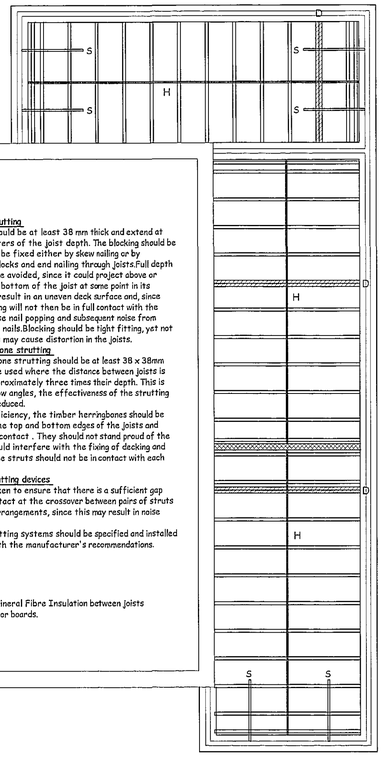
Contractor to check all Dimensions on site prior to ordering materials / commencing work.Do Not Scale from this Drawing - If in doubt then please ask



Timber solid strutting
Solid blocking should be at least 38 mm thick and extend at least three quarters of the joist depth. The blocking should be close fitting and be fixed either by skew nailing or by offsetting the blocks and end nailing through joists.Full depth blocking should be avoided, since it could project above or below the top or bottom of the joist at some point in its length. This will result in an uneven deck surface and, since the deck or ceiling will not then be in full contact with the joists, could cause nail popping and subsequent noise from movement on the nails.Blocking should be tight fitting, yet not oversized as this may cause distortion in the joists.
Timber herringbone strutting
Timber herringbone strutting should be at least 38 x 38mm but should not be used where the distance between joists is greater than approximately three times their depth. This is because at shallow angles, the effectiveness of the strutting is significantly reduced.
For maximum efficiency, the timber herringbones should be nailed towards the top and bottom edges of the joists and should be in full contact . They should not stand proud of the joists as this would interfere with the fixing of decking and ceiling linings. The struts should not be in contact with each other.
Proprietary strutting devices
Care must be taken to ensure that there is a sufficient gap left to avoid contact at the crossover between pairs of struts in herringbone arrangements, since this may result in noise during service.
Proprietary strutting systems should be specified and installed in accordance with the manufacturer's recommendations.

Provide 100mm Mineral Fibre Insulation between joists prior to laying floor boards.

First and last joists to be clear of wall by 25-50mm to aid floor fixing and services installation.

Lay 22mm Weyroc Tongue and Grooved flooring grade wood particle boarding or equal approved on top of first floor joists with staggered joints in a brick bond pattern. Allow a min.12mm gap around perimeter where boards abut a solid wall. Unsupported ends must be supported by noggins.Apply a generous bead of approved wood adhesive to the top of the joists prior to laying the boards. Boards should be fixed using anti rust annular ring shank nails min.55mm long, positioning nails 15mm in from each end of panel with a further nail equidistant between i.e 3 nails across the width of each panel.Screw fixings may be used for an even more comprehensive fit.

min.150 x50 joists @ max.450mm ctrs. Solid herringbone strutting (H) @ mid point to spans over 2m. Strutting at third points to span over 4m. Joists to be supported at all junctions with approved Joist Hangers with 75mm min bearing on masonry and joist.Joist to be cut accurately for a tight fit in hanger with max.6mm gap. Joist bottom to be notched to keep ceiling line level.

Double up joists (D) underneath studwork wall

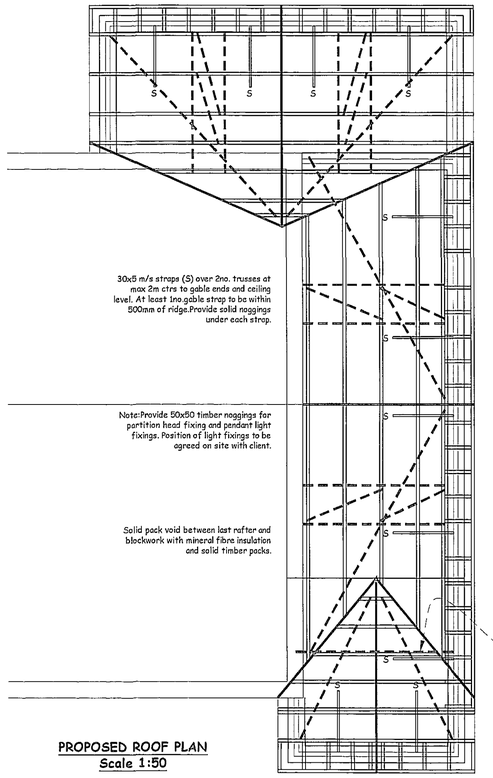
All cut ends of joists to be sealed with suitable preservative prior to fixing in position.

Provide solid blocking at the ends of herringbone strutting,between last joist & wall and underneath all restraint straps

30x5 m/s anchor straps (S) @ 2m ctrs with solid strutting beneath.Notch straps into minimum 3no. joists to allow level floor boards.

ALL TIMBER TO BE SC16 STRENGTH CLASS ,DRY GRADED
TO BS4978 AND MARKED "DRY" or "KD"

PROPOSED FIRST FLOOR JOIST PLAN
Not to Scale



Specialist diminishing trusses built off 100 x 22 valley boards with Glass Fibre Valley Troughs.

30x5 m/s straps (S) over 2no. trusses at max 2m ctrs to gable ends and ceiling level. At least 1no.gable strap to be within 500mm of ridge.Provide solid noggings under each strap.

Dotted line shows 25 X 100 diagonal and longitudinal wind bracing, and ceiling tie bracing to be free from all major defects and any weak points and fixed all in accordance with manufacturers details.Lap joints (if required) to be taken over 2no.trusses all in accordance with BS5268 Part 3 - 1985.Bracing to be fixed with 2no. 3.35 x 65mm galvanised round wire nails at each cross over and to firmly butt against walls.

Note:Provide 50x50 timber noggings for partition head fixing and pendant light fixings. Position of light fixings to be agreed on site with client.

Pre - Fabricated Trussed Rafters to be at max.600mm ctrs .Roof construction to be designed strictly in accordance with BS5268 Part 3 1985 and contractor to ensure trusses are fitted strictly in accordance with specialist manufacturers design drawings & calculations.First and last truss to be fixed 25-50mm from wall.

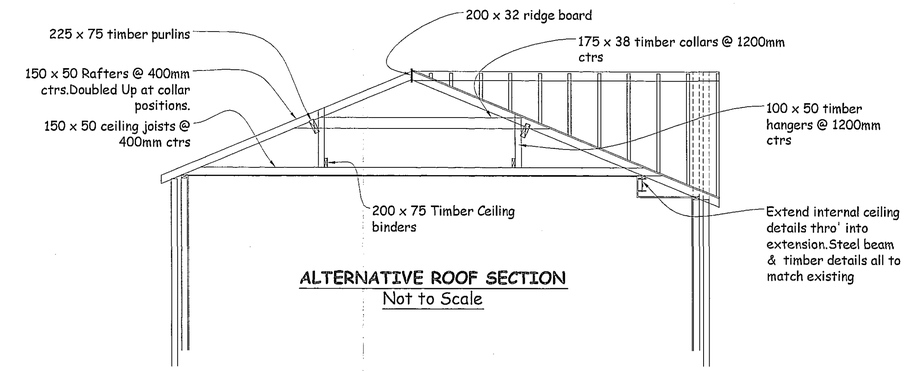
Solid pack void between last rafter and blockwork with mineral fibre insulation and solid timber packs.

Dotted line shows position of steel beam to match existing to support roof as sections.

Soffit and fascia profile to clients requirements fitted strictly in accordance with manufacturer's recommendations

PROPOSED ROOF PLAN
Scale 1:50

Gable Ladder frame fixed directly to last rafter @ max. 400mm ctrs



ALTERNATIVE ROOF SECTION
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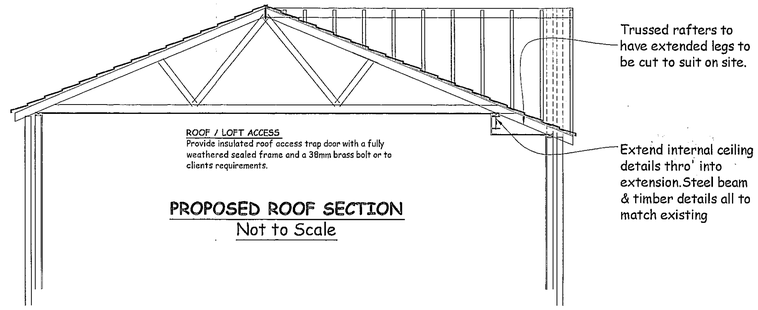
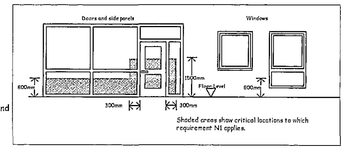


ROOF / LOFT ACCESS
Provide insulated roof access trap door with a fully weathered sealed frame and a 38mm brass bolt or to clients requirements.

PROPOSED ROOF SECTION
Not to Scale



FOUNDATIONS
Existing building area to be stripped of all vegetable matter and rubbish to a min.depth of 150mm before excavation commences.Concrete mix for foundations to be GEN3 in accordance with BS5328:1981.Foundations to external wall to be min.700mm wide x 225mm deep.Excavate down to solid firm strata i.e 750mm deep (min.1000mm if soil is of a shrinkable nature).Exact depth to suit conditions on site and to the strict approval of the L.A Building Inspector.Any irregularities in subsoil during excavation to be brought to the immediate attention of the Building Inspector & advice to be sought from a Chartered Structural Engineer.

WALLS BELOW D.P.C.
1no.Course of Class B brickwork & 2no. courses of Red Engineering brickwork below D.P.C on outer face and 1no.course of 7N/mm2 on inner skin of cavity face.Elsewhere to be either 7N/mm2 concrete blockwork or full width trench blocks.Both to be within 225mm of DPC level.Cavity to be filled to within 225mm min. of below DPC with lean concrete mix.

GROUND FLOOR
65mm mortar screed with a light gauge reinforcing chicken wire on 500 gauge poythene separating layer on a 60mm Celotex Double R GA3000Z rigid insulation board or similar approved, provide 30mm thick perimeter insulation between screed and floor insulation upto d.p.c level on 100mm thick GEN3 concrete sub-floor on a 1200 gauge DPM lapped onto DPC within walls on min.150mm clean and well compacted hardcore.Depth of hardcore must not exceed 600mm and must be compacted in 150mm thick layers.All service entries to be sealed with pressure sensitive tape. Floor to achieve a min 'U' Value of 0.25w/m²K.
Floor Insulation Installation guidelines (under screed)
1. Install a Damp Proof Membrane (DPM) below the slab OR apply a liquid waterproofing material to the top surface of the slab.
2. The DPM must provide continuity with DPCs installed within the surrounding walls.
3. Level the surface of the slab; it should be smooth and free of projections.
4. Use a thin sand blinding on a rough tamped slab to ensure that boards are continuously supported. Cut strips of board as upstands to fit around floor perimeters to eliminate heat bridging at screed edges.
5. Upstand depth should equal the sum of the slab insulation and screed thickness.*
6. The upstand thickness should not exceed the combined thickness of wall plaster and skirtings.
7. Lay boards directly onto the prepared slab, cutting infill boards as required. Joints must be tightly butted. The use of a polythene vapour control layer over the insulation is recommended by the BRE to minimise the risk of condensation forming at the insulation/slab interface.
8. Apply a sand/cement screed over the GA3000Z boards to a minimum thickness of 65 mm. Use scaffold boards or other protection to prevent wheelbarrows and other traffic damaging boards.
9. Allow screed to dry thoroughly before an impermeable surface, such as a vinyl floor finish, is applied.
10. These recommendations are suitable for normal domestic floor loadings.If higher loadings are required it may be necessary to increase screed thickness and provide reinforcement within the screed
Installation guidelines (under slab)
Insulation under the slab must have: Level and well blinded hardcore. DPM (Damp Proof Membrane) placed under insulation. Insulated upstand = thickness of slab + screed. DPM contiguous with the DPCs. Vapour control layer (e.g. 1000 g polythene) laid directly over insulation.

DAMP PROOF COURSE (D.P.C)
Horizontal heavy duty polythene DPC "Hyload" or similar approved to all walls in accordance with BS 6515 and set min.150mm above all external ground levels.DPC in walls must be linked / lapped with DPM in ground floor.Provide performed cavity wall trays above windows & doors with weep vents at a max.of 2m centres with a min.of 2no.per opening.

EXTERNAL WALLS
All external walls to be 275mm overall thickness comprising of:
-100mm Facing brickwork to match existing
-75mm cavity filled with Crown Dritherm (or equal approved) built in as work progresses.Insulation batts should be kept clean and free from mortar droppings, all joints should be closely butted. Any cutting and fitting should be neatly done and not distort the layers of glass wool which comprise the material. All DPC's should be installed to ensure that penetrating water is directed only to the outer loaf.
-100mm Thermalite Shield insulating blockwork with 20mm sand / cement two coat finish.
Continue wall insulation at least 150mm below top of perimeter floor insulation and support off wall ties.
External wall to achieve a min 'U' value of 0.35w/m²K.

CAVITIES
Close all cavity walls at jambs with Thermabate or similar approved.Insulated cavity closers fitted strictly in accordance with manufacturers instructions. Roof insulation to be continuous with wall cavity insulation.Install Insulated Cavity Closers by Thermabate or equal approved, 25mm thick x 75mm wide (to equal cavity width) at jambs and cills of all openings in masonry cavity walls. Secure with the proprietary clips provided at maximum 500mm centres. Ensure that closers fit tightly to each other and to the lintel. The closer at the jamb must completely lap the closer at the cill.

WALL TIES
Stainless steel cavity wall ties to BS1243:1978.To be built into cavity wall as works proceeds and spaced at 750mm centres horizontally,450mm centres vertically and 300mm staggered around all openings.Ensure wall ties are level or at least sloping to the outside leaf.Bed ties a minimum of 50mm into each leaf and ensure wall ties are completely free from mortar droppings.

LINTELS
All lintels to cavity wall to be factory insulated Birtley Supergalv range unless noted otherwise or equalled approved.All lintels must have a min.150mm endbearing and installed in accordance with manufacturer's instructions.Do not allow masonry to overhang lintel by more than 25mm.
Note: lintels are not to have a continuous baseplate.

WINDOWS & DOORS
All windows to be uPVC to clients requirements based on styles shown on elevations.Fit with 4000mm² trickle ventilators to Kitchen, Utility,Bathroom & En-Suite windows and 8000mm² elsewhere all in accordance with manufacturer's recommendations.Patio doors to be fitted with 10000mm² ventilators.Opening vents to give 1/20 th of floor area rapid ventilation to all rooms.All glazing within 800mm of floor level and within 300mm of a door to a height of 1500mm of ground level to have toughened glass in accordance with Section N of the Building Regulations and BS6206 class B.All double glazed units to be installed in accordance with BS 6262 and to have a 16mm Air gap with a soft Low 'E' coating on glass inner pane to achieve a min 'U' value of 2.0 w/m²K.Note all windows to have a perimeter weatherseal both internally and externally and to be fully draught sealed.Provide frosted glass to all Bathroom, W.C's and En-suite windows.Ensure windows & doors are fitted within masonry reveal to overlap cavity closer by min. 40mm to avoid cold bridging.

TIMBER WALLPLATES
All timber wallplates supporting roof trusses to be 100mm x 50mm bedded on top of wall.Timber to be SC3 grade and use a min. length of 3m and half-lap plates at joints and corners.Provide anchor straps as described in notes elsewhere.

LATERAL RESTRAINT STRAPS
Tie roof structure to blockwork wall with 30X5 galvanised mild steel straps at max 1.8m ctrs where rafters and ceiling joists run parallel to blockwork walls.Also fit at max 1.8m ctrs to anchor wallplate to blockwork wall with min 3no. fixings per strap.Horizontal lateral restraint straps should be spaced not more than 2m centres and attached to at least 3 timber members through the use of noggings and packing. Attach to timber members with four steel screws or four 4 mm x 75 mm round nails for roofs and two into each joist for floors. The turn down end should be 100 mm at the centre of an uncut block or brick.Vertical restraint strapping should be at least 1m long. Where straps are fixed to masonry, hardened nails 8SWG x 75 mm long or wood screws into plugs No 12 x 50 mm long should be used. The number of fixings should be in accordance with the design plans and the lowest fixing should be located within 150 mm of the bottom of the vertical strap.

ROOF INSULATION - FLAT CEILINGS
The whole area of the ceiling to be insulated with two layers of Crown Wool Mineral Fibre Insulation or equal approved of a total thickness 300mm to achieve a 'U' value of 0.16w/m²K. Width of first layer of insulation to be appropriate to the joist spacings and of a thickness equal to joist depth (100mm) . The insulation to be laid between the joists to finish over the wall plate on external walls and pushed up tight to roofing membrane. The second layer (200mm) of Crown Wool to be laid at right angles to the first layer.All joints between the rolls of insulation to be close butted.

ROOF INSULATION - SLOPED CEILINGS (UNDER RAFTER)
The whole area of the ceiling to be insulated with 25mm thk Multi Layer Tri Iso Super 9 Insulation to achieve a 'U' value of 0.19w/m²K fitted strictly in accordance with manufacturers instructions:
1. Unroll the insulation preferably vertical, starting from the top of the roof.
2. Staple the insulation product at 500mm ctrs on the u/side of the rafters
3. Overlap the widths by min. 50mm and max. 100mm and tape joints with approved tape.
4.At the bottom of the roof slope, staple the insulation directly to the wallplate.
5.Nail 25mm thk cross battens to the rafters to create 25mm cavity / ventilation gap through the insulation and then attach p'board.
Roof Insulation 'U' Value Calculation sheet available on request

ROOF VENTILATION
Install Tyvek® or similar approved Breathable Membrane in accordance with manufacturers instructions which are briefly described below & BBA certificate 99/3635 (fourth issue) breather membranes in non-ventilated pitched roofs of any plan, any shape or any size under all types of roof coverings including tight jointed and fully interlocking tiles and synthetic slates.
Installing Tyvek® underlay in accordance with the above certificate will enable a roof to meet all the requirements of the Building Regulations.
Installation Guidelines
Tyvek® SUPRO should be installed with min. 150mm overlaps as a standard bituminous felt underlay and secured with stainless steel staples or large headed galvanised clout nails.
Eaves:
There is no need to provide any vents into the loft at eaves, because a Tyvek® non-ventilated roof system does not rely upon air movement beneath the membrane to avoid damage by condensation.To avoid water ponding behind the fascia of closed eaves and to prevent prolonged exposure of the membrane to ultra-violet radiation, use a Tyvek® Eaves Carrier. Stop the membrane short of the fascia and lap it onto the Eaves Carrier.Pack closed eaves with fibrous insulation to reduce thermal bridging.
Verge detail:
Lap the Tyvek® underlay 50mm onto the gable or flying rafter.
Ridge/ hip detail:
Extend the Tyvek® underlay 150mm from each slope and overlap it at the ridge/ hip line. There is no need to provide vents at the ridge.
Valley detail:
Extend the Tyvek® underlay from each slope by 150mm beyond the valley centre line and seal the lap using Tyvek® Butyl Tape to form a watertight seal.
Abutments:
Turn up the Tyvek® underlay beneath flashings not less than 50mm.
Penetrations:
Seal around all penetrations using Tyvek® Butyl Tape.

ROOF FINISH
Concrete Interlocking Pantiles to match existing fixed in accordance with manufacturers instructions and in accordance with BS 5534:Parts 1 and 2.Set out to give true lines and regular appearance, fitting neatly at all edges, junctions and features.Fix roof covering to make the building sound and weathertight at the earliest opportunity.Repair any defects as quickly as practicable to minimise damage and nuisance & keep gutters and pipes free of debris and clean out at completion.Provide 50x25 preservative treated timber battens.Tiling battens should be not less than 1.2m long and continuous over at least 3 trusses.They should be fixed to every rafter member which they cross, or on which they are joined, with nails in accordance with BS5534: Part 1. The ends of the battens should be sawn square and butt jointed centrally on a rafter member so that adequate bearing and nailing can be provided for each end of each batten.Butt joints in battens should be arranged so that not more than one batten in four is joined on any one rafter.Generally all tiles at perimeter of roof to be clipped and nailed. Use Code 4 Lead flashing to any abutments with min.75mm upstand.
HEATING SYSTEM
Provided from existing but all radiators are to be fitted with thermostatic radiator valves. All space heating pipework located outside the building fabric insulation layers to be wrapped with insulation material having a thermal conductivity at 40°C not exceeding 0.035 W/m°K and a thickness equal to the outside diameter of pipe upto max. of 40mm.It should be noted that central heating and hot water pipework in unheated areas may need increased insulation thicknesses for the purpose of protection against frost, refer to BRE Report No. 262 2002 Edition. NOTE: Plumbing & Heating Engineer to check to ensure existing boiler is capable of serving additional floor space.

SOAKAWAYS
All rainwater to discharge into soakaways and to be min.of 5m from any building & a min.of 1m ' filled with rubble to within 450mm of external ground level.Overlay rubble with polythene sheet and backfill with clean topsoil.Note the soakaway inlet pipe must discharge to the centre of the soakaway in all directions.

RAINWATER DRAINAGE
uPVC guttering and downpipes to clients approval.Falls for guttering to be 1:600 and brackets fixed at max. 2m ctrs.Downpipes to be connected into underground drains via reducing adapter.Underground drains to be 110mm Ø Osma uPVC or similar approved with flexible joints laid on 100mm peagravel and min 150mm surronds laid to 1:100 falls to new soakaway.Soakaway specification detailed elsewhere.

ELECTRICAL INSTALLATION
All electrical work required to meet the requirements of Part P must be designed, installed, inspected and tested by a person competent to do so. Prior to completion of the works the council Building Control Officiers must be satisfied that either:
1. An electrical installation certificate issued under a competent persons scheme has been issued or
2. An appropriate electrical installation certificate has been issued for the work, and that it has been signed by a person competent to do so.The Engineer is to advise if any appliance or position of appliance does not conform to regulations. Contractor to seek advice from Client with regard to lighting requirements.

WASTE SIZES FOR NEW PLUMBING
All new plumbing to have the following waste sizes:
W.C=100mm o Multikwik or similar approved
W.H.B=32mm o uPVC with 75mm Deep sealed trap
SINK=40mm o uPVC with 75mm Deep sealed trap
SHOWER=40mm o uPVC with 75mm Deep sealed trap
Provide access points to all drains in direction.Provide anti-siphon traps where pipe runs exceed 3m and W.H.B pipe run exceeds 1.8m.

NOGGINGS
Fix 38x38mm timber noggings to all potential loose plasterboard ceiling edges and light fittings.Position of light jittings to be advised by client on site.

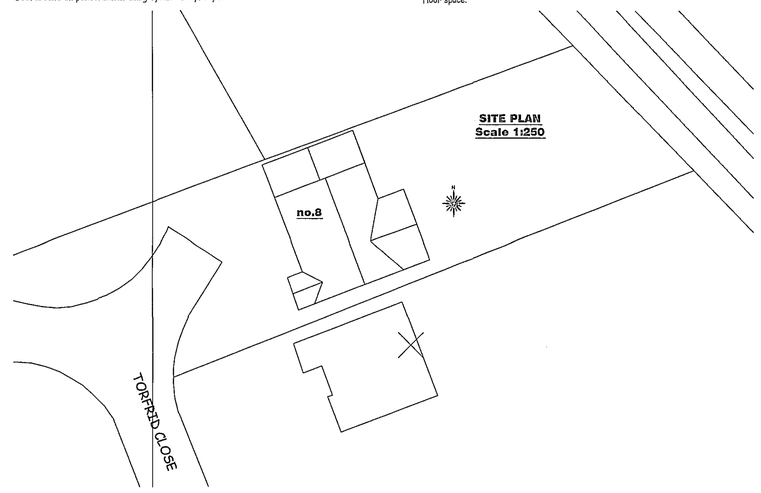
INTERNAL JOINERY ,SKIRTING & ARCHITRAVES
All internal finished timber to be free from all defects and to clients approval prior to ordering any materials.

MASONRY WALL CONNECTORS
Provide Simpson Strong - Tie or similar approved wall connectors to connect new & existing brick / blockwork.Use all specified fasteners.Fasteners must be spaced evenly, unless otherwise specified, and installed into the existing bricks or block and not into mortar joints.Insert wall ties provided at maximum 300 mm centres, bedding the ties into the mortar joints.Detailed site work instructions are provided with each wall connector system and must be adhered to at all times.In exposed locations it may be necessary to incorporate additional protection, for example the insertion of a vertical dpc.

CEILINGS
All ceilings to be 15mm plasterboard to BS1230.
Ceilings to be have Coving and skim finish to clients requirements.Plasterboard sheets to be fixed with joints staggered and must be layed perpendicular to all joist runs.Fix boards at a min.150mm centres.

BLOCK COMPARISION TABLE (to achieve a 'U' value of 0.35W/m²K)		
Manufacturer	100mm thk Block type	Full Fill Cavity insulation thickness
Thermalite	Shield	65mm
Plasmor	Fibolite	85mm
	Aglite	85mm
	Stranlite	85mm
	Plascon	100mm
Tarmac Topblock	Hemelite	85mm
	Lignacite	85mm
	Toperate	100mm
	Durox Supabloc	65mm

PLEASE NOTE:
Due to the nature of the structure of the building, parts of the existing or otherwise inaccessible are not known. Specifications of existing materials are subject to confirmation of site where it is feasible to expose the relevant areas of construction.



SITE PLAN
Scale 1:250

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LOCATION PLAN
Scale 1:1250

Client :
Mr B Smith
8 Torfrida Close
Crowland
PE6 0LW

Site :
Proposed Two Storey Side Extension, First Floor Extension above Existing Grd Floor & Single Storey REar Extension

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3 Rembrandt Way
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PE11 3HX
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fax: 01775 768 921
e-mail: jason@remwaydesign.co.uk

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Planning & Development
13 MAY 2005
645/05
Ref:

Date : apr05 Scale : 1:50 / 1:100

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