



INDICATIVE ELECTRICS & PLUMBING PLANS

MECHANICAL & ELECTRICAL BUILDING REGULATION NOTES

Electrical Installation

The Contractor is to include for design, supply and installation of electrical installation. New underground electric supply to the holiday let barn taken from the main house electric system. New consumer unit to annex barn and check sub meter to enable the clients to monitor electricity use of the holiday let barn. Include for stripping out of any existing electrics. Include for all chasing, and making good. Electrical installation, power & lighting circuits to be designed, installed, tested & certified by Contractor's qualified electrical sub-contractor (Building Regulations Part P compliant). Commissioning certification to be submitted to CA & Building Control for all fixed building service elements. Contractor is to confirm with the client the exact locations of all chasing, sockets & switches and is to arrange for a walk round on site with client and mark up positions on walls / ceilings. Co-ordinate electrics with plumber / heating engineer. Include for supply of all new fittings and components where required, to achieve a complete operational installation. Recessed sockets & switch plates throughout to match existing.

Lighting All new lights are to be 100% low energy fittings with LED lamps. ALL INTERNAL AND EXTERNAL LIGHTING IS TO BE LOW ENERGY TYPE WITH AN EFFICACY GREATER THAN 75 LUMENS / CIRCUIT WATT. Contractor to supply and install all new lights (where new light is indicated on drawings) including LED lamp and all required associated components / accessories.

External lighting is required to be Wildlife Friendly as specified by June 2023 Bat Survey 'B'HOME Garage at The Pines, Frostenden Corner. Bat Survey Report, 'Final'. External wall downlights are to be fitted with warm white max 5W LED lamp, fitted at max height 1900mm above ground level.

Electrical Accessories: New switch, socket plate type & manufacturer etc. are agreed to clients choice, to match existing. Contractor to provide sample for client approval.

Switches and sockets outlets: Switches and sockets outlets for lighting and other equipment (ie door bell, entry phone, TV etc) to be located at appropriate heights between 450mm – 1200mm above FFL. In accordance with BS 7671:2001 section 601-07, all wiring situated on walls adjoining bathrooms and en-suites containing a shower should be located outside of zoned areas wherever possible. Where not possible, shower units located within zone 3 should have a minimum IP coding of IPX3, where the shower socket is located within zone 2, it should have a minimum IP coding of IPX4. All electrical works are to be carried out by a suitably qualified person. The person who carries out the commissioning of the work must forward an electrical safety certificate to Building Control confirming the work has been carried out correctly. Full operating instructions/maintenance requirements must be made available for the end user.

Physical Infrastructure for High Speed Electronic Communications A physical point and ducting is to be provided within the dwelling in order for an electronic communications network which is capable of delivering. Provisional position shown, Exact Position of access point and Network termination point to be confirmed on site with building control officer. Contractor should refer to PAS 2016 Next Generation Access For New Building Homes Guide for best practice guidance.

TV / DATA TV aerial/ satellite dish for tv & data to Client's requirements.

ETHERNET

Install ethernet connection socket adjacent each TV point and connected back in conduit to homehub location

Ventilation / Mechanical Extraction:

WC: Extract fan to provide min 6 litres/second- light actuated with 15min overrun where internal room. Provision should be made for an air inlet into the room i.e 10mm gap under the door.

Ensuites/Bathrooms/Shower Rooms: Extract fans to provide min. 15 litres/second - light actuated with 15min overrun. Ducted to outside at high level where inner room using flat profile duct (must be compatible with extract fan all to manufacturer's details).

Bedroom 1 requires an extract fan due to the bath in the room. Extract to be located in unobstructive position.

Kitchen: Extract hood above hob, or pop up extract next to hob to provide min. 30 litres/second.

Testing and inspection checklist to be supplied upon completion of the ventilation system and included in the O and M manual as per section 4 and 5 of the domestic ventilation compliance guide 2010.

Note: all new switches and sockets to be between 450mm and 1200mm from Finished floor level in order to comply with Part M
The electrical installations are to comply with approved document Part P and a test certificate, provided at the end of the works.

Fire Alarm System Barn = Holiday Let. Requires a Grade D1 Category LD2 fire detection and alarm system, as described in BS 5839-6:2019 & designed and installed in line with the recommendations contained in BS5839-6:2019. Grade D1 = A system of one or more mains powered detectors, each with a tamper proof standby supply consisting of a battery or batteries.

LD2= A system incorporating detectors in all circulation areas that form part of the escape routes from the premises, and in all specified rooms or areas that present a high fire risk to occupants, including a heat alarm in any kitchen and a smoke alarm in principle habitable room(s). Hallway, Bedroom, Living Room, Kitchen (Heat Alarm).

Smoke/heat detectors and alarms: As shown on plan.

Smoke detector alarms should be mains operated & self contained to BS 5446:1-2000, ceiling mounted, with heat detector in the kitchen. Detectors should be inter-linked and permanently wired to a separately fused circuit at the distribution board. If the alarms incorporate a standby power supply they can be connected to a regularly used local lighting circuit. Note: There should be a smoke alarm in the circulation space within 7.5 m of the door to every habitable room.

Emergency Lighting System to Holiday let

Secondary lighting system conforming to the recommendations of BS 5266 - 1:2016. The system should:

- illuminate all internal (and external) means of escape routes including stairways, corridors and circulation areas.
 - Operate on failure of the lighting circuit(s), i.e., not just total mains failure.
- All windowless accommodation such as WCs should be provided with an emergency lighting luminaire.
- All external means of escape must be illuminated by normal mains lighting, the system may be operated by either:
- a clearly indicated manual switch located adjacent to each exit door leading to the escape route; or
 - suitably located passive infra-red devices.

FIRE EGRESS EXIT DOORS AND WINDOWS are to be openable from inside the building without the use of a key.

FIRE STRATEGY PLAN FOR GUESTS (by client/ holiday let manager): The guest welcome pack is to include a fire strategy plan, and all guests should be made aware of this at the start of their stay.

FIRE SAFETY MANAGEMENT: The client / holiday let manager will be responsible for regularly checking the operation of the fire alarm and emergency lighting.

Carbon monoxide detector alarm should be provided in rooms with woodburner / multi fuel stove. Carbon monoxide alarms are to comply with BS EN 50291:2001 and be powered by a battery designed to operate for the working life of the alarm. The alarm should incorporate a warning device to alert users when the working life of the alarm is due to pass. Mains-powered BS EN 50291 Type A carbon monoxide alarms with fixed wiring (not plug-in types) may be used as alternative applications provided they are fitted with a sensor failure warning device.

ELECTRICAL MC TO INCLUDE FOR THE DESIGN, SUPPLY AND INSTALLATION OF THE ENTIRE ELECTRICAL SYSTEM, INCLUDING:-

- New underground electric supply to barn from main house.
- Light fittings to be agreed with client.
- Final positions of all sockets and lights to be agreed with client prior to installation.
- Contractor to provide schedule of proposed light fittings for client review prior to purchase/installation etc. plate type/finish to be agreed with client.
- Supply and install all new fittings as required. Contractor to provide schedule of proposed new light fittings for client review prior to purchase/installation. Final positions of all sockets and lights to be agreed with client prior to installation. Contractor to supply and install all required associated components.
- New check sub meter, new consumer unit sized to suit the barn, all light fittings and lamps, all extract fans, all switch and socket plates, backboxes, wiring, cabling, conduit, ductwork, smoke and heat detectors and units as specified, carbon monoxide detector, electrics / controls associated with heating / hot water system and with dual fuel towel radiators, and all electrical components and accessories to form a complete working installation.
- Include for any stripping out of redundant fittings / system.
- All chasing and making good and all associated builders work.
- For air tightness either silicon back of downlights, (use fire rated downlights) as they are installed or use Optime downlight housings.
- Include for testing and certification at completion to satisfy Building Control and for clients use.

Heating and hot water:

MC to supply and install new heating and hot water system to the property, comprised of an air source heat pump connected to a thermostat supplying the hot water, underfloor heating and dual fuel towel radiators and first floor radiators (radiators need to be oversized to suit due to air source).

Each room is to have either dual thermostat or TRV. System to include all valves, controls, timer switch and components and be fully designed and sized to suit by specialist including submission of information to BC officer for approval and is to comply fully with Building Regulations Part G. Controls / timer details to be agreed with client. A hot water system, including any cistern or other vessel that supplies water to or receives expansion water from a hot water system, shall be designed, constructed and installed so as to resist the effects of temperature and pressure that may occur either in normal use or in the event of such malfunctions as may reasonably be anticipated, and must be adequately supported. (3) A hot water system that has a hot water storage vessel shall incorporate precautions to: (a) prevent the temperature of the water stored in the vessel at any time exceeding 100 C; and (b) ensure that any discharge from safety devices is safely conveyed to where it is visible but will not cause a danger to persons in or about the building. Hot water system to supply all fittings fully designed and sized to suit by specialist. Heated wholesome water to be provided to all washbasins, showers, baths and sinks in compliance with Building Regulations Part G3. Hot water supply to any fixed bath to be fitted with device to prevent the water being delivered exceeding 48 degreesC. Hot water system to supply all fittings fully designed and sized to suit by specialist. Heated wholesome water to be provided to all washbasins, showers, baths and sinks in compliance with Building Regulations Part G1. Include for stripping out of any existing pipework and fittings. Water Efficiency: All fittings to be water efficient, including aerating taps. Include for Water Efficiency Calculation to achieve Building Control Approval (125 litres per day per person) including liaison with client on taps and fittings.

Potable drinking water cold tap (unsoftened water): adjacent to kitchen sink.

Water softener Supply and install new water softener to clients choice located below Kitchen sink.

Cold water supply.

Supply and install new underground water supply into the holiday let barn taken from the main house water supply, with check sub meter and including all required testing to meet current legislation. The system is to be fully designed and sized to suit by plumber, including checking of water pressure. New water installation to supply all fittings, including all pipework, valves, and all components to achieve a fully operational installation to comply with all current legislation. Supply and install easy to use lever stopcock where the water supply enters the barn. Cold water system to supply all fittings, fully designed and sized to suit by plumber. Wholesome water to be provided to all washbasins, showers, baths and sinks in compliance with Building Regulations Part G1. Include for stripping out of any existing pipework and fittings. Water Efficiency: All fittings to be water efficient, including aerating taps. Include for Water Efficiency Calculation to achieve Building Control Approval (125 litres per day per person) including liaison with client on taps and fittings.

AIR SOURCE HEAT PUMP

MC to supply & install new air source heat pump as Mitsubishi Ecodan or equivalent, sized by specialist to suit the property, all designed and supplied by Client's specialist and design information is to be submitted to Building Control for approval. To include remote control via mobile phone. Air source heat pump unit to be installed by specialist. Electrician to connect power and communication cable to air source unit. Main Contractor to provide underground ductwork & Plumber to fit insulated flow and return pipes. Air Source Specialist to provide details of required base to MC. MC to supply and install solid level concrete base for air source unit, with pea shingle margin, sized and positioned as manufacturers details. Ensure compliance with manufacturers required clearance dimensions around unit and to face of barn. Underground insulated duct between air source & thermal store.

THERMALSTORE

MC to supply & install new thermalstore, sized to suit property for direct hot water and heating demand, supplied by air source heat pump. The entire system is to be designed and supplied by specialist.

Water Efficiency Calculation by Contractor

The Contractor is to provide Water Efficiency Calculation to achieve Building Control Approval (125 litres per day per person) including liaison with client on taps and fittings. The Contractor is to include for liaison with the Client, the Water Efficiency Consultant and Building Control concerning taps, showers and fittings to ensure that the installation complies with the water efficiency requirement and achieves Building Control Approval (125 litres per day per person). The Contractor is to provide all the information that the Water Efficiency Consultant requires for the As Built Water Efficiency Calculation. This needs to be submitted to Building Control and approved as part of the Completion Certificate information.

MECHANICAL MC TO INCLUDE FOR THE DESIGN, SUPPLY AND INSTALLATION OF THE ENTIRE MECHANICAL INSTALLATION SYSTEM INCLUDING:-

- New underground water supply into the barn, taken from the main house water supply, with check sub meter and including all required testing to meet current legislation.
- New heating and hot water system with all pipework, valves, controls and components as required, including air source heat pump, thermal store, wet underfloor heating system to suit room volumes, all underfloor heating pipework and all components to achieve a fully operational system.
- Dual fuel towel radiators.
- All sanitaryware, taps, showers, kitchen sink and taps & separate (unsoftened water) drinking water tap to Kitchen.
- Hot and cold feed to all sinks, baths and showers, washing machine, dishwasher, cold feed to all WCs and drainage from each fitting.
- Supply and install new water softener and connect to system.
- Unsoftened cold water feed to fridge, outside tap & drinking water tap.
- Plumbing: Individual lever type isolation valves to be fitted to hot & cold supplies to each sink, bath, basin, WC, showers.
- All new pipework to be concealed - chased in or boxed in, lagged where appropriate.
- Include for all stripping out of any redundant fittings / system.
- Supply commissioning certification and user manuals at completion to satisfy Building Control and for clients use.
- Contractor is to provide Water Efficiency Calculation to achieve Building Control Approval (125 litres per day per person) including liaison with client on taps and fittings.

DRAINAGE KEY (refer to drawing WD06 for drainage notes)

- SS & AAV - Soil Stack with air admittance valve
- SVP - Soil Vent Pipe with In Line Tile roof terminal
- SH - Trapped shower gully
- FA - Floor adaptor
- RVP - Rainwater pipe with back inlet gully
- IC - Inspection chamber
- MH - Mini access chamber
- MA - Mini access chamber (SW)

Mechanical & Electrical Key.

NOTE: ALL FINAL LIGHT POSITIONS TO BE CO-ORDINATED ON SITE

- Switch
 - Two or three - way switch
 - Dimmer controls to switches
 - Master override light switch
 - Double Socket High Level 1100 finished floor (13 amp)
 - Double Socket Low Level 450 finished floor (13 amp)
 - Double Floor Socket
 - Pop up worktop socket (13 amp)
 - Sockets with USB port where noted
 - Switched Spur
 - 30 Amp switched cooker outlet with 13 Amp socket
 - External Socket
 - Car charging point to client requirements
 - Shaver Socket
 - Low energy LED recessed downlighter (spotlight) - Fire hood type where located in fire rated ceiling. Spots in bedrooms / ensuites to be IP65 rated as required.
 - Low energy pendant fitting
 - Low energy LED adjustable downlighter
 - Wall light - type to be confirmed, (1900mm from floor unless indicated otherwise)
 - Up and down wall light - type to be confirmed. (1900mm from floor unless indicated otherwise)
 - Linear LED light
 - LED picture light
 - LED Emergency strip light - unobtrusive & recessed above door frame head, with separate green indicator light concealed behind swivelable picture / within cupboard
- External wall downlights (warm white max 5W LED) at height 1900mm above ground level * wildlife friendly**
- External light - PIR activated & switched (for constant mode) & to come on when emergency lights are on (activated by PIR)
 - External light - only to come on when emergency lights are on and when activated by PIR sensor
 - External light - switched
 - External light PIR and switched (on/off/PIR) External wall lights at height 1900mm above ground level
 - External recessed downlight - switched
- Wall Light - Zone 1 - IP65 jetproof fitting
 - Low energy LED adjustable downlighter - Zone 1 - IP65 jetproof fitting
 - Illuminated mirror/de-mirror
 - Recessed downlighter (spotlight) - Zone 1 - IP65 jetproof fitting (bathrooms/en-suites)
 - Hidden LED feature light to shower bottle recess - Zone 1 - IP65 jetproof fitting
 - Hidden LED strip light features.
 - Mains operated inter-linked smoke detector / alarm (Grade D, LD2)
 - Mains operated inter-linked heat detector / alarm (Grade D, LD2)
 - Carbon Monoxide detector to rooms with a woodburner/ solid fuel appliance
 - Extract fan positions. R = roof outlet. LV = Low voltage where in zone 1 Fans to be switch actuated WC to be light switch actuated with 15min over run.
 - Ceiling mounted paddle fan
 - TV Aerial, 2 No. CT100 & 1 No. CAT6
 - Data Outlet - Cat 6/Ethernet network cable back to data hub
 - Mobile phone booster box
 - Door bell sounder
 - Door bell push
 - Part R: High Speed Electronic Communications access point & network termination point to comply with Bldg Regs Part R.
 - Room stat for underfloor (final positions designed by supplier)
 - Wall mounted dual fuel towel warmer (radiator / electric) with switchover facility & Electrisaver switch. LST = low surface temperature type.
 - Radiator with TRV sized to suit by plumber (*oversized to suit air source heat pump)
 - Consumer unit board switches to be between 1350mm and 1450mm above floor level to comply with AD Part M around unit and to face of barn.
 - Outside water tap (with accessible inside lever stopcock)
- Zone 1** Underfloor heating zone (indicative areas - to be designed & confirmed by mechanical sub-contractor/supplier) NOTE: Do not install underfloor heating under kitchen units / sanitary ware / wardrobes / Housels - i.e any elements that is likely to be fitted to the floor, or within a 400mm zone around the sunken wine cellar.

NOTE: MECHANICAL & ELECTRICAL LAYOUT AS SHOWN IS INDICATIVE ONLY, FOR PURPOSES OF INITIAL PRICING, AND THE DESIGN OF THE ACTUAL SYSTEM IS TO BE BY CLIENTS APPOINTED SPECIALIST INSTALLER

General Notes

- This drawing is to be read in conjunction with other engineers, designers, subcontractors and specialist drawings and any associated specifications and details. Any discrepancies are to be reported to the CA/client or relevant project manager before proceeding with the works.
- All workmanship and materials are to be carried out in accordance with current British Standards, Codes of Practice and good building practice.
- All work to be to the satisfaction of the Building Control checking authority.
- Do not scale this drawing. All dimensions to be as noted. Contractor to check all dimensions on site before carry out works.
- Where existing elements are exposed or investigated during the building works and are found to be not as assumed then contractor to confirm and notify CA/design team/client as applicable before proceeding with works.
- The contractor is responsible for site health & safety including taking all necessary precautions to ensure stability of both existing and proposed structures at all times during construction. Contractor to contact structural engineer immediately where any doubts arise on site.
- All services/utilities are to be located and protected as necessary by the contractor prior to the commencement of the works.
- This drawing is for the private and confidential use of the client for whom it was undertaken and it should not be reproduced in whole or in part or relied upon by third parties for any use without the express written authority of Beech Architects Limited.

RESIDUAL RISK TO HEALTH & SAFETY

Whilst we have made every attempt to design out risk associated with our design some risks may remain. Significant residual risks relating to our design are detailed below with our assessment of how these may be managed. The contractor remains responsible for identifying and managing risk associated with construction processes and site safety and these risks should be identified within the contractor's Construction Health & Safety Plan. All operations carried out in accordance with HSE requirements, Current Code of Practice and compliance with CDM 2015 regulations.

Numbered triangles further highlight specific locations where residual risks remain:

- Access equipment for cleaning and maintenance will be required and works undertaken by qualified and competent person.

The risks associated with working at height should be reduced by using appropriate scaffold, platforms, mobile elevating equipment, safety nets or fall arrest systems as deemed appropriate by the contractors review and assessment of the construction methodology & process.

The locations of all existing services and utilities must be confirmed prior to commencement of the works.

The engineer must be contacted immediately where unsure or concern raised regarding the stability of any structure.

PRELIMINARY ISSUE. NOTE: PROPOSALS ARE SUBJECT TO PLANNING APPROVAL

B 30.11.23 External lighting specified as Wildlife friendly as per June 23 bat report.

Rev A 17.11.23. Underfloor heating zones added.

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