

Rear extension to form sunlounge and utility/wc area

at 182 Park Avenue, Purbrook

For Mr Mrs Tarrant rev 0

September 2014

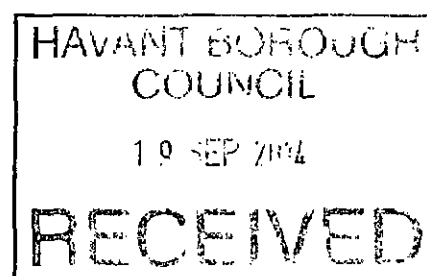
These notes are for Building Regulation purposes and do not constitute a specification of work to be done. They are to be read in conjunction with drawing CT01, notes and calculations. All dimensions must be checked on site by contractor before and during construction on site. Where the proposed work 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). Adjoining owners written permission to be obtained if any part of the new extension projects over the boundary. Any disturbed surfaces or weathering layers/flashings to be renewed and made good.

General: Existing conservatory to be demolished. Notes to be read in conjunction with Dwg CT01 and calculation sheets.

Pitched roof: Marley Wessex smooth Grey interlocking tiles, 100mm headlap, at minimum pitch of 15 degree to match existing colour. All tiles to be twice nailed on minimum 50x25mm thick battens and "Tyvek Supro" or equivalent breather membrane laid in accordance with Agrément Certificate and manufacturers requirements on 50 X 175mm C24 rafters at 400mm centres. Roof to be birdsmouthed over new wall plates and 50x150 high level plate resin bolted to wall at 400 c/c. Provide double rafters adjacent to new Velux SO6 GGU060 roof window. Insulate "skilling" ceilings with 75mm thick "Celotex 3000" insulation board between rafters, ensuring 20mm air void over and line underside of rafters with 55mm thick "Celotex 3000" insulation board, tape all joints. 1200 gauge vapour barrier internal lining with taped joints, sealed perimeter and any penetrations, 9.5mm foil backed plasterboard ceiling, plaster finish. Ensure insulation is dressed down at eaves to meet wall insulation. Code 5 lead flashing and cavity tray where new roof meets adjacent walls. **All Rafters must be birdsmouthed over all supporting plates/beams.** Where rafters and ceiling joists run parallel with external walls, provide galvanised 5x30ms straps, 1.2m long let into underside of timbers with noggins in between and hooked down cavity face of inner skin. Provide 5x30 ms 1m long vertical straps @ 2m c/c to all plates.

External masonry walls: Outer skin of 100 blockwork finished externally with 2 coat render p-dashed finish to match existing, Note-render to finish at dpc level with drip trim and outer leaf from dpc to below ground level to be face brickwork. 90mm cavity filled with "Rockwool" insulation batts built in as work proceeds, 100mm "Thermalite Shield 2000" block (or equivalent block by other manufacturer) inner skin, plastered.

Ensure all wall insulation is extended up past eaves to link with roof insulation. 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 ('Ruberclose' or similar). Wall insulation to be taken up to underside of window board. IG steel lintels (or similar approved steel lintels) over openings insulated with polystyrene with minimum 150mm bearing to each end. Provide cavity trays with weep holes and end turnups. All lead work to meet Lead Development Association recommendations.



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Stud Internal Walls / Partition Form new wc/utility in 50 X 100mm C16 timber studwork at 400mm centres, cross braced, lined internally with 12.5mm plasterboard and 3mm plaster set coat. Provide 100mm sound insulation quilt in-between studs.

Ground Floor: P/A 0.78- 50mm screed, 100mm concrete, 1200 gauge polythene dpm continuous with dpc on 75mm Celotex GA400 or with vertical insulation to external perimeter sides on minimum 100mm sand blinded, compacted hardcore. Maintain ventilation to existing timber floor with 100mm diameter UPVC pipes laid in hardcore taken to new telescopic air bricks in new extension rear wall.

Foundations: External-600mm wide x 300mm deep concrete strip foundation at min depth 1.2m deep but deepened to 150mm below invert level of any drain within 1m of foundation. Depth to be increased in accordance with NHBC table 4.2 in respect of trees-depth to depend on plasticity of subsoil. Heave precautions to be installed in accordance with NHBC table 4.2. Final depth to suit site conditions but must be firm 100KN/M2 base. All to Local authority approval.

Windows & External Doors/Ventilation: Style and pattern to match existing. All external 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 rooms. Provide trickle vents in window/door frames to give background ventilation of minimum 8000mm2. All 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. Provide new Velux SO6 roof window ref GGU 060 as shown on drawing CT01.

Note: Existing window to kitchen does not provide opening areas of 1/20th of combined floor area of kitchen and dining room and must be replaced-new window to have min 1.06M2 of clear opening vents and 10000mm2 high level trickle vent.

New french doors doors to be 1.8 wide x 2.1m high to achieve a maximum U-value of 1.6W/m2K. New door to utility to have 0.450 wide x 1.05M deep side light.

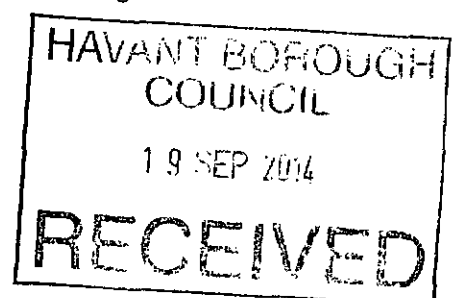
Internal door into extension: Replace existing door and sidelight with wooden sliding doors to clients choice

Mechanical Ventilation: Provide mechanical ventilation ducted to external air to New WC and utility-fan to extract at minimum 60 litres per second ducted to external air.

Rainwater Disposal: 112mm square gutter to roof slopes and 68mm dia downpipe to discharge into, 100mm diameter UPVC drains laid in bed/surround of pea shingle, minimum fall 1 in 80, taken to new 1.5M3 soakaway, positioned 5m away from any buildings.

Drainage: New drainage to be 100mm diameter UPVC pipes laid in bed/surround of pea shingle; minimum fall 1 in 80 to existing Manhole. All to BS8301.

Plumbing: New S&VP in WC to be terminated in an insulated "Durgo" air admittance valve.



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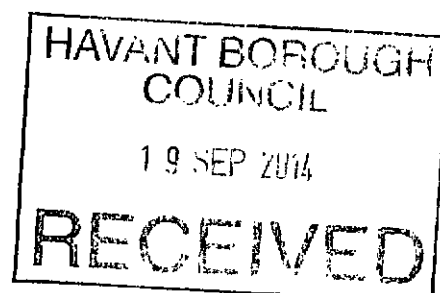
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Provide 225mm² upvc grill vent in boxing. All to BS 5572. Provide new 100 diameter branch from WC, Hand basin- 32mm branch, Washing machine branch 40mm, All traps to be 75mm deep anti-vac traps.

Services: Extend/adapt existing heating and electrical and hot and cold water systems to serve new room and appliances in accordance with owners' requirements and relevant bylaws/regulations. Re use existing Poterton Precision condensing boiler, positioned in new utility area. Insulate pipework in accordance with Part L, Building Regulations. Fit thermostatic radiator valves to new radiators. Ensure a minimum of 300mm clearance all around Gas boiler balanced flue outlet. Outlet to be min 2M above ground level or shielded with cage. Provide in new room/areas affected by the proposed building work energy efficient lighting having a luminous efficacy greater than 40 lumens per circuit-watt – the number of such fittings required to be three fitting per four new fittings provided. 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 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.

Fittings, etc: Utility units, internal doors, internal fittings and electrical layouts, and decorations all to clients' requirements. Layout of kitchen units as shown on plan is for illustrative purposes only.



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Job:

Job number:

SuperBeam

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Client copy

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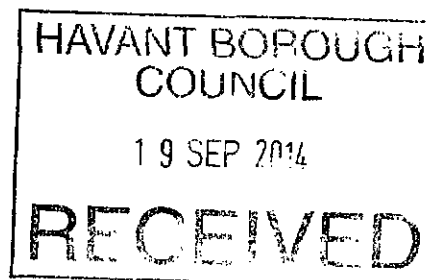
Project started 17 Sep 2014 JD

Site address: 182 Park Avenue Purbrook

Client: Mr Mrs Tarrants

ITEMS:

- 1: Beam: Rafters
Span: 3.4 m. Reactions: R1: 1.53 kN R2: 1.53 kN
Use 50 x 170 C24
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Client copy

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Beam: Rafters

Span: 3.4 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U T	o.w.	0.1	0		L	0.17	0.17
U T	Roof	2*0.4	0		L	1.36	1.36
						1.53	1.53

Total load: 3.06 kN

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

Maximum B.M. = 1.30 kNm at 1.70 m. from R1

Maximum S.F. = 1.53 kN at R1

Total deflection = $1.57 \times 10^8 / EI$ at 1.70 m. from R1 (E in N/mm², I in cm⁴)

Timber beam calculation to BS5268 Part 2: 2002 using C24 timber

Use 50 x 170 C24 3.6 kg/m approx

$z = 240.8 \text{ cm}^3$ $I = 2,047 \text{ cm}^4$

Timber grade: C24 4 members acting together: $K_8 = 1.1$

K_3 (loading duration factor) = 1.00 K_7 (depth factor) = 1.064 K_8 (load sharing factor) = 1.1

$E = 7,200 \times 1.24 = 8,928 \text{ N/mm}^2$ ($E_{\min} \cdot K_9$)

Bending

Permissible bending stress, $\sigma_{m,adm} = \sigma_{m,g} \cdot K_3 \cdot K_7 \cdot K_8 = 7.5 \times 1.00 \times 1.064 \times 1.1 = 8.78 \text{ N/mm}^2$

Applied bending stress, $\sigma_{m,a} = 1.30 \times 1000 / 240.8 = 5.40 \text{ N/mm}^2$ OK

Shear

Permissible shear stress, $\tau_{adm,||} = \tau_{g,||} \cdot K_3 \cdot K_8 = 0.71 \times 1.00 \times 1.1 = 0.78 \text{ N/mm}^2$

Applied shear stress, $\tau_a = 1.53 \times 1000 \times 3/2 \times 50 \times 170 = 0.27 \text{ N/mm}^2$ OK

Deflection

Bending deflection = $1.57 \times 10^8 / 8,928 \times 2,047 = 8.57 \text{ mm}$

Mid-span shear deflection = $1.2 \times 1.30 \times 10^6 / ((E/16) \times 50 \times 170) = 0.33 \text{ mm}$

Total deflection = $8.57 + 0.33 = 8.90 \text{ mm}$ (0.0026 L) $\leq 0.003L$ OK

