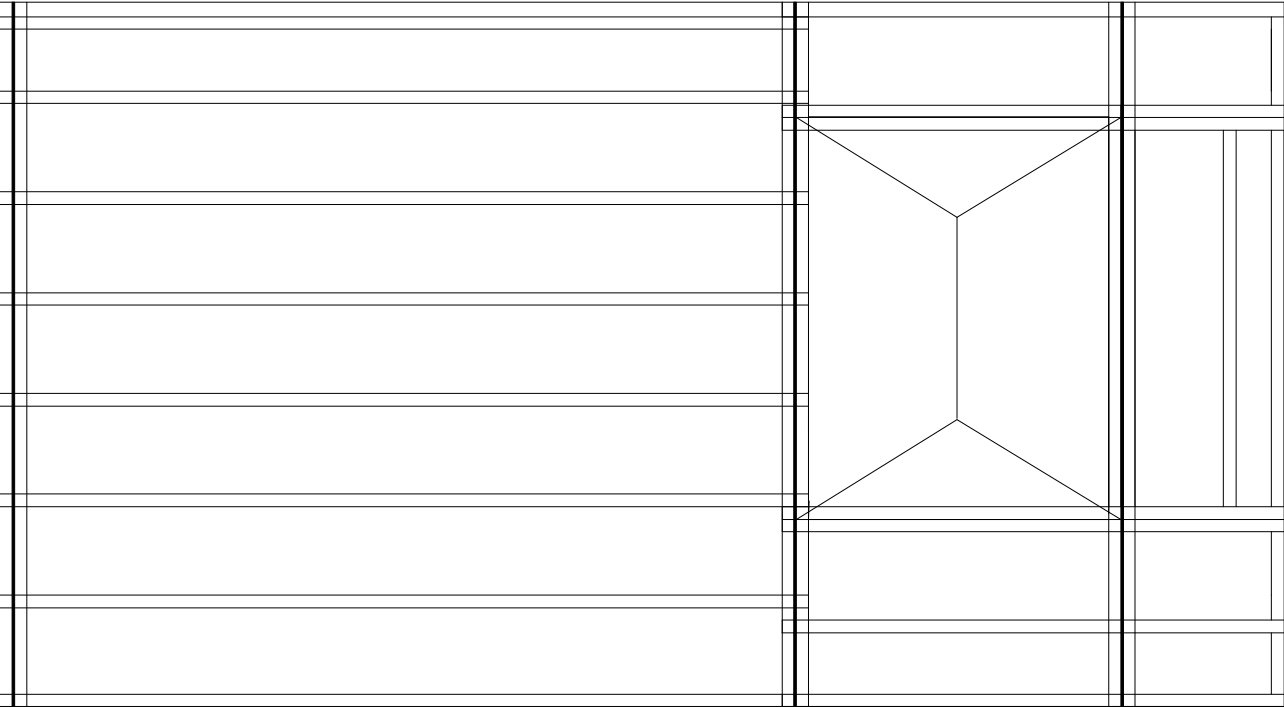
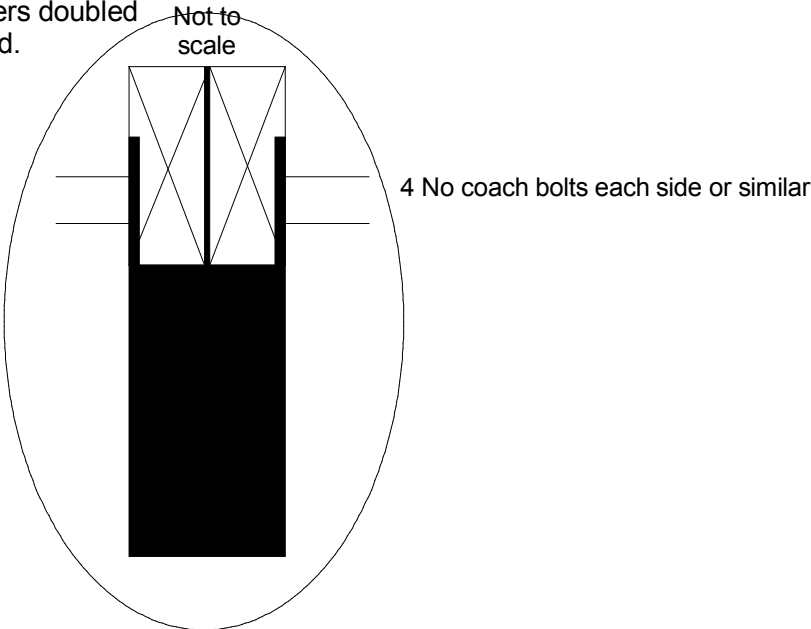
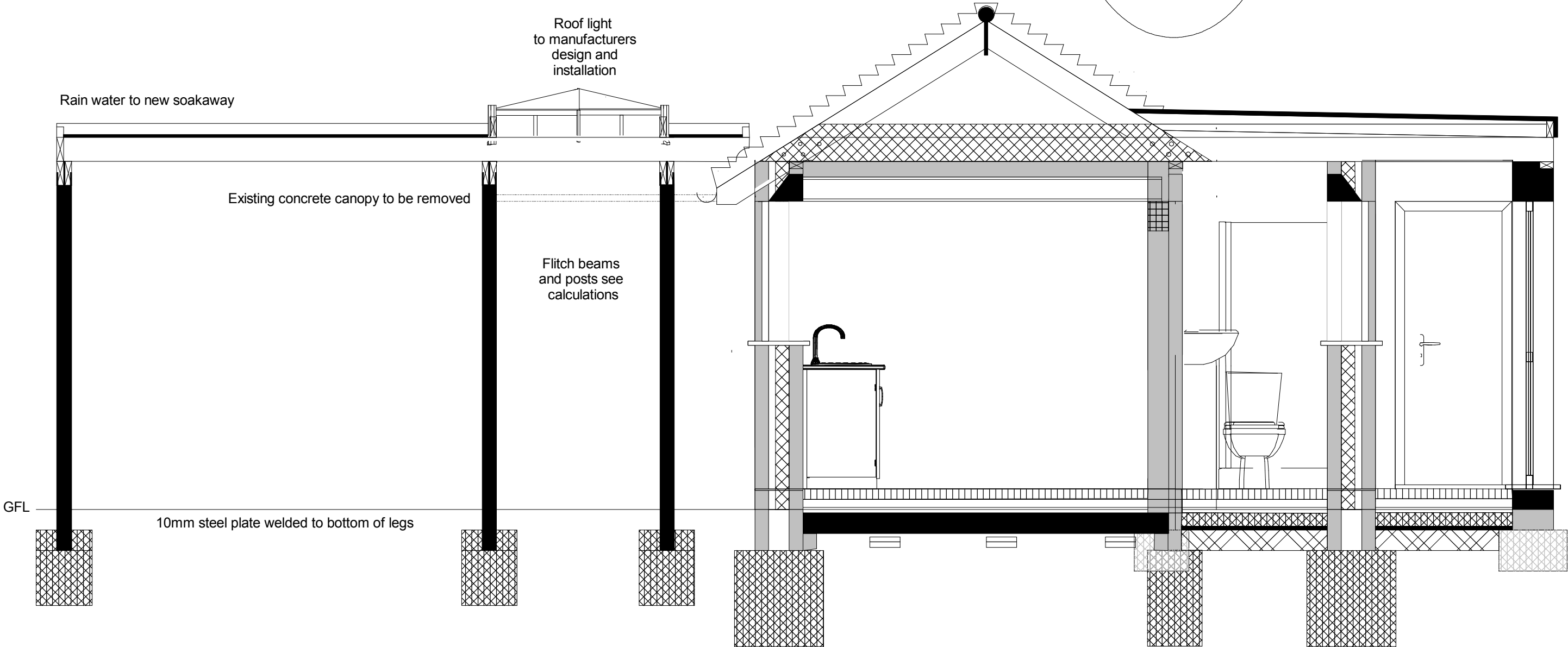


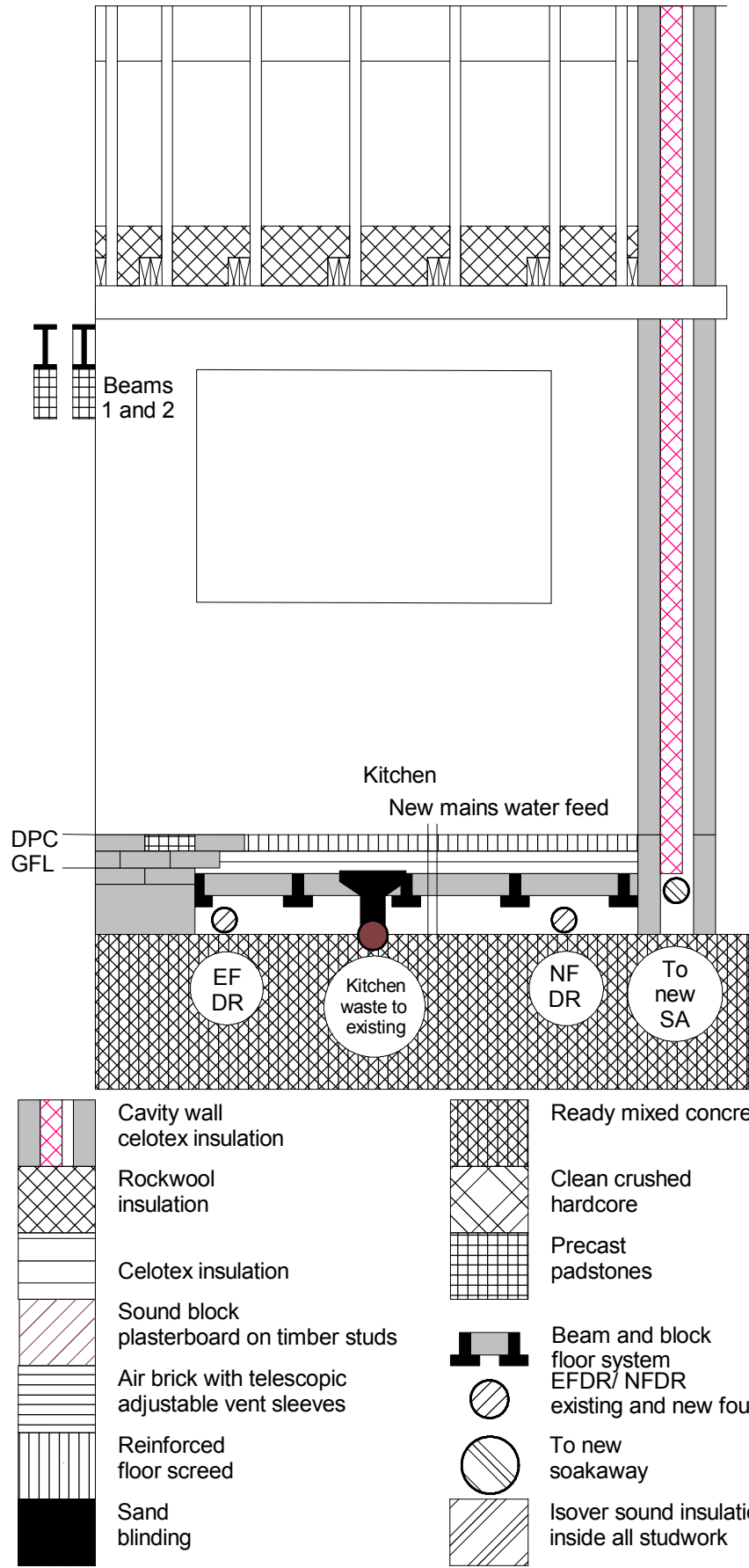
Roof plan
Beam ends to be built into wall 100mm



LEAD WORK AND FLASHINGS
All lead flashings, any valleys or soakers to be Code 5 lead and laid in accordance with BS 5534 and BS EN 12588. 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.

ROOF LIGHTS
Min U-value of 2.2 W/m² K.
Roof-lights to be double glazed with 16mm argon gap and soft low-E glass. Roof lights to be fitted in accordance with manufacturer's instructions, with rafters doubled up to sides and suitable flashings provided.





PITCHED ROOF INSULATION AT CEILING LEVEL
Pitch 22-45° (imposed load max 0.75 kN/m₂ - dead load max 0.75 kN/m₂)
To achieve U value of 0.15 W/m₂K
Timber roof structures to be designed by an Engineer in accordance with NHBC Technical Requirement R5 Structural Design. Calculations to be based on BS EN 1995-1-1:2004 Eurocode 5: Design of timber structures (+A2:2014). Roofing tiles to match existing on 25 x 38mm tanalised sw treated battens on breathable felt supported on 47 x 195mm grade C24 rafters at max 400mm centres, max span 4.69m. Rafters supported on 100 x 50mm sw wall plates. Insulation at ceiling level to be two layers of Rockwool insulation to total 300mm laid between over joists (cross direction). 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 cavity tray where roof meets existing wall. Where required provide opening at eaves level at least equal to continuous strip 25mm wide on two opposite sides to promote cross-ventilation and provide mono pitched roofs with 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

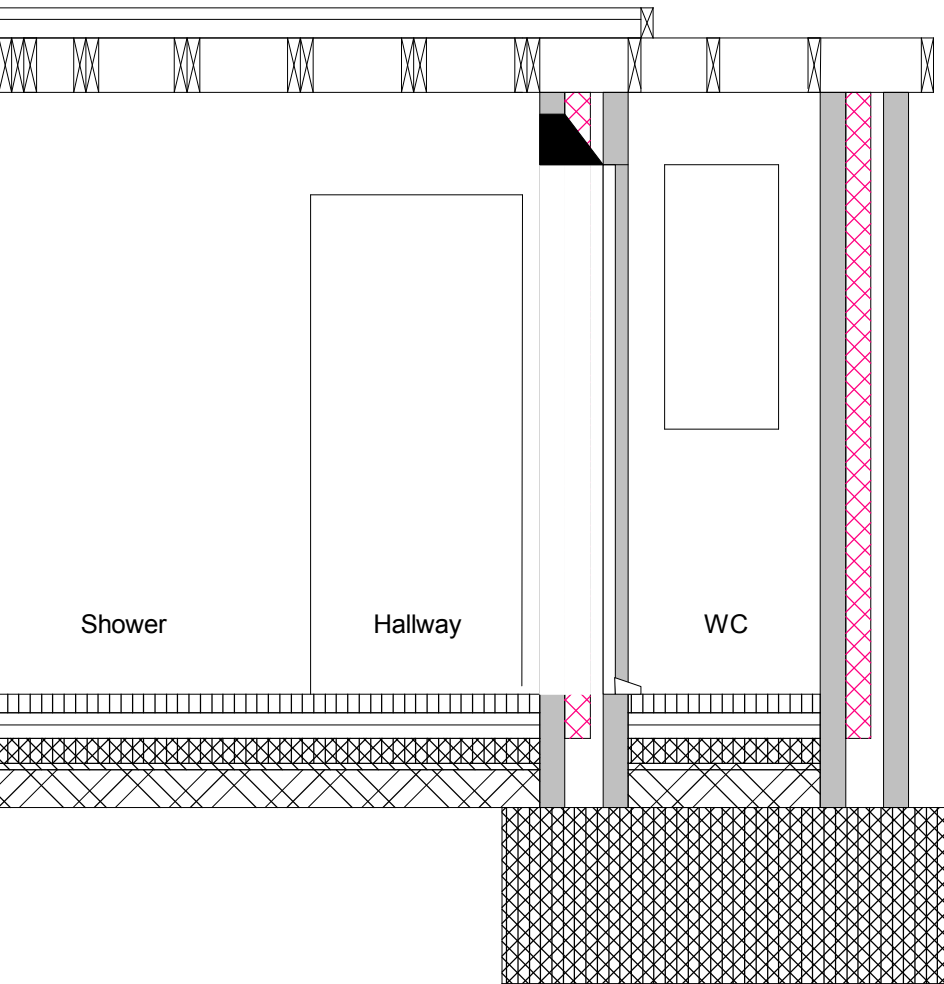
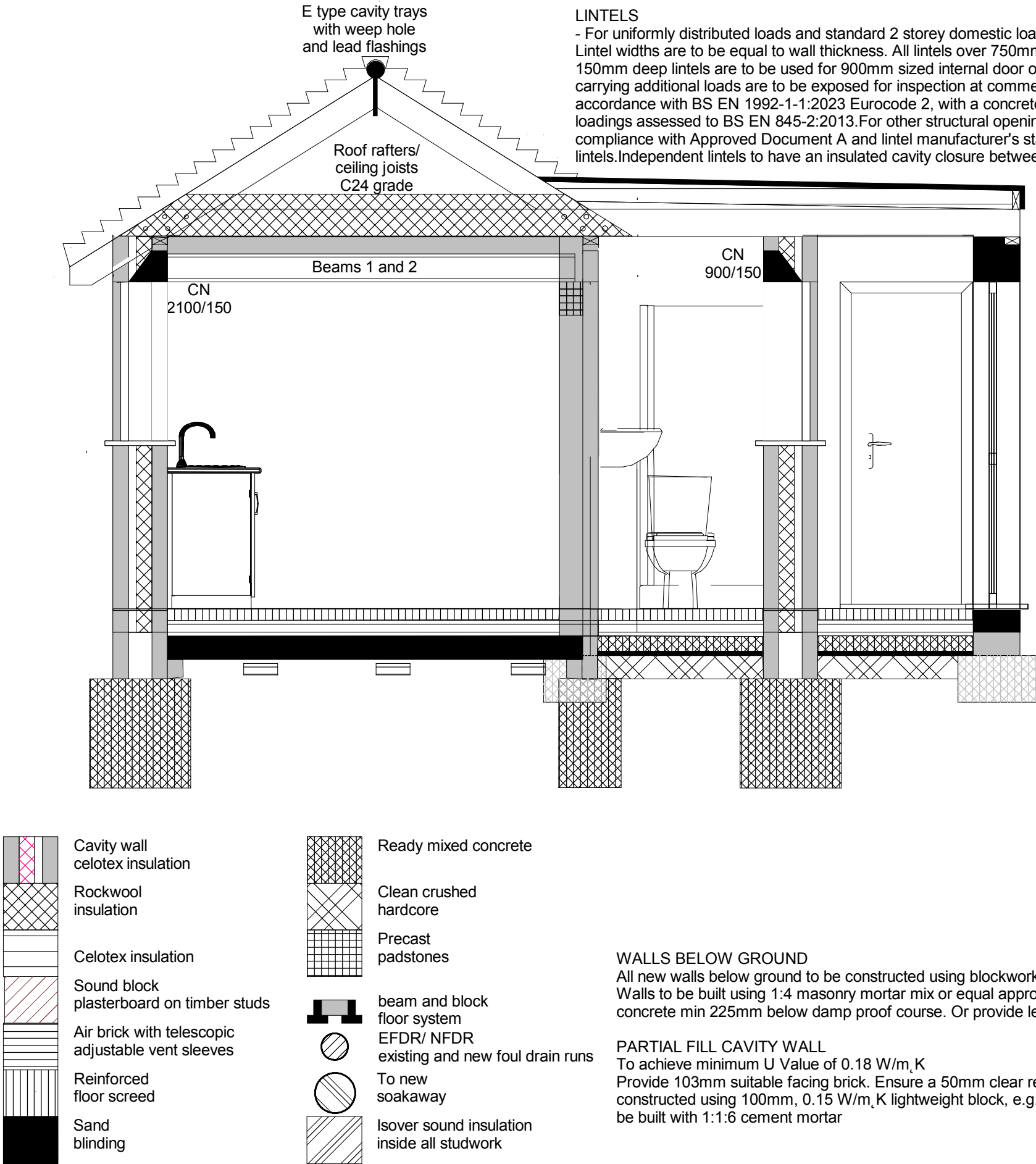


plate strapped down to walls. Ceiling joists and rafters to be strapped to walls and gable walls, straps built into cavity, across at least 3 timbers with noggins. All straps to be 1200 x 30 x 5mm galvanized straps or other approved to BS EN 845-1 (+A1:2016) at 2m centres. Loft hatches should be suitable designed and installed to ensure optimum air tightness

WARM FLAT ROOF
(imposed load max 1.0 kN/m₂ - dead load max 0.75 kN/m₂)
To achieve U value 0.15 W/m₂K
12.5mm spa solar reflective chippings to achieve BROOF(t4) designated fire rating for surface spread of flame bedded in bitumen on three layer felt to BS EN 13707:2013 on 18mm external quality ply (ply optional, see manufacturer's details) over 150mm Celotex XR4000 insulation. Insulation bonded to VCL fixed to 18mm exterior grade plywood on firrings to give 1:40 fall on 47 x 195mm C24 timber joists at 400 ctrs to give a max span of 4.51m (see Engineer's details for sizes). Fix 12.5mm plasterboard over vapour barrier to underside of joists, finish a with plaster skim. Provide cavity tray where new roof abuts existing house. Provide restraint to flat roof by fixing of 30 x 5 x 1200mm ms galvanised lateral restraint straps at maximum 2000mm centres fixed to 100 x 50mm wall plates and anchored to wall.

SUSPENDED BLOCK AND BEAM FLOOR
To meet min U value required of 0.18 W/m₂K - P/A ratio 0.5
Remove top soil and vegetation and apply weed killer - provide 50mm concrete ground cover if required by BCO. The underside of beams to be 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 for approval before works commence). Beam to have a minimum bearing of 100mm onto DPC and load bearing walls. Provide concrete blocks to BS EN 772-2, wet and grout all joints with 1:4 cement/sand mix. Provide double beams below non-load bearing partitions. Lay 1200g DPM/radon barrier over beam and block floor, with 300mm laps double welted and taped at joints and service entry points using radon gas proof tape. Lay floor insulation over DPM, 90mm Celotex GA4000 applied as a rigid material. 25mm insulation to continue around floor perimeters to avoid thermal bridging. Lay 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 1500mm₂ per metre run of perimeter wall or 500mm₂ per square metre of floor area, whichever is the greater. Sleeper walls shall be of honeycombed construction or have provision for distribution of ventilation.

TRENCH FOUNDATION
Provide 750mm thick trench fill concrete foundations with a minimum width equal to the width of the wall plus 300mm. Concrete mix to conform to BS EN 206:2013 (+A2:2021) and BS 8004:2015 Code of practice for foundations (+A1:2020). All foundations to be a minimum of 1000mm below ground level, exact depth and foundation size to be agreed on site with Building Control Officer to suit site conditions. All constructed in accordance with 2010 Building Regulations A1/2 and BS 8004 Code of Practice for Foundations (+A1:2020). 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 and the advice of a Structural Engineer should be sought.



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, Gyproc FireCase or painted in Nullifire S or similar intumescent paint to provide 1/2 hour fire resistance, as agreed with Building Control. All fire protection to be installed as detailed by specialist manufacturer.

LINTELS
- For uniformly distributed loads and standard 2 storey domestic loadings only
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 EN 1992-1-1:2003 Eurocode 2, with a concrete strength of 50 or 40 N/mm² and incorporating steel strands to BS 5896 to support loadings assessed to BS EN 845-2:2013. For other structural openings provide proprietary insulated steel lintels suitable for spans and loadings in compliance with Approved Document A and lintel manufacturer's standard tables. Stop ends, DPC trays and weep holes to be provided above all externally located lintels. Independent lintels to have an insulated cavity closure between the inner and outer lintel.

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 1200mm x 30mm x 5mm galvanised mild steel horizontal straps or other approved to BS EN 845-1 (+A1:2016), straps to be screw fixed, built into walls at max 2000mm centres, and taken across a minimum of 3 rafters. 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 1200mm galvanized metal straps or other approved to BS EN 845-1 (+A1:2016) at maximum 2m centres

PIPES PASSING THROUGH TRENCH FOUNDATIONS
The load-bearing capability of foundations must not be affected where services pass through. The pipe work to be sleeved. Flexible material to be provided around pipe and flexible joints to be provided where pipes exit the foundation. Alternatively Pipework should pass through a suitably strengthened opening in the foundation, i.e. foundation shuttered and a provided with suitable lintel over the pipe allowing for sufficient space for movement to ensure that the drain is capable of maintaining line and gradient. Opening should be masked with granular backfill (pea shingle) around pipe. DPC to be provided as required by BCO. Advice from Building Control to be sought on suitability of pipe running through foundation before construction.

PIPES PASSING THROUGH WALLS
Walls above pipes passing through substructure walls to be supported on suitable lintel on semi-engineering bricks. Pipe to be provided with a 50mm clearance all round, opening to be masked with granular backfill (pea shingle) around pipe. DPC to be provided as required by BCO. Alternatively Where new pipework passes through external walls the pipe work is to be provided with 'rocker pipes' at a distance of 150mm either side of the wall face. The 'rocker pipes' must have flexible joints and be a maximum length of 600mm.

SOLID FLOOR INSULATION OVER SLAB
To meet min U value required of 0.18 W/m²K
P/A ratio 0.5
Solid ground floor to consist of 150mm consolidated well-rammed hardcore, blinding with 50mm sand blinding. Provide 100mm ST2 or Gen2 ground bearing slab concrete mix to conform to BS 8500-2:2023 and BS EN 206 over a 1200 gauge polythene DPM. DPM to be lapped in with DPC in walls. Floor to be insulated over slab and DPM with min 90mm thick Celotex GA4000 insulation. 25mm insulation to continue around floor perimeters to avoid thermal bridging. A VCL should be laid over the insulation boards and turned up 100mm at room perimeters behind the skirting, all joints to be lapped by 150mm and sealed. Finish with 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.

WALLS BELOW GROUND
All new walls below ground to be constructed using blockwork compliant with BS EN 771 and suitable for below ground level or semi engineering brickwork. Walls to be built using 1:4 masonry mortar mix or equal approved specification to BS EN 1996-1-1. 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.

PARTIAL FILL CAVITY WALL
To achieve minimum U Value of 0.18 W/m²K
Provide 103mm suitable facing brick. Ensure a 50mm clear residual cavity and provide 85mm Celotex CW4000 insulation fixed to internal leaf. Inner leaf constructed using 100mm, 0.15 W/m²K lightweight block, e.g. Celcon solar, Thermalite turbo. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar