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FOUNDATIONS All vegetable matter is to be removed from the area covered by the building. All foundations to be positioned centrally under walls. Concrete piled Foundations are to be installed in strict accordance with York Silis Ltd (Structural Engineers) Specification, calculations and details. Foundations to be installed in accordance with "Approved Document A1/2 Section 1". Foundation drawings, details and notes shown on the drawings and specifications are for indicative purposes only which are subject to full ground investigation results. Contractors cannot rely on the nature of foundations shown until full information of subsoil, including onsite, offsite and underground features are established, subsequent to excavations on site. The nature of subsoil influences the design of foundations when building near trees which cannot be established until excavations are made on site. Precautions against root damage to be agreed on site with Building Control. All foundations and floor slabs to take account of both removed and retained trees and hedges in accordance with the Guidance contained within NHBC Chapter 4.2 "Building near trees". GROUND FLOOR CONSTRUCTION - MAIN HOUSE Floor construction to be Bison Precast Jeffloor System, to consist of: 75mm concrete topping incorporating underfloor heating pipes (confirm the thickness of the topping is sufficient for the underfloor heating system with specialist heating contractor), on 150mm Structural grade overlay (insulation) sheet min strength 130N/m², on Memtech M1 Ground Gas Membrane. Memtech M1 Ground Gas Membrane to be laid over concrete beam and block floor structure to provide a gas barrier and damp proof membrane for the whole building. The ground gas membrane must be in accordance with the requirements of BRE 211/2015, Radon Guidance on protective measures for new buildings and BS 8485:2015 + A1:2019, code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. The ground gas membrane should act as a DPM in accordance with CP 102:1973, Section 2 and BS 8004-4:1989, and Building Regulations Approved Document C. The Gas Barrier should be designed and specified in accordance with the most up to date guidance and most recent regulations. Attention is drawn to CIRA C665, C735, C748, and BS8485:2015 and CIEH guide to Ground Gas. The Ground Gas Membrane should be designed and installed by a registered installer. All joints to be welded and membrane to be lapped into DPC. The installation must be verified by an approved independent inspector. Floor structure to be pre-stressed precast concrete "T" beams (by Bison Precast or similar approved) infilled with EPS (grey) infill blocks. Provide and install Thermatite spacer block and PSI blocks to the perimeter. Layout to be designed by Specialist Supplier to suit spans and ground floor layout. Minimum 225mm clear cavity below concrete beams. Damp proof membrane to lap damp proof course wherever used. Jeffloor System to be installed in strict accordance with manufacturers written instructions and details. Overall Floor Construction to achieve a min. U-value of 0.11W/m²K. Underfloor ventilation by means of 215 x 65mm cranked airbricks (eg. Red-Bank or similar) at centres to give a minimum 1500mm² ventilation per metre run of external wall or 500mm² per m² of floor area, whichever is greater. Telescopic ventilators to under floor void to provide equivalent to 1500mm² for each metre run of wall or 500mm² per square metre of floor area. Ventilators to be spaced at not more than 2.0m centres and within 450mm of each end of any wall. Cavity trays over ventilators. Precise locations are to be determined through consultation with specialist manufacturers/ suppliers. Ventilation must be provided through the dividing wall to allow a free flow of air. Internal sub-floor walls to be provided with ventilation openings of at least 100mm dia. Minimum 150mm (check ground conditions for any necessary hedge precautions - increased void depth) void below floor beams, vegetable soil to be removed and soil to be treated with weed killer. Seal all service penetrations through ground floors with expanding foam or another suitable sealant. For large voids, mineral wool or other material may be used to provide a backing for the sealant. Where water pipe runs through the under floor void pipe should be sleeved and surrounded by insulation to prevent freezing. GROUND FLOOR CONSTRUCTION - GARAGES & BOAT STORE 75mm reinforced concrete screed, with light steel mesh reinforcement. Screed to achieve a min. compressive strength of 21N/m². Memtech M1 Ground Gas Membrane to be laid over concrete beam and block floor structure to provide a gas barrier and damp proof membrane as described elsewhere. Suspended floor structure to be pre-stressed precast concrete "T" beams. Concrete beams to be infilled with medium weight infill blocks (1350kg/m³). Ensure that there is a minimum void of 150mm between the beam and external ground level. Allow for consulting with specialist manufacturer to confirm the spans of the beams and the density of the infill blocks. Underfloor ventilation by means of 215 x 65mm cranked airbricks (eg. Red-Bank or similar) at centres to give a minimum 1500mm² ventilation per metre run of external wall or 500mm² per m² of floor area, whichever is greater. Telescopic ventilators to under floor void to provide equivalent to 1500mm² for each metre run of wall or 500mm² per square metre of floor area. Ventilators to be spaced at not more than 2.0m centres and within 450mm of each end of any wall. Cavity trays over ventilators. Precise locations are to be determined through consultation with specialist manufacturers/ suppliers. Ventilation must be provided through the dividing wall to allow a free flow of air. All to be installed in strict accordance with manufacturers written instructions and details. SWIMMING POOL CONSTRUCTION Proposed swimming pool to have a finished length of 12.5m and a finished width of 6m, with a volume of 112.5m³ or 24.75 gallons. Concrete pool shell (shotcrete method) to be designed according to SPATA Standards and to BS EN 1992 (Eurocode 2) parts 1, 2 & 3. Reasonable provision should be made to limit heat loss from the swimming pool basin by achieving a min. U-value of 0.28W/m²K as calculated according to BS EN ISO 13370. Swimming pool insulation to be 100mm RAVATHERM XPS X 300 SB. Construction of Swimming Pool to be in strict accordance with details, specification and drawings by specialist consultant. STRUCTURAL STEEL FRAME Structural steel frame to be in strict accordance with Calculations and details by York Silis Ltd (Structural Engineer). SLEEPER WALLS (Support Beam & Block) Sleeper walls supporting the beam & block floor to consist of two skins of 100mm thick 7N/m² solid dense aggregate concrete blocks built off foundations. Footings for sleeper walls to be constructed in strict accordance with Structural Engineers (York Silis Ltd) Details and calculations. Sleeper walls to incorporate ventilation, with the ventilators to be spaced at not more than 2.0m centres and within 450mm of each end of any wall. EXTERNAL WALL - CAVITY (GROUND FLOOR) Cavity wall construction to be formed with outer skin of 100mm thick coursed locally sourced limestone. 125mm cavity to be insulated with 115mm Kingspan Kooltherm K106 insulation, incorporating nominal 100mm air gap. Inner skin of cavity wall to be 140mm thick blockwork, with internal finish of 15mm plasterboard on dabs with a plaster skin finish. Provide and install stainless steel wall ties to suit stone cladding to blockwork. Wall ties should have horizontal spacing of 900mm and a vertical spacing of 450mm. Alternatively should be spaced such that the number of wall ties per square metre is not less than 2.5 wall ties/ m². Wall ties should also be provided , spaced not more than 300mm apart vertically, within a distance of 225mm from the vertical edge of all openings and movement joints. All to be in strict accordance with Approved Document A of the Building Regulations. Provide and install vertical insulated DPC to window joints Movement joints to blockwork to be located at maximum 6m centres. Joints to be a maximum of 10mm wide with Ancon PPS or similar approved movement joint tie, laid across joint with debonding sleeve on one end and to allow for movement. Install easily compressible filler strip with joint, with non-hardening mastic. Overall wall construction to achieve a min. U-value of 0.14W/m²K. EXTERNAL WALL - CAVITY (FIRST FLOOR) Cavity wall construction to be formed with outer skin of 100mm thick coursed locally sourced limestone. Cavity to be insulated with 50mm Kingspan K12 Framing board & 130mm mineral wool insulation. Inner skin of cavity wall to be 180mm thick Metsec load bearing metal stud walling, with a 10mm moisture resistant plywood fixed to the outer face of the stud wall. 50mm Kingspan K12 Framing board to be fixed to outer face of plywood. Internal finish to be 15mm plasterboard with plaster skin finish. For detailed design and specification of the load bearing stud walling refer to Metsec SFS Design specification. INTERNAL BLOCK WALL CONSTRUCTION Internal walls to the Ground Floor to be 100mm & 140mm concrete block as indicated on proposed drawings and structural engineers details. Internal finish to be 15mm plasterboard on dot & dab with a plaster skin finish. Internal walls to the rooms adjacent the double garage are to be 100mm blockwork, supported off beam and block floor. 100mm block walls forming separation between garage and house to be lined with 52.5mm Kingspan Kooltherm K118 insulated plasterboard (as indicated on drawing PL_02). All load bearing supporting block walls to be in strict accordance with with calculations and details by York Silis Ltd (Structural Engineer). FIRST FLOOR CONSTRUCTION First floor to be a composite concrete deck consisting of: 22mm flooring grade chipboard, on 18mm "Polypipe Overlay" underfloor heating system, on 150mm thick reinforced composite concrete deck, incorporating steel mesh reinforcement (min. 35mm cover to mesh), deck formed with Multi-deck 50 v3 (1.2mm gauge sheet), on steel beams. Provide and install 100mm mineral wool insulation to the ceiling void for sound reduction purposes. Ceilings below composite concrete deck to be Casoline MF ceiling or similar approved suspended ceiling system. MF suspended ceiling to be secured to the underside of the composite concrete floor. Ceiling finish to be 15mm plasterboard with a plaster skin finish. All in strict accordance with York Sils Ltd (Structural Engineer) calculations, details and specification, as project reference 6416. Refer to Structural Engineers drawings for first floor composite decking GA, Details & Reinforcement. INTERNAL STUD WALLS (NON - STRUCTURAL) Non-structural stud walls to the first floor to be formed with GypWall Classic metal stud system, refer to proposed floor plans for wall thickness. Walls exceeding 100mm thick to be GypWall Quiet incorporating cross bracing, all in strict accordance with manufacturers details and specification. All stud walls to be lined with 150mm Gyproc Soundbloc to both sides. Provide and install Rockwool sound insulation between the studwork. FLOOR CONSTRUCTION OVER GARAGE First floor to be a composite concrete deck consisting of: 18mm "Polypipe Overlay" underfloor heating system, on 150mm thick reinforced composite concrete deck, incorporating steel mesh reinforcement (min. 35mm cover to mesh), deck formed with Multi-deck 50 v3 (1.2mm gauge sheet), on steel beams. Insulation to be 100mm Kingspan Kooltherm K110 Plus Soffit Board or similar approved soffit insulation. Fixed to the underside of the composite floor with thermally broken fixings. All to be installed in strict accordance with manufacturers written instructions and details. Overall floor construction to achieve a min. U-value of 0.17W/m²K. Floor construction over the garage to achieve a minimum fire resistance of 60 minutes. All in strict accordance with York Sils Ltd (Structural Engineer) calculations, details and specification, as project reference 6416. Refer to drawing no. 6416/120 for first floor composite decking GA, Details & Reinforcement. EXPPOSED SOFFIT CONSTRUCTION (FIRST FLOOR) First floor to be a composite concrete deck consisting of: 18mm flooring grade T & G chipboard, on 30mm Knauf Earthwool Acoustic floor slab plus, incorporating extruded polyethylene edge strips. Sound insulation to be laid on 150mm thick reinforced composite concrete deck, incorporating steel mesh reinforcement (min. 35mm cover to mesh), deck formed with Multi-deck 50 v3 (1.2mm gauge sheet), on steel beams. Insulation to be 100mm Kingspan Kooltherm K110 Plus Soffit Board or similar approved soffit insulation. Fixed to the underside of the composite floor with thermally broken fixings. All to be installed in strict accordance with manufacturers written instructions and details. All fixed in strict accordance with manufacturers written instructions and details. Soffit to be clad with stone facing slabs, secured with Ancon Soffit fixings, to suit bolt fixing to a steel beam. The stone should be checked to ensure it is capable of withstanding the localised bearing stress under the fixing. Consultation with specialist manufacturer is required to ensure the system suits the specific constraints of the proposed construction. All fixed in strict accordance with manufacturers written instructions and details. All in strict accordance with York Sils Ltd (Structural Engineer) calculations, details and specification, as project reference 6416. Refer to drawing no. 6416/120 for first floor composite decking GA, Details & Reinforcement. Overall floor construction to achieve a min. U-value of 0.17W/m²K. EXPPOSED SOFFIT TO ROOF OVERHANG Roof construction to overhang to be in strict accordance with structural engineers (York Sils Ltd) details and specification. Soffit to be clad with stone facing slabs, secured with Ancon Soffit fixings, to suit bolt fixing to a steel beam. The stone should be checked to ensure it is capable of withstanding the localised bearing stress under the fixing. Consultation with specialist manufacturer is required to ensure the system suits the specific constraints of the proposed construction. All fixed in strict accordance with manufacturers written instructions and details. Provide and install 140mm PIR insulation under the curtain walling to be fitted into a stud frame fixed to steel frame & underside of the roof. Allow for installing insulation around steel beams, to be positioned to prevent cold bridging above the curtain walling. All to be installed in strict accordance with manufacturers written instructions and details. STAIRS (CANTILEVER) - LOBBY Staircase to consist of 17 no. risers, each max 220mm, going min 220mm, max pitch 42". Open riser staircase to be steel construction with glass glazing. Staircase to have going between 220mm - 300mm, rise between 150mm and 190mm and max pitch 42". To be measured on site prior to manufacture to ensure correct rise & goings comply with regulations. Handrails to be a minimum of 900mm vertically above pitch line on flights of stairs and above floor level on landings. Minimum clear width of staircase to be 800mm, maximum width to be 1000mm. Provide and fix frameless toughened laminated structural glass balustrade to the staircase. Fixing to glass balustrade to be in strict accordance with engineers details. All installed in strict accordance with specialist manufacturers written instructions and details. At the top and bottom of every flight provide landings the width and length at least as great as the smallest width of the flight. Open riser treads should overlap at least 16mm. Construct the steps so that a 100mm sphere cannot pass through the open risers. Cantilever staircase to be installed in strict accordance with York Sils Ltd (Structural Engineer) calculations, details and specification.Staircase to be in strict accordance with Approved Document K of the Building Regulations. Staircase design & construction to be in strict accordance with specialist manufacturers design, specification and details. GUARDING TO FULL HEIGHT SPACE (OPPOSITE BED 1) Provide and fix frameless balustrade to the floor edge. The frameless system to incorporate toughened laminated structural glass balustrade fixed into a pre-made channel. Channel to be fixed to steel channel as structural engineers details. All to be installed in strict accordance with specialist manufacturers written instructions and details. Ensure the guarding is designed to take into account the loadings as set out in BS 6180:2011, Table 2 and in the Eurocodes. Guarding to be in strict accordance with Approved Document K of the Building Regulations. STAIRS (SPIRAL) - GAMES ROOM Design of the spiral staircase to be in strict accordance with BS 5395-2 Code of practice for the design of helical and spiral stairs. All in strict accordance with manufacturers written instruction and details. INTERNAL STAIRS Internal steps to have rise of min. of 150mm and max. 220mm. The going to be min. 220mm and max. 300mm. Internal steps to have a max pitch of 42". To be measured on site prior to manufacture to ensure correct rise & goings comply with regulations. Balustrades to be vertical bars with a maximum opening of 100mm. Guarding to resist as a min. the loads given in BS EN 1991-1-1 with UK National Annex and PD 6688-1-1. If a flight of steps comprises three or more risers a suitable continuous handrail must be provided to each side of the flight and on each side of any intermediate landing. Handrails to be a minimum of 900mm vertically above pitch line on flights of stairs and above floor level on landings. Minimum clear width of staircase to be 800mm, maximum width to be 1000mm. Tapered treads to have a going of 220mm minimum measured centrally and 50mm minimum at narrow end. 1.20x2.4m designhead is to be in accordance with "Approved Document K1 Section 1" Paragraphs 1.8 to 1.20x2.4m designhead is to be provided to the staircase. At the top and bottom of every flight provide landings the width and length at least as great as the smallest width of the flight. ROOF CONSTRUCTION (MAIN HOUSE) Min pitched roof to consist of: Zinc standing seam roof covering, on structural underlay, on 165mm thick Celotex XR4000 rigid insulation, on high performance vapour barrier, on 22mm plywood support deck, on specialist roof trusses. Roof structure and bracing design to be in strict accordance with Structural Engineers (York Sils Ltd) details and calculations. Overall roof construction to achieve a min. U-value of 0.12W/m²K. ROOF CONSTRUCTION (GREEN ROOF) Green roof construction to consist of: Surface finish of Bauder SB substrate sedum blanket (pre-cultivated) laid manually, on growing medium of Bauder exclusive substrate to 60mm depth. Substrate formed in two equal layers, allowing for settlement. Markers are to be used to ensure that the min. depth of growing medium is achieved. Growing medium to be installed on a filter membrane to be Bauder filter fleece, lapped min. 150mm. Filter fleece to be installed on a drainage layer of Bauder DSE02. The boards are to be interlocked by a min. of one profile cup and all board joints staggered. Drainage layer to be installed on a protection layer of Bauder F504000 4mm protection fleece. Laps to be sealed by lightly heating the overlap area, laps to be a min. of 150mm. Water proofing system to be Bauderflex green system, to consist of: Top layer of Bauder AP2 4mm thick 250g/m² polyester reinforced elastomeric bitumen root resistant capping sheet, on underlay of Bauder TEC sprint DUO 2mm thick 250g/m² glass fibre reinforced elastomeric self adhesive bitumen, on insulation to be multi-layered Bauder PIR FA tapered insulation scheme consisting of 100mm Bauder PIR FA-FTE flat board aluminium faced rigid urethane insulation as a base layer. Uppermost layer to Bauder PIR FA tapered aluminium faced rigid urethane insulation. Insulation installed on Bauder TEC KSD Mica 2.5mm aluminium lined elastomeric bitumen self-adhesive air and vapour control layer. Vapour control layer to be installed on Bauder primer-activator APR01-black applied to the roof substrate, upstands and skirtings. Roof substrate to be 150mm thick composite concrete deck, with Multi-deck 50 v3. Concrete floor to incorporate steel mesh reinforcement, all in strict accordance with structural engineers details & specification. Allow for installing 50 x 50mm PIR angle fixings to be used with insulated and non-insulated upstands. Allow for any appropriate accessories including pipe covers, trims and flashings as recommended by the roofing system manufacturer. Extensive green roof system to be installed in strict accordance with manufacturers written instructions and details. Overall green roof construction to achieve a min. U-value of 0.12W/m²K. Access Points: a) Raking eyes to be in accordance with B.B.A. Certificate No. 83/1135. b) Shallow inspection chambers (clay) up to 800mm invert to be in accordance with B.B.A. Certificate No. 83/1135 (225mm dia). c) Inspection chambers (G.R.P.) 800mm to 1000mm invert to be in accordance with B.B.A. Certificate No. 83/1135 (475mm dia). d) Manholes (precast concrete rectangular sections) 1000 - 2700mm invert to BS 5911: Part 2: 1982 (1200 x 750mm). e) Manholes (semi-engineering brickwork) 1000 - 2700mm invert to BS 3921: 1985 (1200 x 750mm). Inspection chamber covers to be non-ventilating and be secured i.e. key operable. Half round channels, concrete benching (1:12 slope) and 150mm concrete base. Contractor to check invert location and invert depths of existing drainage runs (eg Sewer), if drainage layout shown not possible, RDC (Drawing office) are to be notified as soon as possible. WINDOWS & EXTERNAL DOORS Windows/ doors to be double glazed thermally broken polyester powder coat aluminium windows, incorporating Low E hard coating. Windows/ doors to achieve min. U-value of 1.16W/m²K, RAL colour of windows to be confirmed by client. All glazing to comply with Section 5 of Approved Document K of the Building Regulations. Glazing in critical locations to be toughened or laminated glass to comply with the critical locations indicated in Diagram 5.1. Safety glass is required up to a height of 1500mm in doors, including windows or sides screens if within 300mm of door openings. Safety glazing required in windows within 800mm of floor level. Safety glazing for critical locations must comply with Class 3 of BS EN 12603 or Class C of BS 6206. If it is installed in a door or door side panel and has a pane exceeding 900mm it must comply with Class 2 of BS EN 12603 or Class B of BS 6206. Windows and doors to be positioned so they overlap the insulated DPC. Provide and install cavity trays and weep holes above all windows and doors. Ensure weep holes are provided at each end of a horizontal cavity tray at a maximum of 900mm centres. Guarding to Juliet balconies (DF.10, WF.08 & WF.09) to have a min. height of 1100mm. Guarding to resist as a min. the loads given in BS EN 1991-1-1 with its UK National Annex and PD 6688-1-1. All in strict accordance with Approved Document L1A & K of the Building Regulations. GARAGE DOORS Doors to Garages and Boat store to be powder coat aluminium roller shutter doors. Allow for electrical connections for door control/ remote control. Roller shutter door comprised of foam filled aluminium sections for sound and thermal insulation. All to be installed in strict accordance with manufacturers written instructions and details. CURTAIN WALLING Triple glazed polyester powder coat aluminium curtain walling to achieve min. U-value of 1.16W/m²K. RAL colour of windows to be confirmed by client. All glazing to comply with Section 5 of Approved Document K of the Building Regulations. Glazing in critical locations to be toughened or laminated glass to comply with the critical locations indicated in Diagram 5.1. Safety glass is required up to a height of 1500mm in doors, including windows or sides screens if within 300mm of door openings. Safety glazing required in windows within 800mm of floor level. Safety glazing for critical locations must comply with Class 3 of BS EN 12603 or Class C of BS 6206. If it is installed in a door or door side panel and has a pane exceeding 900mm it must comply with Class 2 of BS EN 12603 or Class B of BS 6206. Curtain walling to be positioned so they overlap the insulated DPC. All structural openings to be measured on site prior to manufacture. Opening elements to be in accordance with the recommendations included in the Overheating Risk Analysis and Heating System Load Report by Greenlife Energy Assessors and in conjunction with the M & E Consultants proposals. All in strict accordance with Approved Document L1A of the Building Regulations. ESCAPE WINDOWS Windows provided for emergency egress purposes and any external door should comply with the following conditions: a) The windows should have a minimum unobstructed openable area that is at least 0.33m² and at least 450mm high x 450mm wide (a clear opening of 450mm x 750mm achieves the minimum requirement). b) The bottom of the openable area should be not more than 1100mm above the floor. Refer to the Proposed Plans & Elevations for escape window positions. All in strict accordance with Approved Document B1 of the Building Regulations. INTERNAL DOORS Internal door type to be confirmed by client. Bathroom, En-suite & W.C. doors to incorporate tum and release lock bolt. Staircase doors DG.29, DF.02, DF.04, DF.06, DF.11, DF.12, DF.13 & DF.15 are to be pocket sliding doors. The sliding track type and position is to be as recommended by the manufacturers. Internal doors to the Plant Room and leading into the garage from the house to be 60 minute fire doors, incorporating smoke seals and self closers. All appropriate door ironmongery to be agreed by client. PLUMBING Generally all pipework to be upvc with 32mm dia. waste to lead basins up to 1.7m, and 40mm dia. if the pipe length is between 1.7m and 3m, 40mm dia. wastes to sink units, or 50mm dia. if waste pipe exceeds 3m. All fitted with 75mm deep sealed anti-siphonic traps. 100mm dia. soil and vent pipe in locations as indicated on the proposed drawings. SVP to terminate through roof, to include all flashing. All traps to be removable or to be fitted with a cleaning eye. Where access for cleaning discharge pipes cannot be provided by removing traps, then rodding points are to be included these must be above the spill over level of the lowest connected appliance. Where appropriate, waste pipes at ground floor level to discharge into back inlet gully or below gully grating. 50mm deep seal trap to W.C. 32mm waste to basin and bidet, 40mm waste to sink, bath and shower. Vertical ducts such as boxing in to SVPs are to be closed at top and bottom. All in strict accordance with Approved Document H of the Building Regulations. WATER SUPPLY New water supply to be installed by a statutory water undertaker or a licensed water supplier. Water pipe to be located in pipe sleeve and insulated around if pipe rise is within 750mm of external wall. Pipe to be insulated where it passes through ventilated space to prevent freezing. cold water supply to the kitchen sink tap (potable water) to be directly off the mains. Allow for providing a water supply to the First Floor Utility to connect to a washing machine. A water efficiency calculation to be provided showing that the potable water consumption is less than 125 litres per person per day. All to comply with Local Water Authority recommendations in respect of water supply. Provide in line maintenance valves at each appliance (hot & cold). PLUMBING, INSULATION AND HEATING CONTROLS Insulation of heating pipes in accordance with Approved Document L1A of the Building Regulations and the Domestic Heating Compliance Guide. Pipework in unheated spaces to be lagged with thermal insulation with a thermal conductivity not exceeding 0.035W/m²K and a thickness equal to the outside diameter of the pipe up to a maximum of 40mm thick. Pipes also insulated for at least 1m from the point of connection to the hot water vessel (if appropriate) or alternatively insulated up to the point where they become concealed. Insulation should comprise 15mm of a material having a thermal conductivity of 0.035W/m²K. Heating system to have timer control provided to control periods when heating system operates. Heating system to be in two zones, one for Living area and one for sleeping area. Provide and install delayed start thermostat. FOUL DRAINAGE All pipework to be 100mm or 150mm dia. PVC, with 150mm granular bed and surround. All drains laid to self cleaning falls min. 1:80 to max. 1:40 subject to site levels. Pipes passing through block/brick to have adequate pre-cast concrete lintel support over, with 50mm gap between drain and compressible quilt collar to protect against settlement. Drainage around the building to discharge into 450mm or 600mm dia. circular inspection chambers with heavy duty steel frame and access covers, bedded and haunched in concrete. Inspection chamber to have 150mm concrete base. Pipework laid below paved/ grass areas to have a min. 600mm cover. Pipes laid over vehicular access areas to have a min. cover of 900mm. If existing inverts do not apply pipes are to have 100mm granular fill surround, with compressible material and reinforced concrete slab over, with min.300mm bearing on the original ground. A drainage trench should not be excavated lower than the foundation of any building nearby, unless either: where the trench is within 1m of the foundation trench shall be filled with concrete up to the level of the foundation, or where the trench is further than 1m from the building the trench shall be filled with concrete to a level below the lowest level for the building equal to a distance from the building, less 150mm. Pipework encased in concrete are to incorporate compressible board movement joints at all pipe joint positions. Foul drains to discharge into a new Kiargester or similar approved sewage treatment plant. Contractor to confirm with the manufacturer the requirements of the sewage treatment plant. Provide and install manhole at inlet into treatment plant and at the outlet, which will the outflow sampling chamber. Outflow to Sewage treatment plant to be provided with a manhole. New soakaway to be provided, with size calculated following percolation test of the ground and taking into account the area to be drained. Soakaway to be constructed min. 5m away from any building. Allow for undertaking water table and percolation tests to establish the size of the soakaway/ drainage field to the treatment plant. Allow for waste connections in the First floor Utility for washing machine. All foul drainage to be in strict accordance with Approved Document H of the Building Regulations. Drains to be tested and approved by Local Authority Building Control Officer. Drainpipes to be flexible jointed vitrified clay to BS: 65: 1991 or UPVC drainage systems to BS: 5955: Part 6: 1980 and BS: 8005: 1987. Pipeline installation to BS 5955 Part 6: 1980 & BS EN 1610: 1997 all self-cleansing with min. gradient of 1 in 40 to branch drains & 1 in 80 to main drains. Access Points: a) Raking eyes to be in accordance with B.B.A. Certificate No. 83/1135. b) Shallow inspection chambers (clay) up to 800mm invert to be in accordance with B.B.A. Certificate No. 83/1135 (225mm dia). c) Inspection chambers (G.R.P.) 800mm to 1000mm invert to be in accordance with B.B.A. Certificate No. 83/1135 (475mm dia). d) Manholes (precast concrete rectangular sections) 1000 - 2700mm invert to BS 5911: Part 2: 1982 (1200 x 750mm). e) Manholes (semi-engineering brickwork) 1000 - 2700mm invert to BS 3921: 1985 (1200 x 750mm). Inspection chamber covers to be non-ventilating and be secured i.e. key operable. Half round channels, concrete benching (1:12 slope) and 150mm concrete base. Contractor to check invert location and invert depths of existing drainage runs (eg Sewer), if drainage layout shown not possible, RDC (Drawing office) are to be notified as soon as possible. SURFACE WATER DRAINAGE Provide and install 100mm dia. aluminium gutters on aluminium brackets at max. 600mm centres. Provide and install 68mm dia. aluminium down pipes, down pipe fixings to be at max. 1.8m centres. Provide and install aluminium hoppers to the flat roofs (green roof). Surface water to discharge into new soakaways to be located to the grass area of the garden. New soakaways to be provided whose size has been calculated following a percolation test of the ground and taking into account the area to be drained. Soakaways are to be located a min. of 5m from any building. All rainwater drainage installations to be in strict accordance with approved document H3 of the Building Regulations. VENTILATION - MAIN HOUSE Ventilation to the main house to be in strict accordance with details, specification and drawings by Environmental Building Solutions Ltd (EBS Ltd). All to be in strict accordance with the requirements of Approved Document F of the Building Regulations, in conjunction with the "Domestic Ventilation Compliance Guide - 2010 Edition". MECHANICAL & ELECTRICAL - SWIMMING POOL Mechanical & Electrical requirements to the Swimming Pool to be in strict accordance with details, specification and drawings by specialist swimming pool contractor. Steam Room to incorporate a ceiling mounted air vent, with 100mm ventilation pipe to extract through the external wall. Provide and install a high level exhaust grille to the Plant Room, grille to be 375mm(h) x 700mm(w). Provide and install a high level fresh air grille to the Plant Room, grille to be 375mm(h) x 700mm(w). Mechanical ventilation to the pool to be designed in accordance with the guidance set out in the "CIBSE Guide B2: Ventilation and Ductwork 2016" All electrical work required to meet the requirements of Part P (Electrical Safety) must be designed, installed, inspected and tested by a person competent to do so. Prior to completion the Council should be satisfied that Part P has been complied with. This will require an appropriate BS 7671 electrical installation certificate to be issued for the work by a person competent to do so. ELECTRICAL INSTALLATIONS - MAIN HOUSE All electrical work required to meet the requirements of Part P (Electrical Safety) must be designed, installed, inspected and tested by a person competent to do so. Prior to completion the Council should be satisfied that Part P has been complied with. This will require an appropriate BS 7671 electrical installation certificate to be issued for the work by a person competent to do so. Switches and sockets for lighting and other equipment within habitable rooms to be located between 450mm and 1200mm above finished floor level. The consumer unit shall be positioned so that the switches are within 1350-1450mm above finished floor level and shall be of a tempo-proof box of metal design in accord with the IEE Regulations. All electrical installations to be carried out by a contractor that is registered with NICEIC. All in strict accordance with Approved Document M & P of the Building Regulations. LIGHTING - INTERNAL & EXTERNAL All to electrical contractors details. Provide and install external light fittings adjacent to the external doors, incorporating PIR sensors. Provide and install spotlights, with PIR sensor to the parking areas associated with the new dwelling. Provide and install low energy lights to 100% of the dwelling. All to be installed in strict accordance with Approved Document L1A of the Building Regulations and The Domestic Building Services Compliance Guide (CIBSE). HEATING & HOT WATER Space heating and hot water to be provided by a Air Source Heat Pump. Heat pump unit and underfloor heating manifold to be located in the Plant Room. Heat pipes to be laid in the garden area in a horizontal array. Extent of the heating pipes to be dependent on the type of soil. Heating system to be designed and installed in strict accordance with Environmental Building Solutions Ltd (EBS Ltd) details and specification. Heating to Ground Floor to be provided by underfloor heating pipes incorporated into the concrete floor/ screed. Heating to First Floor to be provided by "Polypipe Overlay" Underfloor Heating System. Hot water to be stored in an unvented heat pump cylinder located in the plant room. Cylinder sized and installed in strict accordance manufacturers written instructions and details. The heating and hot water systems are to be inspected on completion of the installation so as to establish that the specified and approved provisions for efficient operation are put in place. The commissioning of the fixed building services to be in strict accordance with Part L1B of the Building Regulations and CIBSE Commissioning Code M on commissioning management. SMOKE/ HEAT DETECTORS (FIRE STRATEGY) Fire detection & alarm system to be Grade A Category LD3, as BS 5839-6:2019. Detectors are required in all circulation areas that form part of the escape routes from the premises. Separate detectors, sounders and a central control and indicating equipment with back up power supply that conforms to BS EN 54. Installer to confirm that the Heat Detector inside Bedroom 1 meets the British Standard. The power supply for a smoke alarm system to be derived from the dwelling house's mains electricity supply. The electrical installation should comply with Approved Document P (Electrical safety). Smoke alarms / detectors should be sited so that there is a smoke alarm in the circulation space within 7500mm of the door to every habitable room; to be a minimum 300mm away from light fittings and walls; the sensor in ceiling-mounted devices is between 25mm and 600mm below the ceiling (25-150mm in the case of heat detectors or heat alarms). Alarms / detectors should be possible to reach to carry out maintenance (testing / cleaning) should not be fixed next to or above heater or air-conditioning units or in bathrooms or places where steam, condensation or fumes could give false alarms. Alarms / detectors should also not be places in places that are known to get very hot, such as boilers rooms etc. Where a solid fuel appliance is installed, provide mains carbon monoxide detector with a fixed wiring connection with a sensor failure warning device to BS EN 50291:2001. Detector to be ceiling mounted min 300mm from a wall & b/n 1m & 3m horizontally from the appliance. FIRE PROTECTION TO STEEL FRAME Structural steel frame to be fire protected with intumescent paint to "BS 476-21:1987 Fire tests on building materials and structures. Methods for determination of the fire resistance of loadbearing elements of construction". Structural steel frame to achieve a minimum 60 minutes fire resistance in strict accordance with Appendix B Table B4 of Approved Document B: Volume 1 of the Building Regulations. Fire protection not required to single storey steel frame structure to the pool. DISABLED REQUIREMENTS Main entrance door to have level threshold (maximum 15mm upstand). Main entrance door leaf to provide minimum 775mm clear opening width, measured from door leaf base to frame/dorstop on other side of opening. Entrance Storey door widths: Internal doors to provide minimum 750mm clear opening width (838mm door leaf/s/910mm structural openings) with measured from door leaf face to frame/dorstop on other side of opening. Minimum 1050mm wide corridors when using 838mm door leaf/s providing 775mm clear opening when approach not 'head on'. Doorway clear opening widths depend on corridor widths but must comply with Table 4, Section 7, Approved document M1 of the Building Regulations 2014. The disabled access arrangement to the dwelling will be constructed in accordance with guidance in Approved Document M of the Building Regulations 2015. Corridor & Passageways to be a min of 900mm wide without obstructions and 750mm wide for short obstructions (no more than 2m). Where the corridor is 900mm wide, internal doors (approached not head on) should provide a minimum 800mm opening width. A firm and even ramped approach to have a min unobstructed width of 900mm & a max gradient of 1 in 12 for flights up to 5m long or 1 in 15 for flights between 5 and 10m long. All landings to have a min length of 1200mm exclusive of door swings. Stepped approach to the main entrance should comply with paragraph 1.8, which states it must comply with the following: a) Rise of 75mm-150mm and a min. going of 280mm . b) Steps have suitable step nosings. c) No individual flight has a rise of more than 1800mm between landings. d) Every flight has a min. clear width of 900mm. e) Top and bottom where necessary, intermediate landings are provided and every landing has a min. length of 900mm f) Every flight with 3 or more risers has a suitable handrail to one side. This grippable handrail is 850mm - 1000mm above the pitch line of the flight and extends a min. of 300mm beyond the top and bottom nosings. Guarding to any external steps should be designed to resist a horizontal force of 0.36kNm/m. Guarding to be designed so that a 100mm sphere cannot pass through it. Handrails to external steps to be painted metal, bolt fixed to concrete base. All in strict accordance with Approved Document M of the Building Regulations. PHYSICAL INFRASTRUCTURE FOR HIGH SPEED ELECTRONIC COMMUNICATIONS NETWORKS (PART B) The building should have provision so that in the future, copper or fibre optic cables or wireless devices capable of delivering broadband speeds greater than 30 Mbps can be installed. EXTERNAL STEPS (Terrace) External steps to consist of 40mm thick, stone slabs, on 30mm thick bedding layer, on in-situ concrete slab forming steps. External step construction and fixing details to be in strict accordance with Structural Engineers details, calculations and specification. External steps forming an additional route should comply with the following: a) Rise of 75mm-150mm and a min. going of 280mm . b) Steps have suitable step nosings. c) No individual flight has a rise of more than 1800mm between landings. d) Every flight has a min. clear width of 900mm. e) Top and bottom where necessary, intermediate landings are provided and every landing has a min. length of 900mm f) Every flight with 3 or more risers has a suitable handrail to one side. This grippable handrail is 850mm- 1000mm above the pitch line of the flight and extends a min. of 300mm beyond the top and bottom nosings. Handrails to external steps to be painted metal, bolt fixed to concrete steps. Design of the handrail is indicative only. All in strict accordance with Approved Document M of the Building Regulations. PATIO CONSTRUCTION Footpaths & patio to consist of 40mm thick, stone slabs, on 50mm thick bedding layer, on reinforced concrete topping, on 150mm deep pre-stressed precast concrete "T" beams. Concrete beams to be infilled with medium weight infill blocks (1350kg/m³). Ensure that there is a minimum void of 150mm between the beam and external ground level. Patio to be supported on piled foundations and reinforced concrete ground beams. All in strict accordance with Structural Engineers details and calculations. GARDEN WALL CONSTRUCTION Garden wall to be formed with 215mm concrete block walls, with cladding of 100mm thick natural limestone. Provide and install stainless steel wall ties to suit stone cladding to blockwork. Wall ties should have horizontal spacing of 900mm and a vertical spacing of 450mm. Alternatively should be spaced such that the number of wall ties per square metre is not less than 2.5 wall ties/ m². Wall ties should also be provided , spaced not more than 300mm apart vertically, within a distance of 225mm from the vertical edges of all openings and movement joints. All to be in strict accordance with Approved Document A of the Building Regulations. Movement joints to blockwork to be located at maximum 6m centres. Joints to be a maximum of 10mm wide with Ancon PPS or similar approved movement joint tie, laid across joint with debonding sleeve on one end to allow for movement. Install easily compressible filler strip with joint, with non-hardening mastic. Walls and ties restraint fixings to be installed in strict accordance with manufacturers written instructions and details. Walls to be built off reinforced concrete ground beam and piled foundations. All in strict accordance with Structural Engineers details and calculations. GRAVEL DRIVEWAY Gravel parking area to consist of a top surface of well compacted 20mm crushed gravel (client to approve specification of top surface), on well compacted stone hardcore sub-base in min. 150mm layers, on geo textile membrane (if ground conditions require it), on well compacted sub-grade. Allow for providing and installing pre-cast concrete edgings, bedding and haunched with concrete. BUILDING MANUAL On completion of the works a 'Completion Pack' should be compiled to include the following: Heating & hot water commissioning certificates Fixed building services - operating & maintenance instructions SAP Rating (EPC) - Dwelling Emission Rate & Target Emission Rate Electrical & Mechanical installation and commissioning certificates Copy of fire notification plate Results of Pressure Test DECORATION All joinery finished with one coat of knot and stop, one coat of wood primer, one undercoat and two coats of eggshell/ satin paint. Colour to be confirmed by client. Walls and ceilings to receive one mist coat and two coats of vinyl matt emulsion, colour to be confirmed by client. Floor finishes to clients requirements (check thickness) HEALTH & SAFETY The Employer/ client shall ensure that the selected contractor is conversant with and adopts all measures necessary to achieve compliance with health and safety legislation for building sites and places of work. Employer/ client is advised that the works need to comply with the Construction Design & Management Regulations 20
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