

Building Control Specification

New Dwelling

39 The Old Common

Chalford

Gloucestershire

Contents

Specialist Details	6
Foundations.....	6
Beam and Block Floor	6
Retaining Wall	6
Steel Beams.....	6
Glass Balustrading to Juliette balcony	6
SAP Calculations and Energy Performance Certificate.....	6
Water Consumption Calculation.....	6
Site preparation	7
Foundations	7
Pre-Cast beam and block floor at higher level	7
Solid Floor at Lower Level	8
DPM & Radon Protection.....	9
External Walls.....	9
Retaining Walls.....	9
Construction.....	9
Dampproofing	9
Insulation & Inner skin	9
Cavity Walls.....	10
Cavity Tray	10
Mortar.....	10
Inner Leaf.....	11
Insulation to walls	11
Outer Leaf	11
Cavity Ties	11
Internal Finish	11
Insulated Cavity Closures	11
Internal Walls.....	12
Block work Walls.....	12
Studwork Walls.....	12
Wall between loft space and kitchen.....	13
Lintels	13
First Floor Construction.....	15

Joists.....	15
Floor Boards.....	15
Strutting.....	16
Plasterboard.....	16
Insulation.....	16
Notches & Holes	17
Lateral Restraint.....	18
Steel Beams	18
Roof Construction	18
Roof over Kitchen.....	18
Roof over Bedroom / Bathroom.....	18
Roof over Entrance Lobby / Store	18
General.....	19
Tiles.....	19
Felt and Battens.....	19
Eaves and Gutters.....	19
Roof Insulation to flat ceilings.....	19
Roof Insulation to sloping ceilings	20
Wall Plate Strapping	20
Lateral Restraint.....	20
Plaster boarding.....	22
Rainwater Goods.....	22
Flashings and Cavity Trays.....	23
Windows	23
Fire Escape Windows.....	24
Rooflights.....	24
Doors	24
Internal Doors	25
Background Ventilation	25
Purge Ventilation	26
Habitable Rooms.....	26
Kitchen.....	26
Bathroom.....	26
Safety Glazing	26
Staircase.....	27

Juliette Balcony Glazing.....	29
Solid Fuel Stove.....	29
Appliance	29
Ventilation.....	29
Flue.....	30
Separation from combustible materials.....	30
Hearth Construction	30
Notice Plate	30
Carbon Monoxide Alarm	31
Test on Completion.....	31
Above ground drainage.....	31
General	31
WC	32
Washbasin	33
Bath	33
Shower	33
Traps.....	33
Soil and Vent Pipe.....	34
Below Ground Drainage.....	34
General	34
Inspection Chambers.....	35
Manholes Covers.....	35
Surface Water	35
Soakaways.....	35
Refuse Storage.....	36
Fire Alarms	36
Access to and within the dwelling	37
Entrance Door	37
Ramped Approach.....	37
Internal Doors	37
Electrical Installation	38
Generally.....	38
Energy Efficient Lighting	38
External Energy Efficient Lighting.....	39
Accessible switches and socket outlets	39

Heating and Hot Water39

- General39
- Hot & Cold Water Supply40
- Supply of Bath Hot Water41
- Low Temperature Hot Water Heating41

Services42

Sound Performance42

Pressure Testing42

Thermal Performance42

Provision of Information43

Specialist Details

- The additional details / calculations are to be supplied by specialist sub-contractors and submitted to Building Control for approval at the appropriate stages for the following:-

Foundations

- Engineers calculations / details for the foundation design.

Beam and Block Floor

- Full details / calculations for the suspended beam and block ground floor

Retaining Wall

- Engineers calculations for the retaining wall

Steel Beams

- Ridge beam over kitchen
- Beams in lounge supporting wall above
- Lintels where they will be subject loadings from beams.

Glass Balustrading to Juliette balcony

- Full details / calculations of the glass balustrading including the fixing details.

SAP Calculations and Energy Performance Certificate

- Design and As Built SAP Calculations along with an Energy Performance Certificate on completion all to demonstrate compliance with the requirements of Part L.

Water Consumption Calculation

- Water Consumption calculation to be submitted using appropriate software to demonstrate with the requirements of Part G and Regulation 17K.

Site preparation

- Remove any existing building structures such as foundations, drains, trees etc. as indicated on drawings prior to construction of the proposed development.
- Strip from oversite area all vegetation and top soil.

Foundations

- Due to the split level arrangement of the house and the depth of dig the foundations must be dug strictly in accordance with the Structural Engineers details.
- All foundation depths to be agreed on site with the Building Control Officer and may require adjustment should ground conditions dictate. A minimum of 24 hours' notice to be given to Building Control to enable them to inspect the foundation prior to any pouring of concrete.

Pre-Cast beam and block floor at higher level

- The area is to be treated with a proprietary weed killer to kill any vegetation.
- Reduce levels to ensure that upon completion there is a minimum 150mm air gap between the reduced ground level and the underside of the suspended pot and beam floor.
- Pot & Beam suspended floor by specialist supplier bedded on a DPC all in accordance with the manufacturer's instructions.
- Periscope vents to be provided giving ventilation equal to at least $1500\text{mm}^2/\text{m}$ run of external wall or $500\text{mm}^2/\text{m}^2$ of floor area, whichever gives the greater opening area.
- Ventilation openings should incorporate suitable grilles which prevent the entry of vermin to the sub-floor but do not resist the air flow unduly.

- Grout the beams and provide a slurry concrete mix across the top of the floor to provide a level base for the radon barrier.
- Provide the Building Control Officer with a copy of the manufacturers design calculations.
- Visqueen High Performance Radon Membrane extended across the cavity at dpc level
- 150mm Celotex insulation
- 500g polythene vapour barrier
- 18mm t& groove chipboard flooring (moisture resistant in kitchen)
- Provide a cavity tray above the dpc with weep vents at 450mm centres.

Solid Floor at Lower Level

- The area is to be treated with a proprietary weed killer to kill any vegetation.
- Excavate to reduce levels as necessary.
- 150mm well consolidated hard core
- Visqueen High Performance Radon Membrane extended across the cavity at dpc level
- 100mm concrete.
- 150mm Celotex insulation
- 500g polythene vapour barrier
- 18mm t& groove chipboard flooring
- Provide a cavity tray above the dpc with weep vents at 450mm centres.

DPM & Radon Protection

- Damp Proof membrane to be Visqueen High Performance Radon Membrane installed strictly in accordance with the manufacturer's instructions and taken across the cavity at dpc level.
- Provide a cavity tray above the dpc with weep vents at 450mm centres.

External Walls

Retaining Walls

Construction

- The retaining wall to be designed by a structural engineer – anticipated construction Two leaves of 100mm dense concrete Blockwork with a 150mm reinforced concrete cavity.
- Back of wall to be lined with RIW Doubledrain linked to land drain at base of wall. Land drain to connect into downpipes and there onto soakaway.
- Back fill with free draining fill to engineer's requirements.

Damproofing

- Line inner face with one layer of RIW Sheetseal 226 linked to floor membrane at base. All installed strictly in accordance with manufacturer's instructions.

Insulation & Inner skin

- Allow for a 100mm cavity construct 150mm Celcon Solar Blockwork wall with 50mm Celotex clipped back to the Blockwork in the cavity.
- Fill cavity between Celotex and Sheetseal with well compacted sand/cement fill.

- 13mm two coat plaster finish on room side.

Cavity Walls

- The external wall construction to be:-
 - (a) 100mm facing brick (125 Cotswold stone on front elevation)
 - (b) 100mm insulation (see below)
 - (c) 100 insulation block (see below)
- Below ground level use 7 N/mm² concrete blockwork.
- Fill cavities with Gen 1 (ST2) concrete up to 225mm below ground level dpc or as indicated on the sections. Clean off surplus mortar from joints on cavity faces as work proceeds. Keep cavities, ties and dpc's free from mortar and debris at all times.

Cavity Tray

- Build in cavity tray to act as DPC horizontally in cavity walls laid in continuous length on a full even bed of fresh mortar with 100mm laps at joints and full laps at angles. Provide weep vents at 450mm centres
- Immediately lay at least one full course of masonry on a thin bed of fresh mortar. Keep finished joint thickness as close to normal as practicable. Ensure continuity of dpc by lapping with damp proof membrane of ground floor. Ensure that dpc 's in external walls are a minimum of 150mm above finished ground level and stepped to suit.

Mortar

- Mortar to be designated mix to BS5268: part 3 (ii) below dpc level and (iii) above dpc level.
- Do not carry up any one leaf more than 1.5m in any one day unless permitted by engineer.

Inner Leaf

- 100mm thick inner leaf Celcon Solar insulation block.

Insulation to walls

- 100mm Earthwool Dritherm 32 Ultimate by Knauff Insulation to incorporate 200mm of rigid insulation as supplied by the manufacturer.

(Note that this is a high specification for the wall insulation but is a necessity to achieve compliance with the SAP calculation, if a lower level of insulation is provided compliance with the SAP calculation may not be achieved.)

Outer Leaf

- 100mm thick Celcon Standard block with render finish

Cavity Ties

- Stainless steel wall ties sloped slightly downwards towards outer leaf with drip centred in the cavity and pointing downwards. Do not bend ties to suit coursing. Evenly space at 600mm horizontally, staggered in alternate courses and at 450mm centres vertically. Double up wall ties at all openings placing ties within 225mm of reveals. Provide final row of wall ties maximum 150mm from wall plate level.

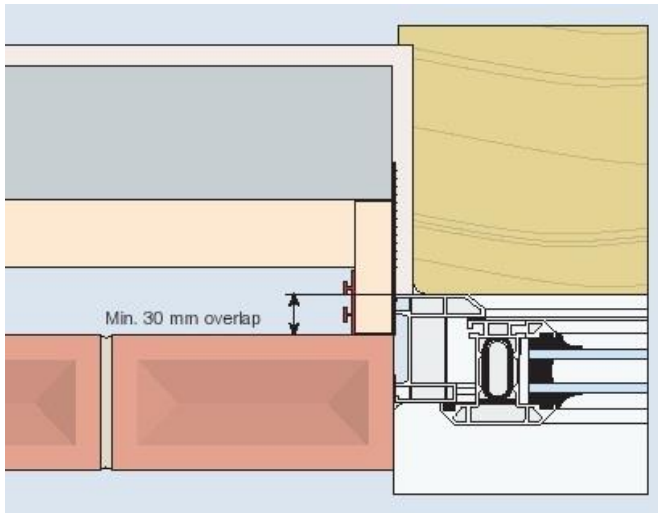
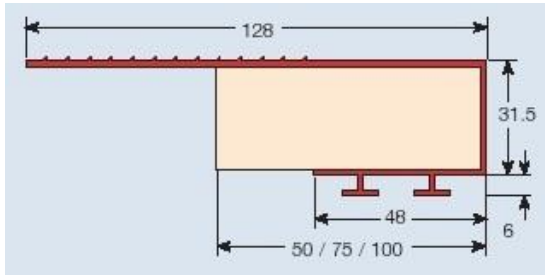
Internal Finish

- Surface internal surface with 13mm thick plaster scrim and skim or 13mm thick plasterboard on plaster dabs, scrim and skim finish.

Insulated Cavity Closures

- Provide insulated cavity closure to all doors and windows with ties built into cavity wall and fixed to door & window units. These will also act as vertical DPC.
- A suitable closure for example would be Kooltherm Cavity Closure

fixed as shown below:-



Internal Walls

- Refer to plans to see which walls will be block work and which ones will be studwork

Block work Walls

- Block work walls to be Celcon Standard blocks.

Studwork Walls

- Timber stud partitions to internal walls where indicated to be as follows:-
- Studwork to be generally 50 x 90mm SC3 at 450mm vertical and 900mm horizontal centres. Sole and head plates to be 75 x 90mm SC3.
- Both sides of internal partitions to be finished with 12.5mm thick wallboard (density 15kg/m²), scrim and skim.

- Infill studs with 90mm thick fibreglass insulation with a minimum density of 10kg/m³.

Wall between loft space and kitchen

- Block work wall to be Celcon Standard blocks.
- Dot and Dab 75mm Celotex to face of wall in loft space and tape all joints with metallic foil tape.

Lintels

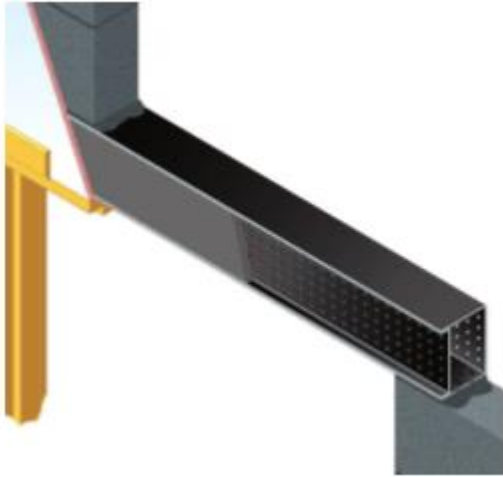
- Use Catnic or similar proprietary lintels installed strictly in accordance with manufacturer's instructions and suitable for intended spans.
- A suitable lintel for the cavity walls being:-

Catnic Cougar Open Back



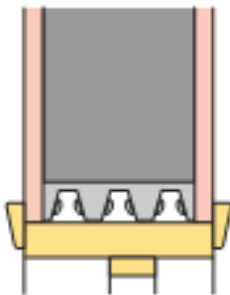
- A suitable lintel for the internal loadbearing walls being:-

Catnic CN5X



- A suitable lintel for the internal non-loadbearing walls being:-

Catnic CN102

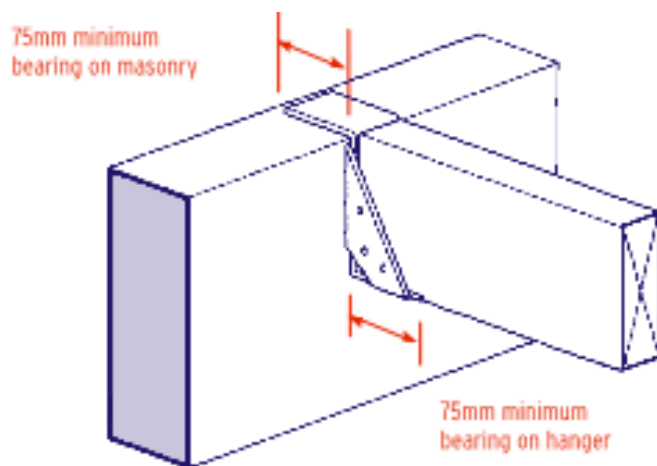


- Bed all lintols on mortar with a minimum bearing of not less than 150mm.
- Provide cavity trays/dpc over all lintels if required with stop ends and weep holes at 900mm centres with a minimum of two per cavity tray.
- Refer to engineers details and architects plans where lintols are carrying additional loadings and install beams/lintols in accordance with the engineers requirements.

First Floor Construction

Joists

- Refer to detailed drawings for size and layout of floor joists
- Joists to be supported by joists hangers at all locations unless indicated otherwise on the plans.



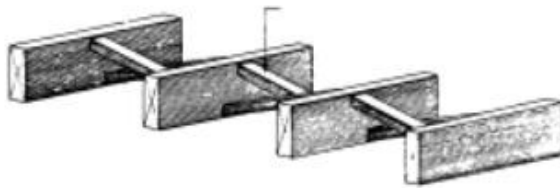
Floor Boards

- 18mm thick tongue and groove floor boarding. Ensure boarding has a density of 15kg/m^2 .
- Use moisture resistant boarding in bathrooms and shower rooms.

Strutting

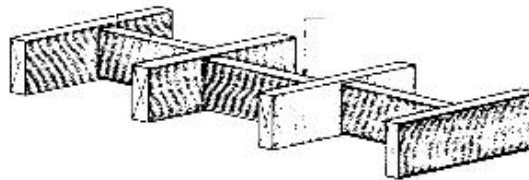
- Strutting to be provided in accordance with the following:-

Strutting should be provided before laying floor decking as follows:	
Joist span (m)	Rows of strutting
Up to 2.5	none needed
2.5 to 4.5	1 (at centre of span)
Over 4.5	2 (at equal spacing)



Herringbone strutting using
Min 38 x 38mm section timber

Solid (staggered) strutting
Using 38mm (minimum)
thickness timber



Plasterboard

- Surface underside of floor joists with one layer of 12.5mm thick Wall Board plasterboard by Gyproc with joints taped and filled to give a half hour period of fire resistance.
- Board to have a density of 15 kg/m³.

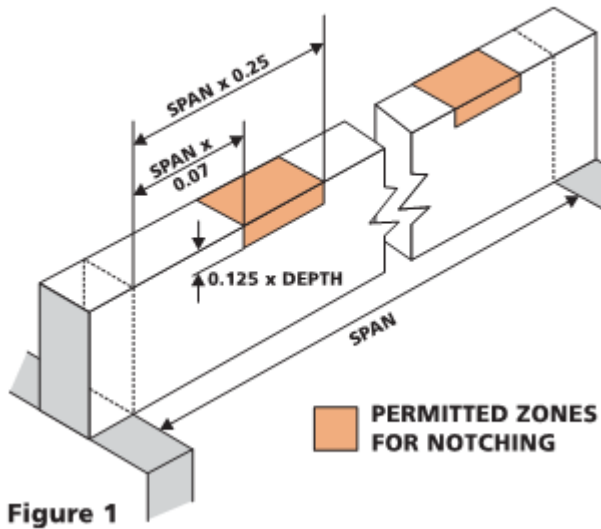
Insulation

- Infill floor joists with 100mm thick fibreglass insulation as required for sound reduction.
- Ensure fibreglass insulation has a minimum density of 10 kg/m³.

Notches & Holes

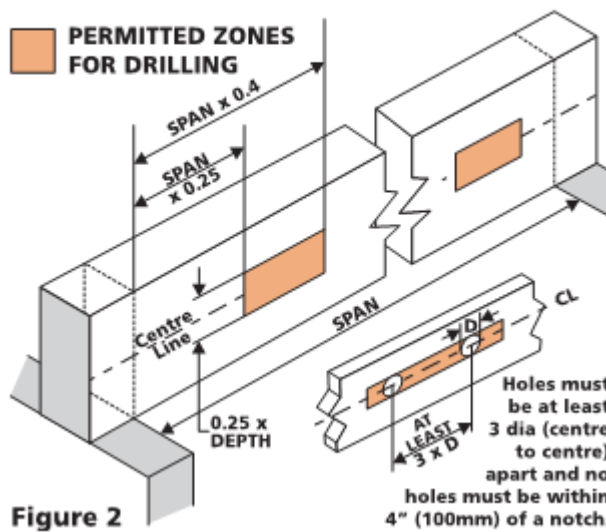
- Notches should only be cut in accordance with diagram below:-

Notching



- Holes should only be drilled in accordance with diagram below:-

Drilling



Lateral Restraint

- See diagrams and notes under roof construction

Steel Beams

- All steel beams and associated supports to be designed by the Structural Engineer.
- Beams supporting upper level to be either concealed within the floor void or plaster boarded with 12.5mm plasterboard and skim plaster finish all to give 30 minutes fire resistance..

Roof Construction

Roof over Kitchen

- This roof will have sloping ceiling and is to be designed by the Structural Engineer.
- Refer to structural engineers details.

Roof over Bedroom / Bathroom

- 47 x 170mm C16 rafters at 450mm centres.
- 47 x 145mm C16 Ceiling Joists at 450mm centres
- 47 x 150mm C16 binder hung from ridge every 4th Rafter

Roof over Entrance Lobby / Store

- 47 x 150mm C16 rafters at 450mm centres.
- 47 x 150mm C16 Ceiling Joists at 450mm centres

General

Tiles

- Tiles to be to the approval of the Local Planning Authority. Tiles to be fixed and lapped strictly in accordance with the manufacturer's instructions and to be suitable for the intended pitch.

Felt and Battens

- 25 x 38mm softwood treated battens on 1 layer of Klober Permo Forte breather membrane. Membrane to be sealed and lapped by 150mm and installed in compliance with the manufacturer's specification.
- At eaves provide and fix Klober Universal Eaves Carrier under lapping the 1st width of membrane by at least 150mm and dress into gutter.
- Provide 25mm eaves vent to drain counter battens.
- Ensure any water has a clear passage to extend into gutter.

Eaves and Gutters

- 100mm upvc gutter, laid to suitable falls on rise and fall brackets, discharging to 63mm diameter down pipes in position shown on plan.
- Provide fascia & soffit board if required by Architect/Client/Planning Authority

Roof Insulation to flat ceilings

- 150mm of Crown Rockwool laid between the ceiling joists.
- 150mm of Crown Rockwool or similar insulation laid across the ceiling joists.

Roof Insulation to sloping ceilings

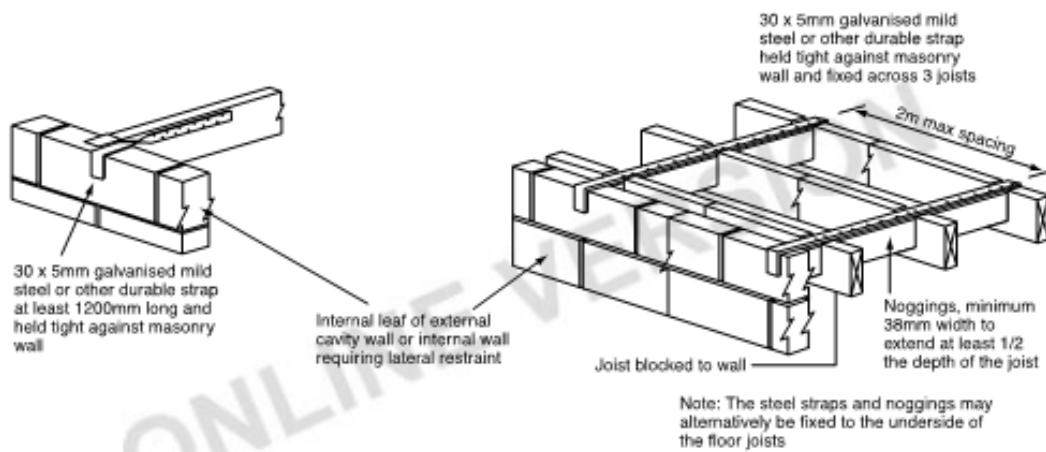
- 100mm of Celotex insulation between the rafters.
- 50mm of Celotex insulation on the underside of the rafters
- 12.5mm Plasterboard finish.

Wall Plate Strapping

- 50 x 100mm C16 wall plate strapped to inner leaf with 30 x 5mm mild steel galvanised straps at least 1m in length at maximum 2m centres.

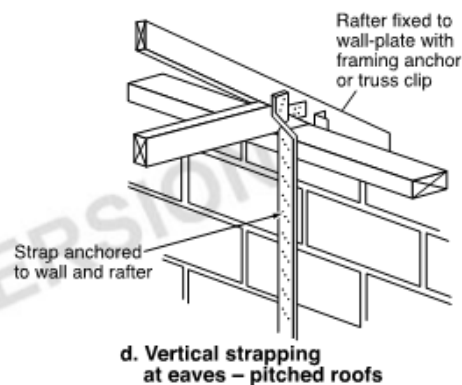
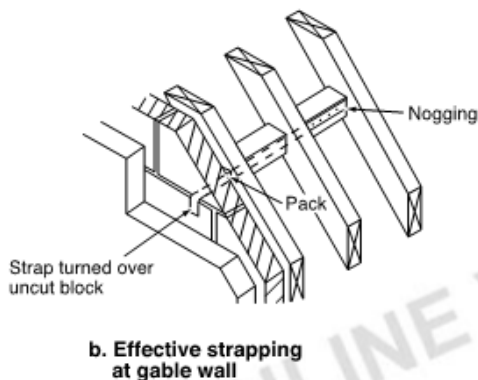
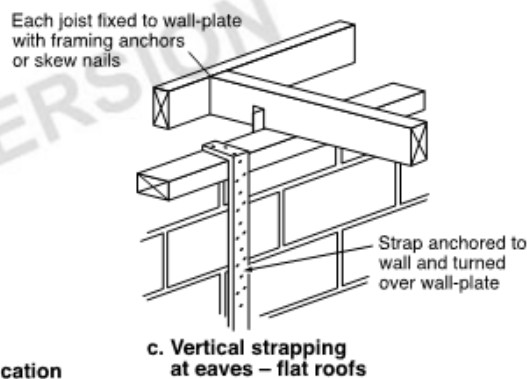
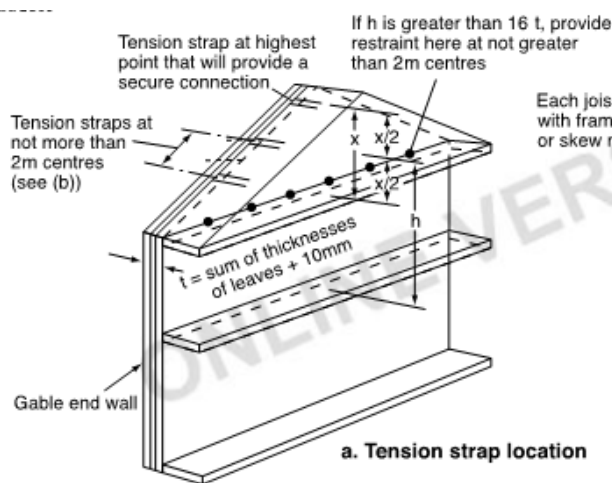
Lateral Restraint

- Provide lateral restraint straps in accordance with the details below.
- Provide Catnic or similar galvanised lateral restraint straps fixed to a minimum of three floor joists, ceiling joists and rafters, not less than 30 x 5mm cross section, 150mm cranked end and 1100mm long.
- Position at not more than 2m centres to all floor joists, ceiling joists and rafters.

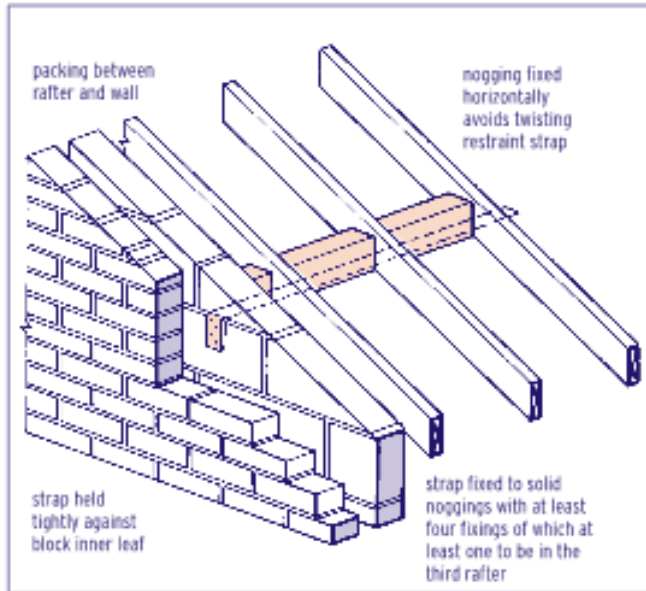


a. Tension strap detail – 1

b. Tension strap detail – 2



- Ensure that cranked end is tight in contact with cavity face of wall inner leaf and is not pointing upwards.
- Fix noggings and packs beneath straps, where span of joists run parallel to wall. Noggings and packs to fit tightly and be not less than three quarters of joist depth. Notch joists so that straps fit flush with surface.



- Fix straps to joists with not less than four 50mm x 8 gauge sheradized countersunk screws evenly spread.

Plaster boarding

- Internal surface to be 12.5mm plasterboard with integral vapour barrier scrim and skim.
- Ensure wall/ceiling junction is completely sealed with a continuous band of fixing plaster.
- Provide draught seals to all voids created by service pipes passing through ceiling.
- Provide insulated and draught proofed roof hatch as directed by client.

Rainwater Goods

- Provide pvc guttering and downpipes as indicated on elevations and plans..
- Ensure all guttering is laid to a fall

Flashings and Cavity Trays

- Provide Code 5 lead flashing around chimney flue.
- Provide cavity trays with weep holes in the following locations:-
 - (a) Above the Radon Barrier at DPC level.

Windows

- All windows achieve a U value of 1.4 w/m²k
- *(Note that this is a high specification for the windows but is a necessity to achieve compliance with the SAP calculation, if a lower performing windows are used compliance with the SAP calculation may not be achieved.)*
- All windows to be fitted with draught-proof seals.
- Units to be provided with ventilation units and safety glazing as indicated in ventilation section of this specification.
- All windows to be fitted with openable lights as indicated on the elevations. All opening lights to open to at least 30°.
- Contractor to confirm opening sizes with manufacturer prior to manufacture but opening light must be equal to 1/20th of the floor area of the room in which it is located.
- Contractor to confirm structural opening sizes prior to construction of building.

Fire Escape Windows

- Study on the lower level to have a “Fire Escape Window” i.e. to have an unobstructed opening of at least 450mm x 750mm for fire escape purposes. Bottom edge of window opening light to be between 800 and 1100mm above finished floor level.

Rooflights

- All roof lights to achieve a U value of 1.3 w/m²k
(Note that this is standard specification for a Velux Rooflight)
- Client to choose type of roof light e.g. centre pivot / top hung / electronic controls etc.
- All roof lights to include manufacturers flashing kits appropriate to the pitch of roof.
- Rafters to be trimmed out as shown on the roof layout.

Doors

- All external door units to achieve a U value of 1.6 w/m²k or better.
- Entrance door to be 932mm wide with a disabled threshold. Ensure door has a minimum clear opening of 775mm.
- All doors to be fitted with draught-proof seals.
- Units to be provided with ventilation units and safety glazing as indicated in ventilation section of this specification.
- Contractor to confirm structural opening sizes prior to construction of building.

Internal Doors

- All internal doors on the ground floor are to have a minimum clear opening width of 750mm
- All internal doors should have a 10mm gap under the door to ensure good air transfer throughout the dwelling.

Background Ventilation

- The total background ventilation required for the dwelling is 50,000mm². When ordering the windows & doors the manufacturer must be made aware of this requirement and background ventilation should be provided to all windows to ensure that this total is achieved. (This requirement is suitable for houses with any air test result – if the air pressures test result is more than 5 then 35,000mm² will be acceptable.
- Given that there are 13 windows & roof lights (exc porch) to the house approx. 3847mm² per window will achieve 75,000mm²
- Notwithstanding the total requirement each room must have at least 5000mm² and 2500mm² to wet rooms (bathroom/en-suite/kitchen)
- Background Ventilation by Velux roof lights is as follows:-
 - Up to 550mm wide = 2200mm²
 - Up to 660mm wide = 3500mm²
 - Up to 780mm wide = 4300mm²
 - Up to 942mm wide = 5400mm²
- The background vents (if not incorporated within the windows/doors must be located to avoid draughts e.g. typically 1.7m above floor level.

Purge Ventilation

Habitable Rooms

- Rapid ventilation is provided through openable windows as shown on the plans and elevations with an openable area of at least $1/20^{\text{th}}$ of the floor area and with some part of the opening at least 1.75m above floor level as shown on elevations.
- (Minimum 5000mm^2 background ventilation to be provided to each room but note the total background ventilation required elsewhere)

Kitchen

- Rapid ventilation to be provided by either 30 l/sec cooker hood extraction or 60 l/sec extract fan, both terminating externally.
- (Minimum 2500mm^2 background ventilation to be provided)

Bathroom

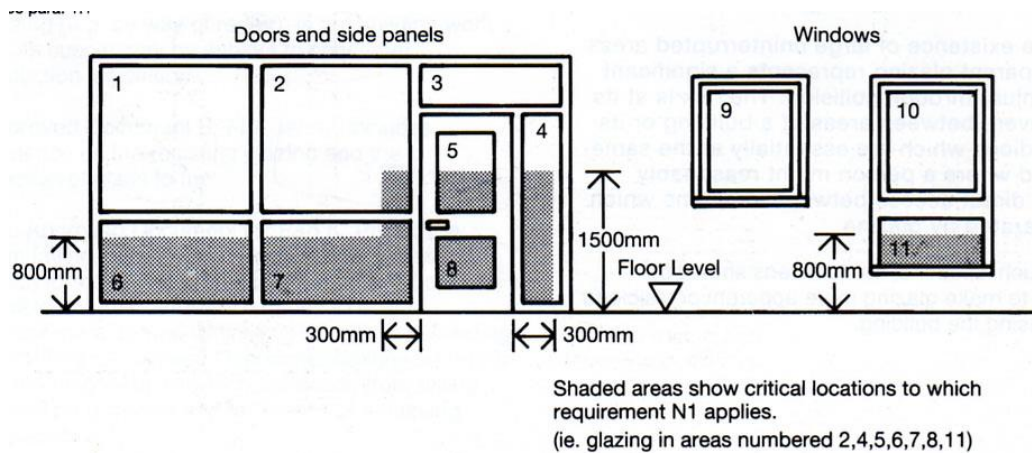
- Rapid ventilation is to be provided by mechanical extract fan capable of extracting at a rate of at least 15 l/sec, which may be operated intermittently and has an over-run period of 15 minutes. Termination should be at roof level through a suitable tile vent or through external walls.
- (Minimum 2500mm^2 background ventilation to be provided)

Safety Glazing

- Toughened safety glazing to be provided at areas where glazing occurs less than 800mm above floor level or external ground levels. Also where glazing occurs less than 1500mm

above floor level or external ground level within 300mm of any internal or external doors, as indicated on plans and elevations.

- See diagram below for clarification:-



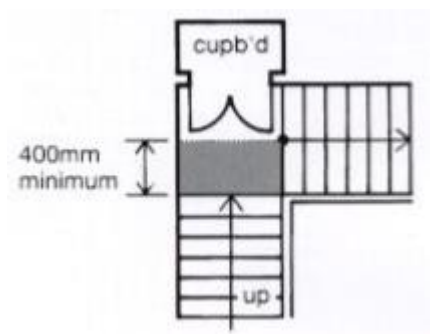
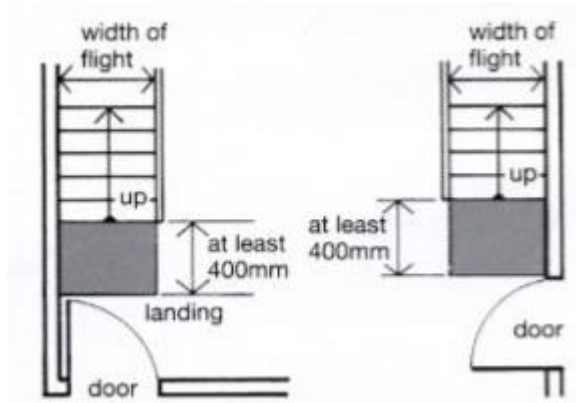
- The following locations also require safety glazing:-

Window on staircase if the glazing is within 800mm of the pitch line.

Staircase

- The rise and going to comply with the following:-
 - Maximum rise of 220mm
 - Minimum going of 220mm
 - Max pitch of 42°
 - Twice the rise + the going must be between 550 and 700mm
 - Minimum 50mm going on tapered treads
- Provide a handrail to one side of the staircase.
- Handrail to be at a height of between 900mm measured to the top of the handrail from the pitch line of the stairs. At floor level and landing height of handrail to be 1000mm.

- Handrails to be agreed with client.
- Landings to be equal to the width of the staircase.
- Landing space equal to width of staircase to be provided at top and bottom of the staircase.
- Guarding to open side of stairs and landings to be agreed with client.
- Provide vertical balusters to stairwell guarding with a 99mm maximum gap between them.
- Ensure a minimum 2000mm headroom over pitch line of stairs and landing areas.
- Any doors adjacent to staircase must be sited in accordance with the following diagrams:-



Juliette Balcony Glazing

- The glazing is to be designed by specialist contractor.
- Height must be at least 1100mm above the finished floor level. At this height it should be designed such that it will resist a horizontally uniformly distributed line load of 0.74kN/m. Fixings at decking level must also resist the turning moment induced by the above loading.
- Recommended 15mm Toughened glass but must be confirmed by balustrade designer.
- There must be no gaps greater than 99mm.
- The balustrading must be designed such that it cannot be climbed upon.

Solid Fuel Stove

Appliance

- The appliance is to be to the client's choice and installed by a HEATAS engineer.
- The appliance is to be a closed appliance with a flue draught stabiliser.

Ventilation

- Permanently open vents to be provided equivalent to 850mm² per KW of appliance rated output.
- The vents must be permanently open and non-adjustable and positioned where they are unlikely to become blocked.
- Location to be agreed with client but in locations where the occupants will not be provoked into sealing them against draughts and noise.
- They must be located outside fire place recess.

Flue

- A twin wall insulated flue is to be provided.
- For an appliance up to 30kW rated output burning any fuel use 150mm diameter or rectangular/square flues having the same cross sectional area and a minimum dimension not less than 125mm.
- For an appliance more than 30kW but less than 50kW rated output burning any fuel use 175mm diameter or rectangular/square flues having the same cross sectional area and a minimum dimension not less than 150mm.
- Flue to terminate as shown on the plans at least as high as the ridge.

Separation from combustible materials

- Floor joists and roof timbers to be minimum 50mm from outer face of flue.

Hearth Construction

- 125mm Non-combustible hearth top surface to finish at least 12mm above the surface of the finished floor.
- Hearth to extend at least 300mm in front of the appliance and 150mm at the sides.

Notice Plate

- Notice plate displaying essential information on the flue and appliance must be provided.
- The plate must be robust, indelibly marked and securely fixed in an unobtrusive but obvious position within the building. (e.g. next to the electricity consumer unit, next to the water supply stopcock)

Carbon Monoxide Alarm

- A Carbon Monoxide Alarm complying with BS EN 50291:2001 powered by a battery designed to operate for the working life of the alarm must be provided.
- It must be located in the same room as the appliance:-
 - (a) On the ceiling at least 300mm from any wall or if it is located on a wall, as high up as possible(above any doors and windows) but not within 150mm of the ceiling and
 - (b) Between 1m and 3m horizontally from the appliance.

Test on Completion

- The flue must be checked on completion to show that it is free from obstructions, satisfactorily gas tight and constructed of materials and components of sizes which suit the intended application.
- A certificate confirming the above has been undertaken must be supplied to Building Control on completion.

Above ground drainage

General

- Install pipes, fittings and accessories in accordance with BS 5572 so that appliances drain quickly, quietly and completely at all times and discharge is conveyed without cross flow, back fall, leakage or blockage.
- Obtain all components for each type of pipe work from the same manufacturer unless specified otherwise.

- Provide access fittings and rodding eyes as necessary in convenient locations to permit adequate cleaning and testing of pipe work.
- Provide for thermal and building movement when fixing and jointing, and ensure that clearances are not reduced as fixing proceeds. Where not specified otherwise use plated, sherardized, galvanised or non-ferrous fastenings, suitable for the purpose and background, and compatible with the material being fixed or fixed to.
- Comply with restrictions on the cutting of holes, chases, notches, etc. line with additional supports as necessary at junctions and changes in direction. Fix every length of discharge stack pipe at or close below the socket collar.
- Make changes in direction of pipe runs only where shown on drawings unless otherwise approved.
- Cut ends of pipes to be clean and square with burrs and swarf removed.
- Test upon completion of system, temporarily seal open ends of pipe work with plugs.
- Connect a “U” tube water gauge and pump air into pipe work until gauge registers 38mm.
- Allow a period for temperature stabilisation, after which the pressure of 38mm is to be maintained for not less than 3 minutes. Test to be approved by Local Building Control Officer.

WC

- 110mm diameter at a minimum slope of 18mm/m and maximum slope of 90mm/m for pipe work up to 6m in length.

Washbasin

- 32mm diameter pipes at minimum slope of 18mm/m and maximum slope of 22mm/m for pipe work up to 1.7m in length and 40mm diameter pipes at a minimum slope of 18mm/m and maximum slope of 44mm/m for pipe work up to 3m in length and 50mm diameter pipes at a minimum slope of 18mm/m and maximum slope of 44mm/m for pipe work up to 4m in length.

Bath

- 40mm diameter pipes at a minimum slope of 18mm/m and maximum slope of 90mm/m for pipe work up to 3m in length and 50mm diameter pipes at a minimum slope of 18mm/m and maximum slope of 44mm/m for pipe work up to 4m in length.
- Washbasin to be fitted with Marley Monitor ant-siphon bottle trap, fitted with cleaning eye.
- Rodding points to be provided to all discharge pipes, which can not be reached by removing traps. Ensure adequate access is provided to all cleaning eyes and rodding points. Provide branch connections to soil pipes connecting to stub stack. All pipe work to be installed to comply with manufacturer's instructions and recommendations.

Shower

- A fixed shower must be provided over the bath in order to comply with the Water Efficiency Calculation.

Traps

- Traps to Washbasins, Sinks and urinal to be 75mm deep and WC to be 50mm.

Soil and Vent Pipe

- All above ground waste and soil drainage shall be constructed of upvc by Marley Extrusions or similar to comply with BS 5572:1978.
- Constructed of 100mm diameter upvc by Marley Extrusions or similar to comply with BS 5572. Boxed in within building with 12.5mm plasterboard and skimmed with 5mm plaster, fixed on timber grounds. Screw on access to be provided as necessary to comply with current regulations and recommendations.
- SVP to terminate at ridge vent tile
- Ensure roofing membrane is water tight where vent pipe passes through the roof.

Below Ground Drainage

General

- Refer to site plan for details. The drainage layout is to be deemed provisional until the exact layout is known on site following the excavations for the foundations. An alternative drainage layout may be possible.
- New foul drainage to connect to foul water sewer.
- Drainage runs constructed of Osma UPVC or similar 100mm diameter pipes with flexible joints. Pipes at a minimum 1:40 fall on minimum 100mm granular bed in single size pea grave or aggregate to BS 982 nominal size 10mm. After testing backfill with selected material free from vegetable matter, rubbish, frozen soil, stones and lumps retained by a 40mm sieve. Lay and compact in layers not exceeding 150mm.
- Provide lintel or sleeve protection to drains passing through walls and foundations and leave a minimum 50mm clear space around pipe. Ensure space around pipe is masked with rigid sheeting.

- Allow for differential settlement at all manholes by way of an extra flexible joint.

Inspection Chambers

- 450mm diameter pre-formed plastic inspection chamber and benching by Osma or similar maximum 900mm deep.
- Provide 150mm concrete bed and surround to Inspection Chambers.
- Make pipe work connections as indicated on drawing and provide stop caps to unused branches.
- The maximum depth of Inspection Chamber to be 1200mm.

Manholes Covers

- All covers to be grade A in Parking Areas and grade B in other locations.

Surface Water

Soakaways

- Soakaways to be provided as indicated on the site plans
- Size of soakaways to be subject to site conditions.
- Soakaways to be located a minimum of 5m from all buildings and 2.5m from the boundary.
- Provide rubble filled soakaways with a minimum of 1m³ below the incoming pipe. Fill with free draining material such as clean broken bricks, crushed rock or gravel, size range 150mm to 50mm.

- Line bottom and sides of soakaways with Geotextile membrane and [provide one top layer of geotextile membrane before connecting inlet pipe to soakaway.
- Provide inspection covers if required or backfill to finished ground level with as dug material.

Refuse Storage

- A 1.2m x 1.2m area is to be set aside within the gardens for refuse storage.
- It must be sited within 25m of the Local Authority Collection point
- Must not interfere with pedestrian or vehicle access and be away from any windows and ventilators.
- It should preferably be sited in a shady area.

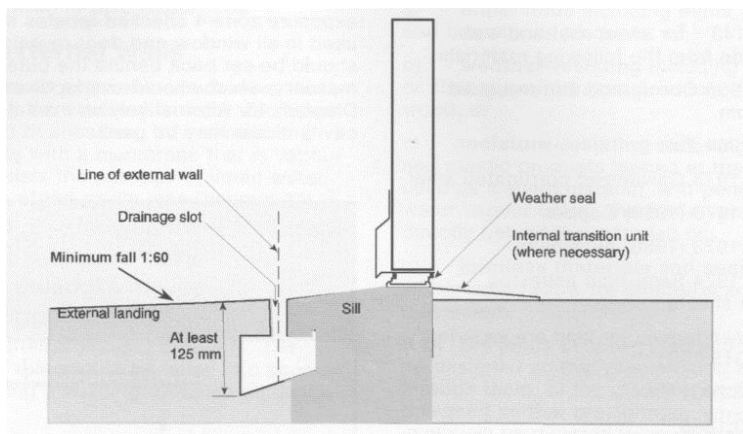
Fire Alarms

- Provide smoke alarms in the downstairs hallway and first floor landing.
- Alarms to be 300mm from walls and light fittings and not located over heaters.
- Alarms to be mains powered with a battery backup and conform to BS 5446-1:2000
- Alarms to be interconnected within the house.
- Ensure system compliance with BS 7671 (The IEE Wiring Regulations).
- Smoke alarms to be placed within 7.5m of all doors to habitable rooms.

Access to and within the dwelling

Entrance Door

- The entrance door must give a clear opening width of at least 775mm. This is taken from the face of the door stop on the latch side to the face of the door when open at 90o.
- A level accessible threshold must be provided as illustrated below.



Ramped Approach

- A 900mm wide ramped approach leading to this threshold must be provided. Its surface must be firm and even at a gradient of 1:12 or if its length exceeds 5m the gradient should be 1:15.
- Landings equal to 1200mm must be provided at the top and bottom of the ramp.
- If the ramp exceeds 10m in length 1200mm long intermediate landings must be provided.

Internal Doors

- The internal doors to the ground floor should give a clear opening width of 775mm.
- There is no minimum width requirement for the doors on the first floor.

Electrical Installation

Generally

- The electrical installation must be designed and installed in accordance with BS 7671:2008 incorporating Amendment No 1:2011.
- Sufficient information must be provided within the dwelling to ensure that people can operate, maintain or alter an electrical installation safely, this includes:-
 - (a) Electrical Installation Certificates or reports describing the installation and giving details of the work carried out.
 - (b) Permanent labels, for example on earth connections and bonds, and on items of electrical equipment such as consumer units and residual current devices.
 - (c) Operating instructions and logbooks.
- Types and positions of fittings to be agreed with contractor's installer and Client.
- Lighting and power to be separately controlled circuits as follows with further subdivision where necessary to ensure compliance with BS 7671.
- Liaise with the Electrical Supply Company as necessary to ensure suitability of supply and earthing arrangement, and to ensure connection when required.
- All installations to be tested and after satisfactory completion of tests copies of completion certificates to be submitted to the Client and Building Control

Energy Efficient Lighting

- Three out of four light fittings to have low energy fittings with lamps having a luminous efficacy greater than 45 lamp lumens per circuit-watt and a total output greater than 400 lamp lumens. (these may be dedicated fittings or standard fittings supplied with low energy

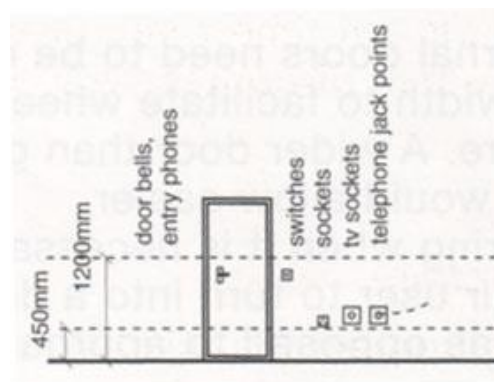
lamps. Light fittings whose supplied power is less than 5 circuit-watts are excluded from this requirement)

External Energy Efficient Lighting

- Any external lighting to have lamp capacity not greater than 100 lamp-watts or lamp efficacy greater than 45 lumens per circuit-watt and to be automatically controlled so as to switch off when lighting is not required.

Accessible switches and socket outlets

- This applies the ground, first & second floors. They must be located in accordance with the following diagram:-



Heating and Hot Water

General

- Provide new hot water and heating system using a gas combination condensing boiler which has a SEDBUK efficiency of 90% or better.
- Any choice of alternative boiler with a reduced SEDBUK rating must be referred back to the building designer for checking. This is VERY IMPORTANT!

- Boiler to be sited with terminal at least 600mm from any opening into the dwelling.
- Ensure all gas appliances and pipe work are installed to comply with current Codes of Practice and British Standards and installed by an Approved Contractor.
- Commissioning Certificate to be provided upon completion.

Hot & Cold Water Supply

- Complete the design and install the systems to comply with BS6700 and be free from leaks and water hammer.
- All installation work to be carried out by qualified operatives.
- Electrical work in connection with the installation must be in accordance with BS 7671
- All 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.
- All equipment, pipe work, components, valves etc to be fully accessible for maintenance, repair or replacement.
- Installation to be fitted with vents at high points and draining taps at low points to facilitate purging and draining.
- Provide insulated hot water vessel if required complying with BS 1566 or BS 3198.

Supply of Bath Hot Water

- To the bath provide an in-line blending valve or other appropriate temperature control device to limit the temperature of the bath water to 48°C

Low Temperature Hot Water Heating

- Provide fully automatic and independent temperature, time and zone control of the system. Ensure that all controls are compatible with each other and with the central heating boiler.
- The system must allow for separate heating zones to the living and sleeping accommodation in accordance with the Domestic Heating Compliance Guide published by the Office of the Deputy Prime Minister.
- Complete the design, install and balance the system so that it complies with the water supply byelaws/regulations, and is safe, efficient, and free from leaks, excessive noise and vibration.
- All installation work to be carried out by qualified operatives.
- Electrical work in connection with the installation must be in accordance with BS 7671
- Comply with restrictions on the cutting of holes, chases, notches etc in floor joists.
- All 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.
- All equipment, pipe work, components, valves etc to be fully accessible for maintenance, repair or replacement.
- Installation to be fitted with vents at high points and draining taps at low points to facilitate purging and draining.

- Provide radiators connected to heating system. Location and number of radiators to be agreed with installer.

Services

- Provide Telephone, Gas, Water and Electric supplies to new dwelling.
- Ensure all new services to be installed comply with current Codes of Practice and British Standards.
- Refer to site layout plan for known approximate lines of services.

Sound Performance

- The specification for the internal floors and walls must be adhered to in order to ensure adequate sound insulation within the dwelling/extension is achieved.

Pressure Testing

- Upon completion a “Pressure Test” will need to be undertaken on the dwelling and the results submitted to the Building Control Authority for approval. Refer to the Design SAP calculation for the Pressure Test Result required.

Thermal Performance

- The specification for the insulation and heating systems must be adhered to as they are crucial to the CO₂ emission rate calculation for the building demonstrating compliance with the Building Regulations. A calculation has been carried out demonstrating compliance but an “as built” calculation must also be provided following completion and this must also meet the minimum standard.

- If for any reason alternative materials/systems are used they must be referred back to the Building Designer for checking.

Provision of Information

- The owner of the building and the Building Control Authority are to be provided with commissioning certificates for the heating and hot water systems.
- The owner of the building is to be provided with a suitable set of operating and maintenance instructions for the building services. These will need to include details for the timing and temperature setting controls and any routine maintenance required.
- A copy of the Energy Performance Certificate is to be provided for the owner and Building Control.
- A checklist signed by the installing HEATAS engineer to show that the wood burning appliance has been installed in accordance with the requirements of Part J.
- All electrical installations to be tested and after satisfactory completion of tests copies of completion certificates to be submitted to the Client and Building Control