



VENTILATION:
The following extract ventilation rates are minimum high rates as per Technical Booklet K : Ventilation 2012 -

- Kitchen - 30 l/s (adjacent to hob) or 60 l/s (elsewhere)
- Utility room - 30 l/s
- Bathroom - 15 l/s
- Sanitary Accommodation - 6 l/s

For a hinged or pivot window that opens 30° or more or for parallel sliding windows (e.g. vertical sliding sash windows), the opening should be at least 1/20th of the floor area of the room. For a hinged or pivot window that opens between 15° and 30°, the opening part should be at least 1/10th of the floor area of the room. Where a window opens less than 15° it is not suitable for providing rapid ventilation and an alternative means of rapid ventilation should be provided. Please note window openings have been designed to be at least 1/20th of the floor area of the room. For an external door, the opening part should be at least 1/20th of the floor area of the room. Doors and windows within same room may be added to achieve required openable area. Provide 10mm underscuf to all doors to ensure transfer of air throughout dwelling. To minimise the risk of spillage of flue gases mechanical extract ventilation -

- (a) shall not be provided for the same room as an oil fired pressure jet appliance where the installation complies with OFTEC Technical Information note 11/112
- (c) extracting at a rate greater than 20 litres/sec, shall not be provided in the same room as gas fired appliances

BACKGROUND VENTILATION NOTES:
Trickle vents fitted in window frames and as outlined in the table below:
Taken from table 2.3 OF TBK: Floor Area OF 135m²/4 Bedroom Dwelling. Required total equivalent ventilator area: 93,000mm²

Kitchen/Dining = 24,000mm² window vent
Living = 16,000mm² window vent
Hall = 4,000mm² window vent
W.C. = 4,000mm² window vent
Bedroom 1 = 8,000mm² window vent
Ensuite = 4,000mm² window vent
Bedroom 2 = 8,000mm² window vent
Bedroom 3 = 8,000mm² window vent
Bedroom 4 = 8,000mm² window vent
Bathroom = 4,000mm² window vent

FIXED INTERNAL LIGHTING
Fixed energy efficient light fittings shall be installed in ALL areas of the dwelling.

FIXED EXTERNAL LIGHTING
Fixed external lighting means lighting permanently fixed to an external surface of the dwelling and under the direct control of the occupant by having an electricity supply from the dwelling.

External lighting shall:

- (a) have a maximum output of 150W per fitting and automatically switch off:
- (i) when there is adequate daylight; and (ii) when not required at night; or
- (b) have sockets that can only be fitted with lamps having a luminous efficacy greater than 40 lumens per circuit-Watt.

REDUCING THE RISK OF SCALDING
Where the operating temperature of the Domestic Hot Water (DHW) in the cylinder is capable of exceeding 80° (under normal operating conditions), the outlet pipe should be fitted with a patent in-line tempering valve (in accordance with BS EN 15092), to reduce the temperature of the supplied DHW to 60°C maximum, through the remainder of the supply system. Hot water supply temperature to oil baths, wash hand basins & showers to be limited to a maximum of 48°C by installing a patent mixing valve or other suitable temp. control devices. In-line blending valves or thermostatic mixing valves to be compatible with the system and appliance they serve.

AIR PERMEABILITY and AIR PRESSURE TESTING
The DER is calculated using the design air permeability & design value in this case for each apartment has been specified by the designer as 4m³/(h.m²) @ 50 Pa. Testing is required to demonstrate that the design air permeability has been achieved and the dwelling shall be air pressure tested in accordance with the Air Tightness Testing and Measurement Association (ATMA) publication 'Measuring Air Permeability of Building Envelopes'. The manner approved for recording the results and the data on which they are based is given in section 4 of that document. The tests shall be carried out by a suitably qualified person such as a tester who is registered with or approved by the British Institute of Non-destructive Testing in respect of pressure testing for the air tightness of buildings.

DCLG PUBLICATION
The design and installation of hot water storage and heating systems including insulation to pipes, ducts and hot water storage vessels to comply with DCLG publication 'Domestic Building Services Compliance Guide'.

CONTROL OF OIL & GAS FIRED SPACE HEATING SYSTEMS
[1]The output of the space heating system shall be controlled by room thermostats or thermostatic radiator valves to control temperatures independently in zones e.g. sleeping & living areas
[2]A time clock shall be provided to control the periods when the heating system operates.
[3]To minimise boiler cycling, the boiler shall switch off when there is no demand for heat.
[4]Where a space heating system is controlled only by thermostatic valves the system shall be fitted with flow control or other anti-cycling device.

DESIGN, INSTALLATION & COMMISSIONING OF HEATING AND HOT WATER SYSTEMS.
The heating and hot water systems shall be designed, installed and commissioned such that, for the purposes of the conservation of fuel and power, the system and its controls are handed over in efficient working order.
All fixed building services shall be commissioned in accordance with the procedure given in the DCLG publication 'Domestic Building Services Compliance Guide' for the relevant fuel type(s), and in accordance with the manufacturer's commissioning procedures. A notice confirming that oil fired building services have been properly commissioned shall be provided and a copy shall be given to the district council and the building owner. The notice shall be signed by a suitably qualified person.

OPERATING AND MAINTENANCE INSTRUCTIONS
The building owner shall be given sufficient information, including operational and maintenance instructions, to enable the dwelling and its fixed building services to be operated and maintained in an energy efficient manner. The instructions shall be directly related to the specific system(s) installed in the dwelling and shall be readily understandable by the occupier.
Without compromising health and safety requirements, the instructions shall explain to the occupier of the dwelling how to operate the systems efficiently. These shall include:

- (a) how to make adjustments to the firing and temperature control settings; and
- (b) what routine maintenance is necessary to enable the systems to be maintained at a reasonable efficiency throughout their service life.

A further calculation on approved SAP 2005 software to be supplied at completion stage to confirm the dwelling emission rate 'as built' (D.E.R.) complies with the target emission rate (T.E.R.), same to be provided within 5 days of completion.
Builder to demonstrate on appropriate system at site inspection, evidence of which will be required by Building Control on completion of the works.

COLD BRIDGING
All window jamb, head & sill details shall have 50mm thick strawthorn insulation, door jambs shall have 25mm thick strawthorn insulation to prevent any cold bridges occurring. Insulation at windows & door jambs shall be 150mm wide as DPC to allow 50mm overlap with cavity wall insulation.

CAVITY TRAYS
Proprietary PVC stepped cavity trays shall be provided in all external walls in conjunction with any upstand flashings on outer face of wall or air vents etc. in the wall which bridge the cavity. Cavity trays to B.S. 5628: Pt 3: 1985.

STAIRS
13 nos/risers at 203.4mm approx/goings of 230 mm approx/pitch of 41° (max 42°). Handrails to be between 900-1000mm min. above pitch line of stair & landing. Maintain 2m min. vertical head height above pitch line.

GUARDING TO WINDOWS
Guarding to windows to be 800mm above F.F.L. with max. spacing of 99mm and should not be readily climbable. Guarding to withstand a minimum force of 0.74 kN/m per run.

SPACE HEATING SYSTEM & CONTROLS:
Provide Gas fired Combi Boiler with efficiency of not less than 88% (Sedbuk 2009) or 90% (Sedbuk 2005) If fired by oil, mains gas or LPG. Provide balanced flow valve to manufacturers recommendations.
The control of space heating systems, hot water storage systems shall comply with Section 2 of Technical Booklet 11: of the N.I. Building Regulations 2012.
Each heating zone should be controlled by a room thermostat, with thermostatic radiator valves on all the radiators in the rooms without a thermostat except bathrooms.
All new heating systems shall be designed and installed in accordance with DCLG publication 'Domestic Heating Compliance Guide'.
Central heating system to be designed, installed and commissioned for the purposes of conservation of fuel and power and handed over in efficient working order.
Where Flue passes through wall construction ensure no combustible material within manufacturer's declared minimum distance as defined by testing to BS EN 1443: 2003 or 25mm, whichever is the greater. Provide non-combustible plate with spacer e.g. manufacturer's fire stop component where factory made metal chimney passes through. Flue to be wrapped in Rockwool insulation and concealed within timber framing and plasterboard casing with aforementioned separation distances.
RADON PROTECTION
Provide continuous 1200 gauge DPM below entire floor slab and carry out through all walls to external face to ensure covering of entire footprint of dwelling AND then lap with Visqueen SPC below outer skin of blockwork in cavity wall. Step this DPC up across cavity & into inner skin as shown.
Provide Top Hat units to all service/sewage pipes in floor and seal with jubilee clips.
Provide Visqueen double sided tape at all joints in membranes & Visqueen jointing tape to ensure that all joints are securely sealed.

PRELIMS:
If this drawing is accompanied by a specification or not, the project is to be executed and completed in accordance with the building regulations, codes of practice, british standards, proper standards of workmanship, protection and construction. All workmanship and materials to be strictly in accordance with BS6171/1978 code of practice and specification). All materials to be strictly installed in accordance with the manufacturers recommendations.

ACCESS & FACILITIES FOR DISABLED PEOPLE
Wall mounted sockets & switches on the entrance/principle storey of a dwelling to be located between 450mm & 1200mm above floor level, pull cord switches to terminate 1200mm max. above floor level (see Height of Switches and Sockets Detail). A clear space of 900 wide x 750 from WC (min.) to be provided in front of toilet to allow unobstructed wheelchair access. The door should open outwards, or not impinge at any point of its swing on the clear space.

METER CUPBOARD
Provide meter cupboard in external wall (position to be determined on site) with 150x100 RC. lintel over.

LEVEL ENTRANCE (REAR ENTRANCE):
When door leaf is in open position, clear opening dimension to be 775mm min. Provide aco drainage channel at wheelchair accessible entrance. Drainage channel should be capable of being cleaned & cleared of debris. Also, provide maximum 15mm threshold at wheelchair accessible entrance. Firm and even ground to be graded to access not exceeding 1:20 and a crossfall of 1:40. Allow for level landing of 1200mm x 1200mm.

DRAINAGE:
All storm gullies are to be of roddable type. All underground drainage to be carried out as separate foul and storm systems. Storm drainage to be laid at 1:80 and down to a minimum of 1:100 gradient. Foul drainage to be laid at 1:40 and down to a minimum of 1:80 gradient. All underground drainage to be carried out in first quality upvc pipework and fittings to be laid on 150mm peg gravel bed and surround with 600mm minimum cover.
Drainage pipe trenches within 1.0m of building or foundation to be backfilled with concrete up to level of under side of foundation. Provide concrete lintel over drainage pipes through cavity or solid walls. Pipes passing through walls to be wrapped in polythene to act as a slip membrane before filling around with mortar. Manholes and inspection chambers to be built in 215mm medium dense blocks on 150mm thick concrete base. Inside wall faces to be plastered with sand cement rubbed up with steel float finish and properly benched up around open channel and branch connections. All storm & foul drainage to have 150mm dia pvc external pipework. Covers and frames to inspection chambers to be capable of supporting vehicular loading.

ELECTRICS:
All electrical to comply with 17th edition of I.e.e. Regulations.

SMOKE ALARMS:
Install an automatic fire detection and fire alarm system complying with bs 5839-6:2004 of at least grade B category l2d standard.
All alarms to be wired to either a regularly used lighting circuit or a circuit which is separately fused at the distribution board and all should be connected to each other so all will give an audible alarm in the event of any one detecting smoke. All cabling and fixings to be fire resistant. In general there should be a smoke alarm not more than 3m from every bedroom door and not more than 7m from every door to a kitchen or a living room. Heat alarms shall be located so that no point in the room is more than 5.3m from the nearest heat alarm.
Install an independent circuit with an isolating protective device for all smoke and heat detectors. A secondary battery and silencing facility should also be installed.
The maximum number of self contained smoke alarms which may be interconnected shall not exceed that given in the manufacturers instructions. The back up power source to each self contained smoke alarm to be provided by either a primary or secondary battery or a capacitor. Provide self contained Carbon Monoxide detector to all rooms containing an open fire or wood burning stove. Detectors to be ceiling mounted and placed between 1m & 3m horizontally from oil combustion appliances and open fires.

HEATING & PLUMBING:
Space heating system controlled by room thermostat and fitted with time clock / programmer and controls to limit boiler cycling.
All pipes carrying heated fluids to be thermally insulated using amflex cellular insulation of thickness equal to the diameter of pipework or minimum 40mm. Hot water pipes within 1m of hot water cylinder including vent pipe, primarily flow and return to be thermally insulated with minimum 40mm thick amflex cellular insulation or similar. Hot water cylinder to be insulated with factory applied polyurethane foam not less than 50mm thick and a minimum density of 30 kg/m and to have thermostat fitted to limit the temperature of stored hot water and thermostat linked with space heating controls to switch off boiler when heating is not required.
Windows, doors, roof hatches and all other openings to be draught sealed to limit air infiltration.

DIMENSIONS AND LEVELS:
All dimensions and levels to be checked by contractor prior to commencement of work on site. Any dimensional or level error should be reported to the architect before any work begins. Contractors shall complete all notices required under building regulations for inspection of work as contract proceeds and shall verify all dimensions on site prior to construction and report any discrepancies immediately.
Note: all window and door sizes / apertures to be verified on site before components are ordered or manufactured.

ENERGY PERFORMANCE CERTIFICATE
All information within the 'As Designed' SAP calculation is to be adhered to on site. Any deviation from this may affect the 'As Built' SAP calculation upon completion. A further calculation on approved 2005 SAP software will be supplied at completion stage to confirm the Dwelling Emission Rate 'As Built' (D.E.R.) complies with the Target Emission Rate (T.E.R.). Same to be provided within 5 days of completion and a copy hung within the dwelling

NOTE: window openings to be 1/20th of relevant room floor area.

NOTE: all structural timber to be 'dry' or 'kd' (kiln dried).

NOTE: all waste pipes within concrete floor to be 100mm diameter

DEFINITIONS
Air permeability : the air leakage rate in cubic metres per hour/square metre of building envelope area (m³/(h.m²)) at a pressure difference of 50 Pascals.
DER : The Dwelling carbon dioxide Emissions Rate measured in kilograms of carbon dioxide per square metre of floor area per year (kg/(m².year)).
TER : the Target carbon dioxide Emissions Rate measured in kilograms of carbon dioxide per square metre of floor area per year (kg/(m².year)).

Construction of the dwelling must be carried out in accordance with the approved plans (to an equal or higher standard) and accredited construction details given in the DCLG publication 'accredited construction details for PART 1 or to details that give an equivalent level of performance when assessed in accordance with BRE P 1/06: 'Assessing the effects of thermal bridging at junctions and around openings in the external elements of buildings'. Schedule of details used, appropriately signed will be required by Building Control on completion of the works.
Any deviation from plans will be the sole responsibility of the client / building contractor. Architect must be notified before any changes are carried out.

CHIMNEY & HEARTH
A constructional hearth shall be made of solid, non-combustible material, such as concrete or masonry, not less than 125mm thick, including the thickness of any non-combustible floor and/or decorative surface.
Chimney to be lined with 200mm diameter interlocking flue liners sockets upmost to BS1811 surrounded in a weak insulating concrete mixture e.g. one part cement to 6 parts vermiculite. Provide minimum clear air space of 38mm where there is less than 215mm of blockwork between any material and flue liners. The flue shall be checked at completion to ensure that it is free from obstructions, satisfactorily gas-tight and constructed with materials and components of sizes that suit the intended application.
Where the building work includes the installation of a combustion appliance, all of the tests that include the fluepipe and the gas-tightness of the joint between the fluepipe and the combustion appliance outlet. A spillage test shall be carried out with the appliance under fire. Construct non-combustible hearth to class 1 appliance 500mm wide and to project 150mm minimum along each breast. Provide 200mm diameter x 500mm high fire clay glazed chimney pot on concrete capping on dpc and lead soakers, stepped lead cover flashings and code no. 5 lead chimney tray. Chimney to finish min 600mm above ridge.

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REV A - B.C. AMENDS 22/9/17
REV B - B.C. AMENDS 5/11/18
REV C - CLIENT AMENDS 6/6/19

HOUSE TYPE R
PLANS & SECTION
1:50 SCALE - MAY 2017
1706-07C