
- The location of controls and instruction for setting of controls
- The location of sensors and how to recalibrate them
- Cleaning and maintenance instructions
- Home User Guide to include a section on 'Staying cool in hot weather'

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