

Specification  
Address removed to protect client confidentiality  
May 2014

## SPECIFICATION AS APPLICABLE

This specification to be read in conjunction with the architectural drawings and any structural calculations.

Any and all notes on the drawings are specific to the particular build and are to supersede this specification.

Do not scale from the drawings. Scale for planning purposes only. The contractor is responsible for checking all dimensions on site prior to commencement of the works with any errors being reported as soon as possible.

The contractor shall be entirely responsible for the security, strength and stability of the building during the course of the works.

All building work to be carried out to the satisfaction of the local authority building control officer and in accordance with the current building regulations and as such additional unforeseen building works may be required on site.

The exact location, type, condition and invert level of all existing drainage to be ascertained on site, with any defects being reported.

The contractor shall inspect all adjoining properties which may be affected by the works prior to commencement of works and record and report to the owner any defects.

The drawing, parts of the drawing, drawing notes, design and this specification are protected under copyright, and shall not be reproduced in whole or part without the prior consent of KCR Design.

Finished room dimensions may vary from those stated on the drawings.

Items in this specification, the drawing notes, and parts of the drawings, may not form part of the contract to be carried out by KCR Design.

### Party Wall act

The owner, should they need to do so under the requirements of the Party Wall Act 1996, has a duty to serve a Party Structure Notice on any adjoining owner if the building work involves works on or to an existing Party Wall including:

- Support of beam
- Insertion of DPC through wall
- Raising a wall or cutting off projections
- Demolition and rebuilding
- Underpinning
- Insertion of lead flashings
- Excavations within 3 meters of an existing structure where the new foundations will go deeper than adjoining foundations, or within 6 meters of an existing structure where the new foundations are within a 45 degree line of the adjoining foundations.

A Party wall agreement is to be in place prior to start of works on site.

### CDM Regulations

The owner, should they need to do so, must abide by the Construction Design and Management regulations 1994 which relate to any building works involving more than 500 man hours or longer than 30 days duration. It is the client's responsibility to appoint a Planning Supervisor on all projects that require compliance with the CDM regulations.

## AS APPLICABLE

1. Site preparation
2. Foundations and drainage
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7. Internal walls
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11. Ventilation
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## 1. 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, vapours etc on or in the ground covered, or to be covered by the building.

## 2. FOUNDATIONS AND DRAINAGE

### TRENCH FOUNDATION

750mm x 600mm trench fill foundations grade of ST2. All foundations to be a minimum of 1000mm below ground level, exact depth to agreed on site with Building Control Officer to suit site conditions. All constructed in accordance with 2004 Building Regulations A1/2 and BS 8004:1986 Code of Practice for Foundations. 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. Please note that should any adverse soil conditions or difference in soil type be found or any major tree roots in excavations, the Building Control Officer is to be contacted. Exact depth of foundation is dependent on site sub soil conditions. Stepped foundations should overlap by twice the height of the step, or 1m whichever is the greater. The height of the step should not be greater than the thickness of the foundation.

### 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.

### PIPEWORK THROUGH WALLS

Where new pipework passes through external walls form rocker joints either side wall face of max length 600mm with flexible joints with short length of pipe bedded in wall.

Alternatively provide 75mm deep pre-cast concrete plank lintels over drain to form opening in wall to give 50mm space all round pipe: mask opening both sides with rigid sheet material and compressible sealant to prevent entry of fill or vermin.

### UNDERGROUND FOUL DRAINAGE

Underground drainage to consist of 100mm diameter UPVC proprietary pipe work to give a 1:40 fall. Surround pipes in 400mm pea shingle (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 BS7158 and BS801.

### 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.

## 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.

## AUTOMATIC AIR VALVE

Ground floor fittings from wc to be connected to new 110mm UPVC soil pipe with accessible internal air admittance valve complying with prEN 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.

## RAINWATER DRAINAGE

New rainwater goods to be new 110mm UPVC half round gutters taken and connected into 68mm dia UPVC 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. Soakaway to be min of 1 cubic metre capacity (or to depth to Local Authorities approval) with suitable granular fill with geotextile surround to prevent migration of fines. If necessary carry out a porosity test to determine design and depth of soakaway.

## 3. GROUND FLOOR AND INTERMEDIATE FLOORS

### GROUND FLOOR TO EXTENSION

To meet min U value required of 0.22 W/m<sup>2</sup>K. Solid ground floor to consist of 150mm consolidated well-rammed hardcore. Blinded with 50mm sand blinding. Provide 100mm ST2 or Gen1 reinforced concrete ground bearing slab under a 1200mm gauge polythene DPM or 3 coats RIW. DPM to be lapped in with DPC in walls. Floor to be insulated over slab and DPM with min 75mm thick Celotex GA4000, 25mm Celotex insulation to continue around floor perimeters to avoid thermal bridging. A VCL should be laid over the Celotex insulation boards and turned up 100mm at room perimeters behind the skirting, all joints to be lapped 150mm and sealed. Finish with 65mm sand/cement finishing screed with light mesh reinforcement.

Where drain runs pass under new floor, provide A142 mesh 1.0m wide and min 50mm concrete cover over length of drain.

Where existing suspended timber floor air bricks are covered by new extension, ensure cross-ventilation is maintained by connecting to 100mm dia UPVC pipes with 100mm concrete cover laid under the extension. Pipes to terminate at new 65mm x 215mm air bricks with cavity tray over.

### SUSPENDED BLOCK AND BEAM FLOOR

Remove top soil & vegetation, apply weed killer –

The underside of beams not less than 150mm above the top of the ground. PCC beams to be supplied and fixed to beam manufacturer's plan, layout and details (details and calculations to be sent to Building Control and approved before works commence). Minimum bearing 100mm onto DPC course and load bearing walls. Provide concrete blocks to BS6073 pt.1, wet and grout all joints with 1:4 cement/sand mix. Provide double beams below non-load bearing partitions. Lay 1200g DPM/radon barrier, with 300mm laps double welted and taped at joints and service entry points using radon gas proof tape, over beam & block floor. Lay floor insulation over DPM, 75mm Celotex GA4000 applied as a rigid material. Place 500g separating layer over insulation and provide 75mm sand/cement screed over and prepare for floor finishes as required. The top

surface of the ground cover under the building shall be above the finished level of the adjoining ground.

Ventilation - Provide cross-ventilation of the under floor to outside air by ventilators in at least 2 opposite external walls of the building. Ventilation openings having an opening area of 1500mm<sup>2</sup> per metre run of perimeter wall or 500mm<sup>2</sup> per square metre of floor area, whichever is the greater.

#### INTERMEDIATE FLOORS

Intermediate floor to be 22mm t&g flooring grade chipboard or floorboards laid on joists at 400mm cts . Lay 100mm Rockwool mineral fibre quilt insulation min 10kg/m<sup>3</sup> or equivalent between floor joists. Ceiling to be 12.5 plasterboard with skim plaster set and finish. Joist spans over 2.5m to be strutted at mid span using 38 x 38 herringbone strutting or 38mm solid strutting (at least 2/3 of joist depth). In areas such as kitchens, utility rooms and bathrooms, flooring to be moisture resistant grade in accordance with BS7331:1990. Identification marking must be laid upper most to allow easy identification. Provide lateral restraint where joists run parallel to walls, floors are to be strapped to walls with 1000mm x 30mm x 5mm galvanised mild steel straps or other approved in compliance with BS EN 845-1 at max 2.0m centres, straps to be taken across minimum 3 no. joists. Straps to be built into walls. Provide 38mm wide x ¾ depth solid noggins between joists at strap positions.

#### UPGRADE TO HALF HOUR FIRE RESISTANCE AND PROVIDE ADEQUATE SOUND INSULATION

Lay minimum 150mm Rockwool insulating material or equivalent on chicken wire between joists and extended to eaves. Chicken wire to be fixed to the joists with nails or staples these should penetrate the joists side to a minimum depth of 20mm, in accordance with BRE-Digest 208 1988

### 4. EXTERNAL WALLS

#### EXTERNAL BRICKWORK CAVITY WALLS TO EXTENSION

To achieve minimum U Value of 0.28W/m<sup>2</sup>K

New cavity wall to comprise of 105mm facing brick to match existing. Full fill the cavity with 100mm Rockwool Cavity insulation as manufacturer's details. Inner leaf to be 100mm block K value 0.16 lightweight block (Aircrete, Celcon solar, Topblock toplite standard). Internal finish to be 12.5 mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.

#### EXTERNAL RENDER CAVITY WALLS TO EXTENSION

To achieve minimum U Value of 0.28W/m<sup>2</sup>K

20mm two coat sand/cement render to comply to BS 5262, with waterproof additive on 100mm block K value 0.16 lightweight block (Aircrete, Celcon solar, Topblock Toplite Standard). Fully fill the cavity with 90mm Rockwool Cavity insulation as manufacturer's details. Inner leaf to be 100mm block K value 0.16 lightweight block (Aircrete, Celcon solar, Topblock toplite standard). Internal finish to be 12.5 mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.

DPC

Provide horizontal strip polymer (hyload) damp proof course to both leafs minimum 150mm above external ground level. New DPC to be made continuous with existing DPC's and with floor DPM. Vertical DPC to be installed at all reveals where cavity is closed.

#### WALL TIES

All walls constructed with stainless steel vertical twist type retaining wall ties built in at 750mm ctrs horizontally, 450mm vertically and 225mm ctrs at reveals and corners in staggered rows. Wall ties to be suitable for cavity width and in accordance with BS 1243.

#### CAVITIES

Provide cavity trays over openings. All cavities to be closed at eaves and around openings using Thermabate or similar non combustible insulated cavity closers. Provide vertical DPCs around openings and abutments. All cavity trays must have 150mm upstands and suitable cavity weep holes (min 2) at max 900mm centres.

#### EXISTING TO NEW WALL

Cavities in new wall to be made continuous with existing where possible to ensure continuous weather break. If a continuous cavity cannot be achieved, where new walls abuts the existing walls provide a movement joint with vertical DPC. All tied into existing construction with suitable proprietary stainless steel profiles.

#### TIMBER FRAME WALL WITH EXTERNAL HANGING TILE

To achieve minimum U Value of 0.28W/m<sup>2</sup>K

Tiles hung vertically on 25 x 38mm preservative-treated battens to provide vented and drained cavity, battens fixed vertically to breathable membrane (having a vapour resistance of not more than 0.6 MNs/g) on 12mm thick WPD external quality plywood sheathing (or other approved). Ply fixed to treated timber frame studs constructed using: 100mm x 50mm head & sole plates and vertical studs (with noggins) at 400mm ctrs or to s/engineer's details & calculations. Insulation to be 100mm Celotex FR4000 between studs plus 12mm Celotex to the inner face with 12.5mm Knauf wallboard over. Vapour control layer fixed to internal face of insulation and finished with 3mm skim coat of finishing plaster. All junctions to have water tight construction, seal all perimeter joints with tape internally and with silicon sealant externally.

#### UPGRADEING EXISITNG 225mm SOLID EXTERNAL WALLS

To achieve min U-value 0.28W/m<sup>2</sup>K

Existing wall to be exposed and checked for its suitability. Insulate existing wall on the inside using 50mm Celotex GA4000 insulation board fixed to 25 x 50mm battens at 600mm centres to provide a nominal 25mm cavity between the masonry and insulation. Fix a vapour control layer on the warm side of the insulation. Finish 12.5 plasterboard with a plaster skim. All work in accordance with BS 8212: 1995 (Code of practice for dry lining).

#### UPGRADING EXISTING 250-270MM UNINSULATED CAVITY WALL

To achieve a U-value of 0.28W/m<sup>2</sup>K.

The existing external walls must be checked for stability and be free from defects as required by the Building Control Officer. Provide 67.5mm Celotex PL4000 insulated dry lining board manufactured to EN ISO 9001:2000 with 3mm skim plaster. Plasterboard to be fixed using dot and dab bonded to the existing construction with proprietary adhesive at 300mm centres vertically/horizontally and in accordance with manufactures instructions. Tape joints and the seal perimeter edges with mastic, to provide a vapour control layer (VCL). All work in accordance with BS 8212: 1995 (Code of practice for dry lining).

#### UPGRADING 225mm SOLID PARTY WALL (cold adjoining space)

The existing walls must be checked for stability and be free from defects as required by the Building Control Officer. Provide a scratch coat render to existing wall. Insulate wall on the warm side using 77.5mm Celotex PL4000 insulated plasterboard. Plasterboard to be fixed using dot and dab bonded to the existing construction with proprietary adhesive at 300mm centres vertically/horizontally and in accordance with manufactures instructions. Tape joints and the seal perimeter edges with mastic, to provide a vapour control layer (VCL). All work in accordance with BS 8212: 1995 (Code of practice for dry lining).

#### UPGRADING EXISTING 250-270mm UNINSULATED CAVITY PARTY WALL (cold adjoining space)

The existing party walls must be checked for stability and be free from defects as required by the Building Control Officer. Provide a scratch coat render to existing wall. Provide 67.5mm Celotex PL4000 insulated dry lining board manufactured to EN ISO 9001:2000 with 3mm skim plaster. Plasterboard to be fixed using dot and dab bonded to the existing construction with proprietary adhesive at 300mm centres vertically/horizontally and in accordance with manufactures instructions. Tape joints and the seal perimeter edges with mastic, to provide a vapour control layer (VCL). All work in accordance with BS 8212: 1995 (Code of practice for dry lining) .

## 5. ROOFS

### PITCHED ROOF INSULATION AT CEILING LEVEL

To achieve U value of 0.16 W/m<sup>2</sup>K

Timber roof structures to be fixed in accordance with BS Codes of Practice no CP3 and CP112. Roofing tiles to match existing on 25 x 38mm tanalised sw treated battens on sarking felt to BS747 supported on (see structural notes) rafters at max 400mm centres max span 3.85m. Rafters supported on 100 x 50mm sw wall plates. Insulation at ceiling level to be 150mm FR4000 Celotex between ceiling joists with a further 25mm over joists.

Construct ceiling using sw joists at 400mm centres, finished internally with 12.5mm plasterboard and min 3mm thistle multi-finish plaster. Provide polythene vapour barrier between insulation and plasterboard. Provide opening at eaves level at least equal to continuous strip 25mm wide in two opposite sides to promote cross-ventilation. Mono pitched roofs to have ridge/high level ventilation equivalent to a 5mm gap via proprietary tile vents spaced in accordance with manufacturer's details.

Restraint strapping - 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 1000 x 30 x 5mm galvanized straps or other approved to BSEN 845-1 at 2m centres, in accordance with CP111 Part 2.



## PITCHED ROOF INSULATION AT RAFTER LEVEL, COLD ROOF, VAULTED CEILING

To achieve U-value 0.18 W/m<sup>2</sup>K

Timber roof structures to be fixed in accordance with BS Codes of Practice no CP3. Roofing tiles to match existing on 25 x 38mm tanalised sw treated battens on sarking felt to BS747 or relevant BBA Certificate. Supported on 47 x 150mm grade C24 rafters at max 400mm centres max span 3.85m. Rafters supported on 100 x 50mm sw wall plates. Insulation to be 150mm Celotex GA4000 between rafters and 10mm under rafters. 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. Provide a cavity of 25mm by fixing battens between plasterboard and under rafter insulation (recommended where insulation under rafters exceeds 50mm).

Maintain a 50mm air gap above insulation to ventilate roof. Provide opening at eaves level at least equal to continuous strip 25mm wide and opening at ridge equal to continuous strip 5mm wide to promote ventilation.

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 1000 x 30 x 5mm galvanized straps or other approved to BSEN 845-1 at 2m centres, in accordance with CP111 Part 2.

## STRAPPING FOR PITCHED ROOF

Gable walls should be strapped to roofs at 2m centres. 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. All wall plates to be 100 x 50mm fixed to inner skin of cavity wall using 30mm x 5mm x 1000mm galvanized metal straps or other approved to BSEN 845-1 at maximum 2m centres.

## WARM FLAT ROOF

To achieve U value 0.18 W/m<sup>2</sup>K

Flat roof to be single ply membrane roofing providing aa fire rating for surface spread of flame with a current BBA or WIMLAS Certificate and laid to specialist specification. Single ply membrane to be fixed 22mm exterior quality plywood over 125mm Celotex TA4000. Insulation bonded to 22mm external quality plywood decking or similar approved on sw firings to minimum 1 in 80 fall on sw treated 47 x 195mm C24 flat roof joists at 400mm c/cs max span 4.55m (unless otherwise stated on drawing). Underside of joists to have 12.5mm foil backed plasterboard and skim. Provide cavity tray to existing house if new roof abuts existing house.

Provide restraint to flat roof by fixing of 30 x 5 x 1000mm ms galvanised lateral restraint straps at maximum 2000mm centres fixed to 100 x 50mm wall plates and anchored to wall.

## FLAT ROOF VENTILATION

cross-ventilation to be provided on opposing sides by a proprietary eaves ventilation strip equivalent to 25mm continuous with fly proof screen. Flat roof insulation is to be continuous with the wall insulation but stopped back to allow a continuous 50mm air gap above the insulation for ventilation.

## LEAD WORK AND FLASHINGS

All lead flashings, any valleys or soakers to be Code 5 lead and laid according to Lead Development Association. Flashings to be provided to all jambs and below window openings with welded upstands. Joints to be lapped min 150mm and lead to be dressed 200mm under tiles, etc. All work to be undertaken in accordance with the Lead Development Association recommendations.

## UPGRADE OF PITCHED ROOF

To achieve U-value 0.18 W/m<sup>2</sup>K

The existing roof condition must be checked and be free from defects as required by the Building Control Officer any defective coverings or felt to be replaced in accordance with manufacturer's details.

Insulation to be 50mm Celotex GA4000 infilled between rafters and 70mm under rafters. Provide a cavity of 25mm by fixing battens between plasterboard and under rafter insulation (recommended where insulation under rafters exceeds 50mm). Maintain a 50mm air gap above insulation to ventilate roof. Provide opening at eaves level at least equal to continuous strip 25mm wide and opening at ridge equal to continuous strip 5mm wide to promote ventilation or provide equivalent high and low level tile vents in accordance with manufactures details. 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.

## 6. WINDOWS AND DOORS

### NEW AND REPLACEMENT WINDOWS

New and replacement windows to be double glazed with 16mm argon gap and soft coat low-E glass. Window Energy Rating to be Band C or better and to achieve U-value of 1.6 W/m<sup>2</sup>K. The door and window openings should be limited to 25% of the extension floor area plus the area of any existing openings covered by the extension.

### SAFETY GLAZING

All glazing in critical locations to be toughened or laminated safety glass to BS 6206 and Part N 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.

### ESCAPE WINDOWS

Provide emergency egress windows to any newly created first floor habitable rooms and ground floor inner rooms. Windows to have an unobstructed openable area of 450mm high x 450mm wide, minimum 0.33m sq, 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.

### ROOF LIGHTS

Min U-value of 1.6 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 etc.

## NEW AND REPLACEMENT DOORS

New and replacement doors to achieve a U-Value of 1.80W/m<sup>2</sup>K. Glazed areas to be double glazed with 16mm argon gap and soft low-E glass. Glass to be toughened or laminated safety glass to BS 6206 and Part N of the current Building Regulations.

## 7. INTERNAL WALLS

### INTERNAL STUD PARTITIONS

100mm x 50mm softwood treated timbers studs at 400mm cts with 50 x 100mm 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 (eg. 100mm Rockwool or Isowool mineral fibre sound insulation) in all voids the full depth of the stud. Partitions built off doubled up joists where partitions run parallel or provide noggins where at right angles, or built off DPC on thickened concrete slab if solid ground floor. Walls faced throughout with 12.5mm plaster board with skim plaster finish. Taped and jointed complete with beads and stops.

### INTERNAL MASONRY PARTITIONS

Construct non load bearing internal masonry partitions using 100mm Celcon standard blocks off thickened floor slab and tied at 225mm centres with proprietary steel profiles or block bonded to all internal and external walls. Walls faced throughout with 12.5mm plasterboard on dabs with skim plaster finish or 13mm lightweight plaster.

### STUD ASHLAR/DWARF

To achieve minimum U Value of 0.28W/m<sup>2</sup>K

Construct stud wall using 100mm x 50mm head & sole plates and vertical studs (with noggins) at 400mm centres. Insulation to be 100mm Celotex FR4000 between studs plus 12mm Celotex to the inner face with 12.5mm Knauf wallboard over with VCL fixed to internal face of insulation and finished with 3mm skim coat of finishing plaster. All junctions to have water tight construction, seal all perimeter joints with tape internally and with silicon sealant externally. All doors in Ashlar walls to be insulated.

## 8. PLUMBING AND ELECTRICAL

### ELECTRICAL

All lighting, power and switch points are to be to clients requirements and installed to I.E.E. Code of Practice and B.S. 7671 by an N.I.C.I.E.C. approved Contractor. All electrical work is required to meet further requirements of Part P (Electrical Safety) and must be designed, installed, inspected and tested by a person competent to do so. Prior to completion the local Authority needs to be satisfied that Part P has been complied with. This will require an appropriate electrical installation certificate B.S. 7671 to be issued for the work by a person competent to do so. Run all electric cables in the first floor void above mineral wool and all cables in stud walls filled with mineral wall to be run in conduit. Where recessed light fittings are installed perforating the plasterboard, a fire resisting enclosure should be built around the light fitting to maintain an imperforate floor. The light fitting should then be of a type that is ventilated downwards through the ceiling.

## ENERGY EFFICIENT LIGHTING

Install low energy light fittings that only take lamps having a luminous efficiency greater than 45 lumens per circuit watt and a total output greater than 400 lamp lumens. Not less than three energy efficient light fittings per four of all the light fittings in the main dwelling spaces to comply with Part L of the current Building Regulations.

## ABOVE GROUND DRAINAGE

Above ground drainage to comply with BS.5572.1978. for sanitary pipework. All drainage in accordance with part H of the Building Regulations. Wastes to have 75mm deep anti vac bottle traps and rodding eyes at changes of direction. All plumbing to be to BS 5572.

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

Sinks - 3m for 40mm pipe 4m for 50mm pipe

Washing machine and dishwasher - stand pipe 50mm

Wash basin - 1.7m for 32mm pipe 4m for 40mm pipe

Bath/shower - 3m for 40mm pipe 4m for 50mm pipe

W/c - 100mm for 6m for single wc

All branch pipes to connect to 110mm soil and vent pipe. Waste pipes not to connect within 200mm of the wc connection.

Supply hot and cold water to all fittings as appropriate.

## HEATING

Extend all heating and hot water services from existing and provide new TVRs to radiators.

Heating system to be designed, installed, tested and fully certified by a GAS SAFE registered specialist. All work to be in accordance with the Local Water Authorities bye laws, Gas safety requirements and IEEE regulations.

## NEW GAS BOILER – IF APPLICABLE

Heating and hot water will be supplied via a wall mounted condensing vertical balanced flue pressurised boiler with a min SEDBUK rating of 86%. No combustible materials within 50mm of the flue. System to be fitted with thermostatic radiator valves and all necessary zone controls and boiler control interlocks. The system will be installed, commissioned and tested by a "competent person" and a certificate issued that the installation complies with the requirements of PART L.

## 9.STRUCTURAL

### EXISTING STRUCTURE

Existing structure including foundations, beams, walls and lintels carrying new and altered loads are to be exposed and checked for adequacy prior to commencement of work and as required by the Building Control Officer.

## BEAMS

Supply and install new structural elements such as new beams, roof structure, floor structure, bearings, and padstones in accordance with the Structural Engineer's calculations and details. New steel beams to be encased in 12.5mm Gyproc fireline board with staggered joints nailed to timber cradles or painted in Nullifire S or similar intumescent paint to provide 1/2 hour fire resistance.

## LINTELS

Lintel widths are to be equal to wall thickness. All lintels over 750mm sized internal door openings to be 65mm deep pre-stressed concrete plank lintels. 150mm deep lintels are to be used for 900mm sized internal door openings. Lintels to have a minimum bearing of 150mm on each end. Any existing lintels carrying additional loads are to be exposed for inspection at commencement of work on site. All pre-stressed concrete lintels to be designed and manufactured in accordance with BS 8110, with a concrete strength of 50 or 40 N/mm<sup>2</sup> and incorporating steel strands to BS 5896 to support loadings assessed to BS 5977 Part 1.

For other structural openings provide proprietary insulated steel lintels suitable for spans and loadings in compliance with Approved Document A and lintel manufacture standard tables. Stop ends, DPC trays and weep holes to be provided above all externally located lintels.

## 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).

## 10. STAIRS

### STAIRS

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. Doors which swing across a landing at the bottom of a flight should leave a clear space of at least 400mm across the full width of the flight. Min 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. Ensure a clear width between handrails of minimum 600mm. Balustrading designed to be unclimbable and should contain no space through which a 100mm sphere could pass.

### TRADITIONAL BALUSTRADES

Provide balustrades to balcony min 1100mm in height and capable of resisting at least the horizontal force given in BS6399-1:1996. No openings in any balustrading should allow the passage of a 100mm sphere and children should not readily be able to climb the guarding.

### CEILING INSULATION

Insulation above ceiling areas and behind ashlar walls, to be min 300mm fibreglass insulation to achieve a U-Value of 0.16W/m<sup>2</sup>k

## 11. VENTILATION

### BACKGROUND AND PURGE VENTILATION

Background ventilation - Controllable background ventilation via trickle vents to BS EN 13141-3 within the window frame to be provided to new habitable rooms at a rate of min 5000mm<sup>2</sup>; and to kitchens, bathrooms, WCs and utility rooms at a rate of 2500mm<sup>2</sup>

Purge ventilation - New Windows/rooflights to have openable area in excess of 1/20th of their floor area, if the window opens more than 30° or 1/10th of their floor area if the window opens less than 30°

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

Ventilation provision in accordance with the Domestic ventilation compliance guide.

### 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 litres per second. Vent to be connected to light switch and to have 15 minute over run if no window in the room. Internal doors should be provided with a 10mm gap below the door to aid air circulation. Ventilation provision in accordance with the Domestic ventilation compliance guide. 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.

### EXTRACT TO BATHROOM

Bathroom to have mechanical vent ducted to external air to provide min 15 litres / sec 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. Ventilation provision in accordance with the Domestic ventilation compliance guide. 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.

### EXTRACT TO W/C

W/C to have mechanical ventilation ducted to external air with an extract rating of 15l/s operated via the light switch, 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. Ventilation provision in accordance with the Domestic ventilation compliance guide. 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.

### EXTRACT TO UTILITY ROOM

Utility room to have mechanical ventilation ducted to external air with an extract rating of 30l/s operated via the light switch, 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. Ventilation provision in

accordance with the Domestic ventilation compliance guide. 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.

## 12. FIRE PREVENTION AND MEANS OF ESCAPE

### SMOKE DETECTION

Mains operated linked smoke alarm detection system to BS 5446 - 1:2000 and BS5839-6:2004 to at least a Grade D category LD3 standard and to be mains powered with battery back up. Smoke alarms should be sited so that there is a smoke alarm in the circulation space on all levels/ storeys and within 7.5m of the door to every habitable room. If ceiling mounted they should be 300mm from the walls and light fittings. Where the kitchen area is not separated from the stairway or circulation space by a door, there should be an interlinked heat detector in the kitchen.

### MEANS OF ESCAPE - Fire doors

Form a protected escape stairway by providing half hour fire resistance to all partitions as well as floors and ceilings above and below rooms. Stairway to be protected at all levels - from the loft room/rooms then leading 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 476-22:1987 (fitted with intumescent strips rebated around sides & top of door or frame if required by BCO). 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 and be at least 1.1m above the floor level or stair pitch line.

### MEANS OF ESCAPE - 2 exits at ground floor

The first and second storeys should be served by a protected stairway, the structure forming this enclosure must have 30 minute fire resistance including floors and ceilings above and below rooms. The doors must be FD20 rated fire doors to BS 476-22:1987 (fitted with intumescent strips rebated around sides & top of door or frame if required by BCO). The enclosure should lead to at least two alternative escape routes at ground level, which should be separated from each other by fire-resisting construction and fire doors. Where applicable, any glazing in walls or doors enclosing the protected stairs is to have 30 minutes fire resistance. (no inner rooms allowed)

### MEANS OF ESCAPE – Exit at first floor level.

An MOE window having an opening area of at least 0.33M<sup>2</sup> and with minimum width or height of at least 450mm. The bottom of such opening should be located at a height of minimum 800mm and maximum 1100mm above the floor level.

### DOOR BETWEEN HOUSE AND GARAGE

Door between garage and house to be FD30 self closing with a 100mm step down into garage, fitted with 3 steel hinges and intumescent strips. Construction between house and garage to be 30 minutes fire resisting.

### BEAMS

Supply and install new structural elements such as new beams, roof structure, floor structure, bearings, and padstones in accordance with the Structural Engineer's calculations and details. New steel beams to be encased in 12.5mm Gyproc fireline board with staggered joints nailed to timber cradles or painted in Nullifire S or similar intumescent paint to provide 1/2 hour fire resistance.

#### LINTEL SCHEDULE

| Lintel Marked on Plans | Maximum Safe Working Load In KN | Maximum Load Imposed In KN   | Maximum Clear Span | Lintel Type           |
|------------------------|---------------------------------|--|--------------------|-----------------------|
| <b>L 1</b>             | 48KN                            | Brickwork 2.1*3m2<br>Blockwork 1.5*3m2<br>Timber Floor 2.0*2m2<br>Pitched Roof 1.6*2m2<br>Roof Space 0.55*2m2<br>Total Load 40KN | 2100mm             | Catnic CH90/100       |
| <b>L2</b>              | 15KN                            | Brickwork 2.1*0.6m2<br>Blockwork 1.5*0.6m2<br>Pitched Roof 1.6*2m2<br>Roof Space 0.55*2m2<br>Total Load 13.5KN                   | 2100mm             | Catnic CG90/100       |
| <b>L3</b>              | 55KN                            | Brickwork 2.1*3m2<br>Blockwork 1.5*3m2<br>Timber Floor 2.0*2m2<br>Pitched Roof 1.6*2m2<br>Roof Space 0.55*2m2<br>Total Load 52KN | 2700mm             | Catnic CX90/100       |
| <b>L4</b>              | 7KN                             | Brickwork 2.1*1m2<br>Total Load 2.1KN  | 1200mm             | Catnic CN102          |
| <b>L5</b>              | 7KN                             | Flat Roof 1.55*2m2<br>Total Load 6.2KN   | 2100               | 2No 50 x 200mm<br>C16 |
| <b>L6</b>              | 5KN                             | Flat Roof 1.55*2m2<br>Total Load 3.8KN   | 1500               | 2No 50 x 150mm<br>C16 |