FBI CAD & Design Solutions

"Far Beyond Imagination"

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Proposed Rear extension to:

11 Foresters Avenue, Hilgay, Downham Market, Norfolk

For Sam & Jade

BUILDING REGULATION CONSTRUCTION NOTATION

DOCUMENT PTS121-021

January 2021 Rev 0

NOTE TO BUILDING CONTRACTOR

The following specification must be read in conjunction with all relevant project drawings, schedules etc. and is applicable whether specifically referred to or not. It is the responsibility of the contractor to ensure that all their work is in compliance with the appropriate requirements of the relevant Building Regulations and other allied legislation.

The details and notes shown hereon do not constitute a full specification of works. They are provided for the purpose of obtaining Building Regulation Approval and FBI CAD & Design Solutions accept no liability in respect of any other purpose for which the specification or drawings are used. Any discrepancies, errors or omissions should be referred to FBI CAD & Design Solutions for clarification, immediately upon discovery.

1. MATERIALS

All materials are to be used and installed in accordance with the relevant manufacturer's instructions and recommendations. The quality of any material shall not be lower than that defined in the relevant British Standard, or that the material has been satisfactorily assessed by an appropriate independent authority.

2. TIMBER TREATMENT

All softwood timbers to be adequately treated to prevent infestation by the house longhorn beetle in accordance with current Building Regulations. All structural timbers, external frames, window & softwood cladding shall be treated against fungal attack. All structural timber to be marked DRY or KD and to have stress grade mark.

3. FIRE PROTECTION TO STRUCTURAL STEEL WORK

New lintels should be protected with Fireline plasterboard.

4. EXISTING STRUCTURE

Existing foundations to be exposed and for extra support drilled and re-inforcing bar inserted, prior to new concrete foundations being poured. This should be done as directed by the Building Control Inspector, under his recommendations.

5. FOUNDATIONS

Strip foundations, 600mm wide x 225mm, in a trench of 750mm depth, based on Building Control Inspectors requirements. Foundations are subject to *amendment when site conditions have been fully investigated.*

Concrete for foundations to be grade GEN3 to BS8500 using CEMI cement and 20mm nominal maximum size of aggregate.

The existing ground within the extent of the proposed building construction site shall be cleared of all turf and vegetable matter prior to any further excavation being made.

Method of disposal of any contaminated soil to be agreed with the Local Environmental Officer. Foundation trenches shall be clean and true and checked for soft areas, water etc. and left with compacted bottoms.

Foundations shall be located centrally under external and load bearing internal walls. All foundations shall be designed with due regard to subsoil conditions, water table, presence of sulphates and previous ground uses etc.

6. HORIZONTAL/VERTICAL - DAMP PROOF COURSES (NEW STRUCTURE)

The horizontal damp proof course shall consist of a layer of 2000 gauge polythene damp course to BS 743/6515 adequately lapped at corners and joints, on a mortar bed maintaining a minimum 150mm above adjacent ground level. All joints to be lapped a minimum 150mm. Ensure that damp proof courses do not project into the cavity.

Where external wall cavity is bridged i.e. air brick/ventilator openings and meter cupboard etc. provide polythene cavity trays complete with stop ends over in the external wall with open proprietary perpends. Cavity trays are to project 150mm beyond either side of lintel/opening.

7. SOLID GROUND FLOOR CONSTRUCTION

Granular material, free from harmful matter, well graded and passing a 75mm BS sieve. (MOT 1). Crushed hard rock, not chalk, or crushed concrete, bricks or tiles free from old plaster. Average thickness of hard-core bed to be 150mm. Increase thickness as necessary to make up levels and backfill foundation at trench.

Hard-core to be thoroughly compacted in layers not exceeding 150mm. Surfaces of hard-core to have a sufficient consolidated blinding of sand to fill interstices and provide a close smooth surface for 1200 gauge polythene DPM laid with edges lapped not less than 300mm and turned up the perimeter walls and tucked under DPC to provide a complete water proof membrane.

Concrete for foundations to be grade GEN3 to BS8500 using CEMI cement and 20mm nominal maximum size of aggregate. Thickness of concrete floor slab to be 150mm.

100mm thick Celotex FR5000 insulation slabs laid directly on additional 1200 gauge DPM on concrete ground floor slab to achieve a U-Value of 0.18W/m2K. Off cuts of insulation to be placed around perimeter of external walls, beneath skirting, to prevent cold bridging.

75mm thick 1:4 cement:sand screed using OPC cement and fine aggregate to grade limit M, BS882 with light gauge wire mesh reinforcement in centre. Screed to be floated smooth and finished flush with existing floor level unless stated otherwise of the drawings.

8. FURFIX JUNCTIONS

Use vertical Furfix mechanical joints between new cavity wall construction and existing external walls. All fixed and finished in accordance with manufacturer's instructions.

9. EXTERNAL CAVITY WALL – BLOCKWORK

Outer skin to comprise 100mm thick Thermalite Shield 4N/mm2 blockwork with a 100mm wide cavity and a 100mm thick Thermalite Turbo blockwork inner skin.

Cavity to be closed at all window, door junctions and at eaves level with a proprietary cavity closure. Skins to be tied together with 225mm long vertical twist wall ties spaced at 900mm centres horizontally and 450mm centres vertically and at 225mm centres at window and door reveals. Provide additional ties within 225mm of side of openings at no more than 300mm centres. Blocks to be laid in a 1:1:6 cement, sand mortar with struck joints. Ensure that cavities are kept free from debris by employing the use of timber cavity battens pulled up as work proceeds.

Vertical damp proof courses to be provided at all un-bonded jambs: (note proprietary cavity closer at all jambs and cills).

At all low roof abutments i.e. porches, conservatories ensure stepped DPC's cavity tray with stop ends are provided and linked to code 4 lead flashings and soakers. Code 4 lead dressed beneath cavity trays and over roof slopes with alternate perpends left open for weep holes all as necessary to form weather proof junction.

Provide polythene lapped and continuous cavity trays with stop-ends, above all lintels and over short piers between closely spaced openings. Provide open perpends or PVCu proprietary perpends at 300mm centres, minimum 2 no per openings. Bond new blockwork to existing walls with stainless steel masonry connectors and ties rawlbolted to existing walls.

The cavity is to be filled with a lean mix concrete up to a level of 225mm below DPC & is to be laid with sulphate resistant mortar. Provide perpends weep holes every fourth vertical joint in the outer leaf at the base of the cavity at 150mm below DPC. Maintain a continuous cavity between new and existing walls.

The cavity is to be closed at openings using proprietary cavity closer 'Thermabate' or equal, installed in accordance with manufacturer's instructions.

Walls to be finished internally with an approx. 13mm thick layer of bonding plaster and 2-3mm thick finishing skim plaster floated smooth or 12.5mm plasterboard on plaster dabs with a plaster skim finish.

10. EXTERNAL CAVITY WALL INSULATION – FACING BRICKWORK

100mm full fill rockwool cavity wall insulation to provide a minimum u-value of 0.26W/m2K. Fix bats securely with tightly butted joints, ensuring that all edges are not damaged and that top edges are covered with a temporary timber batten to ensure that they remain free from mortar droppings and other debris. The cavity wall insulation is to be installed in strict accordance with manufacturers recommendations commencing below the DPC to avoid cold bridging. The cavity insulation is to commence at the same level as the horizontal ground floor insulation.

11. MOVEMENT JOINTS

Generally to be provided at not greater than 12 metre centres for brickwork and 6 metre centres for blockwork. Movement joints to be 10mm minimum wide, located behind rain water down pipes where possible and formed with proprietary polyurethane sealing strip, with flat ties between panels at 450mm vertical centres with one end de-bonded with poly-sulphide sealant to external face of brickwork/render - colour to match. Note : provide cavity wall ties within 150mm horizontally, at 225mm maximum vertical centres, either side of movement joints.

12. EXTERNAL CAVITY WALL – RENDER

Where elevations are to be rendered this shall consist of a sand and cement smooth render applied directly to the blockwork.

Expanded galvanised metal beading is to be provided to all corners and at bottom edges of the render. Window cills are to be extended to ensure that a minimum 25mm overhang from render face. Movement joints are to be located as recommended within the mortar face to coincide with movement joints in the blockwork backing behind.
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13. INTERNAL WALLS - LOAD BEARING BLOCKWORK

100mm blockwork (not less than 4N/mm sq). Ground floor partitions to be built off horizontal damp proof course.

Load-bearing walls abutting same type of block may be fully bonded or tied together. Where blocks are of dissimilar block strength and type, these are to be tied together at 225mm vertical centres. Walls to be built centrally off foundations.

Lintels above internal doors and openings to be 100x65mm precast concrete plank lintels in blockwork walls and 2no 100x50mm timber framework in studwork walls.

Walls to be finished internally with an approx. 13mm thick layer of bonding plaster and 2-3mm thick finishing skim plaster floated smooth or 12.5mm plasterboard on plaster dabs with a plaster skim finish.

Minimum mass square meter for sound insulation for walls to bedrooms and rooms containing WC's to be 120kg/m2.

14. INTERNAL WALLS - NON-LOAD BEARING BLOCKWORK

100mm aircrete blockwork to be built off horizontal damp proof course and centrally off the concrete foundations / thickened floor slab.

Walls to be finished internally with an approx. 13mm thick layer of bonding plaster and 2-3mm thick finishing skim plaster floated smooth or 12.5mm plasterboard on plaster dabs with a plaster skim finish.

Minimum mass square meter for sound insulation for walls to bedrooms and rooms containing WC's to be 90kg/m2 for plastered walls or 75kg/m2 for plasterboard walls.

15. INTERNAL WALLS - NON LOAD BEARING STUDWORK

Minimum 75x50mm softwood framing comprising sole and head plates, uprights at 400mm centres and noggins staggered at mid-height. Walls to be lined each side with 12.5mm plasterboard, taped, skimmed and set finished. Plasterboard to be plaster skimmed ready for decoration. All studwork walls to be supported on double floor joists or noggins.

For studwork partitions to bedrooms and rooms containing WC's studwork to be lined with 15mm thick wall board plasterboard (minimum mass 10kg/m2) and void to include a layer of 25mm insulation quilt. All gaps to be well sealed.

16. RAINWATER GOODS & FOUL DRAINAGE

100mm wide PVCu semi circular section gutters laid to falls to discharge into 65mm diameter round rainwater downpipes. New soakaways to be provided, subject to percolation test, (to be provided and agreed with Building Inspector), minimum 5000mm

from any structure. Rainwater drain runs to be 100mm diameter PVCu in shingle surround laid to falls (1:80).

Foul drainage which connects to at least one WC must have a fall of at least 1:80 (12.5mm/m run of drainage). Drainage which doesn't have any WC's must have fall of at least 1:40 (25mm/m run of drainage).

17. DRAINRUNS UNDER BUILDINGS

Drains running under a building to be surrounded in 100mm of granular fill. On sites where excessive subsidence is possible additional flexible joints should be provided. Where the top of the pipe is within 300mm of the underside of the slab concrete encasement shall be used an be integral with the slab. Provide flexible movement joints of compressible board at each pipe junction when encasing in concrete.

Where a drain runs through a wall or foundation provide a length of pipe (as short as possible) built with its joints as close a possible to the wall / foundation faces (within at most 150mm) and connected on each side to rocker pipes with a length of at most 600mm and flexible joints.

DESIGN OF DRAIN BRIDGING LINTEL
IGNORE ANY ARCHING ACTION OF MASONRY
ASSUME 2 STOREY HOUSE WALL INNER LEAF

Description - Pitch tiled roof plus ceiling
Dead load = 3.000 m x 1.28 Kn/m^2 = 3.84 Kn/m
Live load = 3.000 m x 1.00 Kn/m^2 = 3.00 Kn/m

Description - Domestic Timber Floor
Dead load = 1.500 m x 0.71 Kn/m^2 = 1.07 Kn/m
Live load = 1.500 m x 1.50 Kn/m^2 = 2.25 Kn/m

Description - 100mm Lightweight Blockwork Plastered On 1 Side
Dead load = 5.000 m x 1.04 Kn/m^2 = 5.20 Kn/m

Description - 103mm Brickwork
Dead load = 0.500 m x 2.06 Kn/m^2 = 1.03 Kn/m

Total applied dead load = 11.15 Kn Total applied live load = 5.25 Kn
Total unfactored load = 16.4 kn/m run

100mm wide x 145mm deep Stressline concrete lintel will carry 17.7 kn/m run on a clear span of 1.5 m

18. ROOF RAFTERS AND INSULATION

19. TRUSSED PITCHED ROOF CONSTRUCTION OVER SINGLE STOREY SECTION OF HOUSE.

Roof to be formed with 195x47mm C24 grade timber, (to manufacturers design and calculations), to BS5268: Part 3: 1985. Sizes are to take account of the type of roof covering and weight. Roof to be clipped to 100x50mm wall-plate at 400mm centres. The softwood wall plate is to be anchored to the wall with 30x5mm mild steel straps @ 1.2m ctrs (1.2m long), bent at right angles to give a min. 75mm fixing to the top of the wall plate.

Roof to be braced horizontally on underside of rafters with purlins and bracing in accordance with the approved manufacturers drawings.

Lateral and vertical restraint straps are to be provided to roof members in accordance with BS 5628 from the roof to adjacent parallel walls at maximum 2.0m centres using 30 x 5mm galvanised steel straps turned down 150mm minimum over blockwork and fixed over solid blocking, to a minimum of three trussed rafters or to 100 x 25mm longitudinal bracing if at appropriate spacing.

Whole roof area is to be insulated with two layers of Knauf Loft Roll 44 insulation quilt, total thickness 300mm. The first layer of 150mm insulation quilt to be laid between ceiling joists complete with the second layer of 150mm insulation quilt laid at right angles on top of ceiling joists. Separate but linking quilt is to be laid over the softwood wall plate and

wedged into the 100mm cavity top to avoid cold bridging and close the cavity. Roof to achieve a u-value (through joists) of at least 0.16 W/m2K.

20. WINDOWS & DOORS

Windows are to provide minimum opening lights equal to 1/20 (5%) of the floor area of the room served and provide, minimum background ventilation via controlled trickle ventilators to achieve 4000sq mm in the kitchen, bathroom, cloakroom and utility room windows and 8000 sq mm to all other habitable rooms.

The windows are to be glazed with 24mm 4:16:4 (glass:air:glass) sealed double glazed (Low-E: emissivity of 0.10) units with a minimum 'U' value of 1.6 W/m sq K or centre pane value of 1.2 W/m sq K or energy rating Band A. Doors 50% glass U Value 1.8 W/m sq K or centre pane U Value 1.2 W/m sq K. All subject to SAP calculations.

All glass shall be in accordance with BS 6262:1978. Obscure glazing is to be provided to all bathrooms and cloakrooms. All windows and doors are to be weather stripped.

Safety glazing in accordance with B.S 6206:1981 shall be fitted in the following critical locations:

(1) All glazed doors
(2) All full height sidelights
(3) Any window within 300mm from a door opening up to a height of 1500mm
(4) Any window between finished floor level and 800mm above that level.

All windows and doors to be double glazed uPVC units.

All lintels to be securely built into masonry walls and be of the appropriate length to ensure a minimum 150mm bearing at each end.

21. PLUMBING INSTALLATION

Complete installation to be subject to and capable of withstanding testing in accordance with BS 5572 :1978. Above ground foul drainage pipe work shall be PVC-u to BS 4514.

Pipe work must be designed in accordance with BS 5572 and installed to ensure that appliances drain efficiently without causing crossflow, backfall, leakage or blockage. No air from the drainage system shall enter the building. Provide adequate support to lengths of pipework and at junctions and changes in direction. No branch connection to be within 450 mm above foot of soil pipe. All PVC-u pipe work to be to BS 4514. Minimum pipe sizes for sanitary plumbing to be :

- *WC's, soil pipes* — *100 mm dia nom. size*
- *Common pipe wastes* — *50 mm dia nom. size*
- *Bath, sink* — *50mm dia nom. size*
- *Handbasin* — *32 mm dia nom. size*
- *Shower* — *40 mm dia. nom. size*
- *Overflow* — *19 mm dia. nom. size*

All fittings are to have 75mm deep seal traps. Provide waste for washing machine and dishwashers where applicable. All waste pipes shall be laid to falls (25mm per metre run). All plumbing shall be installed in accordance with manufacturer's instructions.

The maximum lengths of waste pipes shall be as follows:

- *32mm pipe* — *1.7m maximum length*
- *40mm pipe* — *3.0m maximum length*
- *50mm pipe* — *4.0m maximum length*
- *100mm pipe* — *6.0m maximum length*

Soil and ventilating stacks at ' head ' of drain run to be ventilated to the external air by teeing into the existing rigid ducting on the external gable wall (minimum 900 mm above any window head within 3 metres horizontally).

Soil pipes passing through habitable rooms (including kitchens) to be lagged with minimum 50mm sound deadening quilt and with 2 no. layers of 12.5mm plasterboard in

38 x 38mm softwood framing. Access and rodding eye fittings to be provided to ensure all pipework is accessible as required. Pipework laid between joists to be adequately supported. Underground pipes with less than 750mm ground cover shall be insulated. All rising mains to be insulated.

22. VENTILATION

All new habitable rooms to have rapid ventilation via windows/doors of an openable area at least 1/20th of the floor area, part of the ventilation opening must be 1.75m above floor level.

Ensuite Rooms:

All Ensuite rooms to be mechanically ventilated either by a wall-mounted (or ceiling mounted) fan, to extract 30 litres per second and controlled by light switch. In rooms without openable windows 15 min over run to be provided. Isolator switch at high level external to room. Any ducting in floor zone not to exceed 6m or less if manufacturer so recommends, terminating in an approved vent to match wall.

23. SMOKE ALARMS

Due to the proposed works, there should be a mains wired and interlinked fire alarm and detection system within the dwelling meeting BS 5839-6 (Grade D, Category LD3). This should comprise of smoke detectors within the circulation space on each storey no more than 7.5m from the door to every habitable room, as well as an optical heat dectector in the kitchen area.

24. ELECTRICAL INSTALLATION

All electrical installation to be in full accordance BS 7671 : 2001 and with the latest edition of the IEE wiring regulations, and should be carried out in accordance with current installation techniques applicable to the material and equipment being used. All electrical works shall also comply with the Building Regulations Part P.

Note that all cables which are covered or surrounded with thermal insulation to be de-rated in accordance with Appendix A of BRE 'Thermal Insulation: Avoiding Risks' 2002 edition.

All switches and sockets within habitable rooms to be installed within a zone of 450mm to 1200mm from finished floor level.

All down-lighters in ground floor ceiling voids are to be either boxed in with 12.5mm plasterboard or fitted with an intumescent cover to maintain half hour fire resistance.

Services and fittings within the roof space are to be protected from overheating. Lighting circuit cables to be 1.5sqmm minimum where within insulation - all other cable runs to be supported by and clipped to roof timbers and be kept clear of insulation.

Any external light fittings should have automatic controls, and/or be capable of only taking lamps having a greater efficacy of greater than 40 lumens per circuit-watt.

Provision of additional light fittings, switches and power sockets to be determined on site.

Electrical installations should be inspected and tested during at the end of installation, before they are taken into service to verify that they are safe and that they comply with BS7671 : 2001. This report shall be signed by a competent person who should be a Corporate Member of the Institution of Electrical Engineers (IEE) or enrolled with the National Inspection Council for Electrical Installation Contracting or Electrical Contractors Association.

The report should show that the installation has been:

Inspected and verified that the works are in compliance with

the appropriate British Standards and not visibly damaged or defective so as to be unsafe

Tested to check satisfactory performance in relation to continuity of conductors, insulation resistance, separation of circuits, polarity, earthing and bonding arrangements, earth fault loop impedance and functionality of all protective devices including residual current devices.

For extensions, material alterations and changes of use the installation must include:

Such works on the existing fixed electrical installation in the building as are necessary to enable the additions and alterations, the circuits which feed them, the protective measures and the relevant earthing and bonding systems to meet the requirements.

Establishing that the mains supply equipment is suitable.

25. EFFICIENCY LIGHT FITTINGS

Low energy light fittings with a luminous efficiency great than 45 lamp lumens per circuit-watt and a total output greater than 400 lamp lumens will be provided in accordance with the domestic services compliance guide. There should not be less than three per four of all light fittings in the main dwelling spaces.

Halls, stairs and landings count as one room but may contain more than one fitting. Efficiency light fittings cannot be located in garages, lofts and outhouses. The exact locations of efficiency light fittings to be determined on site.

26. SPACE HEATING (EXTENSIONS)

Existing central heating system to be extended into new rooms in accordance with BS5449. All new radiators to be fitted with thermostatic valves.