

LOADING CALCULATIONS FOR STEELWORK

Load calculation for Beam A

Span of beam = 4.00m
Load = wall above (Point loads) + house roof (Point loads) + New Extension roof (Point loads) + House floor (UDL)
Load = 2.25m x 2.2m x 5kn + 2.25 x 2.2 x 17.5kn + 2.25 x 2.2 x 17.5kn + 4m x 2m x 2kn

Load = 341.1m + 82.2kn + 82.2kn

+ 6.4kn

Load = 50.56kn / 3 point loads from D1 =

16.86kn @ 0.78m

16.86kn @ 1.56m

16.86kn @ 2.34m

+ 4kn / m

Load calculation for Beam B

Span of beam = 3.550m

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

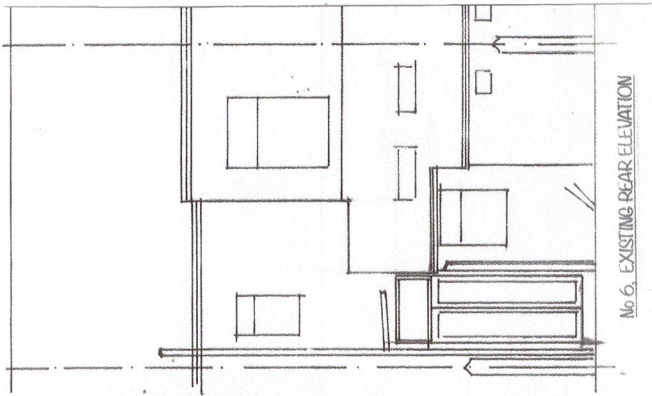
Load = 15m x 2.2m x 5kn + 15m x 2m x 17.5kn + 15m x 2m x 17.5kn

Load = 217.3kn + 5.25kn + 5.25kn

Load = 32.3kn / 2 point loads from R1

Load = 16.15kn @ 0.7m

16.15kn @ 1.4m



No 6, PROPOSED REAR ELEVATION ISO

Span: 4.00m

Beam: Beam A

Load name

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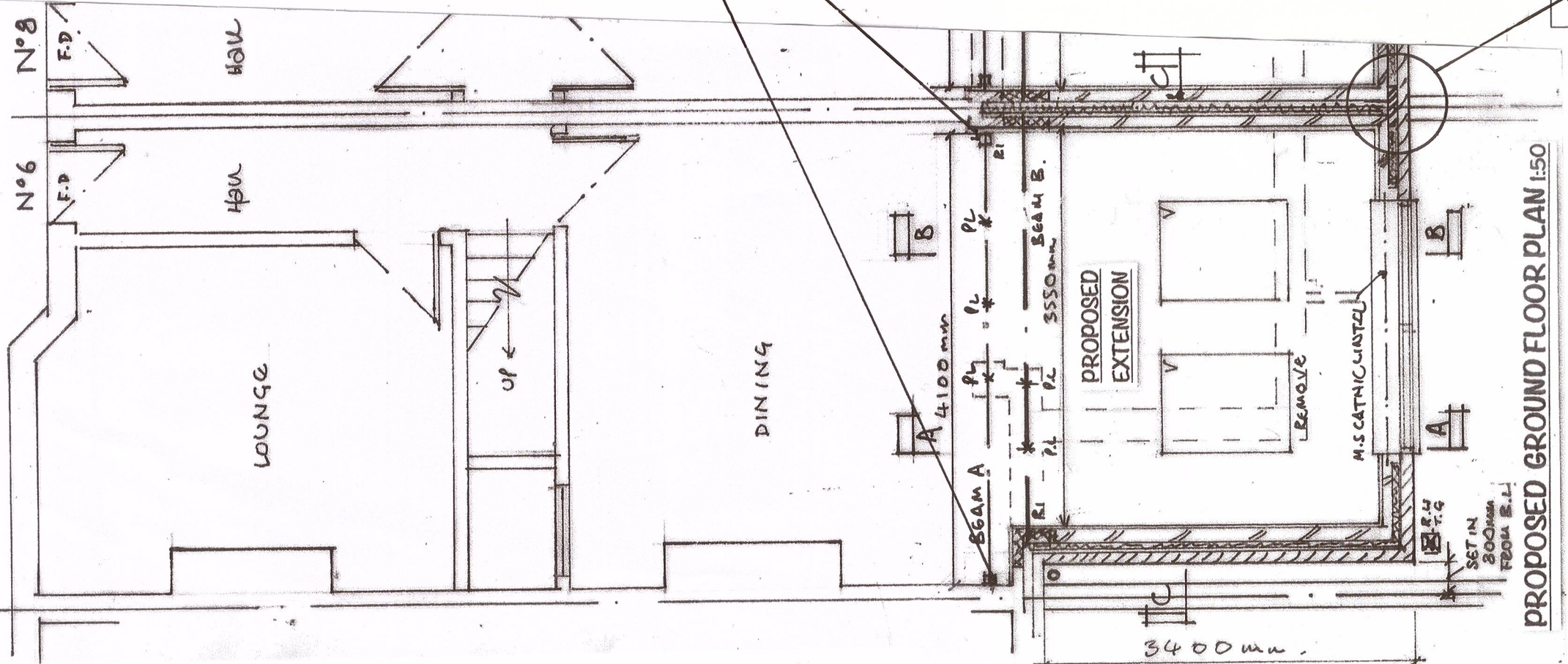
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PROPOSED GROUND FLOOR PLAN ISO

Span: 4.00m

Beam: Beam A

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Span: 4.00m

Beam: Beam A

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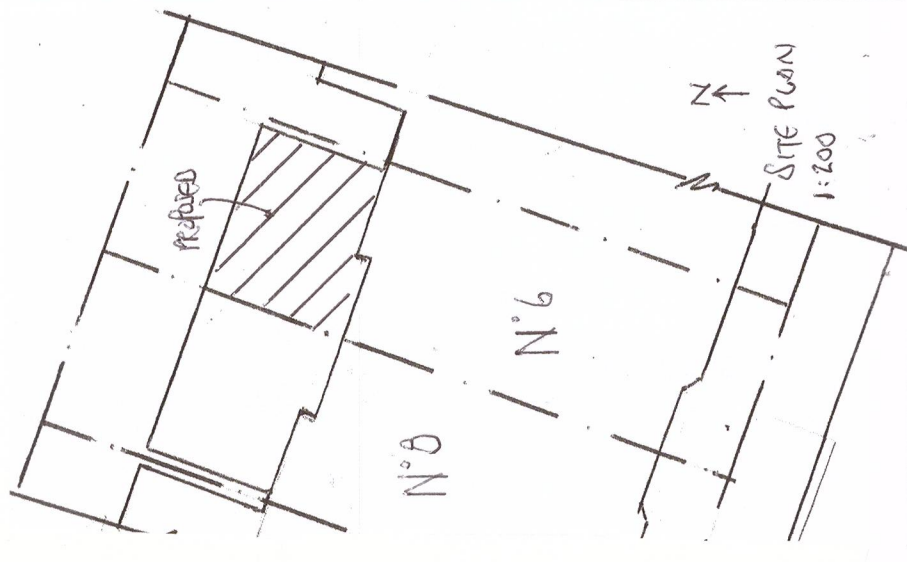
Steelwork:

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/Bulding 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 utility and cutting into existing structure or materials should be carried out carefully in case there are any unknown services hidden in the area. Also R3haslop 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 SPURCE THE BEAMS TO ALLOW EASIER HANDLING THEY MUST PROVIDE FULL DESIGN DETAILS OF THE SPURCES WITH RELEVANT DOCUMENTATION TO BUILDING CONTROL BEFORE ORDERING, PURCHASING OR ACTUAL SPLICING THE STEELWORK.
- R3haslop 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 IF BUILDING CONTROL STIPULATE A 3RD PARTY STRUCTURAL ENGINEER MAY BE REQUIRED TO CONFIRM ELEMENTS OF DESIGN. THIS IS NOT RESPONSIBLE FOR ANY COSTS THAT MAY COME FROM THIS.



No 6, PROPOSED SIDE ELEVATION ISO

Span: 4.00m

Beam: Beam A

Load name

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Beam A: Span 4.00m
203 x 203 x 46 UC Beam Grade 43
Beam to have 250mm x 6mm MS 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 44R S45 Grade 43 columns filled & strapped to existing walls

Beam B:
Clear Span 3.550m
Actual beam length 3.850m
152 x 152 x 37UC Beam Grade 43
Beam to have 250mm x 6mm MS Plate welded centrally to top surface to carry wall structure above then bearing ends are to be secured to 600mm x 215mm 100mm Distance at party wall & 440x 215 x 100mm L- Shaped Corner partitions at opposite end, with wall below constructed of load bearing 70m 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 44R S45 Grade 43 columns with a 175mm x 175mm x 8mm base plate bolted to new 300mm x 300mm x 300mm 14- strength Concrete padstone set into floor / Ground level concrete strength Four 20 N/mm2

New Extension Gavity walls Specification

U' Value achieved 0.17W/m2K

Calculated in accordance with BS EN ISO 6946:2007

300mm Gavity construction comprising 102.5mm Bearing Brick to match & lay into existing 100mm cavity with stainless steel wall ties to BS1243:1978 with

Number of Anchors per m2 3, Diameter of Anchors (mm) 3.99mm

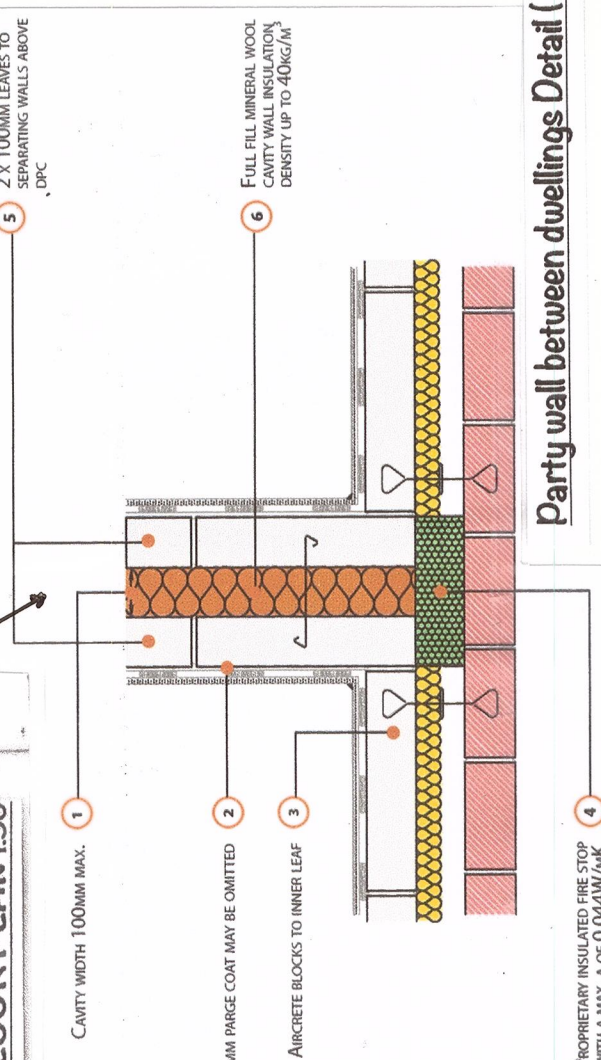
Maximum gassing 750mm Horizontal 450mm Vertical and 300mm vertical near any gables.

The inner leaf to be 100mm Ageded Concrete Block (K- Value = 0.15W/mK)

Gavity insulation to be 90mm Kingspan K100 insulation with a minimum of 10mm airspace. The cavity must be clear of mortar, birds to plasterboard & skin

Party wall Agreement act

Letter as been sent to No8



Party wall between dwellings Detail (Not to scale)

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 6946:2007
Inside surface down - 100mm Sand cement screed with 0.5mm Polythene separation layer beneath then 75mm Kingspan Kooltherm K103 insulation with 150mm Concrete 12x4 2000kg m3 laid on Viquepan Ultimate Gressed 0.9mm DPM (Gas protection to BS8102:2009 Clauses 07.48 & BS 8485:2015 DPM on 150mm sand bed consolidated stone hardcore).

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 base with Building control on any questions / queries on the required foundations

NOTES (WHERE APPLICABLE)

HOME OWNER / CLIENT & BUILDER MUST READ TO BE USED FOR CONSTRUCTION PURPOSES

ALL DIMENSIONS ARE TO BE SITE CHECKED BY BUILDER

DO NOT SCALE DRAWINGS

1. ANY NEW BRICKWORK IS TO MATCH & KEY INTO EXISTING

2. WINDOWS & DOORS TO BE DOUBLE GLAZED WITH 20mm GAP BETWEEN FRAMES FILLED WITH ARGON GAS WITH INTER-LAME HAMING COATING TO ACHIEVE U VALUE OF 1.4 W/m2K

3. ALL NEW BRICKWORK TO BE COMPLETED WITHIN 10 WORKING DAYS OF THE START OF WORK FROM ANY EXISTING WALL

4. ALL NEW BRICKS & LINTELS ARE TO HAVE A MINIMUM OF 150mm TUBER MEMBERS MUST HAVE A 100mm MIN BEARING

5. ROOF & FIRST FLOOR MUST BE SET DOWN TO WALLS WITH 145 GALVANISED STRIPS OF 30mm x 5mm AT 1500mm CENTRES

6. NEW ROOF SHALL BE TO BE VENTILATED TO BS 5557, 1500mm VENTILATION

7. NEW FOUNDATIONS / WALLS ARE TO CONFORM TO BUILDING REGULATION 1 & 2 / APPROVED DOCUMENT A

8. THE FOUNDATION DIMENSIONS