



Steel beams to Engineer's design

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75 x 175 C24 timber bolted to wall with 2 No. M16 resin anchors at 450mm centres. Rafters fixed to timber plate with Simpson Strongtie 105-R angles with 2 No.M10 Grade 8.8 coach screws into plate and M10 Grade 8.8 bolts into rafters.

**Plumbing and Drainage.**

UPVC gutters and downpipes to match existing. The existing drain locations are assumed. The builder is to expose on site and agree any necessary amendments with the building Inspector.

Any manhole enclosed by the extension to have a double seal mechanically screwed cover.

All external drains to be 100mm Osma plastic pipe bed and surround in gravel to falls

Foul - 1:80

Surface water - 1:100

All new surface water is to discharge to new soakaway located 5.0 metres from any building.

All new drainage and protection details to existing shall be agreed with the Building Inspector.

Pipe sizes are as follows:-

Basin 32mm up to 1700mm runs.

Sink bath / shower 40mm up to 3000mm runs 50mm up to 4000mm runs

WC - 100 mm.

Separate connections and 75 mm deep seal traps to 100 SVP terminating internally with non return valve. External stacks vented traditionally terminating 900 mm above any open light within 3000mm with suitable cage. Shower trays to have access panel to trap. All joints push fitted & access panels provided at all changes in direction.

All internal SVP's are to be insulated with min 50mm rockwool.

If a Saniflow pumped system is required, on no account shall a connection be made between the new drain and existing SVP within the roof space.

**Walls below Ground level & DPC**

Walls below Ground level to be either in 300mm wide trench blocks or

2 No. leaves of 100mm DCB with 100mm filled cavity.

All walls below DPC to be in 100mm DCB. DCB = 7/N/mm<sup>2</sup> blockwork.

Retaining walls to be constructed in 215mm hollow blocks filled with C35 concrete and with a 100mm 7/N/mm<sup>2</sup> blockwork inner leaf

**External Cavity Walls**

**Internal skin** - 100 mm Thermolite shield or similar blockwork with 12.5mm plasterboard & skim on dabs to internal leaf.

**Cavity** - 100 mm air gap filled with 100mm cavity batts (Min thermal conductivity 0.032W/mK) to continue 150mm below internal ground floor level and supported on a row of wall ties. Cavity is to extend full height and up into roof space. Cavity is to be filled with weak mix concrete to be no higher than 225 mm below highest dpc. Cavity is to be sealed at eaves with insulated cavity closer incorporating a vertical dpc. All cavity wall returns to be 655 mm minimum. Insulated cavity closers are to be provided to all reveals.

**External skin** - construction of external leaf is to be rendered masonry. Stainless steel vertical twist wall ties to be provided at 750 horizontal c/c and 450 mm vertical c/c , every block depth to reveals.

Connection of new to existing walls is to be achieved by brick bonding of outer leaf and block bonding of inner leaf. Weep holes are to be provided where applicable.

**DPC's** - To be provided to External walls at 150 mm above finished ground level. All door and window jamb / heads under lintols.

**Roof design - Over Ground floor**

Roof to main extension to be Sandtoft 20/20 interlocking concrete tiles (suitable for 20.5 degree pitch with 100mm head lap) in colour to match existing laid in accordance with the manufacturers instructions on 50 x 25 battens and a layer of Tyvek fully breathable felt.

Roof to be 50 x 150 C24 rafters at 450 c/c secured to existing wall and to wall plate as noted on the drawings. Rafters are to be doubled up between and either side of velux windows. 100mm rigid insulation to sloping ceilings (Min thermal conductivity 0.023W/mK) with a minimum of 50mm air gap to sloping ceilings and 25mm rigid insulation to underside of rafters. (Min thermal conductivity 0.023W/mK). 12.5mm plasterboard and skim finish. Provide 25mm continuous ventilation at eaves level via fascia board. Ventilation provided eaves to wall abutment. All wall plates are to 75 x 100 and strapped down to wall with 100 x 900 "Bat" M305 straps or similar approved at 1.00 metre centres and 0.40 metres from every corner. Rafters strapped to side walls using 150 x 1200 "Bat" M305 straps or similar approved at no more than 2.00 metre centres and 0.40 metres from every corner or ridge. Straps are to be nailed to wall plate and plugged and screwed to wall with 5 No. screws.

Facia / soffit boards - From 9 mm UPVC or similar to match existing provide air vents as described.

Ceilings - Ceilings are to be 12.5mm plasterboard and skim.

**Ground Floor - Extension**

75mm Sand/Cement screed on 800g Visqueen on 100mm Kingspan K103 insulation with 25mm thick insulation to sides of walls on 800g Visqueen on 125mm thick Grade C30 concrete floor slab (with layer A193 mesh in bottom face) on 1200g Visqueen lapped into DPC on 150mm Minimum well compacted hardcore.

**Internal Walls.**

Walls

100mm O/A with 75x50 timber studwork at 450 centres with 12.5mm plasterboard and skim. Void filled with insulation.

12.5mm plasterboard and skim. Void filled with insulation.