

Proposed single storey side extension and Internal alterations at 103 Itchen Avenue, Bishopstoke, Eastleigh, SO50 8NL For Mr. Mrs. Brown		Construction Notes
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Construction Notes

These notes are for Building Regulation purposes and do not constitute a specification of work to be done. They are to be read in conjunction with drawings MB01-04 and structural calculations.

The lengths of structural elements indicated in the structural calculations are not for fabrication. The actual length of elements required are likely to differ to allow for bearings etc. The lengths of the structural elements required should always be based on onsite measurements.

Building Regulations Duty holders and Completion

The client, Principal designer and Principal contractor are now defined as “Duty Holders” under the amended Building Regulations 2010 and must only be appointed by the client on the basis of proven competency. Contractors must not accept appointments unless they are competent to carry out the work. At completion of building works the client(s), the principal contractor and the principal designer will each need to sign a Declaration of Compliance to confirm compliance with the Building Regulations. In order for the principal designer to sign the required form he will need confirmation in writing (by email) from both the client and the principal contractor that the works have been carried out wholly in accordance with the design as shown in these construction notes, the drawing(s) and structural calculations / details. **If there are any variations to the design, materials etc. no matter how minor, these must be notified to and agreed with the principal designer before the variation is carried out on site.** Failure to agree any variations in advance could lead to the principal designer not being able to sign a Declaration of Compliance and the Building Control Authority being unable to issue a Building Regulation completion certificate.

Construction (Design and Management) Regulations 2015 (CDM 2015)

The client is to appoint a single contractor / principal contractor to plan, manage and coordinate the construction work to ensure health and safety and compliance with the CDM requirements.

The appointed contractor will need to notify the Health and Safety Executive before construction work starts if the works will last longer than 30 working days **and** have more than 20 workers working at the same time at any point on the project or will exceed 500 person days.

The Party Wall etc 1996

As Beam 1 is to be built into the party wall, this work falls within the scope of the Party Wall etc. Act 1996, it is the responsibility of the owner to give the appropriate notice to adjoining owner(s) or to secure separate written agreement.

For further information- [The Party Wall etc Act 1996: explanatory booklet - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

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Pitched Roof: Interlocking concrete tiles colour to match existing as near as possible laid at manufacturers headlap, pitch 30° to suit first floor side window on minimum 25mm thick battens and Tyvek Supro or equivalent breather membrane laid in accordance with Agrément Certificate and manufacturers on 47 X 100mm C16 rafters at 400mm centres. 47 X 100mm C16 ceiling joists at 400mm centres with 47 X 150mm C16 binder at centre span with 47 X 100mm C16 hangers from ridge at maximum 2m spacing. Ceiling joists bolted to rafters with 12mm diameter bolts and 50mm double-sided toothed connectors. Where ceiling joists are parallel to walls provide 47 X 100mm C16 timber ties across top of ceiling joists fixed to feet of every second rafter in hip end and to minimum 4No. ceiling joists. 30 X 5mm galvanised steel straps to tie roof to walls at ceiling level and 1m long vertical straps to tie down wall plate both at maximum 2m centres. Total thickness of 300mm Rockwool mineral fibre insulation with 100mm laid between joists and 200mm laid across and above joists. **Ensure roof insulation is extended down to meet wall insulation at eaves.** Line all ceilings with 9.5mm foil backed plasterboard with plaster finish. Code 4 lead flashing and cavity tray (Cavity Trays Limited or similar) where roof meets adjacent wall including stepped flashings and trays as necessary. Code 5 lead lined valleys. Leadwork carried out in accordance with Lead Development Association guidelines. White PVC-u fascias and soffits.

External Walls: Outer skin of face brickwork to match existing, 100mm cavity filled with 90mm thick Celotex Thermaclass Cavity Wall 21 insulation boards built in as work proceeds with 10mm residual cavity, 100mm Thermalite Aircrete Shield block (or equivalent block by other manufacturer) inner skin lined internally with 12.5mm plasterboard on dabs. Close cavity at roof level with Rockwool cavity closer. Stainless steel wall ties at 750mm horizontally and 450mm vertically staggered and every block course alongside openings. All new work toothed and bonded to existing. Cavities and dpc's to be continuous. External dpc minimum 150mm above ground level. Close cavities at reveals with insulated vertical dpc's (Hyload Insulated DPC or similar). Wall insulation to be taken up to underside of window board. Catnic Open Back steel lintels (or similar approved steel lintels) over openings insulated with polystyrene with minimum 150mm bearing to each end.
Cavities below ground level to be filled with lean mix concrete to within 150mm of ground level

Internal Walls / Partitions: 50 X 75 mm CLS timber studwork at 400mm centres lined both sides with 12.5mm plasterboard and 3mm plaster set coat. Double stud's adjacent door opening. Provide 25mm Rockwool mineral fibre slabs, minimum density 10kg/m³ suspended between studs.

Ground Floor: 50mm screed, 100mm concrete, 1200-gauge polythene dpm continuous with all dpcs on 100mm Celotex insulation board with min 25mm vertical insulation to external sides/perimeter of floor on minimum 100mm sand blinded, compacted hardcore. Hardcore compacted in layers – maximum depth of hardcore not to exceed 600mm – if 600mm is exceeded reduce by infilling with lean-mix concrete. Maintain ventilation to existing timber floor with 100mm diameter UPVC pipes laid in hardcore taken from existing airbrick position to new telescopic air bricks in new extension wall

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Foundations: 600mm wide x minimum 300mm thick concrete strip foundations at depth to suit site conditions, and below level of any drainage within 1m. Foundations to be stepped as necessary to suit site levels. Concrete lintels over drains. Final depth to suit site conditions but must be firm 100KN/M2 base

Windows & External Doors/Ventilation: All external doors, Bi fold doors, rooflights and windows to be double glazed frames with Low-E glass to give a maximum U-value of 1.6W/m2K i.e. minimum 16mm air gap to sealed units if emissivity = 0.05 – soft coat. Opening vents minimum 1/20th of floor area of enclosed room. Provide trickle vents in windows to give background ventilation of minimum 10000mm2. Glazing to be in accordance with Part K, Building Regulations 2013 with safety glazing to all critical areas to BS6206: 1981. Provide mastic seal around all door and window frames. Openable elements of doors and windows to be fitted with draught stripping.

Mechanical Ventilation(including garage conversion): Provide mechanical ventilation ducted to external air to kitchen (fan to extract at minimum 60 litres per second or cooker hood to extract at minimum 30 litres per second also ducted to external air. Provide Utility area with 30 L/S extractor as above.

Folding Bifold external doors-2.400m wide -: By specialist supplier to achieve a maximum U-value of 1.6W/m2K.

Rainwater Disposal: 112mm gutter to roof slopes connected to existing front and rear rain water downpipe.

Foul Drainage: Locate positions of all existing below ground drains at commencement of work. Layout of proposed drainage as illustrated to be altered as necessary due to conditions on site. Break out any disused drainage and seal off. Lay new drains as shown to connect new stub stack to new inspection 400mm diameter fitting with new connection to existing drains previous serving side gulley. 110mm diameter PVC pipes laid in bed/surround of pea shingle; minimum fall 1 in 80. Provide rc lintels and 50mm all round clearance where any drains / sewers pass through foundations/wall, seal gap with non-rottable board. All to BS8301.

Above Ground Drainage: 110mm diameter PVC stub stack in new WC, fitted with air admittance valve above level of highest appliance. Connect w.c. 110mm diameter branch pipe, basin 32mm diameter waste. 75mm deep seal anti vac traps. Cleaning access at changes of direction. All to BS EN 12056-2:2000

Services: Extend/adapt existing heating and electrical and hot and cold-water systems to serve new rooms and appliances in accordance with owners' requirements and relevant bylaws/regulations. Insulate pipework in accordance with Part L, Building Regulations. Fit thermostatic radiator valves to new radiators. Provide in new rooms/areas affected by the proposed building work energy efficient lighting having a luminous efficacy greater than 75 lumens per circuit-watt – the number of such fittings required to be three fittings per four new fittings provided i.e. 75%. All electrical work to meet requirements of Part P (Electrical Safety - dwellings) of the Building Regulations and to be designed, installed, inspected and tested by a person competent to do so. Prior to completion of work the Building Control Surveyor will need to be

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satisfied that Part P has been complied with. This is likely to require an appropriate BS7671 electrical installation certificate to be issued for the work by a person competent to do so. Gas Boiler and balanced flue outlet to be located in accordance with AD J and Gas Safe regulations

Internal fittings, finishes etc.: Sanitary fittings, Kitchen layout, internal doors, skirtings, and wall finishes, covings and decorations all to clients' requirements.

Summary of calculations (see also calculation sheets)

Beam: Beam B1 over kitchen

Span: 4.0 m. (Length to be checked on site before ordering-allow for 215 bearing on pier and 100mm bearing onto padstone) Reactions (unfactored/factored): R1: 36.30/57.90 KN, R2: 37.60/59.98 KN

Use 152 x 152 x 44 UC S275

Bearing R1: 600 x 100 x 300h mm padstone

Bearing R2:

Beam B1 to have full bearing on new pier. To support factored reaction of 60KN-Provide 215x215mm 20N/mm² brick pier, with 1:1:6 type 111 mortar with full area concrete padstone 150mm deep. Pier to be built centrally off new pad foundation 900x900mm trench fill at same depth of existing foundation. Assuming ground bearing onto firm 100KN/M subsoil. New pier to be fully bonded to existing stair wall enclosure.

Check pier capacity

Factored reaction at R2 =58KN

$Y_m=3.5$, $F_k=5.8$, Small AF= $0.7+1.5(215 \times 215) = 0.77$, Slenderness ratio $2400/215=11.16$ $E_{cc}=0.1t$
 $B=0.87$

Design Vertical resistance of pier

$0.77 \times 0.87 \times 215 \times 215 \times 5.8 / 3500 = 66.6 \text{ KN}$ therefore OK

Check foundation pier weight 3KN GBP=60+3 =63X10X6/900x900=77.7 KN

Therefore, OK assuming firm clay on site

Openings in beam web:

1: 100 x 60mm at 2.000m. from R1

2: 100 x 60mm at 3.000m. from R1

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Note: Beam 1 to be located within ceiling void with web solid blocked with timber cut to fit each side bolted through beam with 12mm dis bolts/timber connectors at 400 centres. Allow for existing 50x200 floor joists to be trimmed to fit and to be supported off Simpson Strong Tie joist hangers. First floor partitions are sat on existing floor joists.

Structural: See plan and notes/calculation sheets for structural details of new beams. Steel Beams to be encased in 2x12.5mm plasterboard for 30 minutes fire resistance. Provide pier/padstones/steel bearing plates under all steel beams as detailed in calculations.

Masonry internal pier: Fletton or similar 20 N/mm brickwork, 1:1:6 mortar piers as shown. on DWG MB02. Pier must be bonded to existing masonry-do not use profiles. Build off dpc positioned below floor level linked to repaired DPM if present. Provide new foundation pad base 900mm wide x 900mm long as shown. Trench fill from depth to suit site conditions but must be firm 100KN/M2 base and to depth of existing foundations