Preparation, protection, access, demolition & ground investigation:

Provide all necessary health and safety requirements including; site security, scaffolding, access ladders, material hoists, temporary protection and working platforms etc. which are to be erected, maintained, certificated, dismantled and removed by suitably qualified and insured specialists.

All plumbing, drainage, heating, electrical services etc. to be carried out by suitably qualified & experience specialists or registered competent persons, tested & appropriate certification issued where required in this specification.

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.

Prior to and during works, the person carrying out the works is to liaise with and meet the requirements of the relevant Service Authorities, including the location and protection of all services as necessary.

External paths, drives, patios, walls, fences & gardens etc. to be taken up and relayed/extended as necessary to accommodate the new works as described.

All structural timber is to be grade C24, stress graded to BS 4978:2007+A1:2011 and sawn to BS EN 1313-1:2010. All timber is to be protected on site to minimize moisture content which must not exceed 22%.

FOUNDATIONS

Foundations to be as indicated on the drawings, with the following minimum requirements:

Strip foundations

Provide 225mm x 600mm concrete foundation, concrete mix to conform to BS EN 206-2013 and BS 8500-2:2015+A1:2016. 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 2004 Building Regulations A1/2 and BS 8004:2015 Code of Practice for Foundations. Stepped foundations should overlap by twice the height of the step, by the thickness of the foundations, or 300mm, whichever is the greater. The height of the step should not be greater than the thickness of the foundation. Ensure foundations are constructed below invert level of any adjacent drains. Base of foundations supporting internal walls to be min 600mm below ground level. Sulphate resistant cement to be used if required. 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

Suspended timber ground floor:

Remove top soil & vegetation, apply total weed killer & 150mm min thick sand blinded hardcore, lay 100mm min thick un-reinforced concrete oversite (concrete mix should be in accordance with BS EN 1992-1-1:2004+A1:2014, BS EN 206:2013 (mix type ST2 or GEN1), on 1200g DPM which should extend across cavity as basic Radon protection and positioned to prevent water collection.

Allow a ventilated air space at least 75mm from the top of the oversite concrete to the underside of any wall plates and at least 150mm to the underside of the suspended timber floor or insulation.

Provide subfloor ventilation using 225 x 75mm grilled air bricks and proprietary telescopic vents through two opposing external walls at 2.0m centres to vent all parts of the floor void. Ducts to be sealed using gas proof tap if they pass through the Radon barrier.

Joists to be supported off proprietary heavy duty galvanized joist hangers. Hangers to be built into new masonry walls or fixed to treated timber wall plate (same size as joists), resin bolted to existing walls at 600mm centres using 16mm diam. high tensile bolts.

Where necessary, floor joists can be supported on treated wall plates & DPC onto masonry honeycombed sleeper walls onto oversite concrete.

Floor joists sizes as stated on plans. Joists to be grade C24 kiln dried floor joists fixed at 400mm centres (depth to be increased where necessary to match floor levels).

Proprietary galvanized steel strutting to be fixed at mid-span for 2.5 - 4.5m span and 2 rows at 1/3rd points for spans over 4.5m.

Floor to be insulated 150mm Kingspan Kooltherm K103, friction fixed between joists. Fix 22mm moisture resistant t & g flooring sheets to BS EN 300:2006, type II or II/III laid with long edge across the joists.

Construction to achieve a 'U' value of 0.17 W/m²k

All joints to positioned over joists, glued & nailed using 55mm X 10g annular ring shank nails.

Garage concrete floor:

Power floated 150 mm thick concrete slab (concrete mix should be in accordance with BS EN 1992-1-1:2004+A1:2014, BS EN 206:2013 (mix type ST2 or GEN1), with 1 layer A252 steel mesh positioned mid span of slab on 1200g Visqueen DPM/radon barrier on sand blinding on min. 150 well consolidated sulphate free clean hardcore. (no reclaimed demolished material is permitted).

1:80 fall on floor from back of garage to front garage door, floor to be thickened to 300mm at garage entrance.

Provide 25mm polystyrene compressible clay board to perimeter of walls. If hardcore is more than 600mm deep- slab to be reinforced further, to NHBC/LA/Engineers requirements.

100mm thick masonry step down into garage to be provided at doorways.

Horizontal Damp Proof Courses and trays (DPC's):

Horizontal DPC's and DPC trays with weep holes at 1.0m centres to be provided 150mm above ground level continuous with and sealed to the floor DPM and radon DPC tray.

Vertical damp proof courses and trays etc.:

Stepped and horizontal DPC/cavity trays are to be provided over all openings, roof abutments/projections and over existing walls with different construction or materials. Install vertical DPC or proprietary insulated cavity closers at all closings, returns, abutments to cavity work and openings etc.

EXTERNAL WALLS

External wall construction to be as indicated on the drawings, with the following minimum requirements:

Cavity walls:

Walls to consist of

- *reconstituted stone facing external skin
- *100mm tooled flush jointed brickwork external skin
- *10mm polymer render on 100mm dense concrete blockwork external skin
- 50mm clear cavity
- 75mm Kingspan Kooltherm K108 Insulation board
- 100mm Thermalite Aircrete Shield Blockwork

- 12.5mm plasterboard & 3mm skim

Ensure all gaps & all voids are sealed to prevent any air leakage.

Walls to be built with 1:1:6 cement mortar and tied with BBA approved 250mm long Ancon ST1 stainless steel wall ties or other approved double dip type tie in compliance with BS EN 1996-1-1:2005+A1:2012 & BS EN 845-1:2013, built 75mm min into each wall at maximum spacing in compliance with wall tie to manufacturer's details and typically at 600mm max horizontal, 450mm max vertical and 225mm max at reveals, verges and closings for cavities up to 125mm wide.

For cavity widths of 125mm use 250mm long ties.

Cavity width and insulation details to be constructed to achieve a 'U' value of 0.16 W/m²k.

Wall insulation to be continuous with roof insulation level and taken below floor insulation levels as manufacturer's details.

Semi Exposed Walls:

Semi exposed walls to unheated rooms such as garages etc. to be constructed and insulated as external walls or constructed of 2.8/mm² 100mm solid dense concrete blocks with 50 X 125mm deep timber studs or proprietary metal stud partition wall system with insulation friction fixed between vertical studs, finished with 12.5mm vapour checked plaster board (or 500g polythene vapour check).

Wall abutments:

Vertical junctions of new and old walls to be secured with proprietary profiled stainless steel metal crocodile type system with a continuous cavity fixed with DPC and pointed with flexible mastic as manufacturer's details.

Lintels and weep holes:

Proprietary manufactured lintels to current British Standards/Euro codes (including specialist lintels supporting stone facings) are to be provided over all structural openings.

The positions, types, sizes, end bearings etc of lintels must be in compliance with the lintel manufacturer's standard tables suitable for the proposed loadings and clear spans.

Stop end and DPC trays to be provided above all externally located lintels in compliance with lintel manufacturer's details. Weep holes at 450mm centres with at least two per opening.

Structural columns/beams etc.:

Non-proprietary beams/columns including pad stone to be fabricated and installed in compliance with details and structural calculations carried out by a suitably qualified and experienced person, which must be approved by building control before works commence on site. DPC trays to be provided above all externally located beams. Weep holes at 450mm centres with at least two per opening.

Expansion joints:

External walls should be provided with adequately spaced and sized expansion joints, in accordance with masonry manufactures details with adequate tying to each side of the joint and leaf of masonry using stainless steel wall ties (normally at each block height) and sealed externally with a proprietary flexible mastic sealant (normally expansion joints are 10-12mm wide and spaced vertically at max 12m centres in brick work and 6m centres in block work)

Strapping and restraint:

Walls to be restrained at intermediate floor, ceiling and gable walls by the provision of 30 x 5 x 1000mm lateral restraint straps or other approved in compliance with BS EN 845-1:2013, at maximum 2m centres carried across at least 3 joists or rafters, etc, with a minimum of 38mm wide x ¾ depth noggins.

Cavity Closers:

Proprietary acoustic/insulated fire stop cavity closers, or similar are to be provided to all cavity openings/closings, tops of walls and junctions with other properties.

Ensure correct metal web joists are being used (see joist type)

Lay quilt between joists ensuring no gaps remain

Ensure floating floor treatment is suitable and is installed in accordance with the manufacturer's instructions

Ensure quilt within floating floor is laid between and not under flooring battens

Install resilient flanking strips around the perimeter of the flooring board to isolate floor from walls and skirtings

Ensure resilient ceiling bars are fixed at right angles to the joists

Ensure timber floor ceiling treatment is fixed correctly

Stagger joints in ceiling layers

If in doubt, please refer to Robust Details

PITCHED ROOFS

Pitched roof coverings:

Roof covering to consist of slate or tile and associated capping, verge/eaves details fixed in accordance with manufacturer's details for pitch and exposure as detailed on the drawings.

Cladding to be fixed to a minimum 25 x 38mm treated timber batten or to manufacturer's directions and roof timbers to be overlaid with Kingspan Nilvent.17 Breathable Membrane

Roof to be formed from kiln-dried stress graded timbers sized, spacing, spans, bracing and fixings as detailed on the drawing. Alternatively, the roof may be formed from proprietary prefabricated manufactured trusses/attic trusses and bracing to BS EN 1995-1-1:2004+A2:2014 but both with a foil backed 12.5mm plasterboard and skim ceiling finish.

Roof trusses (including attic and girder trusses):

Roof to be constructed using specialist designed and manufactured trusses (or Attic trusses where forming room in the roof) @ 600 centres (max) to BS EN 1995-1-1:2004+A2:2014.

Trusses to be fixed and braced strictly in accordance with manufacturer's details and mechanically fixed to 100 x 50mm softwood treated wall plates via galvanized steel truss clips.

Reinforced concrete pad stones required to support girder trusses to details and calculations by a suitably qualified person.

The person carrying out the building work is to check and confirm the actual roof pitch to the truss manufacturer prior to placing an order.

Details of trusses to be prepared by specialist designer/manufacturer, submitted and approved by Building Control prior to commencing roof construction.

Cut roof construction:

Roof to be constructed using kiln dried –stress graded timber. Rafters, ceiling joists, purlin, hanger and binder sizes in accordance with TRADA Span Tables - suitable for the proposed clear spans and all properly fixed together using approved fixings.

Where the ceiling joists are raised above wall plate level they must be fixed within the bottom third of the rafter using 12mm diameter high tensile bolts and steel toothed connectors to connect each rafter and ceiling joist to prevent possible roof spread. Joists raised above this level are to be designed by a suitably qualified person and approved by building control before works commence.

Struts and braces to be 100 X 50mm, hips to be splayed rafter depth + 25mm (under 30 degree pitch the hips are to be designed by a suitably qualified person), lay-boards to be the splayed rafter depth + 25mm X 32mm thick, ridges to be splayed rafter depth + 25mm, all valleys beams are to be designed by a suitably qualified person, wall plates to be 100 x 50 fixed to inner skin of cavity wall using galvanized strapping as detailed below.

Hip rafters to have 100 X 75mm angle ties connected across wall plates in housed joints at corners of roof and hip irons screwed to hip rafters.

Soffits, fascias and barge boards etc. in upvc to BS EN 607:2004, fixed in compliance with manufacturer's details.

Allow for building in as work proceeds or insertion of proprietary stepped/cavity tray DPC to follow line of new roof 150mm above all roof/wall abutments as necessary using code 5 lead flashings.

Fix 12.5mm foil backed plasterboard (joints staggered) and 5mm skim coat of finishing plaster to the underside of all ceilings using galvanized plasterboard nails.

Roof restraint:

Roof and walls to be provided with lateral restraint straps across at least 3 timbers as noted in wall section at ceiling, wall plate and verge levels with 30 x 5mm x 1m galvanized metal straps or other approved to BS EN 845-1:2013 at maximum 2m centres.

Roof insulation:

Between and over ceiling joists:

Earthwool Loft Roll 44 Insulation to be built up in layers, 100mm between ceiling joists and 300mm laid over joists at right angles and must be continuous with the wall insulation.

Construction to achieve a 'U' value of 0.10 W/m²k.

Between rafters:

150mm Kooltherm K7 Insulation fitted between rafters with 62.5mm Kingspan Kooltherm K118 insulated plasterboard fixed to inside face of rafters finished with a 3mm skim coat.

Construction to achieve a 'U' value of 0.11 W/m²k

Ventilation to pitched roofs:

Roof insulation to be continuous with the wall insulation but stopped back at eaves or at junctions with rafters to allow a 50mm air gap. Cross ventilation to be provided by a proprietary eaves ventilation strip equivalent to a 25mm continuous gap at eaves level with insect grill.

Alternatively, where cross ventilation is not possible such as mono pitch, coved ceiling or room in the roof provide additional ridge/high level ventilation equivalent to a 5mm gap in the form of proprietary vent tiles spaced in accordance with manufacturer's details.

Ventilation to the roof space may be omitted, only if a proprietary BBA or similar approved breathable roof membrane, with minimum 25mm thick treated vertical counter battens and proprietary eaves carrier system is used. Breathable roof membranes and proprietary roof vents must always be installed as manufacturer's details (note: some breathable membranes may also require additional roof ventilation)

Valleys and lead work:

Lead work, flashing, soakers, valleys and gutters, etc., to be formed from Code 5 lead sheet and fully supported on treated valley boards, etc., and to have a minimum 150mm lap joints, dressed 200mm under tiles, etc., and not to be fixed in lengths exceeding 1.5m and to be fixed in accordance with the roof cladding manufacturers and the Lead Development Association recommendations.

Lofts hatches, doors and Light wells to roof spaces:

All hatches, doors and light wells in the roof space to be insulated to the same standard as the roof, draft stripped and positively fixed. All hatches to be accessible.

Smoke /heat alarms:

All floors to be provided with mains operated interconnected fire detection and fire alarm system to BS 5446-3:2015 and installed in accordance with the relevant recommendations of BS 5839-6:2019+A1:2020 to at least a Grade D Category LD3 standard. Self-contained mains operated smoke alarms (heat alarms installed in kitchens if open to stairway) with battery back up to be fixed at ceiling level in all circulation areas at each storey level, within 7.5m of all doors to habitable rooms.

Fire doors and frames:

Walls between garage and the house to be built up off foundations in masonry to give 30 minutes' fire resistance and taken up to the ceiling/roof level and fire stopped with mineral wool. Door(s) between the house and garage to be FD30 to BS 476-22:1987 fitted with proprietary mechanical self-closers, intumescent strips and smoke seals.

Internal masonry non-load bearing partitions:

Internal non-load bearing partitions to be constructed of 100mm 2.8/mm² dense concrete blocks built off a thickened floor slab and tied/block bonded to all internal and external walls at maximum 225mm centres with either a plaster or dry lined finish as the external walls.

Internal timber studwork non-load bearing partitions:

Non-load bearing stud partitions are to be constructed of 89 x 47mm softwood with head and sole plates and intermediate noggins fixed at 600mm centres, with a minimum of 25 mm of 10Kg/m³ proprietary sound insulation quilt suspended in the stud and finished with 12.5 mm Gyproc Soundbloc plasterboard and skim both sides.

Sound insulation to walls within the dwelling:

Internal walls to be constructed with a minimum of 45×89 timber studs at 600mm centres faced with 1 layer 12.5mm acoustic rated plasterboard (11 kg/m²) each side with a minimum of 50mm of Rockwool Sound Slab infill.

SVP pipe boxing:

SVP pipe boxing to consist of soft wood framing, 2 layers of 15mm plasterboard and skim and void filled with mineral wall quilt for sound insulation and fire/smoke stopping. Boxing to be continuously carried up to roof space for soil and vent pipe and provided with air grills where an air admittance valve is used. Ensure all gaps and all voids are sealed to prevent any air leakage.

Security:

Doors:

Doors providing access into the dwelling (including doors from garages) to be IG Weatherbeater Composite Doors, or similar approved, in accordance with British Standards publication PAS 24:2016 **and to achieve U-value of 0.6 W/m²K.**

Additionally, the main entrance door is to be provided with:

- A door viewer (Unless other means to see callers exists, such as clear glass within the door or a window next to the door).
- A door chain.
- A multipoint locking system or if not practical, a mortice lock that confirms with one of the following standards:
  BS 3261 (key locking both sides). or
  BS8621 (non-key on the internal face), or
  BS10621 (non-key locking on the internal door face, but with an external locking override facility)
- Hinges, if accessible from the outside should incorporate hinge bolts.
- Letter plates where provided, must have a maximum opening of 260 x40 mm and Incorporate a flap or other feature designed to hinder anyone attempting to remove keys with sticks and/or insert their hands
- Frames should be mechanically fixed to the structure of the building in accordance with the manufacturer's installation instructions.

Windows:

New windows to be Upvc casement double glazed with 16mm argon gap and soft coat low-E glass or similar approved. Window Energy Rating to be Band C or better **and to achieve U-value of 1.0 W/m²K,** and to be in accordance with British Standards publication PAS 24:2016.

Windows to meet the security requirements of British Standards publication PAS 24:2012

Frames should be mechanically fixed to the structure of the building in accordance with the manufacturers instructions.

All windows to be fitted with trickle vents as specified in the ventilation section of this document.

Rooflights:

Rooflights to be Triple Glazed Velux Centre Pivot Roof Windows, with Laminated inner, toughened outer pane glazing. Rain noise reduction **and to achieve U-value of 1.1 W/m²K.**

Ventilation systems:

1. Purge (natural) ventilation Background ventilation and intermittent extract fans.

2. Continuous mechanical extract

3. Continuous mechanical supply and mechanical extract with in heat recovery compliance

Purge (natural) ventilation to habitable rooms- general requirements:

Purge (natural) ventilation to be provided to all habitable rooms equal to 1/20th (5%) floor area where the external windows/doors open more than 30 degrees and increased to 1/10th (10%) of the floor area where the windows open between 15 - 30 degrees.

Purge (natural) ventilation openings to habitable rooms to be typically 1.75m above floor level and all internal doors to have a 10mm gap under the door for air supply transfer.

The area of external windows, roof windows and doors should not exceed 25% of the usable internal floor area.

Means of escape windows to be fitted with proprietary hinges to open to the minimum required clear width of 450mm. Escape windows to have minimum clear opening casement dimensions of 0.33m² and 450mm (typically 450mm wide x 750mm high), located within 800-1100mm above floor level to all bedrooms and habitable rooms at 1st floor level and inner habitable rooms on the ground floor.

Windows above the ground floor storey and within 800mm of floor level are to be provided with containment/ guarding / proprietary catches which should be removable (child proof) in the event of a fire.

Safety glazing, opening and cleaning:

Safety glass and glazing

Doors and adjacent sidelights/windows in critical locations within 1500mm of ground and floor level, and 300mm of doors and windows within 800mm of floor/ground to be safety glazed to BS EN 12150 (relevant parts), BS EN 14179 (relevant parts), BS EN 14449:2005

Safety glazing must comply with the new system of marking which requires visible and clear and indelible markings on each piece of safety glazing within critical locations in compliance with BS EN 12150 (relevant parts), BS EN 14179 (relevant parts), BS EN 14449:2005

ELECTRICAL INSTALLATIONS:

New electrical circuits or systems must be designed, installed, tested and certified to BS 7671:2008+A3:2015 or with the current editions of the IEE regulations by a competent person in compliance with Approved Document P of the Building Regulations.

A competent electrician or a member of a competent person scheme must test and certify all such works. The electrician must provide signed copies of an electrical installation certificate conforming to BS 7671:2008+A3:2015 for the owner of the property and a copy must be forwarded to the Building Control surveyor for approval at completion, so the Building Control completion certificate can be issued.

All switches and sockets including the consumer unit, ventilation and service controls etc. should be fixed between 450-1200mm above floor level. Accessible consumer units should be fitted with a child proof cover or installed in a lockable cupboard.

Accessible switches, sockets, controls etc.

All switches and sockets including the consumer unit, ventilation and service controls, door bells, entry phones, telephone points and tv/computer sockets etc. to be fixed between 450-1200mm above floor level. Accessible consumer units should be fitted with a child proof cover or installed in a lockable cupboard.

MATERIALS AND WORKMANSHIP

All materials must comply with the following:

1. British Standards or European Standards
2. Product Certification Schemes (Kite marks)
3. Quality Assurance Schemes
4. British Board of Agreement Certificates (BBA)
5. Construction Product Directives (CE Marks)
6. Local Authority National Type Approvals (System Approval Certification)

All materials must be fixed in strict accordance with manufacturers printed details and workmanship must be in strict accordance with BS 8000-0:2014. Where materials, products and workmanship are not fully specified or described, they are to be: Suitable for the purpose stated or inferred and In accordance with recognized good practice.