LOADING CALCULATIONS FOR STEELWORK

Load calculation for Beam A

Span of beam = 4100mm

Load = wall above (Point loads) + house roof (Point loads)
+ New Extension roof (Point loads) + House floor (UDL)

Load = 2.35m x 2.9m x 5kn +
2.35 x 2 x 1.75kn +
2.35 x 2 x 1.75kn +
4.1m x 2m x 2kn

Load = 34.1 kn + 8.23kn + 8.23kn
+ 16.4kn

Load = 50.56kn / 3 point loads from R1 =
16.86kn @ 0.78m
16.86kn @1.56m
16. 86kn @ 2.34m
+ 4kn/mm

Load calculation for Beam B

Span of beam = 3550mm

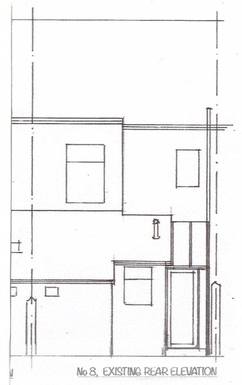
Load = wall above (Point loads) + house roof (Point loads)
+ New Extension roof (Point loads)

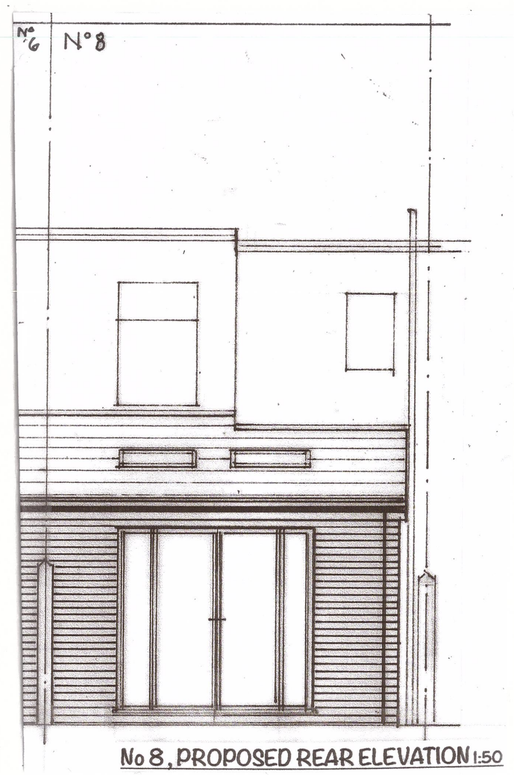
Load = 1.5mx 2.9m x 5kn +
1.5m x 2m x 1.75kn +
1.5m x 2m x 1.75kn

Load = 21.75kn + 5.25kn + 5.25kn

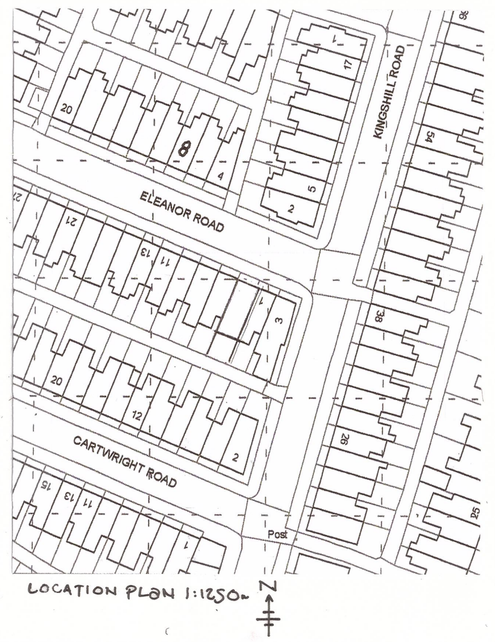
Load = 32.3kn / 2 point loads from R1

Load = **16.15kn @ 0.7m**
16.15kn @ 1.4m

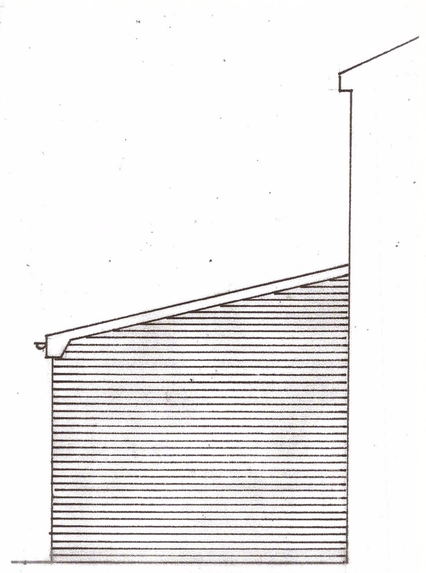




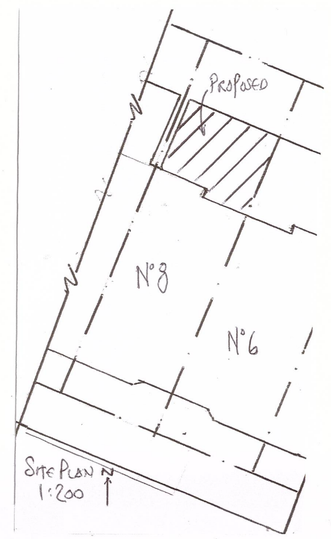
No 8, PROPOSED REAR ELEVATION 1:50



LOCATION PLAN 1:1250



No 8, PROPOSED SIDE ELEVATION 1:50



SITE PLAN 1:200

Steelwork:
In addition to the usual risks associated with building works and materials, of which a competent builder should be aware, the following site and work specific health and safety risks have been identified:
The calculations are not to be used as working drawings and any setting out dimensions should be checked by the builder on site prior to work commencing/ordering materials. Where these calculations are used to obtain local authority/Building control approvals, no reliance shall be placed upon them and contained herein are not to be used until such approval have been given in full. Contractor to provide all lifting equipment, temporary support and Personal Protective Equipment for all people who may be impacted by the installation of heavy steel beams, particularly when working at height. Demolition, excavation drilling and cutting into existing structure or materials should be carried out carefully in case there are any unknown services hidden in the area
Also JRheslop is NOT responsible if builder chooses to use existing brick and blockwork as load bearing Elements without input /confirmation of Building control to confirm suitability.

BUILDER MUST READ BEFORE ANY WORKS COMMENCE
- THE STEEL BEAMS SHOWN ARE SINGLE LENGTH BEAMS. IF BUILDER WISHES TO SPLICE THE BEAMS TO ALLOW EASIER HANDLING THEY MUST PROVIDE FULL DESIGN DETAILS OF THE SPLICES WITH RELEVANT DOCUMENTATION TO BUILDING CONTROL BEFORE ORDERING /PURCHASING OR ACTUAL SPLICING THE STEELWORK
- JRHESLOP IS NOT ABLE TO PROVIDE THIS SPECIALIST AREA OF BEAMWORK DESIGN & WILL NOT BE HELD RESPONSIBLE FOR ANY ON SITE DECISIONS MADE BY THE BUILDER WITHOUT BUILDING CONTROL CONSENT / PRIOR APPROVAL.
- SUPERBEAM PROGRAMS HAVE BEEN USED IN THE DESIGN THE BEAMS REQUIRED JF BUILDING CONTROL STIPULATE A 3RD PARTY STRUCTURAL ENGINEER MAY BE REQUIRED TO CONFIRM ELEMENTS OF DESIGN . JRHESLOP IS NOT RESPONSIBLE FOR ANY COSTS THAT MAY COME FROM THIS.

NOTES (WHERE APPLICABLE)

- **HOME OWNER/CLIENT & BUILDER MUST READ**
- **ONLY THE PLAN APPROVED BY BUILDING CONTROL TO BE USED FOR CONSTRUCTION PURPOSES**
- **ALL DIMENSIONS ARE TO BE SITE CHECKED BY BUILDER DO NOT SCALE DRAWING**

1. ANY NEW BRICKWORK IS TO MATCH & KEY INTO EXISTING.
2. WINDOWS & DOORS TO BE DOUBLE GLAZED WITH 20mm GAP BETWEEN PANES FILLED WITH ARGON GAS WITH INNER PANE HAVING LOW-E COATING TO ACHIEVE U VALUE OF 1.4 W/m2k (WER Band B) CONTROLLABLE TRICKLE VENTS OF 8,000mm2 TO HABITABLE ROOMS AND KITCHEN WITH 4,000mm2 . ELSEWHERE VENTS SET 1700mm FROM FLOOR LEVEL AND 500mm FROM ANY EXTRACT FAN.
3. ALL NEW BEAMS & LINTELS TO HAVE A MIN BEARING OF 150mm , TIMBER MEMBERS MUST HAVE A 100mm MIN BEARING.
4. ROOF & FIRST FLOOR MUST BE TIED DOWN TO WALLS WITH M.S GALVANISED STRAPS OF 32mm x 5mm AT 1500mm CENTRES.
5. NEW ROOF SPACE TO BE VENTILATED TO B.S. 5250 , BACKGROUND VENTILATION 8000m2 EQUIVALENT AREA TO BE PROVIDED TO HABITABLE ROOMS
6. NEW FOUNDATIONS/ WALLS ARE TO CONFORM TO BUILDING REGULATION 1 & 2 / APPROVED DOCUMENT A.
7. THE FOUNDATION DIMENSIONS SHOWN ARE MINIMUM ONLY AND ARE GIVEN WITHOUT ANY KNOWLEDGE OF "ON SITE" SOIL CONDITIONS. IF THE EXISTING FOUNDATIONS OF THE PROPERTY HAVE TO TAKE ANY ADDITIONAL LOADS THEY SHOULD BE EXPOSED AND PASSED BY THE LA OR PRIVATE BUILDING CONTROL INSPECTOR ON SITE.
8. ANY UNDER-SITE DRAINAGE MUST BE EXPOSED & ENCASED IN 150mm CONCRETE.
9. NEW WALL CAVITIES MUST BE INSULATED AS PER SPECIFICATION OR WITH B.B.A APPROVED INSULATION TO ACHIEVE THE MIN "U" VALUE FOR WALLS.
10. NEW STEELWORK MUST HAVE A MINIMUM FIRE RESISTANCE OF 30 MINUTES.
11. ALL WALL CAVITIES ARE TO BE CONTINUOUS.
12. ALL CAVITY BARRIERS TO E2/3/4 APPENDIX Q2
13. R.O LINTELS BUILT INTO WALLS OVER DRAINS.
14. FOUNDATIONS WITHIN 1000mm OF DRAINS TO BE TAKEN DOWN TO TO DRAIN INVERT LEVEL.
15. CAVITY CLOSURES TO HAVE VERTICAL & HORIZONTAL D.P.C'S. INSULATED TYPE.
16. ALL NEW PLUMBING IS TO COMPLY WITH B.S 5572.
17. ALL MATERIALS USED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
18. NEW DRAINAGE LAID TO SELF CLEARING FALLS WITH RODDING ACCESS.
19. NEW INSULATION TO BE INSTALLED AS PER " ROBUST DETAILS" ISSUED BY DEFRA.
20. LIGHTING MUST BE LOW ENERGY LIGHT FITTINGS WITH A MINIMUM LUMINOUS EFFICIENCY OF 75 LIGHT SOURCE LUMENS PER CIRCUIT -WATT
21. MAINS OPERATED INTERLINKED SMOKE DETECTORS TO B.S 5446 DOMESTIC or B.S5446-1:2000 or B.S5446-2 :2003 COMMERCIAL. DETECTORS INTERLINKED (WITH BATTERY) SHOWN AS :
22. THE CLIENT / HOME OWNER MUST INFORM THEIR NEIGHBOURS OF WORK TO BE CARRIED OUT ON OR NEAR TO BOUNDARY AS REQUIRED BY THE PARTY WALL ACT IN WRITING 2 MONTHS BEFORE WORKS BEGIN.
THE CLIENT /HOMEOWNER IS RESPONSIBLE FOR CORRECT LOCATION / ACCURACY OF THE BOUNDARY SHOWN.
THE BUILDER MUST BE AWARE OF THE REQUIREMENTS OF THE PARTY WALL ACT AND MUST STUDY THE BOOKLET AVAILABLE FORM THE LOCAL AUTHORITY BEFORE COMMENCING THE PROJECT.
23. **ELECTRICAL WORKS BY "COMPETENT PERSON SCHEME" MEMBER.**
THE CLIENT / HOMEOWNER MUST SATISFY THEMSELVES THAT THE ELECTRICIAN (WETHER EMPLOYED VIA THEMSELVES OR BUILDING CONTRACTOR) IS QUALIFIED TO CARRY OUT ALL OF THE PARTS OF THE PROPOSED ELECTRICAL WORKS & TEST THE WORKS IN ACCORDANCE WITH B.S 7671 THE IEE 18th EDITION WIRING GUIDANCE AND ARE FULLY AUTHORISED TO ISSUE RELEVANT CERTIFICATES AS REQUIRED BY PART P OF THE BUILDING REGULATIONS EFFECTIVE 11.01. ALL ELECTRICAL WORKS MUST MEET THE REQUIREMENTS OF PART P (ELECTRICAL SAFETY) AND WILL BE DESIGNED , INSTALLED , INSPECTED& TESTED BY A PERSON COMPETENT & QUALIFIED TO DO SO AND A SELF CERTIFICATION CERTIFICATE BE SUBMITTED /ISSUED TO THE LOCAL AUTHORITY BY THE COMPETENT PERSON WITH 30 DAYS OF COMPLETION OF THE ELECTRICAL WORKS.
THE CLIENT / HOMEOWNER MUST ALSO RECEIVE A COPY OF THE SELF CERTIFIED CERTIFICATE & A B.S 7671 ELECTRICAL INSTALLATION TEST CERTIFICATE.

ELECTRICAL WORKS BY "NON-COMPETENT PERSON SCHEME" MEMBER
ALL WIRING & ELECTRICAL WORKS MUST BE DESIGNED , INSTALLED INSPECTED & TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF B.S 7671 IEE 18th EDITION WIRING REGULATIONS & PART P ELECTRICAL SAFETY. ON COMPLETION OF THE WORKS A COPY OF THE INSTALLERS TEST CERTIFICATE COMPLIANT WITH B.S. 7671 IS TO BE PROVIDED TO THE CLIENT / HOMEOWNER & LOCAL AUTHORITY AND PRIOR TO ANY COVERING OF THE WIRING & CABLES OF THE INSTALLATION BE INSPECTED BY A INDEPENDENT " COMPETENT PERSON" AND ON COMPLETION OF THIS INSPECTION IN ADDITION TO THE ABOVE STATED CERTIFICATE A ADDITIONAL "COMPETENT PERSONS ELECTRICAL INSTALLATION CERTIFICATE COMPLIANT WITH B.S 7671 TO BE PROVIDED TO THE HOMEOWNER/ CLIENT & LOCAL AUTHORITY. COMPETENT PERSON MEANS A MEMBER OF O.D.P.M ELECTRICAL COMPETENT PERSONS SCHEME.

24. MECHANICAL VENTILATION TO BE FITTED AS FOLLOWS: BATHROOMS TO HAVE 15LTR/SECOND AIR CHANGE , KITCHENS AND OTHER AREARS TO HAVE A MIN OF 60LTR/SEC AIR CHANGE DUCTED TO EXTERNAL AIR . FANS TO HAVE A 15 minute OVER RUN TIME IN ADDITION THE WINDOWS TO THESE AREAS TO HAVE CONTROLLABLE VENTS OF MIN 2500cm2.
25. ANY WORKS CARRIED OUT ON THE GAS APPLIANCES OR CENTRAL HEATING SYSTEM MUST ONLY BE DONE SO BY A GAS SAFE REGISTERED CONTRACTOR.
GAS FIRED HEATING SYSTEMS REQUIRE 92% MINIMUM EFFICIENCY
GAS BOILERS FITTED IN EXISTING DWELLINGS REQUIRE ONE OF THE FOLLOWING.
FLUE GAS HEAT RECOVERY
WEATHER COMPENSATION
LOAD COMPENSATION
SMART THERMOSTAT WITH AUTOMATION & OPTIMISATION
: IN ANY CASE THE REGISTERED INSTALLER MUST BE FAMILIAR WITH CURRENT APPROVED DOCUMENT L1
26. THERE MAY BE FEES DUE TO PAY TO THE L.A or PRIVATE BUILDING CONTROL BEFORE THE BUILDING INSPECTOR PASSES/ SIGNS OFF THE PROJECT, THE HOMEOWNER/CLIENT SHOULD CHECK WITH THEIR BUILDING CONTRACTOR.
27. THE BUILDER MUST TAKE REASONABLE MEASURES TO PREVENT AIR LEAKAGE FROM THE PROPERTY ie AIR GAPS AROUND DOOR & WINDOW FRAMES TO BE SEALED . FLOORS MUST BE AIRTIGHT AND ANY HOLES IN THE EXTERNAL WALLS FOR DRAINAGE ECT TO BE FULLY SEALED , ALL INSULATION TO BE CONTINUOUS WITHOUT AIR GAPS.
28. PLYWOODS MUST MEET A MINIMUM STANDARD OF EN 13986 UNTIL THE TRADA TEST STANDARD HAS BEEN ESTABLISHED.
29. THE DESIGNER (JRHESLOP) IS NOT RESPONSIBLE FOR ANY VOIDS / DRAINS OR OTHER UNDERGROUND OBSTRUCTIONS FOUND NEAR OR UNDER THE BUILD SITE.
30. A PROPER SUPPLY OF AIR IS TO BE PROVIDED TO THE KITCHEN IN ORDER THAT THE COOKING APPLIANCES CAN FUNCTION EFFICIENTLY WITHOUT CAUSING DISCOMFORT.
31. A CONTINUOUS SUPPLY OF HOT WATER TO BE PROVIDED TO THE KITCHEN THAT DOES NOT EXCEED THAT LAID DOWN.
32. ALL NEW STEELWORK IS TO BE 30 minute FIRE PROOF IE 2 x 10mm PLASTERBOARD LAYERS AND SKIM ON 50mm x 50mm TIMBER NOGGINS @ 400mm CENTRED.
33. THE CLIENT MUST BE SURE THAT THE SIZES OF THE ROOMS SHOWN ARE SATISFACTORY
34. IF THE PROPOSED ROOF IS TO BE OF A GANG NAILED TRUSS SYSTEM THE BUILDER MUST OBTAIN APPROVAL FROM BUILDING CONTROL FOR THE DESIGN/ TRUSS CALCULATION BEFORE WORK COMMENCES.
35. THIS PLAN IS PRODUCED FOR BUILDING REGULATION SUBMISSION / APPROVAL AND IF REQUIRED PLANNING PERMISSION AND DOES NOT TAKE INTO ACCOUNT ANY FAULTS IN THE EXISTING STRUCTURE OF THE PROPERTY
36. AMENDMENTS TO THE PLAN AFTER PLANNING PERMISSION HAS BEEN ACHIEVED MAY REQUIRE A NEW APPLICATION , IF CLIENT HAS INSTRUCTED DESIGNER (JR HESLOP) THAT PLANNING IS NOT REQUIRED DUE TO ADVICE FROM A 3RD PARTY JR HESLOP IS FREE FROM ANY OBLIGATIONS THAT MAY ARISE IF AN ISSUE FROM PLANNING DEPARTMENT HAPPENS DURING CONSTRUCTION.
37. IT IS THE RESPONSIBILITY OF THE BUILDING CONTRACTOR TO OBTAIN A COMPLETION CERTIFICATE FROM THE PRIVATE OR LA BUILDING CONTROL DEPARTMENTS ONCE THE FINAL CHECK HAS BEEN COMPLETED AND THE PROJECT IS SIGNED OFF BY THE BUILDING INSPECTOR.
38. IF REQUIRED THE HOMEOWNER /CLIENT MUST INFORM THE LEASEHOLDER OF THE PROPOSED WORKS/PROJECT THAT IS TO BE CARRIED OUT ON THE PROPERTY BEFORE WORKS COMMENCE.
39. **IF THE HOME OWNER/CLIENT OR BUILDER COMMENCES ANY WORK WITHOUT FULL PLANS APPROVAL IN PLACE THEY DO SO AT THEIR OWN RISK AND THE DESIGNER (JR HESLOP) WILL NOT ACCEPT ANY LIABILITY FOR ANY PERSONAL INJURY SUFFERED , ALTERATIONS , COSTS, DELAYS or LEGAL PROCEEDINGS RESULTING FROM THIS.**
40. AS AGREED THE DESIGNER (JRHESLOP) WILL VISIT & MEASURE THE PROPERTY THEN DESIGN THE PROJECT TO THE CLIENTS WISHES , COMPLETE RELEVANT APPLICATION FORMS ADVISE AS BEST ON FEES AND PREPARE APPLICATION PACKS READY FOR SUBMISSION BUT WILL NOT TAKE PART IN ANY BUILDING WORKS.

SuperBeam 4.50b 441550

Beam: Beam A — Span: 4.1 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U T	Floor	4	0		L	8.20	8.20
P T	wall roof roof	16.86	0.78			13.65	3.21
P T	wall roof roof	16.86	1.56			10.44	6.42
P T	wall roof roof	16.86	2.34			7.24	9.62
						39.53	27.45

Total load: 66.98 kN

Load types: U:UDL P:PL T: Total (positions in m. from R1)

Maximum B.M. = 43.7 kNm at 1.56 m. from R1
Maximum S.F. = 39.5 kN at R1
Total deflection = 73.7 x 1e8/EI at 1.98 m. from R1 (E in N/mm², I in cm⁴)
Steel calculation to BS449 Part 2 using S275 (Grade 43) steel
SECTION SIZE : 203 x 203 x 46 UC Grade 43
D=203.2 mm B=203.6 mm t=7.2 mm T=11.0 mm I_y=4,570 cm⁴ r_y=5.13 cm Z_y=450 cm³
L_e/r_y = 4.10x100/5.13 = 80 D/T = 18.5
Permissible bending stress, p_{bw} = 154.9 N/mm² (Table 3a)
Actual bending stress, f_{bc} = 43.66 x 1000/450.0 = 97.0 N/mm² OK
Maximum shear in web, f_v = 39.53 x 1000/(7.2 x 203.2) = 27.0 N/mm² OK
Check unstiffened web capacities with loads of 39.53 kN and 27.45 kN
Bearing: p_o = 210N/mm² (Table 9); C1 = 55.5 kN; C2 = 1.51 kN/mm
Buckling: p_c = 150N/mm² (Table 17a); C1 = 110 kN; C2 = 1.08 kN/mm
R1: Unstiffened web bearing capacity, P_w = 55.5kN: no minimum stiff bearing length required
R2: Unstiffened web bearing capacity, P_w = 55.5kN: no minimum stiff bearing length required
Total deflection = 73.7 x 1e8/(205,000 x 4,570) = 7.9 mm (L/521) OK
Combined bending and shear check (14.c): $(f_{bc}/p_{bc})^2 + (f_v/p_v)^2$ = 0.402 at 1.56 m. (<=1.25 OK)
Beam to have 280mm x 6mm M.S Plate welded centrally to top surface to carry wall above

SuperBeam 4.50b 441550

Beam: Beam B — Span: 3.55 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
P T	Wall roof roof	16.15	0.7			12.97	3.18
P T	wall roof roof	16.15	1.4			9.78	6.37
						22.75	9.55

Total load: 32.30 kN

Load types: P:PL T: Total (positions in m. from R1)

Maximum B.M. = 20.5 kNm at 1.40 m. from R1
Maximum S.F. = 22.7 kN at R1
Total deflection = 22.8 x 1e8/EI at 1.63 m. from R1 (E in N/mm², I in cm⁴)
Steel calculation to BS449 Part 2 using S275 (Grade 43) steel
SECTION SIZE : 152 x 152 x 37 UC Grade 43
D=161.8 mm B=154.4 mm t=8.0 mm T=11.5 mm I_y=2,210 cm⁴ r_y=3.87 cm Z_y=273 cm³
L_e/r_y = 3.55x1000/.87 = 92 D/T = 14.1
Permissible bending stress, p_{bw} = 153.1 N/mm² (Table 3a)
Actual bending stress, f_{bc} = 20.54 x 1000/273.0 = 75.2 N/mm² OK
Maximum shear in web, f_v = 22.75 x 1000/(8.0 x 161.8) = 17.6 N/mm² OK
Check unstiffened web capacities with loads of 22.75 kN and 9.554 kN
Bearing: p_o = 210N/mm² (Table 9); C1 = 55.6 kN; C2 = 1.08 kN/mm
Buckling: p_c = 156N/mm² (Table 17a); C1 = 101 kN; C2 = 1.25 kN/mm
R1: Unstiffened web bearing capacity, P_w = 55.6kN: no minimum stiff bearing length required
R2: Unstiffened web bearing capacity, P_w = 55.6kN: no minimum stiff bearing length required
Total deflection = 22.8 x 1e8/(205,000 x 2,210) = 5.0 mm (L/707) OK
Combined bending and shear check (14.c): $(f_{bc}/p_{bc})^2 + (f_v/p_v)^2$ = 0.242 at 1.42 m. (<=1.25 OK)

SuperBeam 4.50b 441550

Steel column calculation to BS449 Part 2 using S275 (Grade 43) steel
Location: to support Beam A (Goal post structure)
Length: 2.8 m.

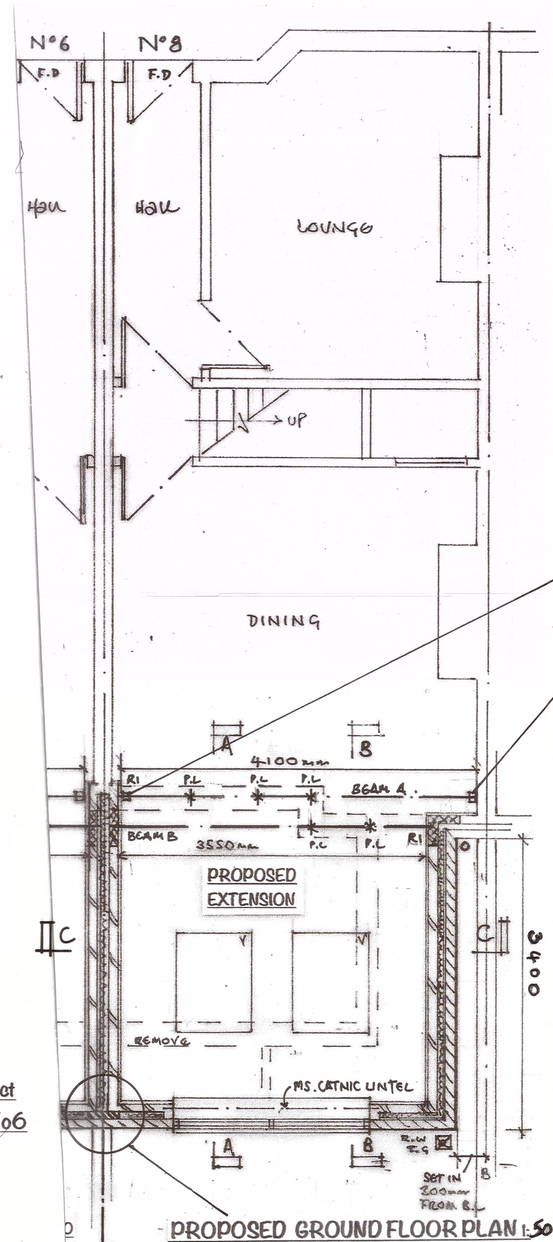
Pos	Load	Total kN
A	Beam A	68.00
Total load		68.00

SECTION SIZE : 80 x 80 x 4 HF SHS Grade 43 *(9.42kg/m)*
Gross area, A_g = 12.0cm² D = 80.0 mm T = 4.0 mm t = 4.0 mm
r_x = 3.09 cm r_y = 3.09 cm Z_x = 29.0 cm³ Z_y = 29.0 cm³
Major axis: L_{ex} = 1.0L = 2.80 m. Slenderness, λ_x = 2.80 x 100/3.09 = 90.6 ←
Minor axis: L_{ey} = 1.0L = 2.80 m. Slenderness, λ_y = 2.80 x 100/3.09 = 90.6
Allowable stresses: Compressive strength, p_c = 94.4 N/mm² (Table 17a)
Bending strength, p_{bcx} = 180.0 N/mm² (19.d, Table 2)
Bending strength, p_{bcy} = 180.0 N/mm² (19.d, Table 2)

Summary:

$F/A_g.p_c$ = (68.00x10)/(12.00x94.4) =	0.600	[1]
F_{cx}/P_{bcx} = (0.00x1000/29.0)/180.0 =	0.000	[2]
F_{cy}/P_{bcy} = (0.00x1000/29.0)/180.0 =	0.000	[3]
Sum of stress ratios [1] + [2] + [3] =	**0.600**	OK

Baseplate calculation ***(considering axial load only)***
Factor load by 1.40 (user selected value): factored load on base = 95.2kN
Concrete strength, f_{cu} = 20 N/mm²
Minimum area required = $F_c/0.6f_{cu}$ = 95.2 x 1000/(0.6 x 20) = 7,933mm²
K (min reqd proj) = 11.0mm Minimum base plate size = 103 x 103mm
Minimum thickness = $K_x\sqrt{3 \times 0.6.f_c/p_{bp}}$ = 4.00mm (p_{bp} = 275N/mm²)
Use 175 x 175 x 8mm base plate



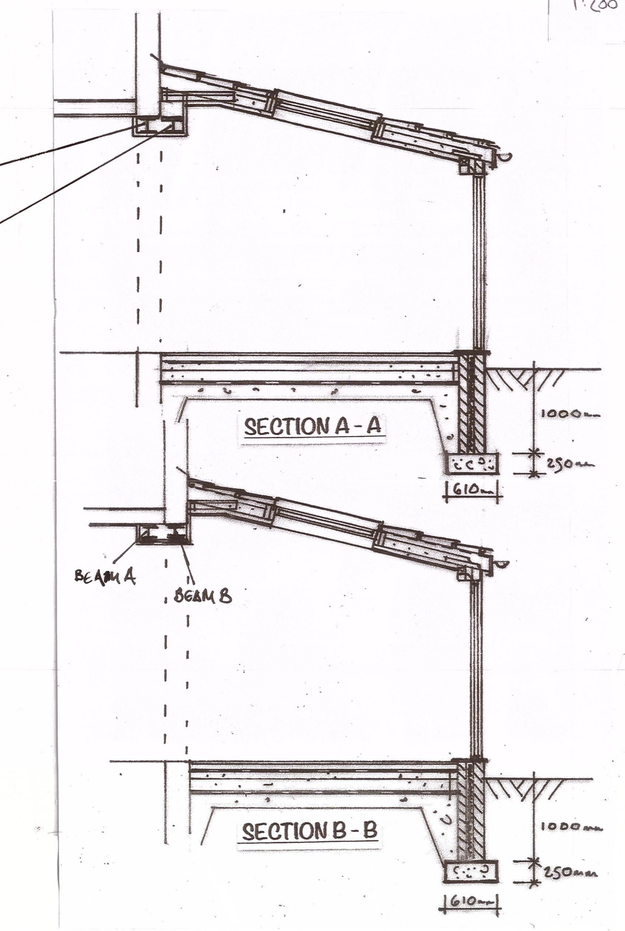
Party wall Agreement act
Letter as been sent to No6

Beam A: Span 4100mm
203 x 203 x 46 UC Beam Grade 43.
Beam to have 280mm x 6mm M.S Plate welded centrally to top surface to carry wall structure above then bearing ends are to be bolted / welded to new 80 x 80 x 4HR SHS Grade 43 columns fitted & strapped to existing walls

Beam B:
Clear Span 3550mm
Actual beam length 3850mm
152 x 152 x 37UC Beam Grade 43.
Beam to have 280mm x 6mm M.S Plate welded centrally to top surface to carry wall structure above then bearing ends are to be secured to 600mm x 215mmx 100mm Padstone at party wall & 440 / 440x 215 x 100mm L- Shaped Corner padstone at opposite end. with wall below constructed of load bearing dense 7kn concrete block

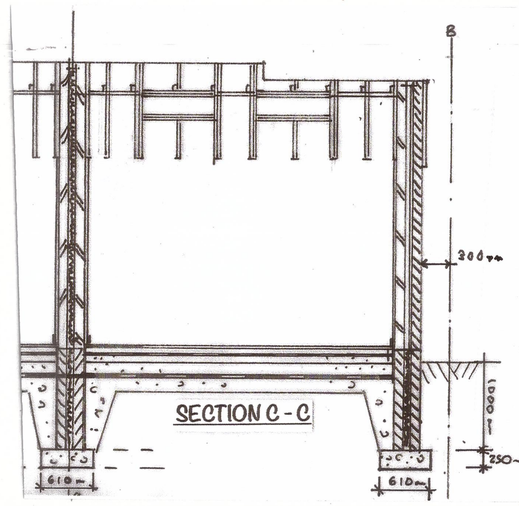
Goal post style columns for Beam A
Loading on columns taken as 68kn total
Height at 2.8m S
80 x 80 x 4 HR SHS Grade 43 columns
with a 175mm x 175mm x 8mm base plate bolted to new 300mm x 300mm x 300mm Hi -strength Concrete padstone set into floor/Ground level concrete strength Fcu= 20 N/mm2.

New Extension Cavity walls Specification
'U' Value achieved 0.17W/m2K
Calculated in accordance with BS EN ISO 6946:2017
300mm Cavity construction comprising 102.5mm facing Brick to match & key into existing. 100mm cavity with stainless steel wall ties to B.S 1243 1978 with:
Number of Anchors per m2. 3 , Diameter of Anchors (mm) 3.99mm
Maximum spacing 750mm Horizontal-450mm Vertical and 300mm vertical near any openings.
The inner leaf to be 100mm Aerated Concrete Block (K - Value = 0.15W/mK)
Cavity Insulation to be 90mm Kingspan K106 Insulation with a minimum of 10mm airspace. The cavity must be clear of mortar. Inside to plasterboard & skim

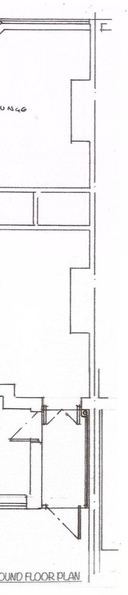


New Rear extension Roof Specification -
'U' Value achieved 0.14W/m2k Pitch 12.5 degrees
New low pitch Interlocking Marley roofing tiles on treated timber battons with 38mm counter battens on Kingspan Nilvent Breathable membrane on New Timber Grade C16 Construction quality 47mm x 195mm Timber roof joists @ 400mm Centres
Vaulted Roof Insulation as follows:
(Calculated in accordance with BS EN ISO 6946:2017)
Ventilation rafter cavity with 120mm KOOLTHERM K107 Pitched roof insulation between joists with KOOLTHERM K118 52.5mm (12.5 Plasterboard internal finish) secured to underside of joists
(2 x Large 942mm x 1178mm Velux roof windows to be trimmed out with double roof joists) with 80mm x 50mm C16 Timber ceiling struts fitted to stop New roof spread

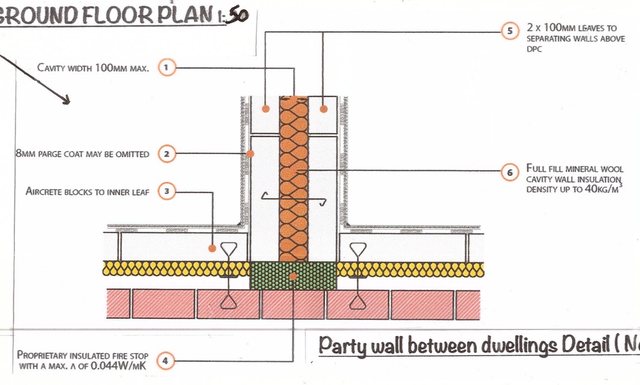
Drainage- Kitchen
All new above ground drainage and plumbing to comply with BS 5572: 1978(Sanitary pipework)
All new drainage to be in accordance with Part H of the building regulations.
Wastes to have 75mm deep anti-vac bottle traps & rodding eyes to be provided at changes to direction.Sizes of waste pipes and max length of branch connections.
(If max length is exceeded then anti- vacuum traps to be used)
Wash Basin- 1.7m for 32mm pipe, 4m for 40mm pipe Bath/Shower- 3m for 40mm pipe , 4m for 50mm pipe , W/C - 6m for 100mm pipe for single WC
All branch pipes to connect to 110mm soil & vent pipe terminating min 900mm above any openings within 3m Or to a 110mm upvo soil pipe with accessible internal air admittance valve complying with BS EN 12380, placed at a height so that outlet is above the trap of the highest fitting.
Waste pipes not to connect on to SVP within 200mm of the W/C Connection. provide hot and cold water to all fittings as appropriate.



New Extension Ground floor Specification (Floor to be level with existing house floor)
'U' Value achieved 0.18 W/m2K Calculated in accordance with BS EN ISO 6946:2017
Inside surface down - 100mm Sand cement screed with 0.5mm Polythene separation layer beneath then 75mm Kingspan Kooltherm K103 Insulation with 150mm Concrete 1:2:4 2000kg/m3 laid on Visqueen Ultimate Geoseal 0.9mm DPM (Gas protection to BS8102:2009 CIRIA C748 & BS 8485 :2015) D.P.M on 150mm sand blinded consolidated stone hardcore.



No 8, EXISTING GROUND FLOOR PLAN



Party wall between dwellings Detail (Not to scale)

UNDERGROUND FOUL DRAINAGE (Builder is to do on site investigation to locate existing property main drains & decide on best course of action to join new Rain water & foul water pipes)
Underground drainage to consist of 100mm diameter UPVC proprietary pipe work to give a 1:40 fall. Surround pipes in 100mm pea shingle. Provide 600mm suitable cover (900mm under drives). Shallow pipes to be covered with 100mm reinforced concrete slab over compressible material. Provide rodding access at all changes of direction and junctions. All below ground drainage to comply with BS7158 and BS8301, Builder is to liaise with the Building inspector on any on site queries concerning the drainage for the extensions

NOTE: Due to No prior Knowledge on ground soil conditions the foundations are shown at a minimum depth required , Builder to confirm exact depth on site with Building control. If Mini piles are a requirement to support below the concrete foundation beam the builder is to provide Piling design & details to the Building Inspector for prior approval before works commence.Builder is to liase with Building control on any questions / queries on the required foundations

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Scale 1:50 & 1:100 @ A1 Paper size

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