

**SPECIFICATION
OF
WORKS
PREPARED IN RESPECT
OF
PROPOSED REAR EXTENSION AT**

**8A SANDALL ROAD
LONDON NW5**

DECEMBER 2009

(DMC REF: C4658)

**DMC CONSULTING ENGINEERS LTD
201 STOKE NEWINGTON CHURCH STREET
LONDON N16 9ES**

CONSTRUCTION NOTES

DRAINAGE AND PLUMBING

All new drainage to comply with CP.8301 and new plumbing to comply with B.S 5572:1978 and both to be agreed on site with Building Inspector and Supervising Surveyor prior to works commencing.

New drains to be 100mm Ø 'Hepsleeve' jointed vitreous clay pipes laid to 1:40 fall, bedded on 100mm min. graded gravel (14mm to 5mm). Continue gravel up to half pipe diameter, then use selected backfill up to ground level. Where cover to pipes is less than 300mm, encase pipes in sulphate resisting concrete (150mm min. cover all round). Form movement joints in concrete at 5m spacings max. Using 13mm min. fibre board.

Provide approved concrete lintels over openings, where pipes pass through structure, ensuring 50mm clearance around pipe with mineral fibre to opening. All new and existing drain runs situated near foundations are to be protected with sulphate resisting concrete as follows: - where drain trench is below foundation level and less than 1m away, fill trench with concrete topped off level with base of adjacent foundation. Where drain trench is 1m or more away from foundations, concrete filling of trench is to be topped off at a distance below the foundation base of 150mm less than the horizontal distance of the drain trench from the foundation.

FLEXIBLE PIPEWORK

Use only pipes conforming to BS4660 which are to be jointed according to manufacturer's specification. Bedding material of at least 100mm consolidated granular material is to be laid on trench base prior to pipe being laid. Additional granular material to be compacted around pipe and up to 100mm above crown pipe. All other details as above for clay pipework.

Unless shown otherwise, any new inspection chambers to be built in 225mm thick brickwork on 150mm minimum thick concrete base. All cement used is to be sulphate resisting. Internal inspection chambers and gullies are to have double seal bolt down type covers fitted. All new gullies are to be back inlet type and with rodding access.

All new waste pipes as indicated on plans to be polypropylene or similar approved type with rodding access provided at bends. All W.C's, basins, sinks, showers and baths all to have 75mm min. deep water seal traps (use anti-syphonage type where indicated on plan). All waste pipe Ø to be at least that indicated on plan. All soil stacks to be min. 100mm Ø, where ventilated terminate stack 900mm min. above any window/door openings within 3m. Use proprietary weather proof vent at top and adequate code 4 lead flashing and apron to roof structure. Lowest waste pipe connection is to be min. 450mm above base of soil stack in single family dwellings (750mm. all other situations). All stub stacks indicated are to be 100mm Ø and have rodding access and 'Durgo' air admittance valves fitted. All waste pipes discharging into existing gullies are to do so below grating level and above water level. Unless indicated differently on plan all rain water goods to comprise 100mm Ø half round guttering and min. 63mm Ø down pipes connected to approved back inlet gullies with rodding access provided.

STRUCTURAL BEAMS

Refer to plans and beam schedule for details of all new structural members.

All steel and timber structural members are to be encased with 19mm Gyproc Plank with an outer layer of 12.5mm Gyproc wallboard, all nailed to 44 x 44mm. timber cradles spaced @ 600mm c/c with all joints staggered. Alternatively encase using 2 layers of 12.5mm Gyproc Fireline Board with staggered joints, or wrap member in metal lathing and encase in min. 15mm thickness of plaster. To provide half hour fire resistance. All twin UB/UC/RSJ sections are to be bolted together with approved steel separators at max. one third spacings. All structural timber members are to be stress graded to BS. 4978.

TIMBER JOIST SLOPING ROOF CONSTRUCTION

Provide Sandtoft Britlock Roof Slate using eaves and party wall ventilation. Velux rooflights 780 x 1180mm type GGL M06 Centre Pivot to achieve U-Value = $1.8 \text{ W/m}^2\text{K}$ set within roofing tiles, pitch not less than 17.5 degrees using a 120mm headlap in accordance with Manufacturer's recommendations and Tyvek breathable membrane under. New sloping rafters 150 x 50mm C24 joists @ 400mm centres. Provide timber noggins each end and centre of rafter span. Double up rafters each side of Velux. Use star washer connector plates and M10 bolts through @ 500mm centres. Provide 100mm Kingspan K7 thermal insulation between rafters and 32.5mm K18 to underside of rafters to achieve U-Value = $0.20 \text{ W/m}^2\text{K}$.

SOLID FLOOR CONSTRUCTION

65mm screed (1:5 cement:sharp sand) on thermal insulation slab (100mm) by Kingspan or similar to achieve U-value = $0.2 \text{ W/m}^2\text{K}$ onto bituthene damp proof membrane onto 150mm thick RC concrete C30 with 1 layer A142 top onto fine blinding onto 150mm thick crushed and compacted hardcore or Type 1 MOT Road mix onto ground cleared of topsoil and vegetation.

NEW EXTERNAL WALLS

Extension cavity wall construction of 105mm outer skin 2nd hand multi-stock fair face brick and inner skin 100mm 4 Newton blockwork with 75mm rigid insulation cavity fill to provide U-Value $0.3 \text{ W/m}^2\text{K}$ onto Hyload DPC @ 150mm minimum above external ground level on to Class B 225mm eng. brickwork onto trench fill C30 sulphate resisting concrete found 750mm wide x 2600mm deep to Building Control approval and to a level not less than adjacent drainage invert levels. Provide bridge over drains using 2 No. pre-stressed precast RC lintels 150mm deep x 150mm wide to include 150mm end bearing and 50mm clearance of drains. Provide stainless steel firfix plates at extension junction with main building. Use 10mm gap stop end beading plus mastic fill. Provide cavity wall trays at base damp proof course level and at window head levels with proprietary cavity wall drainage blocks set in brick perps. Details to be confirmed by architect.

LATERAL RESTRAINT

To all walls exceeding 3m long provide restraint strappings as follows: to all flat roofs, vertical straps min. 1m long and at 2m max. spacings. To all floors in buildings provide straps at 2m max. spacings with straps fixed across 3 No. min. floor joists, with solid noggins under. All straps to be galvanised steel of at least 30 x 5mm section.

NEW INTERNAL STUDWORK PARTITIONS

All new partitions for room divisions constructed in 100 x 50mm timber head, cill, studs and noggins with studs at 400mm maximum spacings. Fill voids in studwork with Crown wool for improved sound insulation for new bathroom walls. Where partitions run across floor joists provide solid noggins under of same section as joists. Provide at least doubled up floor joists where partitions run in same direction as joists.

Line both sides of studwork with min 15mm Gyproc Soundbloc plasterboard and 3mm plaster skim, to provide minimum half hour fire resistance.

WINDOWS

All new windows are to be openable for rapid ventilation and have hit and miss vents for background ventilation (see 'Ventilation' notes for details). At least one window in each new bedroom is intended to be used for escape purposes and fit the requirements described above in 'MEANS OF ESCAPE WINDOWS' and 'SAFETY GLAZING'. New dormer windows and any others that are replaced must also comply with the Building Regulations thermal and insulation requirements. They must be glazed with sealed units with Low E glass to provide a U-value of $1.8\text{W/m}^2\text{K}$.

VENTILATION

All habitable rooms to have min. $1/20^{\text{th}}$ of floor area provided in opening lights, some part of which must be 1.75m above floor level. Additionally, all habitable rooms to be provided with background ventilation openings of 8000mm^2 (4000mm^2 in kitchens, bathrooms, and utility rooms) by means of air bricks and or 'trickle ventilators'. Mechanical extractor fans with 100mm Ø ducting taken to external air should be provided as follows: KITCHENS 30 litres/sec where fitted in cooker hood (60 litres/sec elsewhere), UTILITY ROOMS 30 litres/sec, BATHROOMS 15 litres/sec (6 litres/sec or openable window $1/20^{\text{th}}$ of floor area, where only W.C. is installed). Fans are to operate intermittently, triggered automatically by light switch (bathrooms W.Cs) or separate switch (kitchens) and have 15 minute overrun. Extract ducting to be taken through walls and roofs, terminating with approved weatherproof air brick adaptors and ventilator roof tiles.

SAFETY GLAZING

All glazing to conform to Part N of the current Building Regulations and have laminate or toughened glass to BS.6206 where glazing occurs in the following situations: ANY GLAZING within 800mm from floor level, ANY GLAZING WITHIN DOORS AND SIDELIGHTS within 1500mm from floor level. ALTERNATIVELY, PROVIDE APPROVED GUARDING ACROSS GLAZED AREAS AS FOLLOWS:

PROTECTIVE GUARDING TO GLAZING

All glazed areas within 800mm height of floor level to have protective guarding fitted in front of glass on all sides exposed to foot traffic. Construct framework of painted metal posts and horizontal rails top and bottom, with vertical rails in between. Intermediate horizontal rails are not allowed. Alternatively provide guarding in the form of structural glass or similar approved proprietary screening panels secured with fixing brackets and posts in accordance with

Manufacturer's instructions. Ensure that there are no gaps in the construction less than 75mm. Top of guarding to finish at least 800mm above floor level.

ELECTRICAL WORKS

All electrical works to be designed, installed, tested and certified by NICEIC (or equivalent) approved contractor. Details of contractor and governing body to be forwarded to Building Control Dept. Energy efficient lighting to be provided throughout in accordance with Approved Document L.

BOILERS/HEATING

Provisional details only. Final details are subject to building owner and must be approved by L.A Building Inspector prior to and after fitting.

Gas fired combi balanced flue type (Baxi or similar approved) fitted where indicated on plans (provisional positions)

All radiators to have thermostatic control valves fitted.

Boiler and flue installations to be designed, installed, tested and certified by CORGI (or similar) approved contractor. Copies of commissioning certificates together with details of the contractor and their governing body to be forwarded to Building Control Dept.

SMOKE DETECTOR SYSTEM

Property to be fitted with smoke detection system to BS5839-1:2000. Detectors to be self contained with alternative power back-up to BS5446:1 and be interlinked and wired to a separately fused circuit at common ground floor area.

NOTES FOR STRUCTURAL STEEL FRAMES & BEAM

All structural steelwork to be new grade S275

Internal beams above ground level to be painted 85 pm 3mc rich epoxy-preparation; grit blast 1st quality all at shop.

All steelwork in residential buildings to be protected to 30 minutes fire period by 2/12.5 plasterboard, intumescent paint or other approved combinations of specialist fire lining boards.

Minimum allowable steelwork connection 2/M16, 8.8

All welds 6.0mm fillet UNO

All multiple sections parts or whole frames to be barrel or spacer bolted M16 @ 450c/c max.

Floor joists to be fixed to wall plates by BAT AL/AR framing anchors to alternate joists. Wall plates to be bolted M10 @ 400 c/c staggered flange to flange.

Note: Frame restraint by floor diaphragm essential.

All mechanical timber to timber or timber to steel to be fully nailed by 9swg x 30 as manufacturers requirements.

IN SITU CONCRETE

DESIGNATED MIX FOR UNDERPINNING & NEW FOUNDATIONS.

Mix C30 to BS 5328

The concrete will be sulphate resisting, high workability slump 125mm.

Nominal maximum size of aggregate: 20mm

Admixtures: An accelerator or retarder may be used.

DESIGNATED MIX FOR FLOOR SLABS, ELBOW TIES AND PADSTONES

Mix C30 to BS 5328

The concrete will be OPC medium workability, slump 75mm

Nominal maximum size of aggregate: 20mm

Admixtures: An accelerator or retarder may be used.

MIXES FOR SUNDRY TYPES IN SITU WORK

They are specified in other sections of this specification as follows:

- F30 Accessories/sundry items for brickwork/block walling.
- F31 Pre-cast concrete cills/lintels/copings/features
- Q10 Kerbs/edgings/channels
- R12 Drainage below ground

Mixes specified in this section which are equivalent to or better than the above may be used in lieu, subject to approval.

SUBSTITUTION OF STANDARD FOR DESIGNATED MIXES

Where appropriate, standard mix(es) to BS 5328:Part 2, Section 4 will be permitted in substitution for specified designated mixes in accordance with BS 5328: Part 1, Table 12 and in each case subject to approval.

If standard mixes are made on site comply with BS 8000: Section 2.1, subsections 2, 3 and 4.

PROPERTIES OF FRESH CONCRETE

On site circumstances and methods, but in all respect maintaining compliance with this Specification.

UNDERLAY

Before placing structural concrete (not binding concrete) on hardcore or other absorbent substrates, lay building paper to BS 1521, Class B or polythene sheet, 250 microns thick. Lap edges 150mm.

PLACING AND COMPACTING

At time of placing ensure that all surfaces on which concrete is to be placed are clean, with no debris, tying wire clippings, fastening or free water.

Place while sufficiently plastic for full compaction. Do not add water or re-temper mixes.

The temperature of concrete at time of placing must be not less than 5 degrees C. Do not place against frozen or frost covered surfaces.

Fully compact to full depth (until air bubbles cease to appear on the top surface), especially around reinforcement, cast-in accessories, into corners of formwork and at joints. Use mechanical vibration.

CURING AND PROTECTING

Prevent surface evaporation from concrete surfaces as specified below by covering with polythene sheeting as soon as practicable after completion of placing and compacting, removing only to permit any finishing operations and replacing immediately thereafter:

Surfaces, which will be exposed to frost and wearing surfaces of floors and pavements, regardless of weather conditions: not less than 10 days.

Other structural concrete surfaces: not less than 5 days.

Adequately protect concrete from shock, indentation and physical damage.

FORMATIONS/FORMWORK FOR IN SITU CONCRETE

Work Below Ground

Vertical faces of strip footings, bases and slabs may be cast against face of excavation, provided the faces are sufficiently accurate and stable and adequate measures are taken to prevent contamination of concrete.

CARPENTRY/TIMBER FRAMING/FIRST FIXING

Graded Softwood for Floors and Rafters

Stress graded to BS 4978 or other national equivalent and so marked.

Strength class to BS 5268:Part 2.

Preservative treatment: As Section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C.

Type/desired service life: C24 Timber.

Selection and Use of Timber

Do not use timber members which are damaged, crushed or split beyond the limits permitted by their grading.

Ensure that notches and holes are not so positioned in relation to knots or other defects that the strength of members will be reduced.

Do not use scarf joints, finger joints or splice plates.

Processing Treated Timber

Carry out as much cutting and matching as possible before treatment.

Retreat all treated timber, which is sawn along the length, thickness, planed or otherwise extensively processed.

Treat timber surfaces exposed by minor cutting and drilling with two flood coats of a solution recommended for the purpose by main treatment manufacturer.

Moisture Content of timber at time of erection to be not more than:

Under cover in generally unheated spaces:	24%
Under cover in generally heated spaces:	21%
Internal in continuously heated spaces	19%

Additional Supports

Where not shown on drawings, position and fix additional studs, noggins or battens for appliances, fixtures, edges of sheets etc in accordance with manufacturer's recommendations.

All additional stud, noggins or battens to be of adequate size and have the same treatment, if any, as adjacent timber supports.

Installing Joists Generally

Position at equal centres not exceeding designed spacing and true to level.

Install bowed joists with position camber.

Position end joists about 50mm from masonry walls.

Installing Joists on Hangers

Bed hangers directly on and hard against supporting construction. Do not use packs or bed on mortar.

Cut joists to leave not more than 6mm gap between ends of joists and back hanger.

Rebate joists to lie flush with underside of hangers.

Fix joists to hangers with a nail in every hole.

Joist Hangers For Roof

Manufacturer and reference(s): Simpson, BAT or other approved

Material/finish: Galvanised steel

Size: To suit joist, design load and crushing strength of supporting construction.

Trimming Openings

When not specified otherwise, trimmers joists to be not less than 25mm wider than general joists.

Vertical Restraint Straps

Manufacturer and reference: Simpson, BAT or other approved

Material/finish: Galvanised steel

Size: 30mm x 100mm x 1000mm

Position at not more than 2 metre centres and fix securely to timber plate with not less than two 20 x 3.75mm galvanised or sherardised nails and to masonry with 50mm x 12 gauge sherardised screws evenly spaced. Locate at least one screw within 150mm of the bottom end of each strap.

Lateral Restraint Straps

Manufacturer and reference: Simpson, BAT or other approved

Material/finish: Galvanised steel

Size: Not less than 30 x 5mm cross section, 150mm cranked end and 1000mm long.

Position at not more than 2 metre centres and as shown on drawings.

Ensure that cranked end is in tight contact with cavity face of wall inner leaf and is not pointing upwards.

Fix noggins and packs to fit tightly and be not less than three quarters of joist/tie depth. Notch joists so that straps fit flush with surface. Do not notch rafters/ties.

Fix straps to joists/rafters/ties with not less than four 40mm x 8 gauge sherardised countersunk screws, evenly spread.

END