This drawing is to be read in conjunction with: Current / relevant Building Regulations. Current British Standards. Current IEE Regulations.

Structural Engineers Report.

All specified products to be installed / constructed as per manufacturers instructions & Structural Engineers drawings.

Structural
For all loading calculations, steel (& galvanized lintel) references refer to Structural Engineers specification for details. All details to be approved by Building Control before and during construction. Ensure galvanized lintel length has a min. 150mm bearing each side of the opening.

Provide 30 x 5mm galvanized steel vertical strapping between inner face of external wall and rafters at 1m lengths.

Provide 30 x 5mm galvanized steel lateral restraint straps at 2m c/c maximum. Ensure strap fixes through at least 3 intermediate joists / ceiling joists / rafters.

A desk based Radon test has been purchased, which shows action level to be 3-5% and therefore 'Basic' mitigation measures are required. Basic radon protection consists of a well-installed damp-proof membrane, modified and extended to form a gas-tight radon-proof barrier between the ground and the building.

Encase proposed underground drains in 100mm concrete surround where pipes come within 1m of the foundations. Pipework is to be OSMA PVC-U (or similar approved) 100mm nominal pipe bore, with bedding of 50mm, 150mm to sides and 100mm crown maximum particle size is 10mm.

Existing dwelling foul waste drains to existing system in Cul-De-Sac (via sewer on neighbour land). Proposed foul waste taken to existing sewer within site (Private connection) to avoid need for Wessex Water Application.

Rainwater Drainage

Proposed footprint (136m²) is marginally larger than combined footprint of existing dwelling, carport & Garage (121m2). Rainwater collected from RWPs towards the front to drain to existing Wessex system. Rear RWPs to drain to soakaway, design and built to meet requirements contained in AD Part C of the Building Regulations. Engineer to advice on volume

Access Statement

Path material to principle entrance and ancillary places (such as off-street parking) to be permanent & non-slip to permit easy manoeuverability for wheelchair and ambulant disabled users

Level threshold provided to 'Principal Entrance' of dwelling, Provide min.900mm wide access with a level approach to principle entrance (ideally maximum fall of 1:60, min.1:20, falling away from the threshold), all in accordance with AD Part M of the Building Regulations. Provide HEPWORTH Domestic Threshold Drain (or similar approved) for storm water run-off, installed to manufacturers instructions.

All elevations are accessible which allows for cleaning windows at both GF & FF using an extendable cleaning device.

Energy Statement

The maximum air permeability is designed at 5. Refer to SAP Calculations for exact details

Latest Building Regulations requires the creation of the BREL Report as described within AD Part L1: Pages 78-79: Appendix B. This includes photographic evidence of all junctions listed within the approved document for submission to BC, SAP Assessor, and Client / Occupier, to prove building is constructed as designed.

Heating, hot water and lighting should be designed in accordance with the Domestic Building Services Compliance Guide

EV (electric vehicle) Charging Point to be provided in accordance with AD Part S.

PV's installed on south facing roof pitch in accordance with specialist manufacturers instructions / SAP Calculations

Construction Ventilation

Ventilate main pitched roof equal to continuous 25mm using proprietary over eaves ventilator such as GLIDEVALE fv250 (or similar) and 5mm at ridge.

Flat roof elements designed as warm roofs and requires no ventilation.

Damp Proof Course
Horizontal DPC's to be positioned in external wall at min.150mm above adjacent finished around level: edge of DPC not to be covered. Cavity trays to be used over lintels, airbricks, meter boxes, walls, and roof abutments. A cavity tray or DPC should also be installed under stone cills. All Cavity trays to have stopped ends with Cavity Trays adjustable 'Small Weepvents' (2no, minimum per tray) at 450mm centre's in outer leaf.

External Finishes

All flashing, trays, saddles & soakers, and to all abutments to min.Code 4 milled lead sheet to BS EN 125 88 2006 and Lead Sheeting Association requirements.

External Windows & Internal Doors

All external windows & doors to be grey aluminium framed double-glazed sealed units to meet overall performance (windows & glazed doors: 12W/m²K). Glazing to be internally beaded and to comply with Building Regulations Part K4, BS EN 12600:2002, BS 6262-4, BS 6375-1:2015 and BS 8000-7:2000. Window glazing under 800mm from FFL & door glazing under 1500mm is to be toughened to be installed in line with Approved Document K4. Windows to provide purge ventilation equivalent to 4 air changes per hour in all habitable rooms. Windows to be fixed in accordance with manufacturer's recommendations and requirements set out before with any gaps to be foam filled prior to drylining to eliminate air leakage.

All external door, window, and roof lights to be designed & manufactured in accordance with AD Part Q and meet requirements contained in PAS 24:2022. Refer to drawing 103_41_PR01 Proposed Construction Specification for further detailed specification for external casements.

Internal doors to have max 3mm gap to any jamb to comply with Part E of the Approved Document or install neoprene seal. Stops to be vertical and close fitting.

All internal doors to be undercut to allow min.7600mm^a cross ventilation. This is the equivalent of a 10mm gap on a 762mm door leaf for example.

Internal Staircase / Landing GF - FF (assuming total rise of 2722mm) 14no. equal risers of 191,1mm (max 220). 13no. equal treads of 223mm (min.220). 40.6° pitch (42° maximum). O/A Strings 905mm. Timber construction

Basement - GF (assuming total rise of 2325mm) 12no, equal risers of 193,75mm (max,220). 11no, equal treads of 223mm (min 220). 41° pitch (42° maximum). O/A Strings 905mm. Timber construction

Ensure clear headroom of 2m up vertically from line of nosing. Continuous handrail on at least one side, 900mm up vertically from line of nosing. Spacing between balusters to be 99mm or less. Guarding 900-1000mm from FFL

External Guarding

Galvanized framed external guarding (non-climbable) by specialist manufacturer serving apartment balconies. Guarding to provide:

- Top of guarding finished 1100mm from adjacent ground / floor level.
- Ensure a 100mm sphere cannot pass through any openings within the
- Designed to withstand forces described in AD Part A of the Building Regulations, BS EN 1991-1-1 with its UK National Annex & PD 6688-1-1.

Fire Protection, Detection, & Escape

Box and seal all steel to provide min. 1hour fire resistance.

Close cavity's at heads / eaves with proprietary product such as ARC Cavity Stop Sock (or similar).

Smoke detection system to comply with BS 5839: Part 6 Grade D Category LD1. Smoke detectors provided within GF Hallway (heat detector in Kitchen) and FF Landing, designed and installed by others. Smoke alarm devices to conform to BS EN 14604:2005 Detectors to be interconnected, and mains operated with battery back up in accordance. Ensure detectors are installed min.300mm from light fittings.

The escape strategy in the case of a fire is to use a protected stainwell to escape. Construction surrounding the stair / adjoining internal openings are to provide a minimum of 30mins protection in accordance with AD Part B of the Building Regulations, All doors serving habitable rooms (including Cupboard) are to be FD30 rated. Basement to receive additional smoke detection providing increased early warning.

Playroom is designed as an inner room. To counter this, provide egress (escape) window serving Playroom to have clear opening of 0.33m2 and to be at least 450mm high & 450mm wide; bottom of window to be minimum 900mm & max 1100mm from FFL; escape windows to be non-lockable.

This drawing is to be read in conjunction with BS7671 and current British Standards. Refer to IEE Regulations. Electrical layout is schematic only completed installations to relevant codes of practice mentioned above.

All electrical installations to be undertaken by a AD Part P qualified electrician

Assumed electric meter can be installed internally, within Utility against external wall. Contractor to seek approval / advice from relevant utilities company.

Switches, sockets, and outlets to be installed between 450 to 1200mm from FFL in accordance with AD Part M.

All lights to be energy efficient in accordance with AD Part L.e.g. to have a luminous efficiency greater than 75lamp-lumens per circuit watt and a total light output greater than 400 lamp-lumens.

Kitchen hob to have a recycling cooker hood over.

Dwelling to be ventilated with 'Mechanical Ventilation with Heat Recovery' (MVHR), Refer to Opening Schedules for calculations and GA Plans for exact duct

Provide the in-building physical infrastructure so that cables or wireless devices capable of delivering broadband speeds greater than 30Mbps can be installed.

Specialist accurity consultant to advise on CCTV design and identify any power-- maximum and a

Water Efficiency & Sanitary Accommodation

Install water conserving fittings e.g. dual flush WC to minimise the potential water usage to 125ltrs per day in accordance with AD Part G.

Plumbing & Heating

Hot water and space heating provided by ASHP, designed and installed by specialist. Client is advised to identify source schematic including exact make / model as soon as reasonably possible in order to plan for all necessary appliances / kit and minimum dimensions, assumed all located within Utility.

Space heating via under floor heating throughout GF, and radiators everywhere else (FF). All radiators to be equipped with TRV's (Thermostatic Valves).

Bathroom tub and shower tray served by proprietary WWHRS (waste water heatrecovery system), sending preheated water to boiler to reduce energy concumption (by caid boiler). WWHRS is a typically vertical installation and will be located within Utility Room below Bathroom

The temperature of a Bath should be limited to a maximum 48°C by use of an in-line blending valve or other appropriate temperature control device with a maximum temperature stop to meet BS EN 1287 standard.

All sanitary pipework to be in accordance with BS EN 12056-2:2000 'Gravity Drainage Systems Inside Buildings. Sanitary Pipework, Layout and Calculation', and AD Part H, with a depth to invert to be minimum 450mm at connections to SVP. Drainage schemes to be designed in accordance with manufacturer's instructions and BBA certificates.

- WC waste to be 100mm trapped outlet connected directly into adjacent drain below floor slab. Drain run to be a maximum of 1.30m below finished floor
- Wash hand basin to Cloaks: Chromed bottle trap (32mm dia.) fitted with semi-pedestals and standard bottle traps.
- Wash hand basin to Bathrooms and Ensuites: 32mm discharge pipe.
- Bath/Shower tray/Walk-In Showers: 40mm discharge pipe.
- Sink/Washing Machine/Dishwasher: 40mm discharge pipe fitted according to requirements and specialist manufacturers details.

CONSTRUCTION SPECIFICATION:



Basement GF: U-Value (W/m²K) design 0.12, model 0.13, backstop 0.18 100mm finishing screed on building paper; on 125mm KINGSPAN KOOLTHERM K103 insulation slabs, with joints closely butted and taped over 1200 gauge polythene damp proof membrane to lap 2000 gauge polythene damp proof courses in walls; on 150mm reinforced slab bearing on pile caps / piling foundations all designed to Structural Engineers / specialist piling contractor details: slab on 50mm sand blinding over 150mm well compacted clean hardcore / ballast. Insulation turned up at external perimeter to reduce cold bridging.



Basement GF: U-Value (W/m²K) design 0.12, model 0.13, backstop 0.18 100mm finishing screed on building paper; on 125mm KINGSPAN KOOLTHERM K103 insulation slabs, with joints closely butted and taped over 1200 gauge polythene damp proof membrane to lap 2000 gauge polythene damp proof courses in walls; on proprietary suspended beam & block designed and installed to specialist manufacturers details. Insulation turned up at external perimeter to reduce cold bridging.



Basement Ext. Wall: U-Value (W/m²K) design 0.16, model 0.18, backstop 0.26 468mm o/a masonry Basmeent wall to consist of the following, 250mm reinforced concrete stem using waterproof concrete; finished internally with 10.4N strength blockwork with M6 Strength Mortar & 12.5mm plasterboard on dabs with skim finish. Insulate externally with 100mm KINGSPAN Greenguard GG300 pushed directly against the Type A membrane, protect with proprietary geotextile drainage



External Wall: U-Value (Wlm*K) design 0.17, model 0.18, backstop 0.26 300mm o/a masonry cavity wall to consist of the following, 100mm dense block outer leaf clad with either:



18 or 20mm treated vertical t&g cedar cladding mounted on batten / counter batten: on breather membrane:

10mm minimum residual cavity kept completely clear (except wall ties) and 90mm KINGSPAN Kooltherm K106 cavity board making up 100mm fully filled cavity; 100mm inner leaf 'Aircrete' block (0.19 lambda / 600-800kg/m² density / minimum 7.3N compressive strength) such as THERMALITE Hi7; finished internally 12.5mm plasterboard on dabs with skim finish.

Stagger wall ties at 450mm vertically & 900mm horizontally c/c, 300mm c/c vertically adjacent to movement joints or openings. Use proprietary insulated cavity closers (minimum 0.45W/m²K) to all external door & window openings.



Load-bearing Internal Masonry Walls 140 or 100mm medium dense block (STOWELLS 'Stowlite' or similar) with max. weight 20kg. Finished either side with 12.5mm plasterboard & skim finish.



Load-bearing Timber Stud Walls 100 x 50mm C16 timber studwork at 400mm c/c. Finished either side with 12.5mm plasterboard & skim finish.

Braced Timber Stud Walls

100 x 50mm C16 timber studwork at 400mm c/c with one layer of 9mm OSB/3 sheathing nailed utilising 3.1dia. x 50mm long nails at 150mm c/c. Finished either side with 12.5mm plasterboard & skim finish.

Partition Studwork

89 x 38mm timber stud partitioning system at 400mm centres with top / middle and bottom rails. 12.5mm plasterboard & skim to both sides. Allow for noggins at top of wall for head restraint when wall is parallel to joists / trusses over. Use moisture resistant plasterboard to wet rooms e.g. Kitchen, Bath & Ensuite, and add 1 layer of 9mm plywood within stud zone.

Sound insulating stud partitioning system as above including 25mm mineral wool insulation roll (min.10Kg/m² density) securely hung within partition to reduce sound transmission by 40dB in accordance with AD Part E.

Fire resisting stud partitioning system as above but to maintain min.30mins, fire



Dwelling Intermediate Construction

Floors to consist of 253mm deep metal web joist designed and installed to specialist recommendations. Joist will typically be built-in, unless bearing on a party wall which will be on hangers. Finish ceiling using 1 layer of 15mm plasterboard. Install 100mm mineral wool insulation (min density 10kg/m²) between FF joists in accordance with AD Part E. 22mm chipboard over (moisture resisting in wetrooms).



Roof (Flat Ceiling): U-Value (W/m²K) design & model 0.11, backstop 0.16 Typically pre-manufactured truss roof to specialist details. 100mm ROCKWOOL insulation laid between ceiling chords, followed by 2no.additional 150mm layers laid perpendicular to the previous. Finish ceiling using 1 layer of 15mm plasterboard. Install proprietary breathable membrane felt above rafters / below tile batten. concrete tile specification as per Proposed Elevations.



Roof (Vaulted Ceiling): U-Value (Wlm*K) design 0.15, model 0.11, backstop 0.16 Ventilated cold roof to consist of 200 x 50mm C24 timber rafters at max 400mm c/c: insulated by 115mm KINGSPAN Kooltherm K107 boards between rafters. ensure min 25mm gap between top of rafter and top of insulation zone for sag / min.30mm gap between bottom of rafter and bottom of insulation; finished internally with TLX SILVER Multifoil (nominal 5mm thick at pinch); 38mm service void batten with 12.5mm plasterboard & skim finish under rafter. Must use breathable membrane over rafter. Tie rafters with 170x50mm C24 timber collars bolted to rafters in accordance with SE details. Roof currently designed showing insulation running to ridge board. Contractor to consider mineral wool above collar / ceiling similar to truss roof, if space allows.



Roof (Dormer Flat): U-Value (Wim*K) design 0.16, model 0.11, backstop 0.16
Warm roof to consist of 150 x 50mm C24 timber joists at 400mm clc (TBC by SE). Locate max.1:70 firing over; 18mm WBP plywood deck; vapour control layer; 140mm KINGSPAN Kooltherm K107 insulation and proprietary SPM external finish complete with min. 150mm upstands, all installed to specialist manufacturers details. Finished internally with 15mm plasterboard & skim finish. No ventilation is required in a warm flat roof

EXTERNAL DOORS & WINDOW ADDITIONAL MEASURES

Many requirements for external windows and doors are covered by PAS 24:2014 and other standards such as STS 204, LPS 1175 and LPS2081, but there are additional factors that need to be considered, including:

- Any letter plates not exceeding 260mm x 40mm a feature designed to stop would be burglars & thieves attempting to remove keys through the letter plate with a stick & hook.
- Timber doorsets should be manufactured from solid or laminated timber of minimum density 600kg/m3 with any panel within the doorset being at least 15mm thick.
- Door frames should be mechanically fixed to the building.
- All main doors to include a door viewer unless there is clear glass in the door or a window next to the doorset.
- All primary doors (in the main front doors) must have a door chain or limiter and with either a multipoint locking system or a mortice lock.
- Windows should be designed to meet the security requirements of PAS 24:2012.

BASEMENT / GF STRUCTURAL OPENING SCHEDULE								
	Structural opening size (w x h) dims.	Casement size (w x h) dims.	Lintel	Notes				
DE1	1360 x 2110	1350 (1010 door frame) x 2100	1650	Solid front entrance door + fixed side lights. Toughened glazing, Level threshold entry.				
DE2	1810 x 2110	1800 x 2100	2100	French Casement door.				
DE3	910 x 2110	900 x 2100	1200	Personnel door, Toughened glazing.				
DE4	4510 x 2110	4500 x 2100	BySE	Bi-folding door. Toughened glazing.				
DEG1	2710 x 2260	2700 x 2250	By SE	Insulating roller shutter Garage door.				
WG1	1360 x 1210	1350 x 1200	1650	Egress (escape) window.				
DB1	910 x 2025		1200	838mm FD30 door leaf. 10mm undercut.				
DB2	750 x 2025			686mm FD30 door leaf. 10mm undercut.				
DG1	910 x 2025		1200	838mm FD30 door leaf.				
DG2	910 x 2025		1200	838mm door leaf. Specialist door by Client.				
DG3	910 x 2025		1200	838mm door leaf.				
DG4	1596 x 2025		1950	2no.762mm door leaf.				
BEAM 1	- approx opening	- appr. beam	-	Steel over / padstone to SE details.				

FF STRU	CTURAL OPENING SCH	EDULE				
	Structural opening size (w x h) dims.	Casement size (w x h) dims.	Lintel	Notes		
DE5	1360 x 2110	1350 x 2100	1650	French Casement, Toughened glazing.		
DE6	3385 x Bespoke		By SE	French Casement door + fixed lights to side & above. Toughened glazing.		
WR1-2	As specialist instruction	550 x 780		VELUX rooflight or similar approved.		
DF1	826 x 2025	-	-	762mm FD30 door leaf.		
DF2	750 x 2025			686mm door leaf. Ensuite privacy lock.		
DF3	826 x 2025			762mm FD30 door leaf.		
DF4	826 x 2025			762mm door leaf. Bathroom privacy lock.		
DF5	826 x 2025		-	762mm FD30 door leaf.		
BEAM 2	- approx opening	- appr. beam		Steel over / padstone to SE details.		

VENTILATION CALCULATIONS

Purge Ventilation Calculations

Provide at least of foor area within clear window opening to habitable rooms:

th Playroom = 0.48m². WG1 opening area = 0.64m².

 $\frac{1}{20}$ th Bedroom 3 = 0.54m². WR1 (0.31) + WR2 (0.31) opening area = 0.62m².

igh Basement = 2.30m². No windows to provide purge ventilation, MirtVR to provide boost instead.

All other habitable rooms obviously more than comfortably meets the requirement so no calculation has been created.

Whole House Calculation
As described within Approved Document Part F Section 1; Table 1.6, it is proposed to use Mechanical Ventilation with Heat Recovery (MVHR). Refer to specialist manufacturer for exact design (including duct routes, external termination, etc) and compliance calculations. To assist with correct specification of make / model / system the Whole House Ventilation is calculated thus; Table 1.3 states the whole house ventilation rate for a 3 Bedroom house is 319s. Additionally the min. rate should be not less than 0.36s per m2 = 52.46s.

To ensure good air transfer throughout the house; provide an approx.10mm undercut to all internal doors (or minimum 7600mm² which is the equivalent of a 10mm undercut to a 762mm door leaf) above the FFL.

Background Ventilation Calculation
To avoid unintended air pathways, background ventilators should not be installed with mechanical ventilation with heat recovery.

PART O OVERHEATING CALCULATIONS

Site Data Address:

Building Use: Dwelling. Constraints: No noise / security / pollution issues.

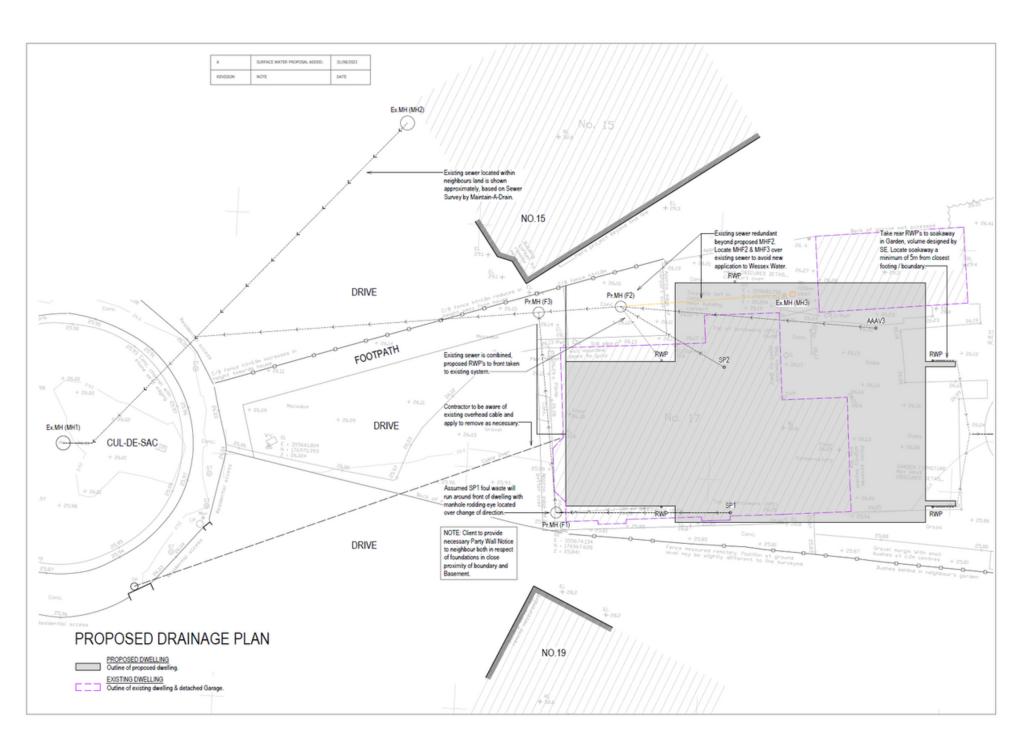
Home Data Location Risk Category: Moderate. Shading Provided: Some.

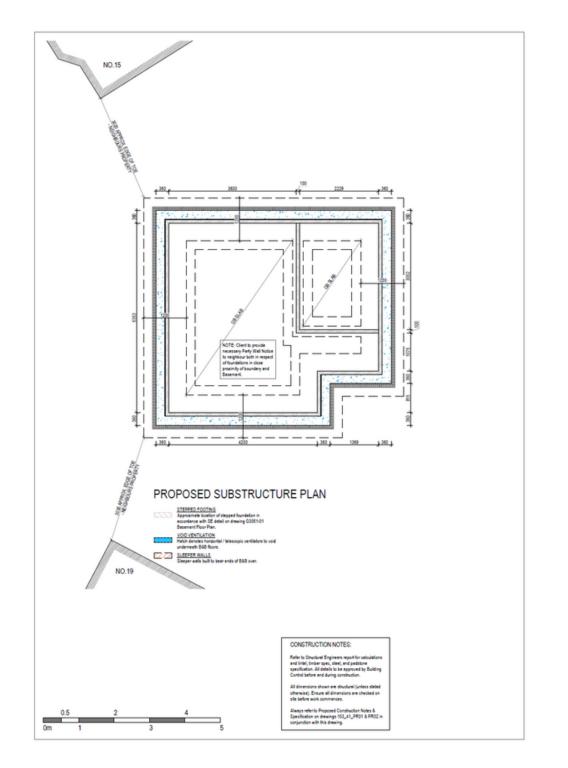
Cross Ventilation: Yes.

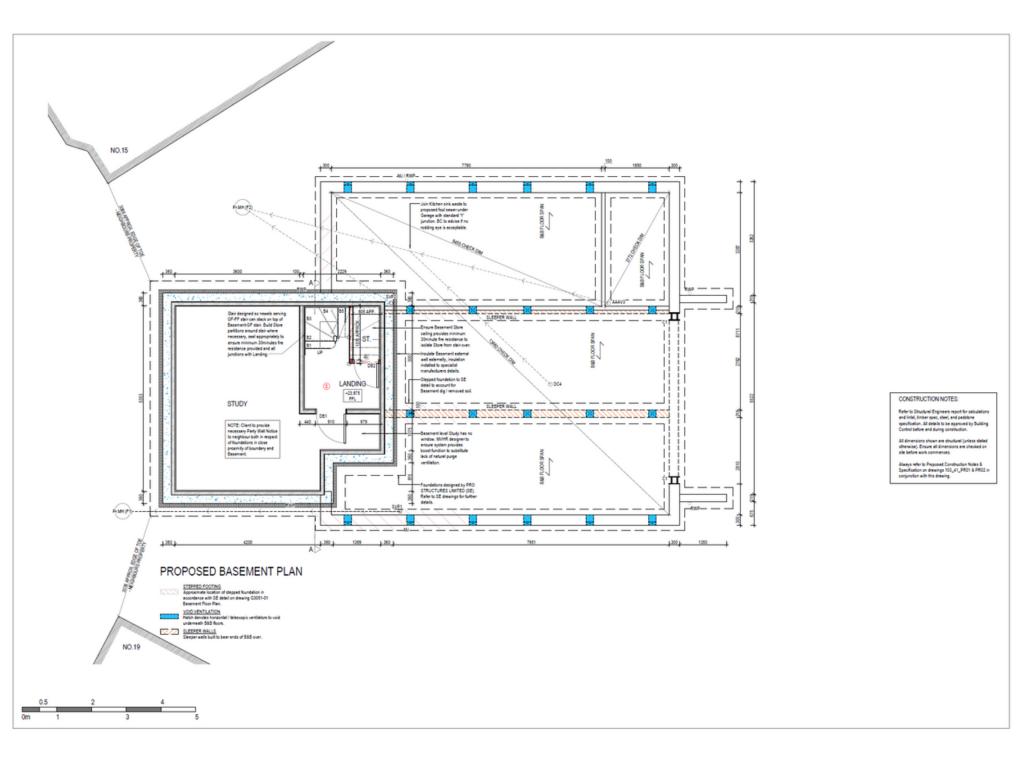
Total GIA: 174.81.

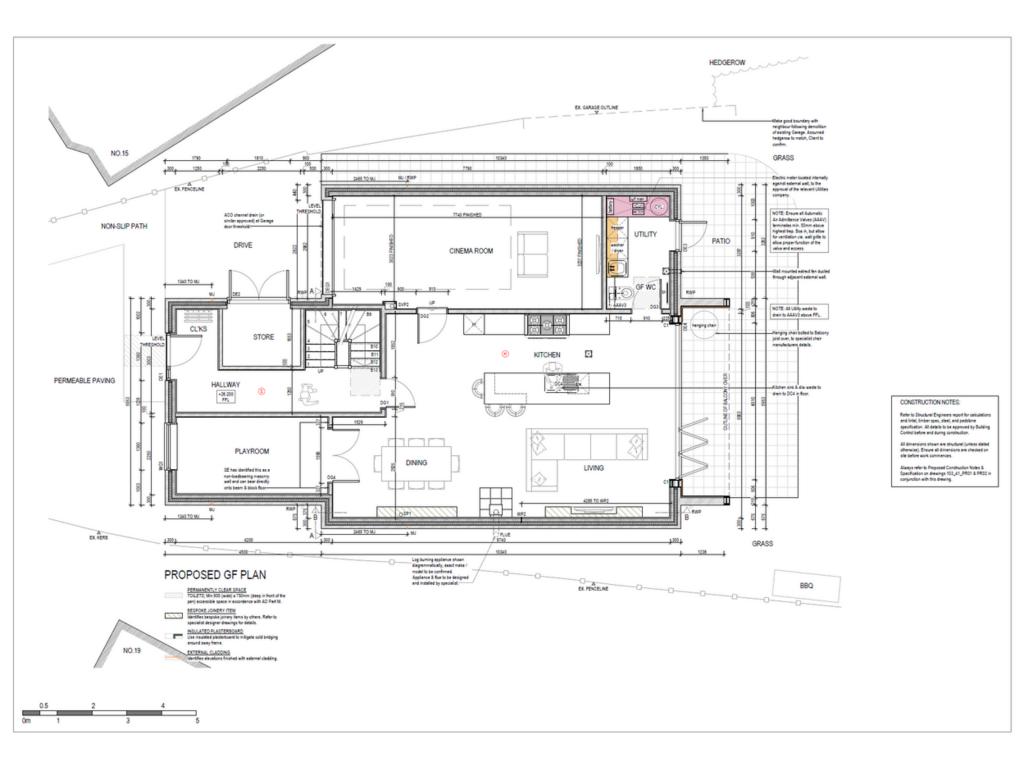
Largest Glazed Facade Orientation: East.

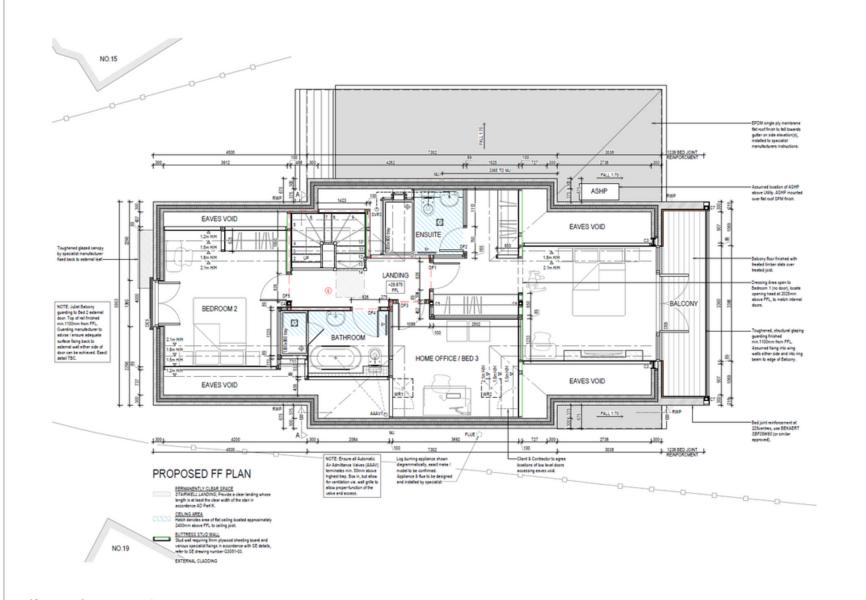
Results	Value	Percentage	Target	Result	
Limiting Solar Gain Total glazing area for home (worst case East): Glazing area for most glazed room (Living / Dining / Tothchen GIA 26.34 (first 4.5m)): Shading:	16.76m² 7.86m² None	9.6% 29.84%	Max.18% Max.37% No target	PASS PASS N/A	
Removal of Excess Heat Total % of Floor Area 174.81m². Total % of Glazed Area 21.69m². Bedroom 1 Equivalent Area (GIA 19.01m²): Bedroom 2 Equivalent Area (GIA 16.11m²): Bedroom 3 Equivalent Area (GIA 10.01m²):	11.96m ² 11.96m ³ Door Door 0.48m ²		Min.9% Min.55% Min.4% Min.4% Min.4%	PASS PASS PASS PASS PASS	









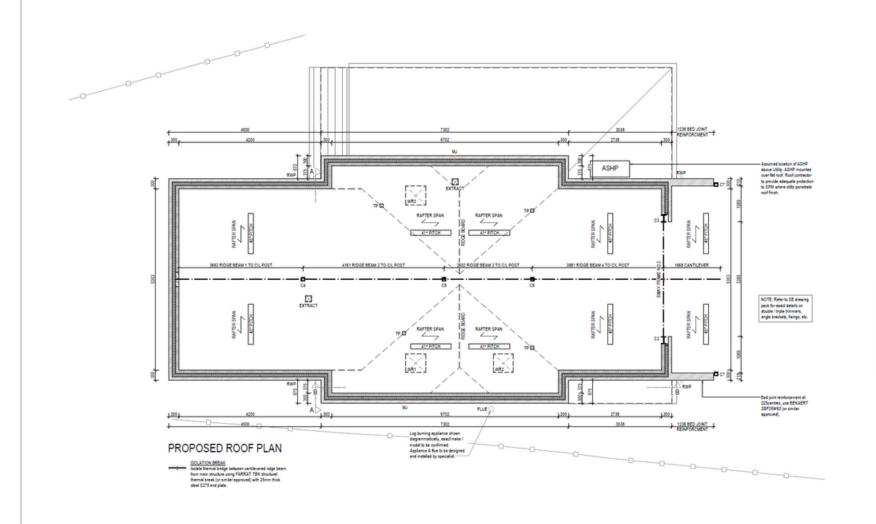


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CONSTRUCTION NOTES:

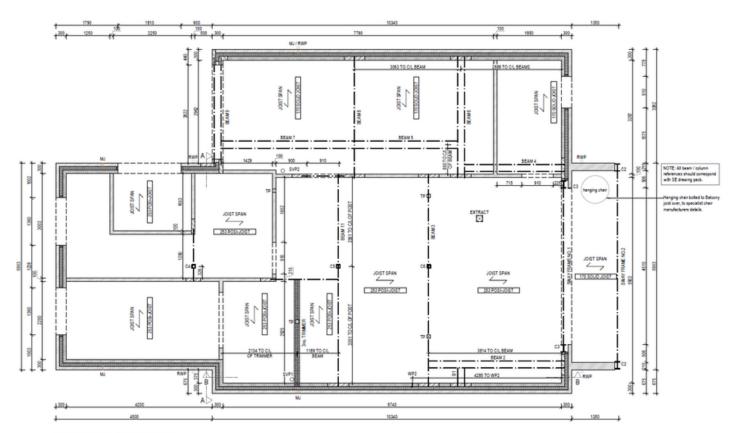
Refer to Structural Engineers report for calculations and lintel, timber spec, steel, and padstone specification. All details to be approved by Building Control before and during construction.

All dimensions shown are shuckural (unless stated otherwise). Ensure all dimensions are checked on site before work commences.



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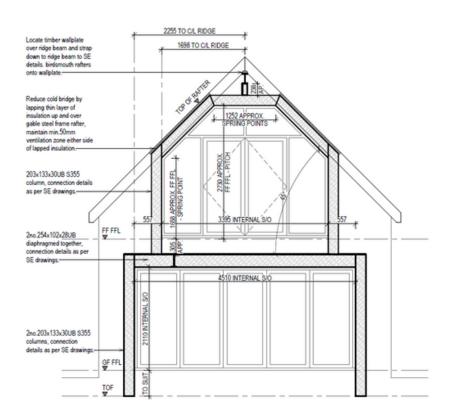


PROPOSED JOIST PLAN

Refer to Shuctural Engineers report for calculations and lintel, limber speci, steel, and padatone specification, All details to be approved by Building Control before and during construction.

All dimensions shown are shrutural (unless stated otherwise). Ensure all dimensions are checked on site before work commences.





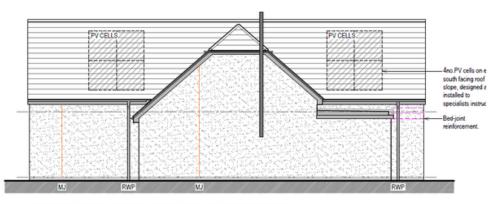
SWAY FRAME 1 & 3 SECTION

Refer to Structural Engineers report for calculations and lintel, timber spec, steel, and padstone specification. All details to be approved by Building Control before and during construction.

All dimensions shown are structural (unless stated otherwise). Ensure all dimensions are checked on site before work commences.



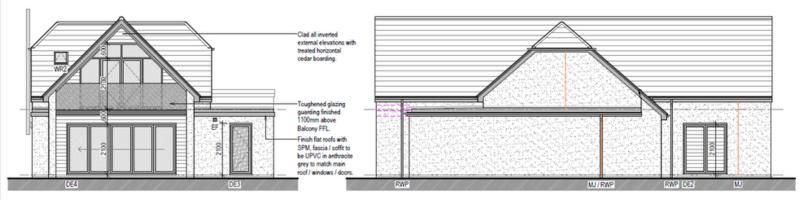
PROPOSED FRONT (WEST) ELEVATION



PROPOSED SIDE (SOUTH) ELEVATION

BED-JOINT REINFORCEMENT
Provide Bekaert SBF40W60 bedjoint reinforcement in all

 Provide Bekaert SBF40Wb0 bedjoint reinforcement in available bed joints in continuous blockwork band in locations shown.



PROPOSED REAR (EAST) ELEVATION

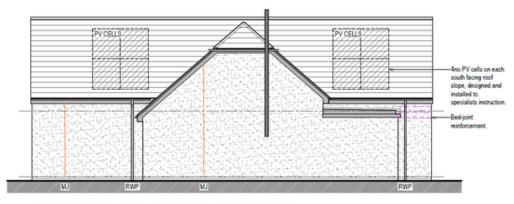
PROPOSED SIDE (NORTH) ELEVATION



CONSTRUCTION NOTES:

Refer to Structural Engineers report for calculations and lintel, timber spec, steel, and padstone specification. All details to be approved by Building Control before and during construction.

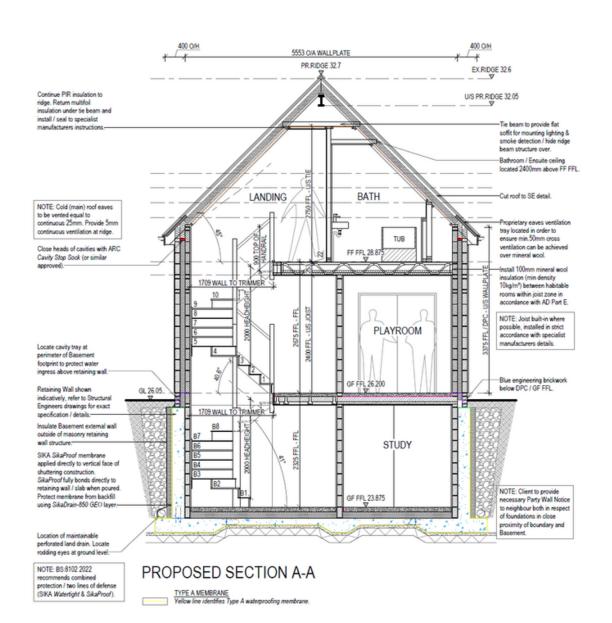
All dimensions shown are structural (unless stated otherwise). Ensure all dimensions are checked on site before work commences.



PROPOSED SIDE (SOUTH) ELEVATION

BED-JOINT REINFORCEMENT
Provide Bekaert SBF40W60 bedjoint reinforcement in all
available bed joints in continuous blockwork band in
locations shown.

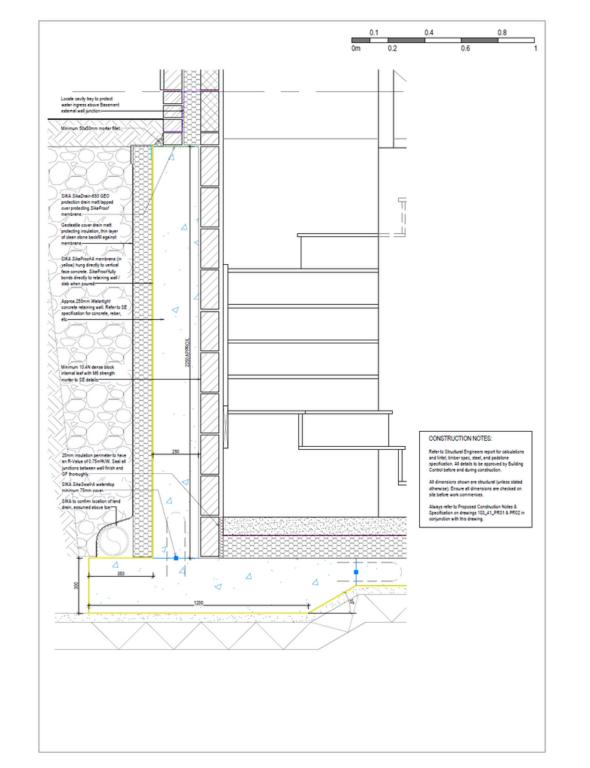




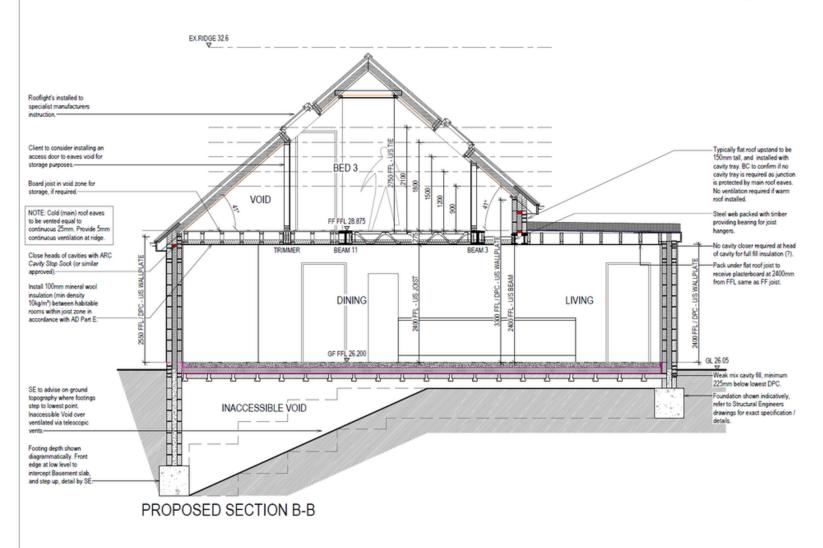


Refer to Structural Engineers report for calculations and lintel, timber spec, steel, and padstone specification. All details to be approved by Building Control before and during construction.

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