40 Queen's Grove

Requirements

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Outline Architectural Specification

File No	Introduction
1	This outline scope and specification document is for the main shell and core for the 40 Queen's Grove Project and prepared for agreement with the client. The fit-out is currently being developed with interior designer Chester Jones and EPA.
1.01	Planning approval has been granted for the rebuilding of an existing 1930s house with a contemporary house in the Camden Conservation Area. The Section 106 agreement requires the house to achieve Level 4 Code for Sustainable Homes. The development must obtain at least 50% of the credits in each of the Energy and Water categories and at least *30%* of the credits in the Materials category. (Refer to appended table). Obligations and contributions by the contractor will need to be undertaken to meet the S106 requirements, such as the 'Construction Management Plan', the 'Sustainability Plan' and specific requirements of the Code for Sustainable Homes.
1.02	It is the client and design team goal to use this project as a demonstration and benchmark for sustainable house design and construction. A particular focus on efficient design, specification and site management to achieve value for money, minimise waste and partner an efficient, integrated supply chain as part of this process. This is envisaged to be achieved by working closely with contractors and by adopting the use of appropriate building technologies.
1.03	Detailed design and co-ordination will need to be undertaken and all materials will need to be agreed and approved by the client, design team and relevant authorities.
1.04	As the project evolves the integration, co-ordination and sequencing of the fit out, M&E and internal fabric will need to be considered by the team.
1.05	The client also wishes to demonstrate the benefits of 5D computer modelling for the main shell and core construction.
1.06	The interior design will develop the existing house's internal character, materials and details to the new scale and internal arrangements. Reuse of existing materials, fittings and furnishings is being considered.
1.07	The new home is to allow accessible and flexible accommodation for the client and their guests into the future, with planned adaptations for possible additional staff. The home needs to be lifetime homes compliant and some aspects of the design will need clarification in relation to this.
1.08	The design will need to comply with the 'Secured by Design' initiative. No discussions have yet been held with the Security Liaison officer.
2	**Sub-structure and site works**
2.01	Refer to ARUP information for further detail.
3	**Structural Assumptions**
3.01	Refer to ARUP information for further detail. A simple reinforced concrete frame is required – refer to attached sketches for an indicative layout. Columns to be either cast in-situ or pre-cast.
3.02	A constant thickness flat slab is generally shown throughout. Downstand or upstand concrete beams may be required on step lines, slab edges and adjacent to major openings – however it is intended to minimise or eliminate the requirement for these in total if possible.
3.03	There is a set back in the structural line at first floor level at the front of the house from gridline 1.1 to 1.0. The reinforcement for this offset is contained with the depth of the flat slab
3.04	The frame will be stabilised by shear walls to minimise column sizes and simplify slab and column reinforcement.
3.05	Slabs are to be reinforced concrete (flat).

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	Assumed at this stage there is no integration of service routes or conduits within the concrete structure – post drilling and routing within the floor zone above.
3.06	Use a Portland Cement substitute – GGBS / PFA and recycled or secondary aggregates in the concrete mix in order to gain CfSH material credits.
3.07	Use FSC accredited formwork timber in order to gain CfSH material credits.
3.08	Review the possible use of standard size shuttering to avoid waste and review the possible re-use of shuttering ply into the permanent works.
3.09	Square / rectangular columns integrated in to external walls – aspect ratio to be decided to best fit the external wall and to co-ordinate with cladding and internal partitions.
3.10	Shear walls to be located to avoid future impact on internal layout ideally incorporated into either the lift/ stair core or external walls.
3.11	Minimise size of inset columns at ground floor to front façade. (setback for transparency and incorporation within façade – minimise cold bridging)
3.12	Lightweight steel framed balcony / bridge structure connecting house to garden to rear elevation. Stone on precast construction outside thermal / weathering line.
4	**Wall Construction**
4.01	A number of wall build ups reviewed – refer to separate document and Arup Thermal envelope performance document.
4.02	To achieve an average (incl. cold bridges) 'U' values 0.14 W/m²K an infill stud built up wall solution is proposed. (through the wall U value to be 0.12 W/m²K) Refer to sketches EPA-SK-37 & 38 attached for typical build ups.
4.03	Attention is to be drawn to the continuity of thermal and vapour lines in any given proposal. Metal (steel) studs are only to be used within the vapour line and without in-line insulation. Aluminium or timber studs can potentially be used as part of composite insulated build up with insulation between studs as long as a vented cavity is maintained. The vented cavity may be infront or behind the cavity depending upon the system. Both details will need further analysis to ensure that the condensation risk, dew point, integrity and life span of the fabric is maintained.
4.03	Acoustic performance – tbc by Arup.
4.04	A continuous flat rendered external finish is required (not a textured render) with no movement or day joints (interface with frame edge and deflection important). The sizing and deflection of the stud wall and frame will need to be closely developed to respond to the requirements on the render finish.
4.04	The façade finish forms part of a fire rated wall and as such EPS / foam insulation are not suitable. A rockwool, mineral wool or foamglas insulation will achieve this performance.
4.05	If an NHBC warranty (or demonstrated compliance) is required a drained cavity will be required behind the render system. Client advice sought on this but this has been assumed to date with the detail put forward.
4.06	A lime based render system is proposed as part of a built up direct adhesive insulated render system by Telling Lime Products Ltd. This system has been chosen to achieve a smooth flat 'stucco' finish in line with the adjacent buildings in the conservation area and is suitable for use on a boundary (fire) condition. Contact: Mike Wood 07734 564041
4.07	Weathering details critical to quality of façade – Integrated drainage to front (south)elevation window cills Projecting cills to all other elevations Copings back drain to roof behind, with rebate detail to front façade. All sills and copings to be folded and formed aluminium of 2mm thickness.
4.08	Feature metal canopy to front door with integral lighting.
4.09	Curved louvred screening to roof top plant – subject to approval of planners as an amendment.
5.00	**Basement, forecourt floor and basement construction**

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5.01	A drained (hyrdoduct, deltadrain) basement cavity wall and floor construction is proposed to achieve a grade 3 habitable space.
5.02	Based on a screed of 75mm, 100mm of high performance floor insulation is required above slab to meet ARUP thermal performance requirement of 0.11W/m²K. (based on Kingspan Kooltherm K3 or equivalent) A heated screed or a underfloor heated transfer plate detail are possible depending on the chosen system. Refer to EPA -SK-29 and 30 attached.
5.03	Based on a retaining wall construction of 300mm thick reinforced concrete 120mm of high performance floor insulation is required internally to meet ARUPS thermal performance requirement of 0.11W/m²K (based on Kingspan Kooltherm K12 or equivalent) Refer to EPA -SK-36 attached.
5.04	Other areas of basement construction will need to be defined when structural information is available. Particular attention will be required to the thermal bridging across connection details of suspended slabs to the side of the house and the forecourt. Allow Schock Isokorb or Ancon insulated connectors. Detail to be developed.
6.00	**Floor / ceiling construction**
6.01	A simple flat concrete slab is sought with minimal upstands. Due to programme and ease of construction cast in conduits and wireways are to be avoided where possible.
6.02	Underfloor heating is required to the ground and lower ground floors. The exact type of system is to be confirmed with ARUP and the final floor build up. Currently the basement floor slab construction has a screed. This could be heated or a heat transfer plate installed on top. Refer to EPA-SK-029, 030, 031, 032 attached
6.03	It is proposed to have a 100mm m/f skimmed plasterboard ceiling to route services, including lighting, power, security and fire systems. Services can be located in an 'underfloor 'zone above slab if required but with restricted access.
6.04	Upper floors are carpet or timber. No screeds are proposed. Acoustic advise is required to finalise the build up Refer to EPA-SK-033 attached
7.00	**Glazing / Cladding**
7.01	High performance proprietary systems (drained and pressure equalised) – Schuco stated as preference by client.
7.02	Side / top hung windows and / or parallel opening and sliding windows / doors, side hung doors. All door thresholds to comply with lifetime homes standards and locks and systems to be compliant with the Secured by Design initiative.
	The client has requested that external Schuco security shutters are installed to the rear of the house. In discussion with Schuco they do not a produce, as standard, a security shutter that will fit the width of openings on this project. Further advise sought.
7.03	Feature glazed porcelain cladding to ground floor front elevation as part of cladding / rainscreen. Initial discussions have been held with Tichelaar, a Dutch company able to produce these panels. Contact is Jan Tichelaar. (jan.tichelaar@tichelaar.nl - +31 515 23 13 41)
7.04	**Glazing to all components** • Low e, coating to face 3 • Neutral solar control, • Clear (low iron) glass. • All outer layers to be laminated. (no toughened glass to be installed to the outer face) • All inner layers if toughened for thermal shock to be heat soak tested.

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	• No UV control assumed.
7.05	**Front / South elevation / West elevation to study and stair** Double layer façade with vented cavity to achieve U = 1.0 W/m²K System to be based on a built up Schuco system with frameless outer layer Triple glazed inner layer providing thermal and acoustic performance. Integral external grade venetian blinds to vented cavity Single glazed laminated outer layer flush with render / porcelain panelling and with minimal frame. and / or Porcelain cladding installed flush with glazing on aluminium substrate. Feature painted flush metal or timber front door and panelling.
7.06	**North, east and partial west elevation.** Single layer façade to achieve U = 1.6 W/m²K System to be based on the Schuco SFC85 SG system. ASS70 sliding doors Flush structurally glazed system providing thermal and acoustic performance. Internal blinds or curtains Full height, one piece outer flush perforated / solid metal pan to conceal inward opening vents to heights indicated. External rectangular extruded louvre blades to west facing elevation to ground floor living room.
7.07	**Stair Rooflight** Circular double glazed glass rooflight. Concealed ventilation to upstand. No blinds or solar shading in addition to the high performance glass.
8.00	**Roof Construction**
8.01	Based on a flat slab. Client to confirm acceptance of this.
8.02	Generally inverted parapet roofs to flat concrete slabs with ballast, paving or extensive sedum green roof finish. To meet ARUP thermal performance requirement of 0.11W/m²K, 260mm of insulation is required (based on Kingspan Styrozone and high performance membrane) Refer to EPA-SK-034 attached. (note the Kingspan separating membrane limits the rainwater cooling of the insulation and as such the efficiency is improved)
8.03	Inverted mastic asphalt roof to flat concrete slab at main roof level, living room and kitchen Permaquik PQ6100 Monolithic Membrane Roofing System (or equivalent) – self healing with geotextile membrane and EPS insulation and ballast / paving slabs.
8.04	Integration and support of services including – Solar water heaters and air source cooling units to be confirmed.
8.05	Warm roof to playroom structure Visual thinness required to top of 2nd floor playroom roof – exact details tbc – relative to build up of structure and framing.
8.06	Internal drainage. Overflow provided to east or north elevation
8.07	Concrete slab to incorporate lift overrun, upstands to rooflights, clerestorey glazing and parapets.
9	**External landscaping**
9.01	Natural stone paving to rear courtyards, terraces and stairs.
9.02	Natural stone walling / terracing to rear courtyards
9.03	Natural stone paving / granite setts to fall in front forecourt. Standard 120mm simple falls incorporated into car lift lid allowed.

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	Large threshold stone to be allowed at main entrance Final levels to be confirmed – lightweight build up of levels (insulation / lytag)
9.04	Feature tree to front courtyard within waterproofed and drained tree pit.
9.05	Planters to front forecourt and terraced planting to rear garden / courtyard
9.06	Architectural metalwork and structural glass balustrades, handrails, security gates.
9.07	Allow waterproofing as 8.03 to forecourt and side passage.
10	**Internal Fit Out**
10.01	General level of specification to be based on the current house. High quality glass, timber, and joinery fitout. Refer to EPA document of photos and drawings detailing the existing house appended to document.
10.02	Skimmed plasterboard drylining with painted rebated skirtings and shadowgap deflection head detail (integration of M&E services critical)
10.03	Internal Partitions based on 2 layers 15mm plasterboard and skim to 70mm studwork with 25mm isowool acoustic insulation. Rw value of 50dB. Painted rebated skirtings and aluminium shadowgap deflection head detail required. Acoustic separation and back boxes to all services and sockets. Taped and sealed service penetration to external walls to maintain airtightness and/ or vapour line depending on the final option. Refer to EPA-SK-033 attached.
10.04	Acoustic performance / Code 4 improvements over Building Regulations to be confirmed by ARUP in relation to base build acoustic provision.
10.05	Hardwood veneered solid core doors (re-use of some existing doors to be reviewed). Fire rating requirement to central stair core (FD30S) but no door closers required. High quality Allgood d-line ironmongery to match existing.
10.06	Skimmed plasterboard m/f ceilings assumed throughout except to back of house areas at basement.
10.07	High quality engineered timber flooring to ground and lower ground floor area compatible with underfloor heating. Hardwood and/or carpet flooring to upper floors (possible re-use of some existing hardwood flooring)
10.08	High quality exposed precast staircase from lower ground to second floor. Granolithic finish (protection during construction critical if installed for construction traffic)
11	**M&E Defined Design Parameters** For general and additional M&E detail refer to ARUP information
11.01	Part L (2006) compliance (at least 44% over due to Code 4 minimum requirement) Code for Sustainable Homes Level 4 Includes 50% of energy credits Includes 50% of water credits Includes 30% material credits with an aspiration of 50%

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11.02 Thermal Envelope Performance

Element or system	**Indicative values for 40 Queens Grove**	**Alternative values for 40 Queens Grove**
Walls (including basement)	0.11 W/m²K	0.14 W/m²K (achieved with Wall Option 6 – steel frame)
Floors (including basement)	0.11 W/m²K	0.11 W/m²K
Roofs	0.11 W/m²K	0.11 W/m²K
Opaque door	0.7 W/m²K	0.7 W/m²K
Windows and glazed doors	U = 1.6 W/m²K Double glazed, very low-E soft coat Frame factor 0.7 Solar energy transmittance 0.5 Light transmittance 0.6	U = 1.0 W/m²K (South East façade) Triple glazed, very low-E soft coat U = 1.6 W/m²K (other facades) Double glazed, very low-E soft coat Frame factor 0.7 Solar energy transmittance 0.5 Light transmittance 0.6
Allowance for thermal bridging	0.06 x total exposed surface area (W/K)	0.06 x total exposed surface area (W/K)
Air permeability	5 m³/m²h at 50 Pa	5 m³/m²h at 50 Pa

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07·QGR-SK-029

Date FEB 2010 By

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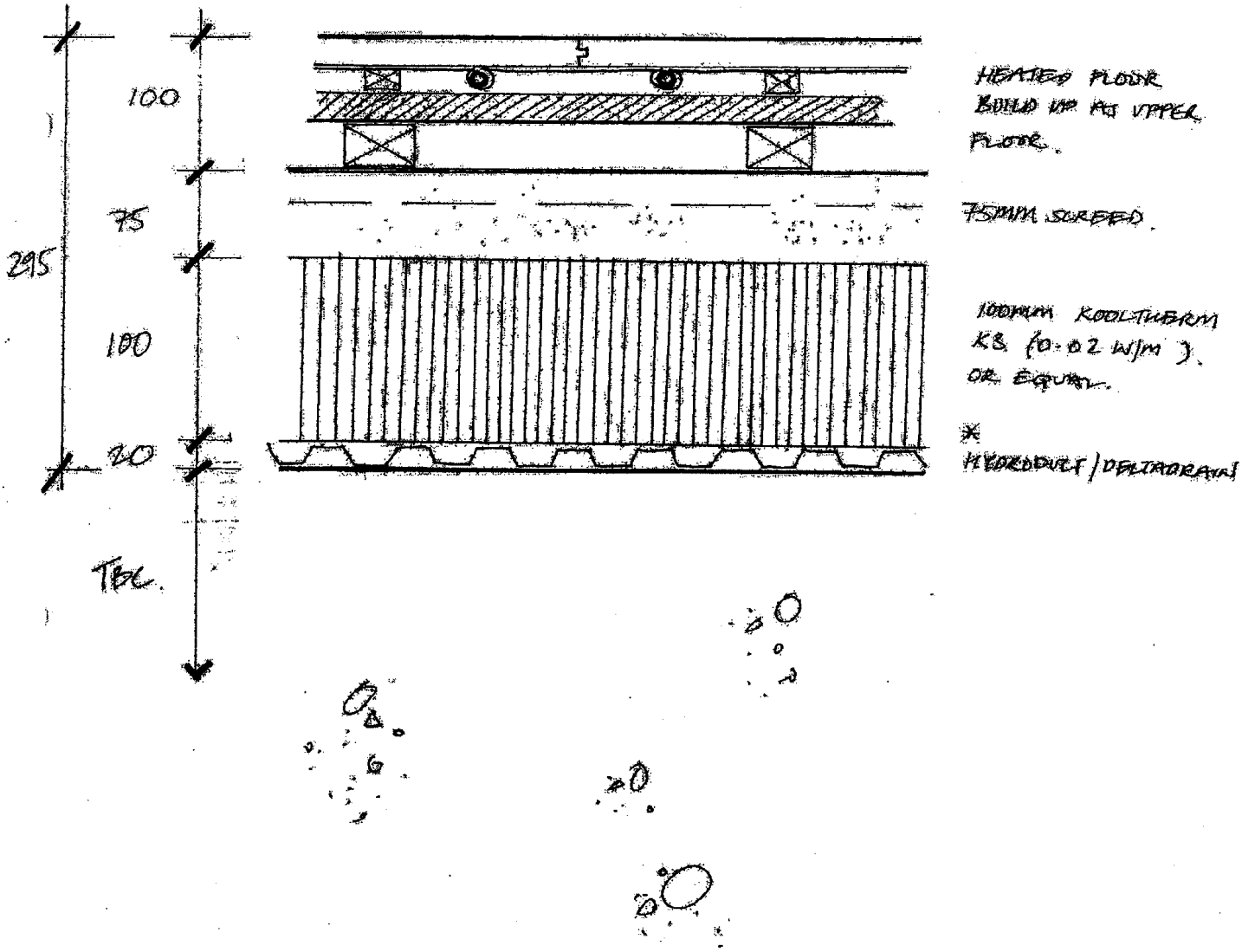
BASEMENT FLOOR CONSTRUCTION OPTION A (insulative).

'U' VALUE 0.11 W/m²K.



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* COMPATIBILITY OF DRAINAGE SYSTEM TO BE REVIEWED WITH THERMAL LINE + BASEMENT STRUCTURE.

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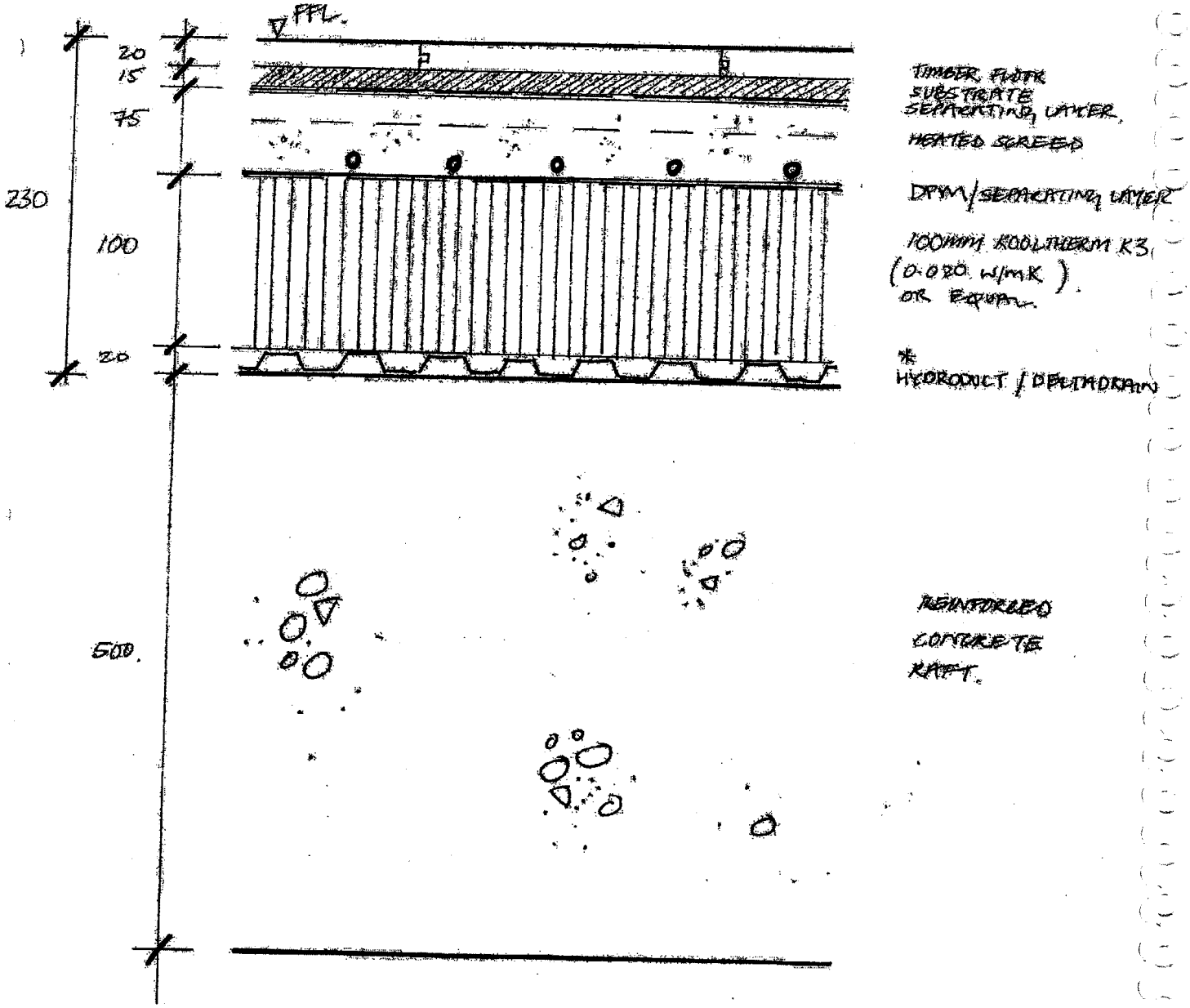
BASEMENT FLOOR CONSTRUCTION. - OPTION B. (indicative)
U VALUE 0.11 W/m²K.



* COMPATIBILITY OF DRAINED SYSTEM TO BE REVIEWED WITH THERMAL LINE + BASEMENT STRUCTURE.

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QGR-SK-031

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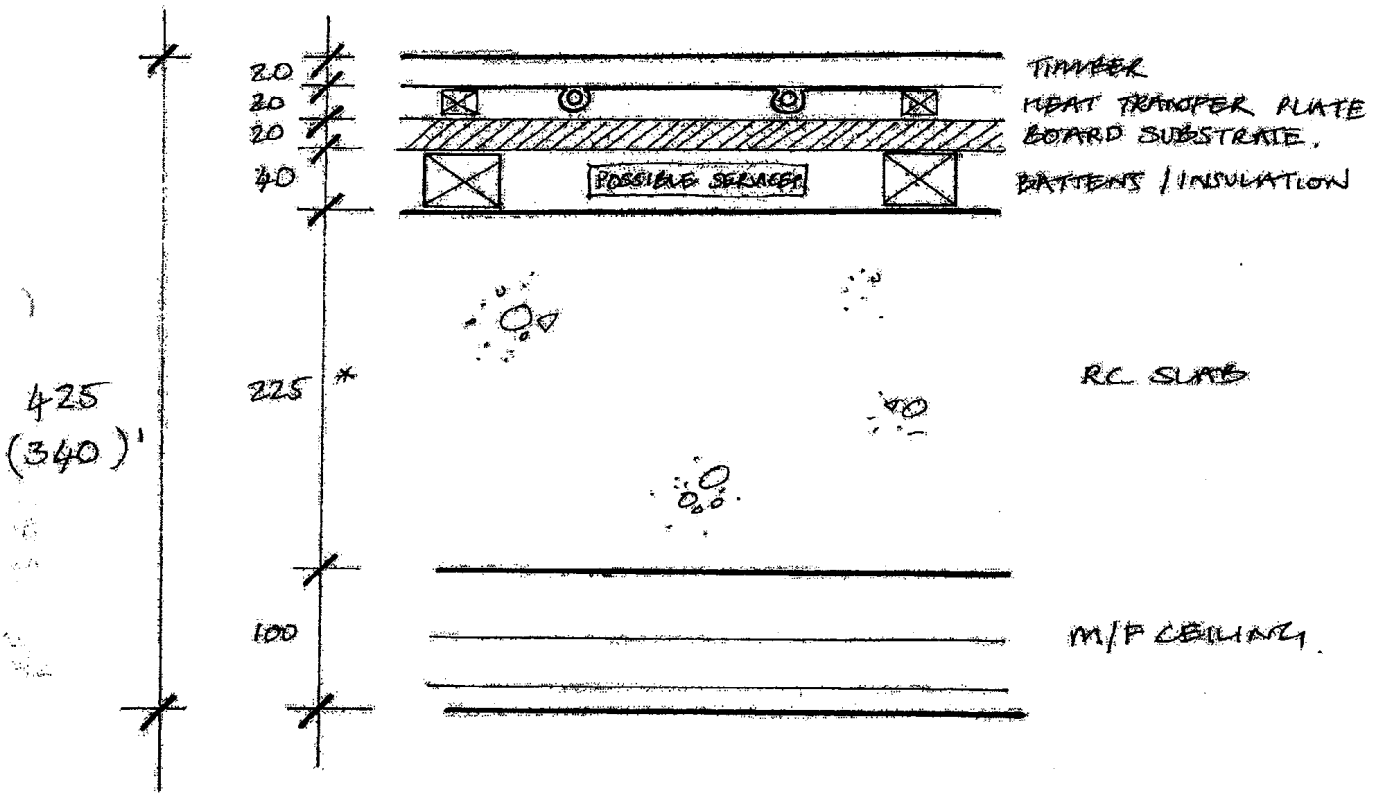
GROUND FLOOR CONSTRUCTION - Option A (indicative)



GROUND FLOOR HEATED TIMBER OPTION

* SLAB THICKNESS TBC.

150MM UNHEATED ZONE TO PERIMETER IF REQUIRED FOR SERVICES.

*' OMIT CEILING IF SERVICES CONTAINED AND ROUTED IN BATTEN ZONE ABOVE SLAB: (ADD 15MM PLASTER).

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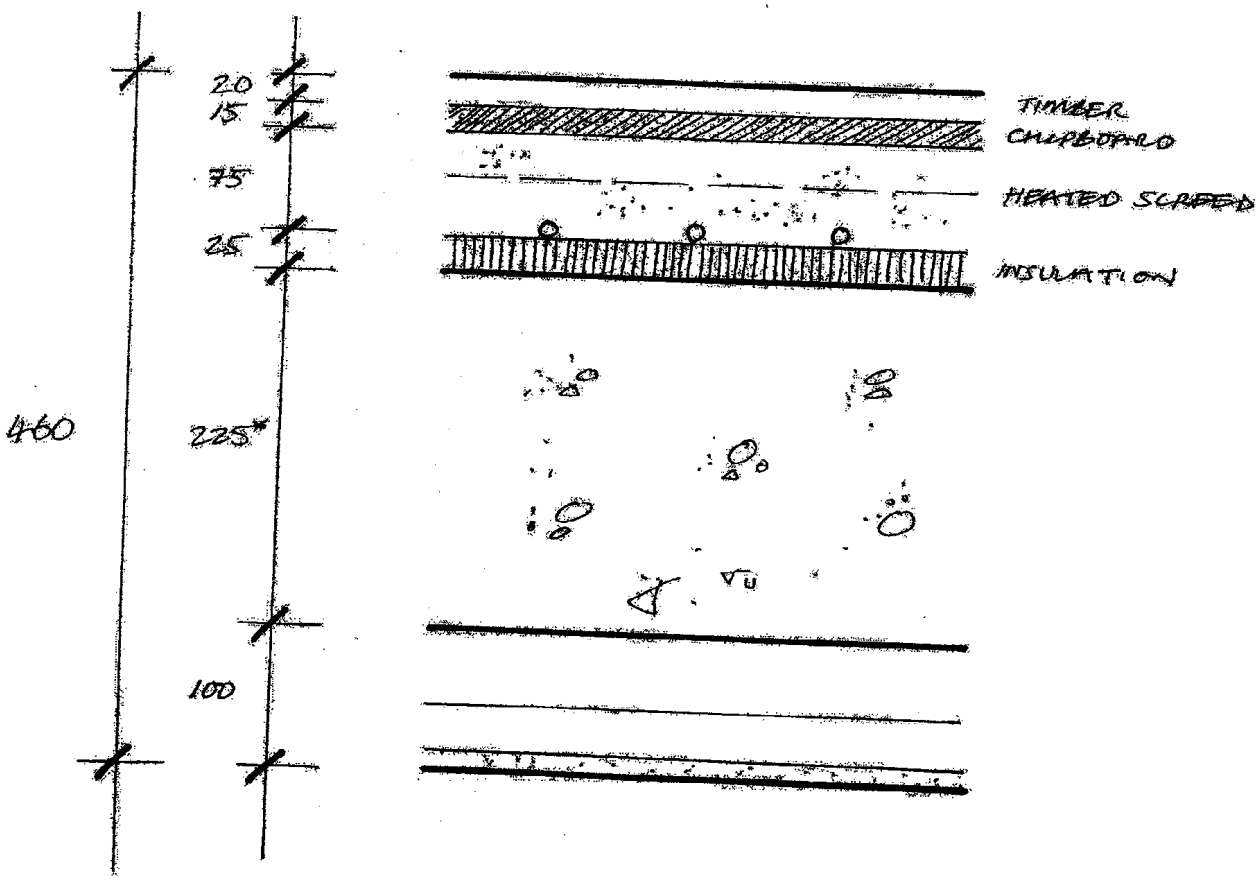
GROUND FLOOR CONSTRUCTION - OPTION B (indicative)



GROUND FLOOR, HEATED SCREED OPTION.

* SLAB THICKNESS TBC.

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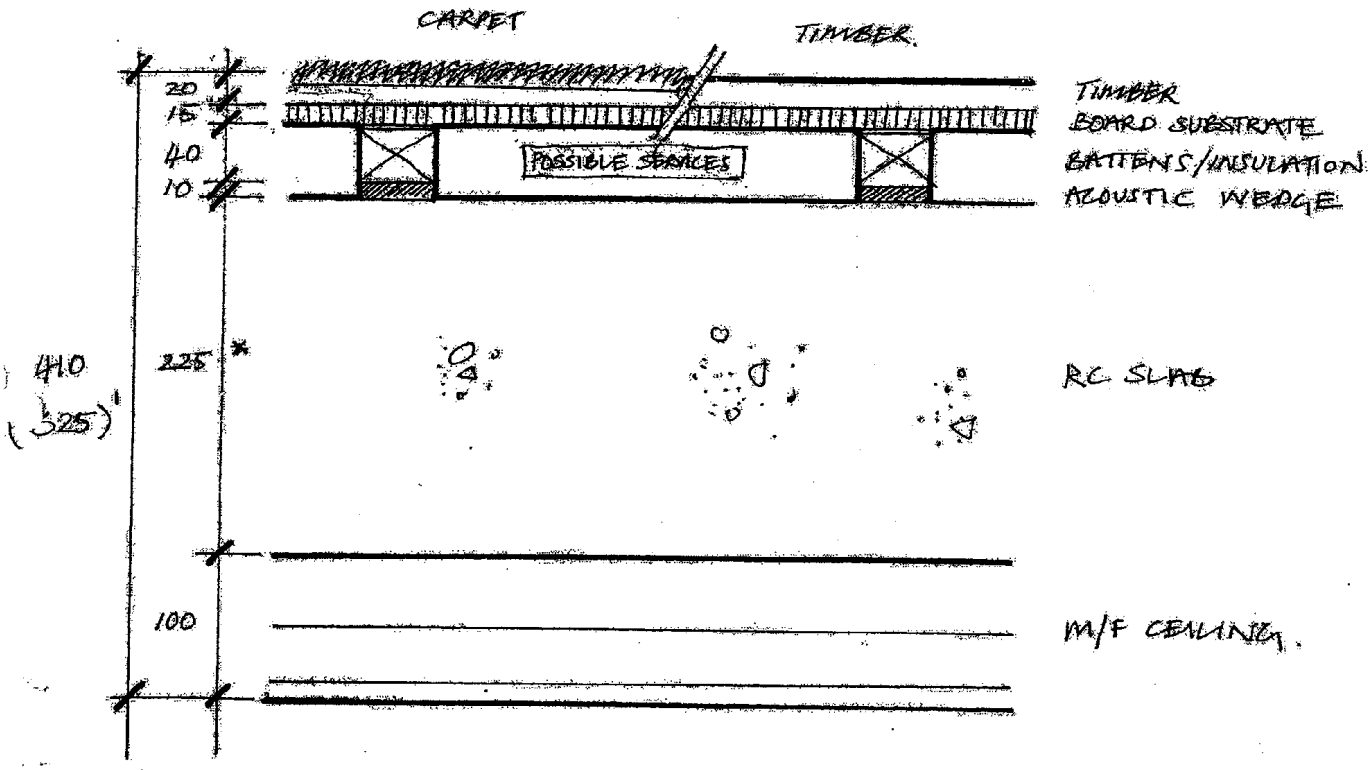
UPPER FLOOR CONSTRUCTION - OPTION A (indicative)



UPPER FLOOR TIMBER OPTION / CARPET OPTION

* 225MM SLAB TBC.

CARPET BUILD UP TO MAINTAIN FLAT SLAB WOULD BE 10MM CARPET, 10MM ACOUSTIC UNDERLAY IN LIEU OF TIMBER.

*' OMIT CEILING IF SERVICES CONTAINED AND ROUTED IN BATTEN ZONE ABOVE SLAB. (ADD 15MM PLASTER).

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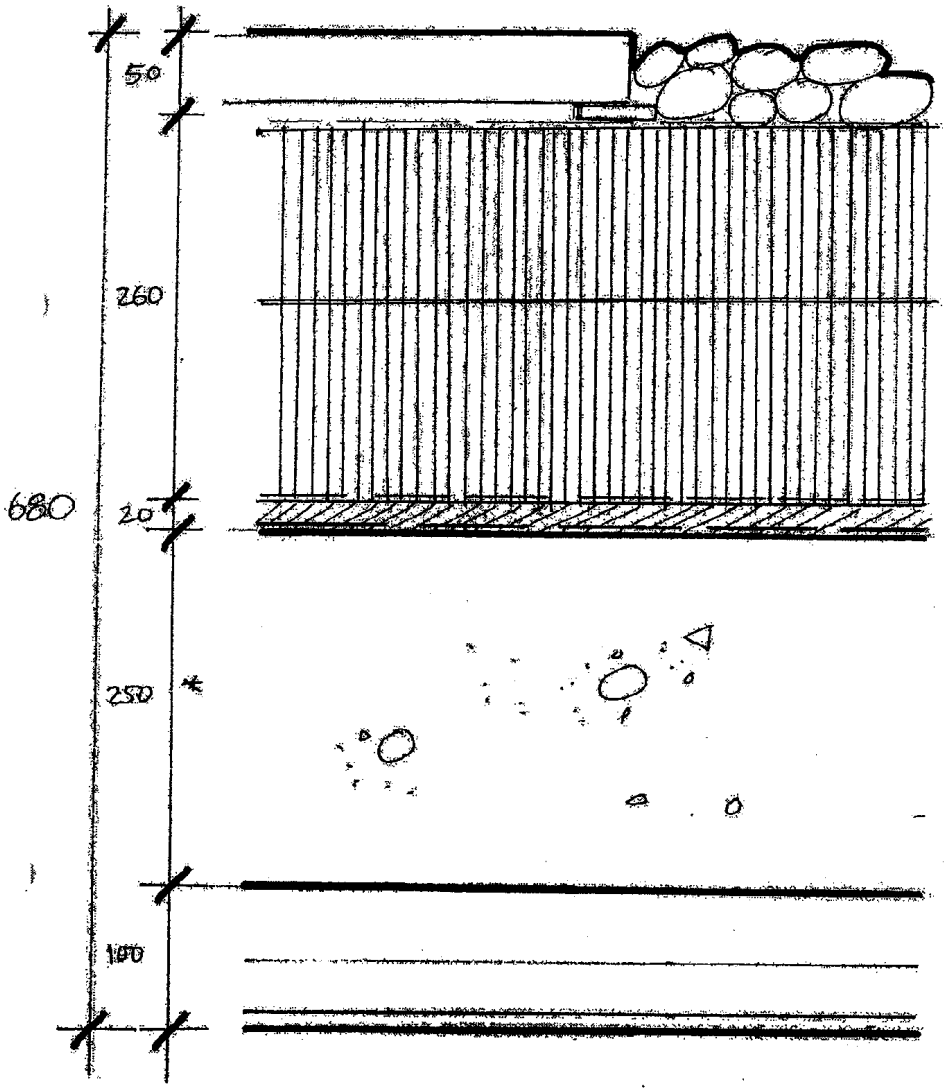
TYPICAL ROOF CONSTRUCTION (indicative).

U VALUE 0.11 W/m²K.



- BALLAST / PAVING
- HIGH PERFORMANCE MEMBRANE
- 260MM KINGSPAN STROZONE K3SOR
- GEOTEXTILE
- 20MM MASTIC ASPHALT
- CONCRETE SLAB (THICKNESS TBC).

ASSUMES FLAT SLAB - NO DROPS.

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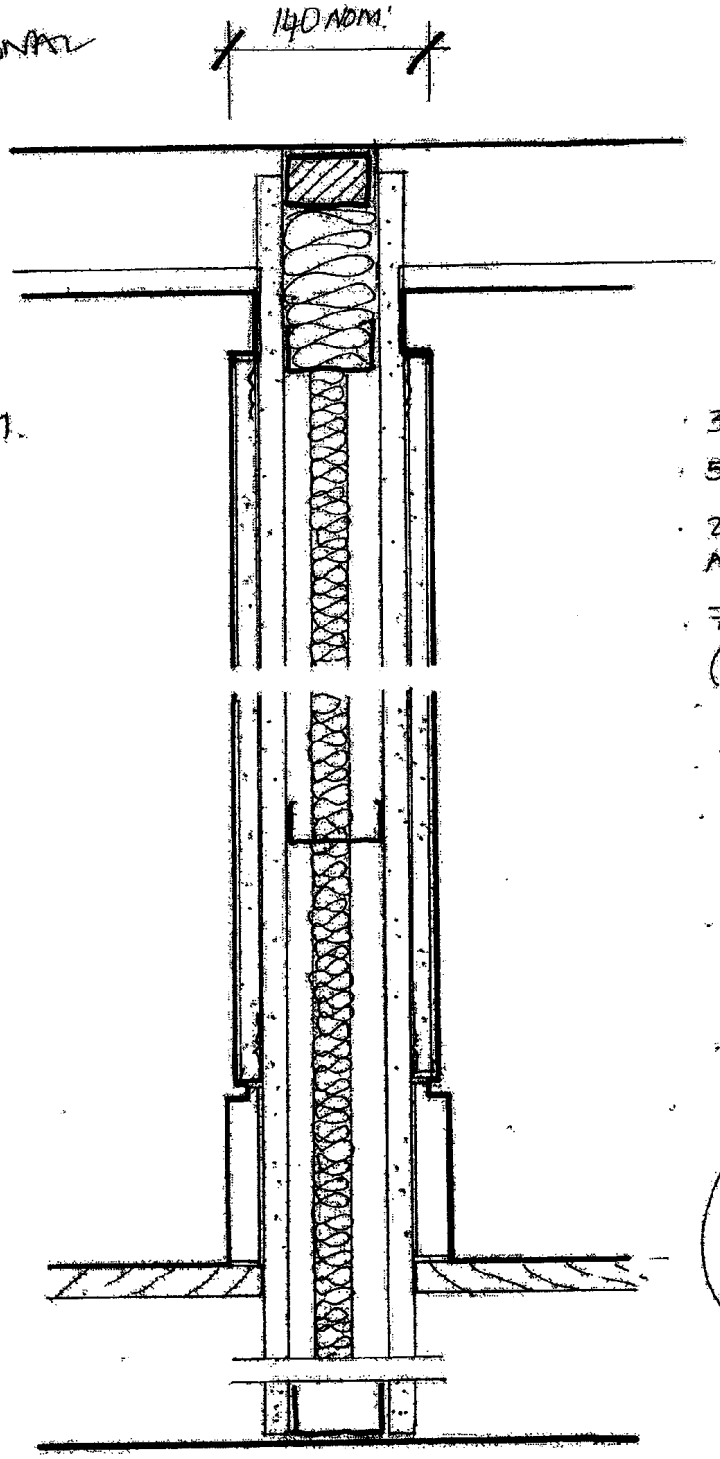
TYPICAL INTERNAL PARTITION.



DETAILS TO MATCH EXISTING.

- 30MIN CONSTRUCTION REQ'D
- 50dB RW (toc)
- 2 LAYERS 15MM BOARD AND SKIM
- 70MM STUDS @ 600mm (max 4000mm span).
- heavy duty
- Typical floor base detail
- Typical deflection head detail.
- Aluminium shadow trim to plasterboard soffit.
- Rebated semi recessed painted skirting

(Acoustics toc by Arup)

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QGR-SK-36

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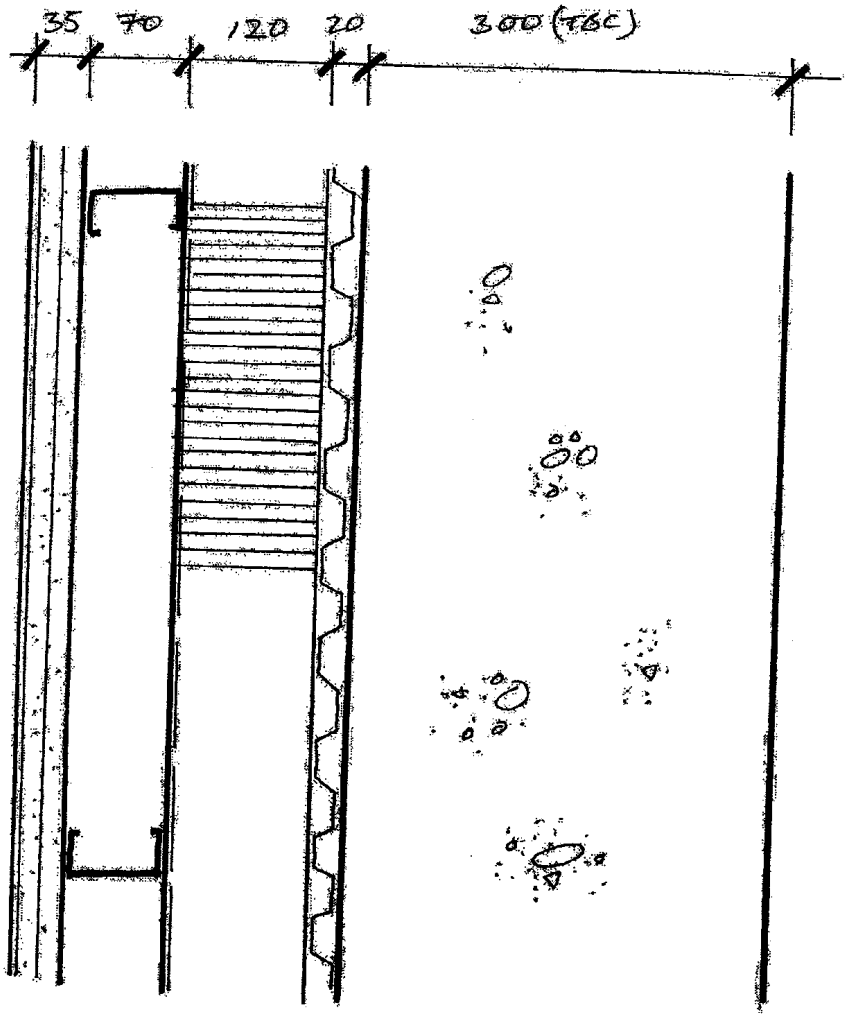
BASEMENT WALL CONSTRUCTION. (indicative).

U VALUE 0·11 W/m²K.



- 2 × 15mm PLASTERBOARD +SKIM
- 70mm STUD
- 120mm KOOLTHERM
- HYDROBOLT / DELTA DRAIN *
- RETAINING STRUCTURE - TBC.

* COMPATIBILITY OF DRAINED SYSTEM TO BE REVIEWED WITH THERMAL LINE + BASEMENT STRUCTURE.

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QGR_SK_37

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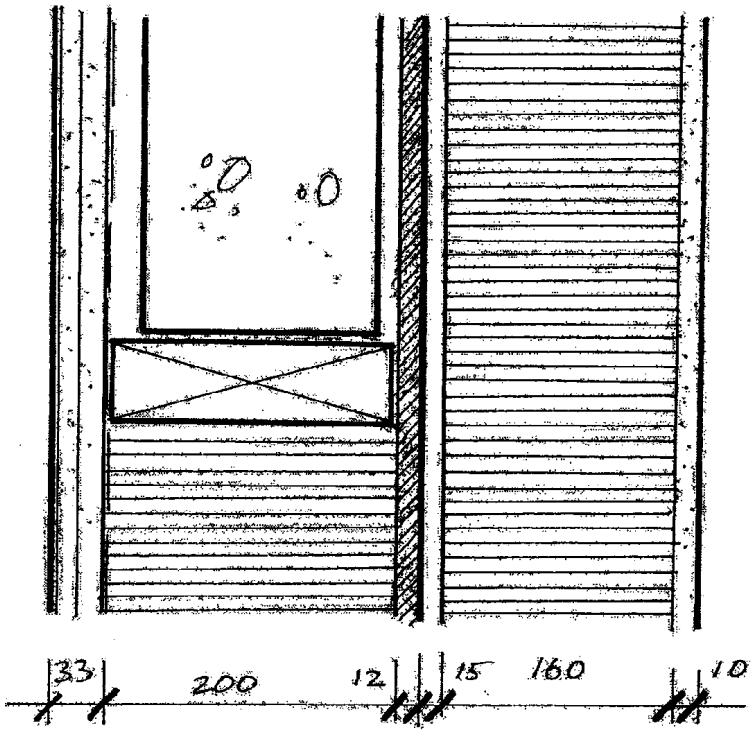
EXTERNAL WALL BUILD UP - OPTION 1 (indicative).
(VAPOUR CONTROL INBOARD)



- 2 LAYERS PLASTERBOARD + SKIM
- VAPOUR CONTROL LAYER
- NON FERROUS STUD (TIMBER / ALU).
- ROCKWOOL INSULATION (THERMAL + ACOUSTIC)
- VERSAFIRE SHEATHING BOARD
- 15MM VENTED CAVITY.
- 160MM FOAMGLAS / MINERAL WOOL.
- RENDER FINISH

NOTES

DEWPOINT, VAPOURLINE + PENETRATION, THERMAL BRIDGING AND BREATHABILITY OF SYSTEM NEEDS FURTHER DISCUSSION + REVIEW. (INCL. SERVICES INTEGRATION).

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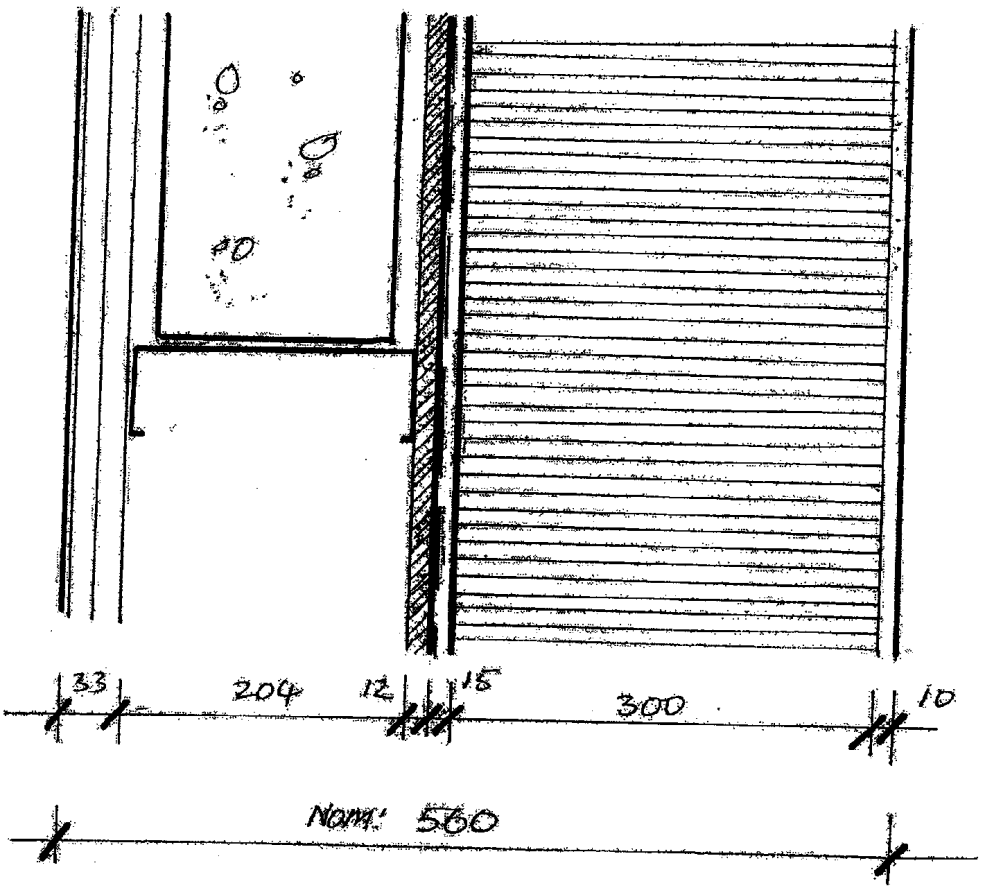
EXTERNAL WALL BUILD UP - OPTION 2 (Indicative)
(VAPOUR CONTROL OUTBOARD)



- 2 LAYERS PLASTERBOARD + SKIM
- METAL STUD ZONE
- VERSAPAIRE SHEATHING BOARD
- VAPOUR CONTROL LAYER
- VENTED CAVITY
- 300MM FOAMGLAS / MINERALWOOL INSULATION
- RENDER FINISH