05 June 2018

CONSTRUCTION SPECIFICATION

Construction of Dwellinghouse and all associated site works at Harristown, Rathdowney, Co. Laois

James Corrigan

SECTION O.

List of Drawings included.

01 ***GROUND FLOOR GENERAL ARRANGEMENT PLAN***

02 ***FIRST FLOOR GENERAL ARRANGEMENT PLAN***

03 ***FOUNDATION AND WINDOW SCHEDULE***

04 ***ELEVATIONS AND SECTION***

05 ***DETAILS***

SECTION 1 - DEFINITIONS

1.1. Contractor

The Building Contractor is the main project manager engaged to construct the dwelling. The contractor shall first and foremost ensure all construction is in accordance and in compliance with the Building Regulations.
The contractor shall become fully knowledgeable with all Health and Safety Regulations.
The contractor is required to accept his appointment in the role of Project Supervisor Construction Stage for the duration of the works. The contractor shall become fully knowledgeable with all requirements as required regarding insurances, bonds, mortgages etc.

1.2 Employers

The 'employer' shall be defined as the client for whom the work is being carried out.

SECTION 2 - PRELIMINARIES

2.1. Lowest Tender

The Employers do not bind themselves to accept the lowest or any other tender. No Contractor will be remunerated for the trouble or expense of preparing his tender.

2.2. Time of Completion

Contractors are required to state in forms of Tender the time they require for completing the Contract.

2.3. Site Visit

The Contractor shall be deemed to have visited the site and have ascertained the facilities of access thereto, the supply of labour and materials the district will afford and the general convenience of access and working conditions.

2.4. Preliminary Investigation.

The Contractor shall be deemed to have made a thorough examination of the drawings and of this document to ascertain precisely the nature and extent of the same. The drawings are to be equally binding with this document and if there should be any seeming disagreement between the drawings and this document, they are not to be considered as contradictory, or as invalidating each other, but a fair and liberal construction is to be put on each.

If anything should have been omitted in either or both of them that is usually considered necessary for the completion of the work, the Contractor is to execute the work in like manner as if it had been particularly specified and is to obtain no advantage by such omission, but shall supply whatever may be wanting to complete the same without additional charge.

2.5. Information
The Contractor shall generally obtain his own information on all matters and things which can in any way influence his tender.

2.6. Local Authority.
All works shall be carried out strictly in accordance with the Conditions of the Planning Permission or any other regulation applied by the relevant Local Authority.
The Contractor shall familiarise himself with the Conditions/Regulations and in the case of any doubt, seek clarification from the Architect.
All Notices required shall be served on the Local Authority, including commencement notice.

2.7. Details
The Architect will furnish to the Contractor within 7 days after receipt of a written request for any details necessary for the execution of the works, such requests to be made within a reasonable time before it is necessary to execute such works in order to fulfil the contract.

2.8. Manufacturers Recommendations.
Means the recommendations or instructions printed or in writing and current at the designated date.

2.9. Discoveries.
All fossils, coins, articles, structures and other remains or things discovered on the site or works shall be absolute property of the employers and the Contractor shall take all precautions to prevent his workmen or any other persons from removing or damaging any such articles and shall immediately on discovery, acquaint the Architect of the same.

2.10. Plant and Scaffolding.
The Contractor shall provide all and every kind of scaffolding, platforms, ladders, tools, tackle, hoists, machinery, rods, stakes, properly constructed wooden boxes as measures and everything else in the nature of plant; also all freightage, duties, costs, charges and expenses incidental to the complete performance of the works, scaffolding and plant to be of safest and approved kinds.

2.11. Fire Precaution.
Take all reasonable care to prevent damage from fire and to comply with the County Councils fire requirements.

2.12. Protection of Site.
Provide for protecting site and property thereon as considered necessary during progress of the works.

2.13. Inclement Weather.
The Contractor shall protect the works against inclement weather as necessary, including covering walls, concrete or other materials, and make good any damage resulting from inclement weather, walls and concrete, flat surfaces shall be covered in strong felt or tarpaulin at completion of same and at the end of a days work. If the Contractor fails in such protection the Architect may provide and deduct from the cost of the next certificate, the said protection at the contractors expense.

2.14. Casing and Protection.
The Contractor shall case up and protect the work done by all tradesmen and be responsible for work done by all tradesmen and make good or pay for the making good of any work which may suffer want of such casing.

2.15. Watching and Lighting.

The Contractor shall provide all necessary watching and lighting and protection during progress of the works and be responsible for any damage occasioned by want of sufficient watching or lighting.

2.16. Guards.
The Contractor shall provide all necessary guards for preventing persons or animals from entering the works.

2.17. Sheds & Welfare Facilities.
The Contractor shall provide all necessary sheds for the use of the workmen or storage of materials liable to injury from exposure. The contractor shall provide welfare facilities on site in compliance with legislative requirements. All such sheds and facilities shall be removed on completion.

2.18 Site Records
The contractor or his foreman shall keep accurate records of excavation, concrete, etc. and shall mark up a set of plans with as-built information recording any variation from or addition to the original plans or specifications. These records are required to ensure compliance with the Building Regulations and to allow submission of the necessary as-constructed drawings on completion of the works.

2.19 Removal of Water.
The Contractor shall be responsible for all pumping that may be required to keep the works dry down to the bottom of the excavations and the Contractor shall remove the whole of any water finding its way into the same from rain, springs or any other sources and no accumulation of water will be permitted at any time during the execution of the works.

2.20. Water.
The Contractor shall make provision for a temporary water supply for the works and shall carry out all works and pay all charges in connection with same.

2.21. Daywork Vouchers.
No work of any kind, payment of which is to be made on a time basis, is to be executed unless with the complete consent of the Architect in writing.

2.22. Rubbish
The Contractor shall clear away all dirt, rubbish, offensive matter and superfluous materials from time to time as they accumulate.

2.23. Leave Tidy.
The Contractor shall leave the site clean and tidy at completion and make good all damage occasioned to same and shall wash off all floors, fittings and windows before handing over the works.

2.24. Contract.
The form of Contract will be in standard format in accordance with employer's solicitor's requirements.
Retention of 10% will apply to interim payments.
On Practical Completion retention will reduce to 5%.
Defects liability period will be 6 months.
Retention will be released at the end of eth defect liability period or at the end of making good defects whichever is the latest, or as agreed between builder and clients.

2.25. Insurance.
The Contractor shall provide all necessary insurance, including Public and Employers Liability, to indemnify the Employer and Contractor against damage to persons and property as the Contract. Provide for All risks insurance in the joint names of the Employer and contractor in accordance with the contract. Evidence of Insurance is required in accordance with Contract.

2.26. Programme.

The successful Contractor will be required to prepare a programme of works in the form of a bar-chart showing:

- Commencing and finishing dates of all major activities and all work by sub-contractors.
- When critical information is required from the Architect and others.
- Circulate two copies to the Architect and other consultant.
- Update and distribute copies when changes occur.
- Architect will require adequate notice of starting and completion dates.
- Dates when work is due to be covered up.
- Claims for extension of time and progress disturbed.

A penalty Clause will be inserted in the Contract, to apply in the event that the actual completion date exceeds the planned completion date by an unreasonable period of time

1.27. Prime Cost Sums and Provisional Amounts.

All provisional amounts, should they apply, will be at the entire disposal of the Architect as per the Contract, who may add to or deduct from or omit the same as thought fit. The value of works which are executed by the Contractor in respect of provisional sums shall be valued at the rates contained in the Schedule of Rates and must be furnished to and agreed with the Architect on demand.

A Clause shall be added to the Contract in relation to Nominated Sub-Contractors and Suppliers and Prime Cost Sums.

2.28 National House Building Guarantee Scheme/Home Bond.

If the contractor is registered with HOMEBOND or similar bonding scheme, they shall make this known to employer and offer of HOMEBOND insurance registration of dwelling with associated costs shall be given.

2.29. Value Added Tax.

The Contractor shall include in his Tender for all VAT payable.

2.30 Health and safety

The contractor is required to accept his appointment in writing in the role of Project Supervisor Construction Stage (PSCS) for the duration of the works.

Contractor is required to provide, at their own cost, all necessary supervisors, safety plans etc as required under Health and Safety legislation and is expected to be able to provide competency of same if requested from client.

2.31 Building Control Amendment Regulations (SI 9 of 2014)

Unless client decides to "opt out" of BCARS, the following shall be complied with:

Contractor is required to comply full with contractors responsibilities as indicated in *"Code of Practice for Inspecting and Certifying Buildings and Works" Building Control Regulations 2014.*

The contractor should:

(a) accept from the Building Owner the assignment to build and supervise the building or works outlined in the Commencement Notice;

(b) familiarise themselves with the drawings, specifications and documents lodged with the Commencement Notice;

(c) ensure a competent person is assigned to oversee the Construction works;

(d) co-operate with the design team, the Assigned Certifier and other certifiers;

(e) ensure that the workmanship complies with the requirements of the Building Regulations;

(f) ensure that materials which they select and for which they are responsible comply with the requirements of the Building Regulations;

(g) sign the Certificate of Compliance (completion);

(h) provide to the Assigned Certifier, such documents for which they are responsible, as may assist the Assigned Certifier to collate particulars for the purposes of handover and certification, and/or for further submissions to the Building Control Authority;

(i) ensure the coordination and provision of all test certificates and confirmations to the satisfaction of the Assigned Certifier or other designated inspectors or Building Control Regulations Code of Practice February, 2014 8 certifiers providing Ancillary Certificates; and
(j) maintain records.

SECTION 3 – EXCAVATIONS AND SUBSTRUCTURE.

3.1. Surface Soil
Clean the area of the new works of vegetable soil to an average level of 300 mm. All organic material including roots and timber must be removed. On completion of building works the spoil shall be spread, levelled and graded on site where directed, see Site Layout Drawing, or carted away from site.

3.2. Excavate.
Excavate for strip foundations, as indicated on the Architects drawings. Keep all excavations clear of surplus water by pumping or other means before concreting. Remove all soft spots and lose material prior to concreting.
There is not to be made up ground or wide variation in type of subsoil within the loaded area or weaker soil such a depth below the soil on which the foundations rest as could impair the stability of the structure.
Excavation to be inspected by Architect or Engineer
Excavate for drains to required widths, depths, lengths and falls. Part return fill and ram excavations and cart away surplus soil from site.

3.3 Existing Drains etc.
All ditches, field drains and other waterways, wherever encountered during the progress of the work shall be suitably diverted around the works.

3.4. Rock.
No extra on the contract sum will be allowed for cutting back out crops of rock which protrude into the trenches. The Contractor shall include in his "Schedule of Rates" quote a rate per metre for cutting through rock and this will be allowable as an extra provided always that no cutting is proceeded with until the quantity to be cut out has been agreed by the Architect and sanctioned in writing.

3.5. Inspection
The Contractor shall notify the Architect (or appointed Engineer) when all the trenches are ready for inspection and under no circumstances shall any concreting be placed until sanctioned in writing. The contractor shall afford the inspector 3 days prior notice of time of inspection.

3.6. Variations.
Variations from the drawing in respect of the excavations shall be measured and agreed before any concrete is placed and no variations will be allowed unless sanctioned by the Architect in writing.

3.7. Backfill
Backfilling to foundations, walls, trenches etc. shall be spread in layers not exceeding 150 mm. thick and each layer shall be well compacted and consolidated. Filling around pipes shall not be concreted and for a depth of 300 mm. over the pipes shall be fine material free from stones, placed and consolidated by hand.
All quarry material used under concrete floors shall conform in full to SR 21: annex E 2014.
Hardcore supplier to provide certification of the above concrete specification on deliver docket which included date of delivery, clients name and site address.

3.8. Dry Filling & Binding.
Provide all necessary broken stone hard filling to make up compacted layers under slab, all levelled and graded as required, all wetted and consolidated by ramming. Layers should not exceed 225mm in depth. Filling shall be blinded with a sand or lean mix binding.. Read also under Section 4 below.

Blinding supplier to provide certification of the above concrete specification on deliver docket which included date of delivery, clients name and site address.

3.9. Rubble.
All debris shall be carted away as work proceeds and shall not be allowed to accumulate on the site.

3.10. Floor Levels and Site Levels.
The height of the finished floor level over the highest point of the finished ground level shall not be less than 150 mm. Refer to Architects drawings for estimated floor levels.

3.11. Radon Barrier and Sump
Provide radon-resisting membrane 'Monarflex' RMB 350 or similar approved fully sealed with contours step across cavity in accordance with manufacturers instructions. Proprietary PVC radon sump to be laid in permeable hardcore layer with 100mm diameter pipe extending horizontally to outside of the building, see drawings for location of sump positions. Free airways to be provided in rising walls equivalent to 12500 mm2 per meter rum of wall (a gap of a quarter of a block in length in each four blocks). Note: all service pipe penetrations must be fully sealed.

SECTION 4. CONCRETE, REINFORCEMENT, FOUNDATIONS AND FLOORS.

4.1. Concrete.
Readymix concrete to be used graded to BS 5328, Part 2. Include for 35 N20 grade concrete.

4.1 DESIGN
The reinforced concrete elements have been designed to BS 8110 "Structural Use of Concrete" and the recommendations of this code are the requirements of this specification. Amendments to the specification for concrete set out in IS 326 shall apply.

The floor of the buildings have been designed for a superimposed loading of 1.5kN/m^2 excluding finishes and partitions.

The Contractor shall not store or stack materials on the floor and roofs exceeding the above loading limits. Lower permitted loads shall apply to elements which are less than 28 days old.

No vehicles of any description shall be permitted to travel across the floors or roof without the written permission of the Engineers.

1.2 CONSTITUENT MATERIALS
Portland cement used in concrete, concrete products and other cement based products shall CEM 2 and be certified as complying with BS EN 197-1.

Where specified on the drawings GGBS(Ground Granulated Blastfurnace Slag) or PFA (Pulverised Fuel Ash) (as type II additions, to IS EN 206) shall be used in combination with OPC to a maximum ratio of 70% ggbs to 30% OPC.

GGBS shall comply with BS EN 15167 Parts 1&2:2006, *Specification for ground granulated blast furnace slag for use in concrete, mortar and grout.*

PFA shall comply with BS EN 450-1:200, Fly ash for Concrete.

Aggregates shall comply with the requirements of BS EN 12620 `Aggregates for Concrete'. Aggregates shall be kept free from contact with deleterious matter. Aggregates of different sizes shall be stored in separate hoppers or stock piled separated from each other by solid walls. All storage areas shall be hard paved and self draining.

Water shall be clean and free from harmful matter. Mains water is acceptable. Water from other sources shall meet the requirements of BS EN 1008:2002 A Mixing water for concrete

WORKMANSHIP
The workmanship in relation to concrete works shall comply with BS 8000 Part 2, except as modified in this specification.

CONCRETE QUALITY
Design mixes shall be in accordance with IS EN 206 and the NA thereto, are set out in FORM A. The Producer shall be responsible for selecting the mix proportions to produce the required performance and strength, testing shall form an essential part of the judgement of compliance which shall be in accordance with Section 8 of the EN 206.

CONCRETE Designed Concrete Mixes to IS EN 206

Location	Strength Class*	Exposure Class	Minimum cement content, (kgs/m³)	Max. w/c ratio	Chloride Class (Table NA.4)	Slump class	Max Aggregate Size (mm)
Foundation	C30/37	XC2	300	0.55	Cl 0,40	S2	20
Blinding	C20/25	X0	240	0.7	Cl 1,0	S2	20
Retaining walls	C32/40	XF2	320	0.55	Cl 0,40	S2	20
General Internal (Columns/ Beams/ Slabs/Walls)	C30/37	XC1	320	0.55	Cl 0,40	S2	20
Screeds	C25/30	XC1	280	0.65	Cl 0,40	-	10
Weather Exposed (Column/Beams/ Slabs Walls)	C32/40	XF2	320	0.5	Cl 0,40	S2	20
Footpath	C32/40	XF2	320	0.65	Cl 0,40	S3	20

Concrete supplier to provide certification of the above concrete specification on deliver docket which included date of delivery, clients name and site address.

4.2. Foundations.
Form strip foundations under all new walls to Engineers's drawings (1551 – 1 – 1) and as approved by site Engineer as regards depth, size and type. The bottom of every foundations shall be minimum 900 mm. below finished ground level and shall be on consolidated terra firma.
Contractor to price for traditional strip foundation with reinforcement as per 4.3
Should traditional strip foundations be deemed not adequate, architect / engineer to design specialist foundation and extra cost borne by client.

4.3. Reinforcement.
Specification for reinforcement is provisional only and subject to inspection of excavation on site. Include for reinforcing mesh A393 mesh to bottom strip foundation, overlapped by min 400mm. Mesh to be tied to levelling rebars or installed on top hat shoes. Brick / block risers are NOT to be used.
Ensure adequate cover is maintained to all reinforcement. Ensure that reinforcement is free of any contaminates, loose rust or scale or any coating that could impair the bond. Cut by shearing or sawing: flame cutting is forbidden.

4.4. Drains and Services near Foundations.
Avoid laying drains and services near foundations.

4.5. Cement.
Cement shall be best normal setting Portland Cement complying with Irish Standard IS 1:1991.

It shall be stored in a perfectly dry place on the site and no damp cement which shows signs of becoming lumpy shall be used; only one type to be used in any one mix.

4.6. Frost.
No mortar or concrete shall be used when the air temperature is below 5 degrees celcius on a falling thermometer or 3 degrees celcius on a rising thermometer. New work shall be protected from winds and at night with adequate canvas, straw etc. when frost is anticipated.

4.7. Sand.
Sand shall be clean, sharp, pit or fresh water sand free from clay, dirt, organic matter or other impurities evenly graded up to 6 mm. and washed is necessary.

4.8. Water.
Clean, fresh potable water shall be used for all purposes.

4.9. Aggregate.
Aggregate shall be in accordance with IS 5:1990, it shall be approved broken stone or pit gravel free from all earthy, loamy and vegetable matter and washed if necessary. Note; Ready mixed aggregate, graded as approved may be used. Fine aggregate, well washed natural sand or mixed sand. Coarse aggregate, single sized natural gravel, crushed sand or crushed stone. Store in separate bays away from concrete mixing area and protect from contaminates.

4.10 Temporary Formwork.
All casings shall be of sound and properly seasoned timber of sufficient thickness to resist the pressure of moist concrete without appreciable distortion. They shall be substantially and accurately constructed, true to level surface and line and shall be well braced and strutted as required. All casings shall be carefully cleaned out and oiled before any concrete is placed and shall be wrot.

4.11. Pouring etc.
The concrete shall be deposited in the forms as quickly as possible after delivery. Immediately it has been placed in the forms it shall be compacted by vibrating, care being taken to work concrete well into corners and around reinforcement.

4.12. Re-Use of Set Mortar.
No concrete or mortar which has commenced to set shall be used or mixed with any concrete.

4.13. Jointing of Concrete.
When work is resumed or before floating is laid surface shall be thoroughly brushed clean, wetted and grouted with cement slurry.

4.14. Striking Forms.
Under no circumstances shall any temporary centring, casing, or shuttering be removed before concrete has set. Three to four weeks to be allowed for propping beams etc.

4.15. Bolt Holes.
All bolt holes shall be carefully plugged up solid in cement mortar as soon as shuttering or casings have been removed.

4.16. Curing.
Surfaces of all concrete should be kept moist for at least 7 days after laying.

4.17. Concrete Floor Construction.
Note: All internal walls to carry up uninterrupted by floor slab construction.

Radon barrier to be laid and shaped as necessary to ensure this.

Ground Floor construction:

- Selected floor finish on 75mm 30 newton powerfloated concrete screed with under floor heating

pipes incorporated on 1000 gauge polythene sheeting

- 120mm Xtratherm ThinR XT/UF or similar approved laid with joints staggered on

- 150mm newton concrete slab with A393 mesh incorporated
- approved Radon Barrier on
- 50mm smooth sand T3 Blind on
- Minimum 150mm compacted T1 Struc hardcore

The concrete floor slab will be at 150 mm thick and be composed of concrete to I.S. EN 206-1:2002: Strength Class: C28/35, 300 kg cement,maximum water cement ratio of 0.60, Exposure classes: XO, Slump class: S2 (unplasticised), maximum aggregate size 20mm.

The hardcore bed should be at least 150 mm thick. Hardcore should conform with paragraph 4.18 following.

A blinding layer should be provided in accordance with the specification given in Annex E, of SR21: 2014, for fines material. The blinding layer should be of adequate depth to fill surface voids thus creating an even surface and avoiding sharp projections, which may damage radon or damp-proof
Membranes

Floor slab areas greater than 3.5m in any length shall be reinforced with A142 mesh at mid depth of slab. Reinforcement to be placed before pouring and to be supported on suitable chairs. Care to be taken not to damage radon barrier.

Do not use recycled material.

When laying floor slab/screed in hot weather protect from wind and direct sunlight and keep cool to prevent drying out too quickly in order to prevent cracking.

4.18. Hardcore.
Hardcore should conform with I.S. EN 13242 : 2002 and meet the specification as outlined in Annex E of SR21:2014. The layer of hardcore should be well compacted, clean and free from matter liable to cause damage to the concrete. The hardcore shall be from an approved supplier who shall provide certification on the suitability of the material, including the absence of reactive pyrites.
Hardcore to be clean graded broken stones, free from shale, 100 mm. maximum size or of similar suitable material well compacted free from matter liable to cause damage to concrete. Demolition material, site rubbish or pit gravel must not be used. Great care to be taken in compacting fill material. Consolidate hardcore in layers not exceeding 225mm using suitable compaction plant. Fill depths in excess of 900mm are not permitted. In such cases suspended concrete floor shall be used. Refer to architect for details of construction of same.

Finish hardcore with sand or lean mix binding.

4.19. External Concrete Steps to Entrances.
All new entrances shall be full accessible by wheelchair users and shall comply fully with TGD M 'access for persons with disabilities'. At other entrances stepped access may be used but should comply fully with the requirements of TGD M.

SECTION 5 – BLOCKLAYING AND OPENINGS IN EXTERNAL WALLS

5.1. Walls Generally.
Cavity walls to house shall consist of

- 100 mm block inner leaf,
- 100 mm xtratherm CavityTherm 100 (partial fill system, thermal conductivity 0.021 W/mK)
- 100mm block outer leaf

- sand and cement render finish.

Cavity wall to be constructed as follows.
• 100 mm inner block leaf to be constructed up to three courses in advance of external leaf, in accordance with installation instructions for Xtratherm Cavity Fill insulation.

Stone finish to walls to be natural blue / grey limestone, where shown on elevations. All joints recessed pointed and wall to be min 140 thick. Use catnic lintels over opes where required. Stone must be hard non-weeping type. Note: sample to be produced and agreed with client before use.

5.2. Weep holes
Weep holes are to be provided @ 450 c/c over all opes and stepped d.p.c.'s.

5.3 Blockwork; External & Internal Walls.
Concrete blocks generally shall be in accordance with I.S. EN 771-3:2011, of strength 7.5N/mm2.
100mm leafs and 100mm internal walls shall be blocks laid in edge.
215mm leafs and internal loadbearing walls shall be laid block on flat.

Refer to plan drawings for wall thickness.

Blocks shall be properly bonded and set with full squeezed out joints in gauged cement mortar to I.S. EN 998-1:2010 and the joints struck off smooth where stone facing is to be used and recessed with jointing tool where render finishes are to be applied. Joints to be an average of 10mm consistently.

Lightweight Blockwork
1 no vertical and 1 no horizontal Kilsaran 7.5 newton lightblocks at rising wall level at all external and internal rising walls. 1 no kilsaran lightweight 7.5 Newton block as cavity closer

5.4. Sand & Cement.
See under Concrete.

5.5. Mortar.
Mortar shall be to to I.S. EN 998-1:2010 and to the following proportions or of similar strength:
1. General wall area above d.p.c. level 1:1:6 Cement, lime, sand, or 1:6 Cement:sand with plasticiser
2. Below d.p.c. level, chimney stacks, capping, copings, cills and areas of high water run off 1: ½ :4 Cement, lime, sand, or 1:4 Cement:sand with plasticiser

The above are measured by volume of dry materials. Sulphate resisting cement to be used where necessary.

5.6. Plumbing of Walls.
All walls, piers, quoins, jambs of openings, etc. shall be carefully plumbed as work proceeds. All block courses, tops of openings, lintels, beams, cills, capping etc. shall be carefully levelled using a metal straight edge and spirit level.

5.7. Wall Ties.
All external walls shall be as indicated on drawings and both leafs of cavity walls shall be bonded together by stainless steel type ties DD140 Part 2: Recommendations for the design of wall ties
Wall ties shall be approved austenitic stainless steel wire ties compliant with I.S. EN 845-1 and with para 1.1.3.27 TGD A, 2012.
Ties for 150mm cavity to be installed at a rate of 4.9 ties per sqm (typically at 450c/c horizontally and vertically).

Provide additional ties within 225mm. of the sides of openings at 300 mm. vertical centres. Reference should be made to Diagram 9, TGD A, 2012 for additional ties required at door and window opes, joints and verges.
Drip to be downward facing in outer 40mm of cavity. Ties to be inclined downward from inner leaf to

outer leaf.

Ties shall be kept free from mortar droppings as work proceeds. Ends of ties must be embedded at least 50 mm., they must be built in and not pushed in afterwards.

Wall ties for stone cladding shall comply fully with BS 8298 : 1994 "Design of natural stone cladding", when selecting ties for restraining stone cladding

5.8. Cavities and Cavity Insulation.
The built in wall insulation system shall be 150mm CavityTherm manufactured to BS EN 13165:2008 by Xtratherm, including corner boards and ancillary detail components comprising of CFC/HCFC free engineered jointed rigid Polyisocyanurate (PIR) with heavy low emissivity foil facings and engineered outer skin to achieve a U-value of 0.19W/m2K for the wall element. To be installed in accordance with instructions issued by Xtratherm.
Face size: 1200 x 450 mm
Edge Profile: Rebate on all four edges

Extend insulation 225mm below ground floor level. Cavity to be clear for at least 150mm. below d.p.c. level. Ensure d.p.c. does not project into cavity.

At all times ensure all relevant details of the *"Acceptable Construction Details (ACDs)" Technical Guidance Document (TGD) to Part L of the Building Regulations 2008 – Conservation of Fuel and Energy – Dwellings.*

5.9. Damp Proof Course.
Provide any lay unterable polythene D.P.C.'s to prevent passsage of moisture. All D.P.C.'s shall be lapped 225 mm. at joints.

Provide DPC's : to all ground floor rising walls, to full thickness of walls and stepped as necessary; in cavity walls in both outer and inner leafs separately and shall be laid not less than 150 mm. over finished gravelled or highest ground within one metre of house; to chimney breasts for full width; under and turned up at ends and back of all window cills; at sides of all openings in cavity walls and room ventilation grills; over all opes 250 mm. longer than opes and stepped down and outwards to prevent passage of moisture from outer to inner lead; under all plates, at roof abutments; in all chimney stacks immediately above the level of the flashing and under all cappings and copings and as indicated on drawings and detail sheets.

Provide DPC to the rear of ESB meter box where applicable
Provide and lay Visqueen 1000 D.P.M's under all floors as previously specified. Where the waterproofing membrane in a concrete floor is not level with the wall DPC care shall be taken to ensure continuity of damp proofing by stepping, turning and lapping as necessary.

5.10. Cavity Trays.
Include a stepped cavity tray at all roof abutments with walls of house and over and under all opes and over ESB meter box where applicable

5.11. Ventilation.
For ventilation to walls, rooms and roof, etc. see Section 10 of spec.

5.12. Build in cills etc.
Carefully build in and set in cement mortar, cills, all lintels, etc. as work proceeds.

Cills are all concrete or similar approved. Refer to client prior to installation.

Contractor to price for granite cills throughout.

5.13. Opes for Pipes.

Provide all necessary opes for connection to drains, heating pipes, water pipes, electrical conduits etc. and make good as required. Provide lintels and dpc's over all openings for pipes in external walls.
All openings to be filled and sealed with proprietary opening filling to ensure no reduction in air tightness stragety.

Where any duct, pipe etc. is required to pass through a foundation an opening is to be formed to give 50 mm. clearance all around the pipe and the opening masked with rigid sheet to prevent the ingress of fill or vermin.

5.14. Lead Flashing.
All lead flashing to blockwork, roof etc. to be 5 lb lead unless otherwise Indicated.

5.15. Lintels & Beams.
- Prefabricated Lintels shall comply with the requirements of I.S. EN 845-2
- All reinforced prestressed concrete lintels must be obtained from a reputable supplier. The Contractor must seek from the manufacturer a document setting out the load capacities and installation instructions. Manufacturers instructions must be adhered to.
- Precast lintels must be reinforced appropriate to span and loads and correctly marked for placing.
- Proprietary pressed metal lintel designed and supplied by approved suppliers (e.g. Steelite, Rathangan, Co. Kildare) are to be used where prestressed lintels are not structurally adequate and in any event over all windows/doors which are less than two block courses below eaves level and greater than 1.8 m. in width and also over all windows and doors greater than 0.9m clear width in loadbearing walls supporting precast floors.
- Lintel type and size to suit span allowing for bearing of 200mm minimum.
- Steel lintels used at all openings in stone work
- Bed lintels in mortar at supports and bear onto whole solid blocks wherever possible. Prop lintels at max. 1.2m. until composite masonry or concrete has matured. D.P.C. must not be built into compression zone. Floor joists, joist hangers, d.p.c. or other components must not be allowed to impose a load or interfere with masonry bond within area of composite action. Service openings must not be placed in area of composite masonry
- Allow adequate time for approval and manufacture of special arch lintels etc.

5.16. Chasing.
Vertical chases shall not be deeper than 1/3rd of leaf or solid wall thickness. Avoid horizontal chases; if they must occur, they shall not be deeper than 1/6th the thickness of leaf or solid wall. Chases Shall not be placed where they might impair the stability of any wall.

5.17. Movement Joints.
Provide movement joints at locations to be agreed with Employer.
The joint should be formed in blockwork butt jointed with 10mm wide joint free from ties or mortar.
Provide wall ties @ 255mm vertical c/c on each side of joint within 225mm of joint.
Joint filler to be cellular polyethylene, cellular polyurethane built-in as the work proceeds ensuring no projections into cavities and correct depth of joint to receive sealant system.
Thickness of filler to match design width of joint.
Sealant: Polysulphide to I.S. EN ISO 11600:2003+A1:2011 or silicone to I.S. EN ISO 1600:2003+A1:2011, type A. colour to match wall finish
Movement joints to extend into stonework where applicable.

5.18. Bed Joint Reinforcement.
Not Applicable

5.19. Material Standard
All materials supplied are subject to an inspection by the Architect and where not to standard must be replaced by the Contractor at the Contractor's own cost. **Contractor to ensure all materials and**

processes used on site have adequate IAB, BBA or CE quality approval standard markings and certificates.

5.20. Render:
External finish to be sand and cement render finish pre mixed with white sand to form pre-coloured finish. Sample Panel to be prepared and agreed with employer before proceeding.

CEMENT: LIME:SAND RENDER (MODERATE EXPOSURE):

- Location: Where shown upon the drawings
- Background: Concrete blockwork
- Undercoat: Cement: Portland
- Lime: sand mix: Ready-mixed to I.S. EN 998-1:2010 using sand to I.S.EN13139:2002, type A
- Mix proportions : Mix designation 2 (See Chart Below)
- Thickness (excluding dubbing out):8-12 mm
- Final coat: Cement: Portland
- Lime: sand mix: Ready-mixed to I.S. EN 998-1:2010 using sand to I.S. EN13139:2002, type A.
- Proprietary reference and colour: To Local Authority Planning Department Approval.
- Mix proportions : Mix designation 2 (See Chart Below)
- Thickness: 6-8 mm
- Finish: Wood Float Nap
- Accessories: Bell cast, stop and angle beads stainless steel corrosion resistance at least equal to grade 304 of BS EN10029:2010.

Except where stated otherwise, mix proportions for rendering and cement gauged plaster/render undercoat and render final coat mortars are to be in accordance with the following designations:

Mix Type	Mix Designation				
	1	2	3	4	5
Cement: lime: sand	1:¼:3	1:½:4 to 1:½:4½	1:1:5 to 1:1:6	1:2:8 to 1:2:9	1:3:10 to 1:3:12
Cement: premixed lime & sand (proportion of lime to sand given in brackets)	1:3 (1:12)	1:4 to 1:4½ (1:9)	1:5 to 1:6 (1:6)	1:8 to 1:9 (1:4½)	1:10 to 1:12 (1:4)
Cement:sand (using plasticizer)	-	1:3 to 1:4	1:5 to 1:6	1:7 to 1:8	-
Masonry Cement:sand	-	1:2½ to 1:3½	1:4 to 1:5	1:5½ to 1:6½	-

BEADS/STOPS GENERALLY:

- Provide beads/stops at all external angles and stop ends except where specified otherwise.
- Provide bell cast stop above all external openings in render and at dpc level.
- Cut neatly, form mitres at return angles and remove sharp edges, swarf and other potentially dangerous projections.

- Fix securely, using the longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with background. Use mechanical fixings for external beads/stops.
- After coatings have been applied, remove coating material while still wet from surfaces of beads/stops which are to be exposed to view.

Internal blockwork to be finished in 10mm gypsum base coat with 2mm gypsum skim coat final float trowelled finish.

SECTION 6 – FIREPLACES AND CHIMNEYS

6.1. Chimney Breasts and Stacks. (where applicable)
Fireplaces: Lintels over fire openings to suit span and loading. Sides and back to be of 200mm.block, carried up to full height of recess. Use a precast flue gatherer to suit opening over double sided fireplace. Build in 225mm. fireclay liners to LS.51.

Lounge and kitchen : Dedicated wood stove incorporated with external air intake

Opening and lintel span as dimensioned on ground floor plan. Height of lintel shall be to suit appliance selected. Flue outlet shall be at 2000mm. above floor level and shall be contained in a precast concrete throat. Use 125mm. diameter flexible metal flue liner inside a fireclay liner.
Flues generally shall be backed with weak mortar and carried 150mm above capping. Splayed liners shall be used in forming bends to flue. Use spigot and socket flue liners with socket upwards. Pack liners with 1:1:12 cement, lime, sand mix wetted with water. Flue liners must not touch surrounding blockwork.
Flues shall run straight for a minimum of 1 metres before any bend. Chimney stacks over roof shall be built of blocks bedded and gauged. Special care to be taken in placing DPC's and flashing. Include metal tray d.p.c. with integral lead flashing. Seal gap at top of flues with sand and cement mix. Capping to stack shall be flaunched up around pots. Top of stack to be 600 mm. above ridge where stack is within 600 mm. of ridge or at least 4.5m above top of fire opening it is serving whichever is greatest.

6.2. Chimney Pots.
Lagan chimney systems "louvre" type or similar approved as selected by clients. Base of chimney pot to be at least 600mm over ridge level

6.3. Hearths.
Hearths to be provided 150mm. wider than breast and 50 mm. above finished floor level. Extend 450mm. beyond face of chimney breast.

6.4. Fire Surrounds.
The supply and fitting of surrounds to fireplaces, include PC sum of €1,000 each. Surrounds and backs to be fitted by suppliers. As selected by clients.

SECTION 7 – CARPENTRY, ROOFS, FLOORS, PARTITIONS.

7.1. Timber.
The whole of the timber used throughout shall be the best of it's kind available, free from sap, large loose knots, shakes or waned edges and other defects and shall be thoroughly seasoned, of good colour and cut die square. The Contractor's special attention is drawn to the fact that heating is used in the building and the absolute necessity of ensuring that the timber used is properly seasoned and thoroughly dry.

Timber to have a moisture content within the limits set out in I.S. 96. Each piece of timber shall be graded and marked accordingly:

Structural timber not higher than 22% m.c.
External joinery not higher than 17% m.c.
Internal joinery not higher than 8 - 15% m.c.

7.2. Damp Locations.
Preventing timber from contact with potentially damp surfaces and structures. If contact is absolutely necessary, provide suitable preservative protection – two flowing brush coats, the first coat being allowed to dry. Ensure that preservative which has been pre- applied to timbers is fully dry before contact with other materials. Do not use preservative which may corrode metal connectors.

7.3. Roof Timbers.
Wall Plates 100 x 75 mm. fully treated with preservative to B.S., 5268 Part 5., halved and spiked at headings and angles set level and bolted down at 1m. intervals and strapped as per regulations.

ROOF TRUSSES PROPOSED.
Installed and maintained in accordance with manufacturers specifications and design.

Cut roof timbers shall be sized to BSEN 14081-4: 2005 and as shown on drawings. Fix straps along gable ends following subsection 5 of this Section. All roof timbers to be treated with preservative to B.S. 5268 Part 5. Provide trimming rafters 75mm. thick around chimney shafts and 50 mm. away from shaft blockwork. Ridge boards to be kept 50mm. clear of any chimney shaft blockwork. Bracing to be of minimum 10 x 25mm. twice nailed with 75mm. galvanised nails of 2.65 mm. diameter at each point of contact with the truss.

All roof construction timbers in accordance with Site Engineers specification and design.

Pro Clima Solitex plus Breathable Felt
50 x 36 Slating Battens
Selected blue / black fibre cement Slates

Particular attention to details at eaves. Continuous felt support or tilting fillet required at eaves.
Fascia and soffits (ventilated along full length) to be dark grey upvc. Treated backing board to all fascias.
All joists to be straight and have full bearing on walls. Edges to be treated. Where joists are supported on steel beams, timber to be notched around flange , with flange face minimum 6mm recessed from top and bottom of timber joists to ensure flat surface for ceiling and floor.

All roof construction to be certified by inspecting certifier.

7.4. Floor Joists.

First Floor throughout:

- 75mm structural screed incorporating insulated radiator pipes .
- Precast concrete floor as selected designed and laid exactly in accordance with manufacturers instructions. Include for cranage as necessary.
- Proprietary Metal rail Suspended ceiling as selected finish to precast floors.

Precast Slabs
To be in accordance with manufacturers specification and design in full.

Manufacture to provide full details of necessary accreditation and certification, ie NSAI, IAB, BBA or similar approved European standards.

Bearing Supports for Slabs
Slabs can be supported on 100mm inner leaf to external walls to carry the dead and live loads required. 215mm internal load bearing walls may be required internally where two or more slabs meet, contact slab manufacturer for specification of same. 100mm bearing required for balcony section, slabs not to be shot through external wall.

Holes and Openings
Openings may be provided in slab systems by coring or saw cutting. Opes shall be subject to review and approval by precast floor designer.

Structural Screeds

In full requirements as per slab manufacturers specification and design.

Fire Resistance
min 60 mins fire resistance to be provided by concrete slabs and screed make up.

Sound Transmission
To be in accordance with relevant standard.

7.5. Trimmers.
Trimmers and trimming joist to be 75mm. thick and kept 50 mm. away from chimney shaft. Trimmers to be supported on approved fittings or by battens spiked to supporting joists.

7.6. Straps for Lateral Supports for Walls.
Provide straps at ceiling joist and roof joist level to every roof forming junction with the gable walls in accordance with TGD A:2012, diagram 7, paragraphs 1.1.3.25.
Fix 30 x 5 mm galvanised mild steel straps at 2m centres to span at least two joists and anchor to uncut blocks. Start strap at highest point on gable that will allow a secure connection. At first floor level these straps to be fitted to precast first floor slabs in approved manner.

7.7. Timber Flooring.
All as selected.
Tongue and Grooved floor boards sanded and stained/varnished.

7.8. Stud Partitions.
Lightweight Concrete blocks used where shown.

7.9. Soffits and Fascia.
Soffit to be constructed as per Eaves Detail. A ventilation gap of 25mm. to be provided to soffit all around with anti-insect mesh fixed. Fascia and soffit board to be covered in uPVC cladding or as selected.

7.10. Temporary Carpentry.
Provide, erect and remove all necessary formwork, props, casings etc. to lintels, beams, cills, cappings etc. See Section 4 on concrete.

7.11. Thermal Insulation and Vapour Barriers.
All constructions to comply with current building regulations.
150 mm Polyiso insulation under floor slab with min 25mm vertical insulation at all junctions of floor and walls.
Flat ceiling section to be insulated with **300mm (2 x 150) Knauf Earthwool rafter roll 36**
Sloped section of ceiling to be insulated using **150mm Xtratherm rafterlock** and slabbed internally with **62.5 Xtratherm XT-TL liner composite plasterboard**

7.12. Sarking Felt.
Untearable proprietary breathable felt, pro clima SOLITEX PLUS or similar approved, to I.S. 36 shall be laid under slates lapped horizontally (i.e. parallel to battens) not less than 150 mm. and carried 50 mm. min. into eaves gutter. Type 5U sarking felt to be used in the vicinity of gutter to protect against future decomposition. Vertical lap (i.e. parallel to rafter) shall not be less than 100mm. and shall occur over a rafter. Felt to be carried fully over ridge board with 225mm overlap. Provide tiling fillet at eaves.

7.13. Slates.
Natural Bangor Blue Slates,
Blue / black slate finish to roof as selected by client. Slates neatly trimmed where necessary and overhang gutter by 50 mm. Non-ferrous slater's nails, such as solid copper or stainless steel to be used. Do not use galvanised nails.

7.14. Battens.
50x36mm battens minimum to slate manufacturer's instructions and at least 1.2m. long. Ensure spacing is correct to suit required slate headgap. Battens nailed at each end and to min. 3 intermediate rafters. Cut ends of battens square and butt joint rafters only.

7.15. Storage Tank Supports. (where applicable)
To be in accordance with current Building Regulations. Sit Tanks (supplied by plumber) on supports designed to IS 193.1986. Note capacity of tanks must be adequate for size and occupancy of the house, min. 405 litres. Tanks located in insulated room in attic.
Provide min 450 litre cold water storage tank and min 150 litre expansion tank

7.16. Attic Hatch. (where applicable)
Included for 'wellhofer' preinsulated air tight attic hatch and stair ladder.

7.17. Verandah.
Not applicable.

7.18. Flat Roof Terrace.
Not applicable.

7.19. Bay Window Roof.
Not applicable.

7.20. Ceiling Panelling.
Not applicable

SECTION 8 - JOINERY.

All joinery shall be supplied out as part of the Contract.
Do not deviate in any way from detail drawings without approval. Joinery to be in accordance with good quality joinery practice. Undertake as much as possible in humidity controlled workshops equipped with modern machinery and skilled joiners. Restrict site work to fixings and other operations that cannot be undertaken as last stated. Joints to B.S. 1186.

81. Joinery.
All joinery work shall be wrought and finished according to drawings with clean, even, smooth face. Work shall be prepared and framed up as soon as possible, but no work which may split, fracture, shrink, part in the joint or show flaws or any defects or unsoundness, want of seasoning or bad workmanship shall be used; it shall be replaced with new materials. No exposed pith, arise knots, plugs or inserts permitted on any face.

8.2. Framing & Joints.
The word " framed " shall mean the best methods of jointing woodwork by mortise and tenon, dovetail, wedging etc. All mouldings etc. shall be mitred and scribed as joints. Joints are not indicated on drawings which are intended to show dimensions and final appearance of the joinery. Use joints designed to tighten under stress and to not form a weak link in the assembly. Wherever possible use joints that are not wholly dependent on adhesive. Provide for movement in joints where necessary. Design joints to conceal end grain of wood/board. Make joint lines capable of being assembled dry as a flush fit with all joint surfaces

in full contact and only fine joint lines visible. Make joint lines in external work to naturally exclude moisture.

8.3. Rough Grounds/Packing Pieces.
Provide all necessary grounds for securing frames etc.

8.4. Windows.
Main Contractor to fit all windows and doors located and sized as per plan and elevation drawings. Fit windows in accordance with jamb, head and cill details to building reg. Standards as detailed overleaf.

All windows to be double-glazed PVC (or as selected by client), 16mm gap, low e soft coat, sash style in accordance with window schedule, casement elsewhere .

Windows coloured Brown RAL or as selected.

Chosen window system to have system U value of **1.2** or better, to be accredited by national or European standards. Munster Joinery PVC system is used in DEAP assessment.

All 'velux' rooflight windows to roof to be tripled glazed sash boxed down as referred to on drawings.

Glass: all panes up to 0.5 sq. m. shall be min. 3 mm.; up to 1.50 sq. m. to be min 4mm.; panes over 1.5 sq. m. 5 or 6 mm. glass. All panes less than 600 mm. over floors shall be 6 mm. toughened glass.

All glazing to be in accordance with TGD K Stairways, Ladders, Ramps and Guards

Windows to be tapped back to internal leaf blockwork in accordance with air tightness strategy and details.

8.5. Window Boards.
Contractor to fit hardwood window boards 32 mm. thick, moulded on edges and corners and secured to grounds. Material to be selected by client

8.6. Internal Doors.
Oak finished engineered 6 panel doors, triple hinged, glazing panels selected and located as per client.

8.7. External Doors.
As selected. Provide and fix "Duraflex" or similar threshold strips under external doors.

Front door in Hardwood with triple mortice locking system complete with rain flap.
Rear door in Hardwood with triple mortice locking system complete with rain flap.
Sunroom doors in UPVC with proprietary triple locking system to employers approval.
All external doors to have approved hinge bolts fitted.
Draught and weather sealing threshold under.
Min external door U value of **2.0** or better for timber doors.

uPVC doors to sunroom to be as per window specification.

8.8. Skirting.
Fix 200 x 25 mm. moulded skirting to all ground rooms as selected, supplied by joiner to all rooms. All other rooms 150 mm. skirting, cyma reversa moulding with bead under.

8.9. Stairs.
Timber stairs as per drawings, material as selected by client.
Fit stairs, handrail and guards supplied by joiner. Stair pitch, going and rise as on drawings.

8.10. Kitchen & Utility.

Kitchen units; include for the fitting of all units in solid timber frames and as selected by client.

8.11. Linen Cupboard/Wardrobes.
Located as on drawings. Include 3 rows of spar shelving to hot press. Fit shelving to all wardrobes and cupboards as part of contract. Preinsulated 200 litre cylinder, of adequate capacity for the size of the house, shall be carried on 22m t & g on 35 x 77mm. framed bearers.
200 litre Cylinder to have standing losses of 1.8kwhr / day

8.12. Ironmongery.
All ironmongery to windows and doors, to be selected at later date by clients. Include for fixing all ironmongery. Door hinges to be supplied and fitted by Contractor.
Basta Belvedere handles and locks to internal doors.

8.13. Glazing.
Glazing to all windows and doors shall be fixed by Joiner, thickness to building reg. Standards. Ensure that toughened glass to B.S. 6206 is installed to all patio doors/internal glazed screens.

8.14. Miscellaneous.
Not applicable.

SECTION 9 – DRAINAGE AND RAIN-WATER GOODS.

9.1. General Drainage : Refer to Site Plan.
Drains shall be laid in accurately aligned lengths to evenly fall from point to point, starting at the lowest point inserting all branch connections as work proceeds. Foul water pipes, 100 mm. dia. Shall be laid to fall of 1: 40, surface water pipes shall be laid to fall of 1 : 80. Surface water shall connect to soak holes as shown on Site Plan. Foul water shall connect to sewage treatment plant and properly constructed percolation area; all in accordance with EPA guidelines 2009

9.2. Pipe Cover.
The minimum depth of pipes under a road to be 900mm. in a garden or field. Where pipes have less cover than above, they are to be protected by concrete encasement not less than 100mm. thick and have movement joints formed with compressible board at each socket or sleeve joint face.

9.3. Excavation.
Excavate drain trenches to necessary depths and widths, grade and consolidate bottoms and on completion of pipework, carefully fill in and ram around with selected excavation material. Plank and strut as necessary to side of trenches.

A drain is not to be excavated lower than the foundations of the structure, unless where the trench is dug within 1m of building it is filled with concrete up to the lowest level of the foundation, or where the trench is dug further than 1 m. from building it is filled with concrete to a level below the lowest level of the foundation equal to the distance from the building less 150mm. See diagram overhead. For pipes penetrating walls see Section 5.

9.4. Drain Beds.
Lay beds of concrete in bottom of trenches to take pipes, beds under gullies and AJ's as required.

9.5. Gullies, AJ's and MH's.
Provide as shown on drawing, gullies, AJ's and MH's to depth required. Keep all AJ's and manholes at least 1200 mm. away from external walls and terrace areas. Exact locations to be agreed on site. Provide and set in grease medium weight galvanised iron covers and gratings and form neat dished concrete surround to gullies.

9.6. Testing.
Test drainage on completion to ensure water tightness and efficient working of the system.

All underground pipework in accordance with TGD H 1.3.6 and EN 1401
Select waving underground pipes only.
only.

9.7. Foul Sewer/Wastewater
All foul and wastewater shall be directed to the proposed treatment plant.

9.8. Rainwater
Rainwater shall be directed to soakpits on site sized and constructed in accordance with BRE 365.

9.9. Vent Shaft.
Not applicable

9.9. Sewerage Treatment
Provide and install in full compliance with planning conditions and documents.
Treatment system system proposed with polishing fliter system in accordance with Site Suitability report on planning file

9.11 Water Supply – External.
The contractor will provide all necessary pipework and fittings to bring the water supply from the group scheme mains into the house rising main.
Spurs from the incoming pipe will be taken to serve an outside tap at rear of house, and outside tap at garage.
A rising main shall be brought into the garage at an agreed point and blanked off for future use.
External valves are to be installed on individual lines to rising main and external taps to allow for maintenance with minimum disruption to supply.
All underground pipework to be adequate depth for frost protection.

SECTION 10 – VENTILATION

10.1. Permanent Ventilation to Rooms.
Permanent ventilators to be incorporated in all habitable rooms to meet Building Regs. Requirement of 6,500 sq. mm. per habitable room by means of Mechanical Ventilation System with Heat Recovery to manufacturers specification and design.

Typically Pro Air 600PL or similar approved by architect. Ensure selected system is listed in SAP Appendix Q. provided to provide ancillary certification to cover design and installation.

Location as shown on plans in attic void. System to be insulated and vented in strict accordance with manufacturers specification and design.

10.2. Roof Ventilation.
Minimum 50mm air gap to be retained between top of insulation and roofing felt.
Proprietary eaves ventilators required at eaves. Provide 2 no Ridge vents on each of the three ridges.

10.3. Extracts.
Build in an extract over the hob in the kitchen (exact location to be determined on site), an extract pipe for the drier in the utility room and an extract over the gas hob.

10.4. Mechanical Extract.
As shown on plans to comply with Building regulations.
Extract rates to be compliant with TGD F

SECTION 11 – PLASTERING

11.1. External Plastering
Blockwork scudded with a mix of 1:1½:2, cement : sharp sand, and finished with two coats of render mixed @ 1:1:6, cement : lime : sand or 1:5:6, cement : sand with plasticiser added.
Scud coat applied by throwing with a had scoop to a thickness of 3 –5 mm. coat combed or scratched sufficiently deep to provide key for following coat.
BS 5262

11.2. Reveals –
20 raised rendered bands required around opes where shown.

11.3 Quoins
Limestone quoins to external corners where shown, Manor Stone or as selected.

Internal Plastering/

All wall plastering should be carried behind skirting and architrave.
Precautions taken to protect floors and surrounding work from plastering.
Bonding agents shall be used in accordance with manufacturers instructions.

11.4. Plaster to Block Walls.
Scud walls to a depth of 3 – 5 mm. using a thick slurry of 1 part sand and 2 parts cement. Apply a scratch coat to a depth of 10 – 16 mm. using a 1:1:6 cement, lime, sand mix. Scratch the surface thoroughly. Finish with 2 mm. coat of gypsum plaster ensuring coat has dried,

Or

Apply a coat of at least 9 mm. of propriety gypsum base coat plaster well scratched. Finish with 2 mm., finish coat of gypsum final coat plaster when base coat has set.

11.5. Ceilings.
12.5 mm. plasterboards fixed to joists. Support all boards at edges. Nail at approximately every 150 mm. working from centre of board outwards with 40 mm. long galvanised nails with 7mm. head and 2.5 mm. diameter shank. Form service openings neatly. Tape and fill all joints and internal angles. Boards finished with 4 mm. deep "Gypweld Board" finish. Provide scrim between wall and ceiling angle. Include a bonding layer prior to final coat.

SECTION 12 – EXTERNAL WORKS – Refer to Site Plan

12.1. Entrance.
Rendered Block Piers with splayed wing walls as per site layout plan.

12.2. Entrance Walls.
Concrete block walls with stone finish to match dwelling. Rendered to internal face, stonework to roadside face. All pierss cladded in stonework and capped with stone to match.

12.3. Entrance Drive.
provide 5.0 m wide hardsurface assess road to perimeter of building.
Driveways should have a minimum width of 3m and a maximum gradient of 10%.
A kerb upstand of 75mm shall be provided. Use Roadstone Half battered Kerb (915x255x125) on 300x100 concrete bed with 100x150 haunch fillet to rear.
Selected gravel finish to driveway on roadbase of minimum 100mm Cl.804 hardcore on min 100mm clean

graded crushed stone. (100mm base may be used in construction phase, subject to repair as necessary before completion.)

12.4. Fencing.
Post and Rail Softwood Timber fencing as site boundary where shown on site layout plan.
Fence treated with Sadolin Classic woodstain.

12.5. Patio Walls.
Not applicable

12.6. Ground levels around building
Excavate as necessary to provide levels, as shown on Architect's elevation drawings and section.

12.7. Yard Area -
Provide hardsurface yard as shown on site layout plan drawings.
Min 100 concrete on blinded layers of 150mm compaced hardcore.
Provide concrete footpath to perimeter of house and garage as indicated on floor plans and sections.
Path to be in min 100 concrete on blinded layers of 150mm compacted hardcore.
Yard and path to be finished with fine brush finish with edges formed with bullnose trowel.

12.8 Paved Areas.
Include for precast concrete paving area to be bedded in mortar and elsewhere bedded in sand on 100mm. hard-core, dimensions etc. as per Site Layout Plan.

12.9. External Walls.
Not applicable

12.10. Tank Support.
Not Applicable

12.11. Service Trenches.
Include for excavating all service trenches as shown on Site Plan.

12.12. Landscaping.
Contractor to make good all site works prior to practical completion.

SECTION 13 – PAINTING/FLOOR/WALL TILING.

Painting/Decoration.

13.1. General.
No painting shall be done in wet or foggy weather or on damp surfaces. All coats shall be thoroughly dry before the next coat is applied and well rubbed down with glass paper, each successive coat being different from the preceding subject to agreement and approval.

Ensure that timing and sequence is agreed with other trades and that areas of internal work are kept weathertight and maintained at temperature and humidity levels similar to those prevailing after the works area occupied. Ensure that clean working conditions are provided and good lighting.

Remove ironmongery and any other fittings that could be contaminated by painting work or which obstructs areas to be painted. Protect surfaces not intended to be painted.

All interior woodwork shall be rubbed to a smooth surface, sharp edges shall be rounded but only minimally. Any large or loose knots shall be cut out and filled with timber. All nails shall be well punched home, and screw heads countersunk and filled together with all crevices, cracks, indentations etc. with approved wood filler rubbed down to level surface.

A thin coat of knotting, consisting of shellac dissolved in methylated spirit or similar shall be applied to all knots and resinous parts of timber.

Any joinery which is to be primed for staining/painting will be done to Architects later specification.

13.2. Stopping.
Any large or loose knots shall be cut out and filled with timber. All nails shall be well punched home, and screwheads countersunk and filled together with all crevices, cracks, indentations etc. with approved wood filler rubbed down to level surface.

13.3. Knotting.
A thin coat of knotting consisting of shellac dissolved in methylated spirit or similar shall be applied to all knots and resinous parts of timber.

13.4. Priming.
External priming of hardwood doors (front door, utility door and garage door) shall be proprietary aluminium primer. They shall be thoroughly primed before delivery to site (by others).

Internal priming shall be proprietary wood primer in accordance with manufacturers instructions.

13.5. Internal Walls & Ceilings.
All plaster surfaces shall be perfectly dry, free from grease and other foreign matter prior to painting and shall receive two coats of selected colour matt emulsion paint. Paint manufacturer to be Dulux or equal and approved by Architect. Wallpaper to be waterproof vinyl type.

13.6. Woodwork – Interior.
Door Frames, doors, skirting, architrave, dado, window cills & door saddles.

All interior woodwork shall be rubbed to a smooth surface, sharp edges shall be rounded but only minimally. Rub down in a manner that does not cause damage to frail surfaces, arises, mouldings. Mahogany doors, frames etc: 2 finishing coats of lacquer. (one coat in workshop by others).

Red deal/Teak: Apply two coats of patent knotting to all knots. Apply one coat of wood primer, cill surface imperfections with approved filler and rub to a smooth finish. Thoroughly dust off and apply two coats of selected undercoat and one No. coat of selected gloss finish.

Door saddles shall be finished with three coats of Sadolins PV67 lacquer.

13.7. Woodwork – Exterior.

Doors, door frames.

All exterior hardwood is deemed to be pre primed with aluminium primer.
Doors and windows should be cleaned down and any plaster splashes or marks should be removed. Fill surface imperfections with exterior grade filler and touch up aluminium primer where necessary. Apply 2 coats of selected exterior undercoat and one No. coat of selected exterior gloss finish.

Hardwood cladding.
To be treated with preservative. To be clarified by Architect.

13.8. Exterior Masonry/Plaster.
All in block.

13.9. Floor Finishes.
As Selected By client.

13.10. Wall Tiling.
As Selected By client.

13.11. Cornices and coving
Decorative coving to Kitchen, Utility, Hall, Living area an Lounge to design as Selected By client.
Plaster centre rose to light fitting in living area and lounge.

13.12. Picture Rail.
As Selected By client.

13.13. Dado Rail
As Selected By client.

SECTION 14 – PLUMBING & HEATING

Refer in full to preliminary DEAP assessment Report.

Primary Heating source to be by means of Air to water Heat Pump with underfloor heating.
All installations to be designed and calculated by providers, and ancillary certification to be provided on design and installation.

Dwelling to be divided into minimum, 3 heating area zones with Hot water as 4th zone.
Zones:

Living spaces
utility and hallway
Bedroom spaces
Hot water cylinder.

Heating controls to include:
7 day fully programmable
Full Time and temperature zoned control
Thermostat control in each zone
Boiler interlock Control setup (boiler controlled by rooms stats and stat on hot water cylinder)

Wet room sealing system to En-suite, all tiling to be non slip min R11 standard. Walls fully tiled as selected

SECTION 15 – ELECTRICAL

15.1. General.
Electrical work shall be carried out as part of the main Contract.

The whole of the electrical installation is to be installed by an approved and registered firm. The detailed design of the installation is the responsibility of the Contractor and notwithstanding anything included in the Specification shall be strictly in accordance with the National Rules for Electrical Installation available from the Electro Technical Council of Ireland; latest regulations of the ESB and Institute of Electrical Engineers.

The Contractor shall carry out a complete series of tests as laid down in the Regulations and issue the prescribed testing certificates to the Employer prior to practical completion.
Wiring is to be concealed and all accessories flush mounted.

The layout of the installation shall be as neat and unobtrusive as possible and all accessories shall be uniformly and correctly aligned. All cables within the floor zone shall be laid out neatly and be fully supported. All cables within the roof space shall be laid out neatly and clipped to roof timbers in accordance with the Regulations.
All cables on plaster or behind plasterboard shall be in suitable conduit.
The meters shall be installed initially under the building contract in the name of the Contractor so that the heating and electrical systems may be tested and shall be read at Practical Completion and left in place for the Employer.
Meters shall be installed so as to be readable from the outside and shall be fitted in an approved box supplied by the Electricity Supplier and built into the external skin of the cavity wall at an agreed location.
The dwelling shall be served by a consumer unit easily accessible to the householder and fitted with miniature circuit breakers and a Residual Current Circuit Breaker giving overall protection to socket outlets and any external services. Consumer units should be located generally 1.2m above finished floor level and be provided with a lockable cover. The preferred location is in the rear utility area. A surface mounted unit is preferred.
All buried wiring shall be capped for protection and are to be vertical.

15.2 ELECTRICAL FITTINGS TO BE PROVIDED

Approved makes of electrical fittings are:

- Crabtree
- MK Electrical
- Tenby

Alternative fittings will be subject to employer approval. Insofar as is practicable all fittings shall be from single maker.

Electrical points (in addition to spurs for heating appliances) shall not be less than the provision shown below and shall be in locations shown on the electrical layout to be agreed with the Employer:

LOUNGE:
5 Twin 13amp switched socket outlets (incl. 2 twin sockets adjacent to TV aerial point)
1 TV aerial point + 2 Satellite points. 3 nr RG6 coax cables to be routed to attic space with sufficient excess cable in attic to serve aerials and satellite dish installations.
2 Light points 2-way switched (as appropriate)
1 Telephone socket point (adjacent to the TV aerial point) cabled using 2 Cat6 cables in radial circuits to main incoming point)
Wall mounted light fittings over fireplace, number and location as selected by client.

KITCHEN AREA:
4 Twin 13amp switched socket outlets above the worktop.
3 Single 13amp un-switched sockets with neon indicator isolating switches above worktop (washing machine, dishwasher/tumble dryer and fridge/freezer). Alternatively the use of a grid switch may be appropriate,
1 Cooker point suitable for hard wiring with switch and separate 13amp unswitched socket for gas ignition.
1 13amp fused spur for a cooker hood located above the cooker position.
1 Single 13amp un-switched sockets within the cooker space wired from the cooker circuit for gas ignition or for a 13A appliance
8 Recessed LED fittings (supply by Employer) in 2 banks of 4 2-way switched
1 Extract fan with fused spur (fan not provided over cooker space)
The Client requires the fused spurs on grid switches and these are to be labelled.
1 Telephone socket point (location to be agreed) cabled using 2 Cat6 cables in radial circuits to main incoming point)
All outlets above the kitchen worktops to be at the same height.

DINING AREA:
2 Twin 13 amp switched socket outlet
2 Light points 2-way switched
1 TV aerial point + 1 Satellite points. 2 nr RG6 coax cables to be routed to attic space with sufficient excess cable in attic to serve aerials and satellite dish installations.

UTILITY:
2 Twin 13amp switched socket outlet above worktop
3 Single 13amp un-switched sockets with neon indicator isolating switches above worktop (washing machine, dishwasher/tumble dryer and fridge/freezer). Alternatively the use of a grid switch may be appropriate,
1 boiler programmer (located below boiler)
1 fused spur for boiler and programmer (boiler at agreed external location)
1 Light point 2-way switched. Switching (2 way) for external high level low energy lights (1 two way switch for each of four lights).

WC:
1 Light point with enclosed fitting (switch to be located on the outside of the room or to be a ceiling mounted pull cord located within the room, to the approval of the Employer.)
1 Shaver/Light fitting
1 Extract fan with isolated fused spur (suitably located a minimum of 300mm away from the light fitting)

HALL:
1 Twin 13amp switched socket outlet (adjacent to telephone point)
2 Light points 2-way switched (from hall & landing)
1 Telephone socket point
2 Un-switched fused spurs (future alarm and stair lift, although stair lift spur may be located under the stairs, if practicable)
Switching (2 way) for external high level low energy lights (1 two way switch for each of four lights).

AIRING CUPBOARD:
1 Immersion heater switch with neon and label (where cylinder is provided).
Control system for Solar heating

BEDROOM 1:
3 Twin 13amp switched socket outlet
1 Light point 1-way switched - room
1 Light point 1-way switched - wardrobe
1 TV aerial point + 1 Satellite points. 2 nr RG6 coax cables to be routed to attic space with sufficient excess cable in attic to serve aerials and satellite dish installations.
2 Telephone/data points (cabled CAT6 with radial circuit to the main incoming point)
Wall mounted reading light fittings, number and location as selected by client.

ENSUITE to BEDROOM 1:
1 shaver point (Linolite or similar in internal bathrooms)
1 Light point with enclosed fitting (switch to be located on the outside of the room or to be a ceiling mounted pull cord located within the room to the approval of the Employer.)
1 Extract fan with isolated fused spur

BEDROOM 2:
3 Twin 13amp switched socket outlet
1 Light point 1-way switched
1 TV aerial point + 1 Satellite points. 2 nr RG6 coax cables to be routed to attic space with sufficient excess cable in attic to serve aerials and satellite dish installations.

Wall mounted reading light fittings, number and location as selected by client.

BEDROOM 3:
3 Twin 13amp switched socket outlet
1 Light point 1-way switched
1 TV aerial point + 1 Satellite points. 2 nr RG6 coax cables to be routed to attic space with sufficient excess cable in attic to serve aerials and satellite dish installations.
Wall mounted reading light fittings, number and location as selected by client.

TV Room:
3 Twin 13amp switched socket outlet
1 Light point 1-way switched
1 TV aerial point + 1 Satellite points. 2 nr RG6 coax cables to be routed to attic space with sufficient excess cable in attic to serve aerials and satellite dish installations.
1 Telephone socket point (location to be agreed) cabled using 2 Cat6 cables in radial circuits to main incoming point)
Wall mounted reading light fittings, number and location as selected by client.

BATHROOM:
1 shaver point (Linolite or similar in internal bathrooms)
1 Light point with enclosed fitting (switch to be located on the outside of the room or to be a ceiling mounted pull cord located within the room to the approval of the Employer.)
1 Extract fan with isolated fused spur

HALL:
1 Twin 13 amp switched socket outlet
1 Light point 2-way switched (from hall and landing)

FRONT DOOR:
1 Outside light fitting, with photocell operation and manual over-ride. Sample/details of fitting to be provided to the Employer for approval.
1 Door bell (mains operated)

REAR EXTERNAL DOOR:
1 Outside light fitting, with photocell operation and manual over-ride. Sample/details of fitting to be provided to the Employer for approval.

SECURITY LIGHTING:
4 approved Low Energy floodlights mounted at eaves on 4 corners, individually manually switched from hall or utility.
1 approved Low Energy floodlight mounted on garage NE corner at eaves manually switched from hall or garage.
Sample/details of fitting to be provided to the Employer for approval.

INTERNAL STORES/LOFT/ATTIC SPACE:
1 Light point 1-way switched with neon indicator.

EXTERNAL :
Boiler served from Fused Spur from Utility.
Provide External weather proofed socket to rear wall at agreed location
Provide electrical supply to main entrance for electric gates. Terminate in weatherproof junction box. Agree with Employer location for switch termination within house
Provide Electric Lighting to entrance piers. Light fittings as selected by Employer. 1-way switched with neon indicator from Hall

15.3 GENERAL:

Standard bayonet light fittings are to be provided with low energy lamps. Dedicated CFL fittings to pendants and batten holders are not permissible.
Electrical points and switches shall be positioned to take account of likely furniture layouts and to avoid inoperable locations. All socket outlets shall be positioned 450mm above finished floor level except above worktops. Light switches shall be positioned generally 1050 mm above finished floor level.
All socket outlets shall be switched and shall be wired from a 13A ring main system.
Locations of socket outlets are to suit the designed furniture layouts. Where refrigerators or washing machines are intended to be situated below worktops, an unswitched socket outlet shall be located in the space below the worktop and wired to a switched spur unit above the worktop and to one side of the space so that the appliance may be switched off without unplugging.

Cooker switches shall be located to one side of cooker spaces with a separate cable outlet pre-wired to the control switch. Cooker control switches shall not have kettle sockets. Adequate sockets to include the use of an electric kettle shall be provided on the RCCB protected circuit.
In kitchen/dining rooms, the dining area light will be 2-way switched.

Large rooms with two or more ceiling lights must be separately switched via a two gang switch.
Domestic lighting fittings shall consist of short pendants with white flanged back place or pattress with 4 terminals and white 2 plate ceiling roses generally and an enclosed fitting in bathrooms. Light bulbs should be provided to all fittings.

Care shall be taken to ensure that pendants, once fitted with lamp and shade, are not struck by doors.
External lighting shall be controlled by photocell rather than time clocks. Photocells shall not be located in areas of deep shade or under eaves so that lights are unnecessarily activated.
Lighting is to be adequate for safety and security.

The use of large numbers of low-level lights of bulkhead or bollard type shall be avoided. Bracket or column mounted low-energy lanterns shall be employed whenever possible but at a maximum of 3.0m above ground level. Care shall be taken to avoid light disturbing occupants of dwellings, particularly in bedrooms.

15.4 CABLES AND FITTINGS IN FULLY INSULATED PARTITIONS AND CEILINGS
The design and installation shall take due account of good practice when installing cables and/or fittings in fully insulated partitions and ceilings and have regard to BRE BR262, Thermal Insulation: avoiding risks, section 2.3.

15.5 CABLE RUNS WITHIN THE INSULATION VOID
For service runs within the insulated void use suitable ductwork to prevent overheating of the cables.

15.6 FIRE PRECAUTIONS
All rising services are to include fire collars to all ceiling junctions.

Smoke Alarms.
Installation should comply with the minimum standards for a Grade D, Type LD2 alarm system. Provide minimum 4 no mains powered detectors including 2 no. heat detectors in kitchen and livingroom.

CO Alarms.
Provide carbon monoxide alarms to livingroom and sunroom with a solid fuel burning device.

15.7 TELEPHONE INSTALLATION
The dwelling shall be fitted with telephone outlet boxes and sockets, as scheduled previously. All secondary sockets shall be wired back to the master point in the hall usint CAT6 cable to allow flexibility for future use. Radial circuits shall be used.

15.8 BUILDER'S WORK
All cables shall be installed with felt between them and at cross over points including crossover points with pipes to ensure that there is no transfer of heat or cable rubbing or noise generation.
Include for excavation of all trenches for incoming supply and to external lights.
Build in ESB Box where shown on Electrical plans.
Contractor to include for chasing walls, drilling and notching joists for Electrician unless otherwise agreed between Contractor and Electrician on site.
Notching, if necessary, (preferably cables to be taken through holes bored in centre of joists), must comply strictly to the limits shown on the Home Bond manual.

15.9 TESTING
All installations shall be tested in accordance with the Regulations and test certificates submitted to the Employer prior to Practical Completion or Partial Possession.

15.10 DRAWINGS AND CONSTRUCTION INFORMATION
An "as built" plan layout of the electrical installation showing the positions of the electrical equipment, meters, consumer unit, switching, outlets etc shall be provided by electrical contractor.
Manufacturer's installation, operating and maintenance manuals will be provided to the Employer together with on-site training at Practical Completion.

15.11 CO-ORDINATION
The Contractor will be responsible for co-ordinating the electrical installation related to other elements and finishings in the dwellings.

SECTION 16 - SECURITY.

The contractor shall facilitate in the course of construction the installation of wiring and fixtures associated with proposed security systems by a subcontractor employed directly by the Employer.

SECTION 17 – GARAGE.

Refer to Garage details plans .
garage construction details

external wall construction
215 concrete hollow block rendered externally to match dwelling
founded on 750x300 strip footing
internal wall. construction
215mm blockwork extended to underside of ceiling, founded on 600x300mm strip footing
min 150 concrete slab with a393 mesh reinforcement on
1200 gauge dpm on
blinded hardcore laid in 150 compacted layers
windows and doors to match dwelling
175 x 44 rafters @ 400 c/c c16
175 x 44 ceiling joists @ 400 c/c c16
dormer stud purlin support of 2 x 100 x 44 wall plates birdsmouthed to rafters on stud of
100 x 44 studs @ 400 c/c on
1 no 100 x 44 runner
150 x 44 collar ties on every rafter
150 x 44 hangers on every 4th rafter

construction details in accordance with dwelling tender drawings