



ARCHICRAFT DESIGNS LIMITED

## **BUILDING REGULATIONS OUTLINE SPECIFICATION**

for:

**Sleek Direct London Ltd**

at:

**53-54 Swanley Centre, Swanley, Kent BR8 7TQ**

**Interior alterations and exterior alterations by means of new stairs  
to the upper floor level, creating 2no. self-contained flats**

**Rev A – 22.09.2025**

Prepared by Archicraft designs LIMITED

Job number: 25-010



**Note:**

1. Ensure **'Notice of Intent'** is sent to the Building Control Inspector no less than 2 days prior to site start.
2. Ensure **'Notice of Commencement'** is sent to the Building Control Inspector no less than 5 days prior to completion of the lowest ground floor level. Notice will automatically lapse if commencement has not begun within 3 years. In which case, a new notice of commencement will need to be made.
3. Due to recent change in legislation, a **desktop soil investigation report** may be requested by Building Control during the plans check stage. If require, a Geotechnical Engineer will need to be appointed. I will be happy to make a recommendation, if required.

GENERAL NOTE:

ALL MATERIALS AND COMPONENTS MUST BE SUITABLE FOR THEIR INTENDED PURPOSE AND LOCATION AND MUST BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH ALL RELEVANT, CURRENT BRITISH STANDARDS AND CODES OF PRACTICE, NHBC REQUIREMENTS AND MANUFACTURER'S SPECIFICATION.

Any reference to an Approved Document in this Specification relates to the relevant Approved Document of the Building Regulations.

## Section 01 – External Walls

### General

- **Thermal bridging**
  - Install continuous perimeter insulation with a min R value of 0.75m<sup>2</sup>K/W. Floor insulation must tightly abut the blockwork wall.
  - Seal all penetrations through the floor (air barrier) with a flexible fire-resistant sealant, to provide min. 60mins fire resistance.

### External Masonry Walls

#### Upgrade to solid existing wall (U-value 0.26W/m<sup>2</sup>K)

- **Solid existing walls (where applicable) to be lined with 72.5mm Kingspan Kooltherm K118 boards - taped, jointed and skimmed. Insulation boards to be mechanically fixed to 25x47mm treated softwood timber battens @ maximum of 600mm c/c over strips of DPC.**

### Mortar

- The selection of the appropriate mortar should follow the recommendations given in BS 5628: Part 3; and NHBC Standards Appendix 6.1-C:
- Unless recommended otherwise by the brick manufacturer, the mixes in the table below should be used for clay bricks.

Mortar mixes using ordinary Portland or sulphate-resisting cements where required (see also Design clauses 6.1-D5 (b) and (d)).

Location	Recommended cement: lime: sand mix	Recommended cement: sand mix with air-entraining plasticiser	Recommended masonry cement: sand mix	Mortar designation to BS EN 1996-1-1

General wall area above dpc	in areas of Severe or Very Severe exposure - high durability	1 : ½ : 4½	1 : 3½	1 : 3	(ii)
	other exposure categories - general use	1 : 1 : 5½	1 : 5½	1 : 4½	(iii)
Below dpc level and in chimney stacks	- high durability	1 : ½ : 4½	1 : 3½	1 : 3	(ii)
Cappings, copings and sills	- low permeability	1 : 0 to ¼ : 3	-	-	(i)

- Sulphate resisting cement should be used where recommended by the brick manufacturer
- Proprietary mortars and admixtures should only be used strictly in accordance with the manufacturer's recommendations, taking into account the type of masonry unit and its location.
- Under gauging of Lime bond / sand mixes should be avoided and NHBC guidelines followed
- Recessed or raked joints should be avoided in conjunction with full fill cavity insulation in areas of Moderate and Severe exposure.

## Section 02 – Roofs

### Cold deck flat roof construction (Vented) - Retrofit

**(U -value of 0.14W/m2K)**

**Install 75mm battens to create air space, fit 1no. layer 150mm Kingspan Kooltherm K106 Rigid Board insulation to battens, 1no. layer of vapour control barrier and 1no. layer of 12.5mm plasterboard (use moisture resistant board in wet areas). Install air bricks externally to ventilate the air cap between insulation and soffit of concrete deck. See drawings for more detail.**

## Section 03 – Internal Walls

### General

- Separating Walls to be fully filled with effective edge sealing in accordance with Robust Details as appropriate.
- Ensure all gaps are sealed around partition perimeters and junctions – apply flexible sealant as necessary.
- Seal all penetrations where service pipes pass through any walls, partitions and duct casings with expanding foam or other suitable flexible sealant.
- Soil pipes passing through ALL rooms to be lagged with minimum 25mm sound deadening insulation quilt (unfaced, with a minimum density of 10kg/m3), fixed to prevent settlement or slippage. 2 layers 12.5mm plasterboard screw fixed to metal or timber framing.
- Long external walls may need to be provided with intermediate buttressing walls or partitions, designed for the purpose, where in doubt check with structural engineer.

### Load bearing Walls

- 12.5mm hard wall plaster in 2 coats & 3mm thistle multi finish to both sides. Single or twin leaf 100mm aggregate blockwork of density 1350 – 1600Kg/m<sup>3</sup> and 3.5N/mm<sup>2</sup> compressive strength, or as designed

by the Structural engineer if their spec' is greater. To be mechanically tied at every course at junctions with external walls.

- Steel lintels can be used in lieu of concrete where they have been designed to be of heavy-duty type and designed of a cavity type construction to avoid additional fire protection. Care must be taken when specifying that all lintels of this type are heavy duty avoid incorrect lintels being installed. All lintels to be as per manufacturers specification and schedules but must take account of the above recommendation which may involve some lintels being over designed to avoid complications on site. Refer to structural engineer's specification for details.

### **Timber Stud Partitions**

- **100mm x 50mm timber stud partitions at 400mm ctrs. Fit 12.5mm Plasterboard either side with 3mm skim coat over.**
- The construction must achieve minimum airborne sound insulation laboratory values (40 Rw dB) where required to comply with Part E of the Building Regulations with minimum 50mm Isover APR 1200 in the stud cavity or equivalent approved material – see manufacturers Performance substantiation report. Must achieve a 30minutes fire rating for use in 3 storey stairway enclosure. See plans for partitions with mineral wool insulation.
- Install moisture resistant plasterboard to bath and shower rooms. A bonding agent may be required prior to a skim application, check manufactures recommendations.
- Partitions built off insitu slabs should have a dpc between.

## **Section 04 – Fire Protection**

### **General**

- Fire protection is not solely defined by the fabric performance but also means of detection, alarms, means of escape and fire rescue.
- Reference in this section may overlap into other parts of the specification such as internal doors, but will also be covered here for clarity.
- Upgrade hall with smoke detector to comply with Part B. Should typically consist of mains-wired, interlinked alarms conforming to BS 5446-1:2000 or BS 5446-2:2003 to at least a Grade D category LD3 standard and must be benefit from standby power supply.

### **Integrity of Elements**

- **30 Minutes Fire Resistance:** Required between rooms and hallways.
- **60 Minutes Fire Resistance:** Required to structural frames, beams, columns and elements of the structure (separating walls and floors).

### **One & Two Storey Houses**

- Except for kitchens all habitable rooms on the first floor (served by one stair) should be provided with an escape window. The window should have an unobstructed operable area that is at least 0.33m<sup>2</sup> and at least 450 x 750mm in size.

## **Section 05 – Mechanical & Electrical**

### **General**

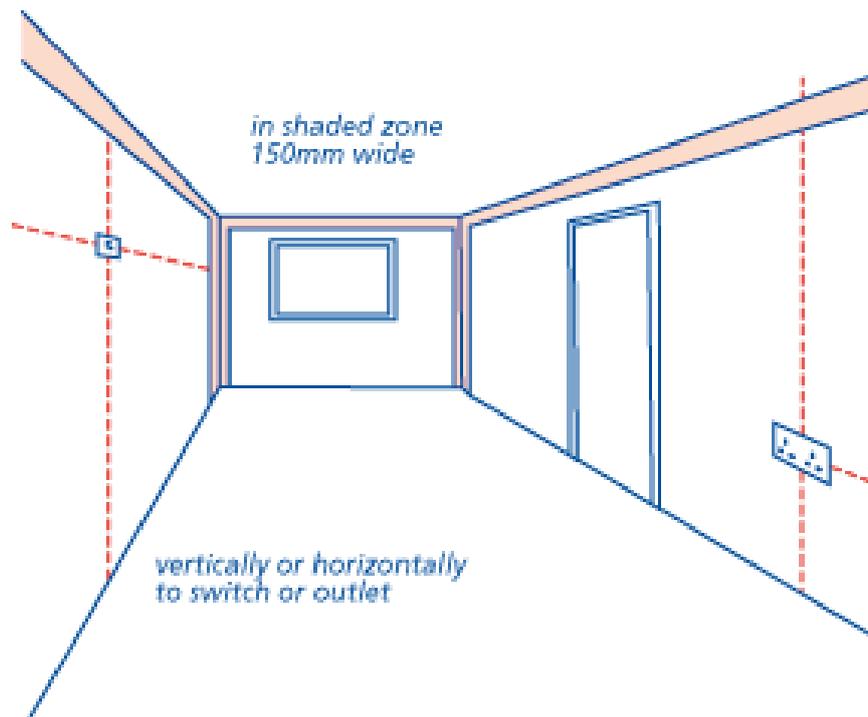
- Please note the section below is generic and the M&E consultant's drawings and specifications must take precedence if it is available.

- When Electric Gates are installed reference must be made to the HSE Bulletins which highlight recent incidents and actions to be taken. **HSE Bulletins FOD WSW 1-2010 & FOD 7-2010.**
- Socket outlets which might reasonably be used for external appliances should be protected by a residual current device (RCD).
- In accordance with the revised British Standard new harmonised (EU) cable core colours for all new fixed wiring are to be adopted. Guidance and examples of these should be included in the Home Owners Guide.
- Mechanical extract ventilators in external walls and ceilings to be supplied with sealing gaskets.
- Intumescent gaskets may be utilised as an alternative to a flexible sealant to light fittings penetrating the (plasterboard) air barrier.
- Must be designed and installed in accordance with the **Domestic Building Services Compliance Guide 2010 Edition & Domestic Ventilation Compliance Guide 2010 Edition**

### **Meter Box Connection**

- Where the site is “self-connect” i.e. the electrical contractor makes the connection from the consumer unit to the meter, this is normally to switch fuse in the meter cupboard, in which case there should not be a restriction on the “tails” between the meter box and cu positions. Where the electricity utility provider makes the connection, they will normally insist on a maximum distance of approx. 2m between the two unless a separate switch fuse is provided which they will not normally allow to be positioned in the meter box. Therefore the designer should be aware of the implications and avoid situations where the meter box and cu are remote.
- Consumer units to have lockable covers to help prevent circuits being energised accidentally.
- Ensure there is at least a 300mm separation between an extract fan terminal and flue termination of a gas boiler and 500mm between an extract fan and a background (window trickle) ventilator.
- To assist those people whose reach is limited and to use the dwelling more easily, light switches, socket outlets and other equipment (not consumer unit) should be located in habitable rooms at appropriate heights between 450 and 1200mm from finished floor level in accordance with Diagram 22 of Approved Document M of the Building Regulations.
- 100% low energy lighting to be used throughout the dwelling and in accordance with the specification noted below, Energy Efficient Lighting. **Note: To be confirmed and agreed with the client.**
- Downlighters – to be IP60 (65 above baths and showers) rated limiting air leakage. They must have been designed and tested such that they will not cause overheating when overlain with insulation e.g. low voltage systems with dimmable transformers which can also be changed through the bezel. They should have a 30 minute fire rating in ceilings below roof spaces and 60 minutes in separating floors. They should have been satisfactorily assessed in accordance with the procedure described in Appendix F of ADE Robust Details. A copy of the test report shall be handed to the site manager. They should be spaced at no more than one light per 2m<sup>2</sup> of ceiling area measured in each room and at ctrs not less than 750mm unless tested otherwise.
- Socket outlets to be provided not less than NHBC requirements (8.1 – D11)
- Gang switches to be provided within kitchens for all appliances.

## Electrical Cables



### LOCATION OF CABLES WITHOUT SPECIAL PROTECTION

- Where cables are concealed within a wall, they should be located at a minimum depth of 50mm from the surface opposite to where the electrical point is positioned – refer to partition manufacturer's installation guidelines and ensure this is strictly adhered to.
- Cables without special protection, such as an earthed metal conduit, must be positioned as indicated in NHBC Standards (8.1 – S4). This applies to all walls.
- The presence of insulation around a cable has the effect of reducing the current carrying capacity:
- Circuits run within thermal insulation must be protected with cartridge fuses or mini circuit breakers (MCBs), re-wirable fuses are not suitable.
- Cables fully enclosed by insulation may need to be increased in size above the standard recommended by as much as 20% if they pass at right angles through an insulating layer and as much as 50% if they are enclosed along the length for more than 500mm.
- For cables enclosed by insulation but in contact with a thermally conductive surface on one side, the larger of the standard recommended sizes will generally need to be used.
- uPVC Cables should NOT come in contact with polystyrene and where located on walls faced with laminated polystyrene backed plasterboard should be suitably protected.
- TV distribution cable to be CT 100 digital satellite / terrestrial.

## Smoke & Heat Detection

- Smoke alarms to be mains operated with a battery backup and connected to the lighting circuit. To be of the Ionization type where positioned in living rooms and of the Optical type when located in circulation areas. They should be ceiling mounted, within 7.5m of doors to habitable rooms and 300mm min from light fittings and bulkheads. Minimum of one smoke alarm per storey and interlinked.

- Where the kitchen area is not separated from the circulation space by a door, there should be a compatible, interlinked heat detector located in the kitchen in addition to smoke alarm(s).

### Energy Efficient Lighting

- Fixed lighting capacity (lm) = 185 x total floor area
- Efficacy of all fixed lighting = 80 lm/W
- 100% low energy lights required throughout the dwelling. **Note: To be confirmed and agreed with the client who may wish for a reduced amount.**
- Energy efficient lighting is to be provided in accordance with Approved Document L1A and the Domestic Building Services Compliance guide.
- Light fittings can be either dedicated fittings or standard fittings with low energy lamps. Low energy fittings should have lamps with a luminous efficacy greater than 40 lamp lumens per circuit-watt and a total output greater than 400 lamp lumens. Light fittings whose supplied power is less than 5 circuit-watts are excluded from the overall count of the number of light fittings.
- Standard fittings supplied with low energy lamps with integrated control gear (e.g. bayonet or Edison screw based compact fluorescent lamps). Light fittings with GLS tungsten filament lamps or tungsten halogen lamps would not meet the standard.
- Kitchens having pelmet fluorescent lighting will comply.
- Recessed down lights can be either GU10 type LED type fittings or alternative low energy compact fluorescent type. LED lamps produce little or no heat and should be considered where insulation may cover the fittings. Confirmation should be gained from the manufacturer and contractor and installed in accordance with manufacturers details.
- External lighting if provided must also comply with the following if attached to the building:
  - Either a)
    - Lamp capacity not greater than 100 lamp-watts per light fitting; and
    - All lamps automatically controlled so as to switch off after the area lit by the fitting becomes unoccupied; and
    - All lamps automatically controlled so as to switch off when daylight is sufficient.
  - Or b)
    - Lamp efficacy greater than 45 lumens per circuit watt; and
    - All lamps automatically controlled so as to switch off when daylight is sufficient; and
    - Light fittings controllable manually by the occupants

### Electrical Provision in & Around Bathrooms

- Section 601 of the BS wiring regulations relates to locations containing a bath or shower which are classified into the following zones:
  - ZONE 0** Represents the interior of the bathtub or shower tray.
  - ZONE 1** Wraps around and on top of zone 0 and is limited to a height of 2.25m.
  - ZONE 2** Reaches 0.6m outside of zone 1 and sits above zones 0 & 1 at a minimum height of 2.25m. **Insulation should not cover the fitting** as the fitting could overheat, reducing lamp life and creating a fire risk (those installed in ceiling voids to compartment floors should have be 1hr fire rated and meet with RSD's Appendix F requirements). **Extract Fans** IPX4 rated (protection against splashing).
  - ZONE 3** The outer layer is therefore the rest of the bathroom extending to the same height - **Shaver Sockets / Batten Holders.**

- e. Section 601 defines where 240volt electrical items can and cannot be placed in these rooms in accordance with the zoning. This means fan / lighting positions and wiring accessories unless they are SELV (Safety Extra Low Voltage).

#### **Pull Chord/Rocker Switches in wet rooms**

Are permissible outside this zones

- Rocker switches preferred and to be located outside the wet rooms.

#### **Fan Isolating Switch**

Should be outside zone 3 e.g. located 2.25m above this zone or outside the room where the assessment / inspection body permits.

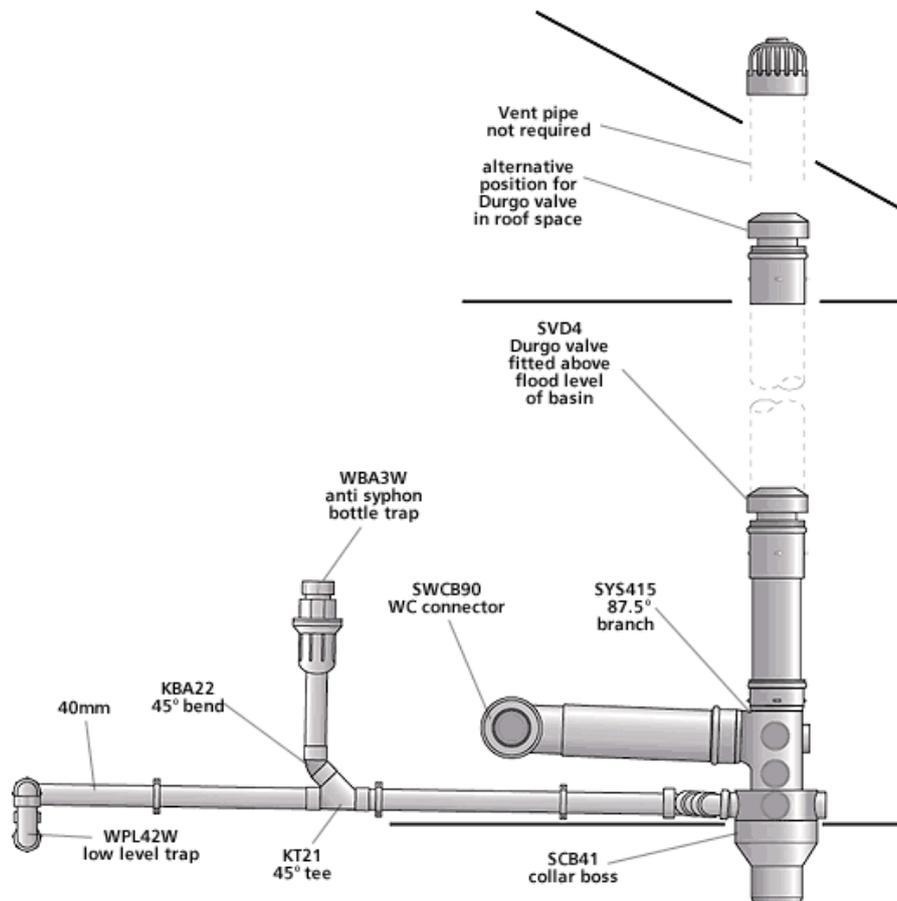
- In addition section 601 stipulates that elect cables in partitions adjacent to zones 0 & 1 need to be a minimum 50mm away from the wall face.

## **Section 06 – Plumbing & Heating**

### **General**

- Please note the section below is generic and the M&E consultant's drawings and specifications must take precedence if it is available.
- Individual Gas engineers or gas installation businesses are required to be Gas Safe Registered. Systems cannot be installed or commissioned by those without the appropriate certification.
- Extended Gas Flues should be avoided wherever possible. Where it is felt this is unavoidable refer to specialist advice/details.
- **Heating & Hot Water systems must be designed and installed in accordance with the "Domestic Building Services Compliance Guide 2010 Edition".**
- Fit "top hat" S & vp collar – 110mm Visqueen or equal approved material. Sealed with Visqueen double sided jointing tape at ceiling level below a roof void.

## Plumbing



- All fittings to have traps in ABS plastic conforming to the British Standard. Provide waste for washing machine and dishwashers where applicable. All waste pipes shall be laid to fall. All plumbing shall be installed in accordance with approved manufacturer's instructions.

Appliances	Dia.	Min trap seal	Max length Of pipe	Pipe gradient	Max bends	Max drop
Washbasin	32	75	1.7	2.2	0	0
Washbasin	40	75	3.0	1.8 to 4.4	2	0
Bath or shower	40	50	No limit	1.8 to 9.0	No limit	1.5
Kitchen sink	40	75	No limit	1.8 to 9.0	No limit	1.5
Washing mach	40	75	3.0	1.8 to 4.4	No limit	1.5
WC	110	50	No limit	1.8 min	No limit	1.5

- Soil and ventilating stack and fittings to the British Standard with ring seal or solvent joints to terminate via tile or ridge tile ventilator. (The dry part of the stack may reduce from 100mm to 75mm diameter above the highest branch). Ground floor WC to be taken direct to drain or to dedicated stub stack serving ground floor only. WC's to be specified with integral overflow kits.
- Air admittance valves - Valves should be installed within the building in a ventilated duct or roof space where there is no risk of freezing and must be accessible for inspection and testing. Each valve is supplied boxed with a polystyrene insulation cover that should remain in position after installation, as this will protect the valve against freezing, particularly when installed in a roof space.
- To ventilate the underground drainage system and to minimise the effects of back pressure should a blockage occur, the branch or main drain serving a stack or stacks fitted with Durgo valves may require conventional venting at a point upstream of the stack connection. For up to and including four dwellings, 1, 2, or 3 storeys in height, additional drain venting is not required. Where a drain serves more than four such dwellings equipped with the valve, the drain should be vented according to the following rules:

- 5 to 10 such dwelling – conventional ventilation to be provided at the head of the system.
- 11 to 20 such dwellings – conventional ventilation to be provided at the mid-point and at the head of the system.
- All domestic supply and space heating pipe work is to be “thermoplastic” with demountable or slim-line fittings to the British Standard, except in exposed locations above floor level and visible in airing cupboards containing the hot water cylinder where it is to be copper to the British Standard, of British manufacture with compression or brass push fit fittings.

### Hot Water Supply

- Baths to incorporate a thermostatic blending valve (ideal Standard Bath Thermostatic Valve – S7436AA) or similar approved to ensure the temperature of the water delivered to the bath does not exceed 48°C.
- Valve to be fitted below the bath behind the bath panel.

### Cylinders & Cupboards

- **Indirect open vented copper hot water cylinder or indirect sealed system** - capacity dependant on demand requirements (see design drawings) shall be positioned 50mm clear of the floor on bearers. See individual heating drawings for cylinder capacity. 0.5 square metres of shelving to be provided and at least 500mm clear space above. Immersion heating switch to be located in cupboard. 225 x 150mm grille at high level above door (should not vent onto landings in 3 storey houses).
- **Combined units:** The compartment must be ventilated in accordance with manufacturer's instructions. Any vents to be intumescent air transfer grills in a door. The compartment shall be a fixed rigid structure large enough to allow it and the boiler to be inspected and serviced. A minimum width between door jambs of 560mm must be provided. Internal surfaces should be non-combustible or lined with non-combustible material. Examples of non-combustible materials having a fire resistance of not less than ½ hour are plaster skimmed plasterboard and fireproof boarding. The floor need not be lined. Doors or shelves made from combustible material, e.g. Wood must be at least 75mm from the front or top of the boiler. The flue pipe must be protected by the ducting supplied by Potterton or by another no less suitable non-combustible enclosure.

## Section 07 – Doors & Windows

### General

- Factory fitted double glazed units to be fitted and sealed into the door (clear glazed). Glazing to be laminated glass.
- The doors to be pre-hung at works (unless handling weights become an issue) into traditional timber frames and fitted with a proprietary weather seal threshold system (aluminium with gold effect finish) suitable for mobility access requirements to principle entrance and non-mobility version to secondary entrance.
- Main Entrance door to be fitted with a multi-point locking system with a key/thumb-turn cylinder. Additional ironmongery to consist of a double sided sleeved letter plate, eye viewer and door chain.

### New dwelling – Opaque doors (U-value 0.1W/m2K)

Opaque doors with glazed area less than 30%

### New dwelling – Semi-glazed doors with glazed area less than 30 -60% (U-value 0.1W/m2K)

For new builds, U-values of opening areas, windows, roof windows, rooflights and doors, should be the same as for actual dwelling not exceeding a total area of openings 25% of the total floor area.

### **New dwelling – Semi-glazed doors with glazed area greater than 60% (U-value 0.12W/m<sup>2</sup>K)**

### **New dwelling – Windows (1.2W/m<sup>2</sup>K)**

Frame factor 0.7

### **New dwelling - Roof windows (1.2W/m<sup>2</sup>K)**

When in vertical position (for correction due to angle, see specification in SAP 10 Appendix R)

### **New dwelling – Rooflights (1.7W/m<sup>2</sup>K)**

When in horizontal position (for correction due to angle, see specification in SAP 10 Appendix R)

## **Frames**

- Outer frame fully welded, transoms and mullions mechanically jointed or welded to provide a strong and durable, watertight construction. Frames manufactured with concealed drainage. Weather seals to openings tested to severe weather rating.
- Cills are factory fitted and sized to suit set back of frame and sub-cill detail. The window manufacturer should ensure they have a copy of the latest site layout plan indicating the handing of plots.
- Cill profile acceptors to receive MDF internal boards.
- Each and every frame should have the appropriate BS or BBA certification reference clearly visible

## **Glazing**

- a. Factory glazed glass units. Obscure glazing to all rooms containing sanitary fittings. Toughened glass to locations required to meet with Building Regulations ADM. See elevations for other obscured glazed windows required for Town Planning purposes.
- b. Each and every glazed unit should have the appropriate BS Kitemark (on the glazing bar) permanently marked.

## **Ironmongery and Security**

- Opening lights to be hung on stainless steel friction hinges concealed in frame rebates giving easy clean facility (min 95mm between frame and casement). They are to have multi-point espagnolette locking head system with mushroom head bolts for high security. If windows are vertical sliding sash, they are to be suitably hinged to aid cleaning in accordance with Building Control requirements.
- Die-cast handles with cylinder locking (except to escape windows) are to be factory fitted.

## **Fitting**

- PVC-U building in profile / cavity closer system used to form opening in masonry cavity walls during construction. Made from extruded profiles formed into a template with welded corners at the cill or threshold and an overhead ventilator at the head and complete with EDPM window stop gasket to suit minimum setback. All supplied fully assembled, ready to be built in on site.
- Cavity closers to be insulated to aid thermal bridging factors.
- Windows are to be supplied with the requisite fixing cleats and head fixing ties. A reveal stop is required (fitted to the closer) for frames in a check reveal or those located in rendered elevations. Internal plaster stops are not required. The sub-frame is to be manufactured to suit the exact brickwork opening; the window to be fitted is to be exactly sized to give the manufacturers required clearance. The sub-frame is to be built in as work proceeds in accordance with the BBA Certificate procedure and will eliminate the need to fit a conventional vertical and horizontal dpc to the opening.

## Internal Doors

- **Standard Doors:** to be min. 35mm thick to suit size and height noted on the working drawings.
- Door kits to be used throughout to ensure consistency of installation and will consist of 25mm thick linings of width to match the wall thickness within which the opening is situated.
- To ensure good transfer of air through the dwelling, there should be an undercut of minimum area 7600mm<sup>2</sup> in all internal doors above the floor finish. This is equivalent to an undercut of 10mm for a 760mm wide door. This should be achieved by making an undercut of 10mm above the floor finish if the floor finish is fitted or by 20mm undercut above the floor if the finish has not been fitted. This undercut is to be agreed and confirmed acceptable by the client.
- **Fire Doors:** Provide FD 30 fire doors, 44mm thick, at every storey level opening onto a fire protected escape route (landings / hallway). Ensure 30 minutes fire rated construction is maintained in the floor zone above partitions separating rooms from the escape route, fire doors may be omitted from bathrooms but must be fitted to storage areas.
- Fire ratings for fire door assemblies are given in minutes and prefixed by the letters "FD".
- Door leaf must have a full test report to the British Standard and have BWF Certifier Accreditation. The complete fire door assembly, including its frame, intumescent seals, hinges, glazing and ironmongery must perform to the British Standard.
- Reference should be made to Approved Document B1 appendix B for appropriate fire door testing requirements and relevant BS/EN standards.
- The door assembly must carry a permanent and tamper evident label.
- The manufacturer's specific and comprehensive installation instructions must be followed.
- 1½ pair 100 x 76 x 3mm stainless steel ball bearing hinges to the British Standard to be fitted per door leaf.
- MDF linings require intumescent seals on 3 edges.

## Section 08 – Ventilation (BR Part F, Vol 1)

### Applicable to:

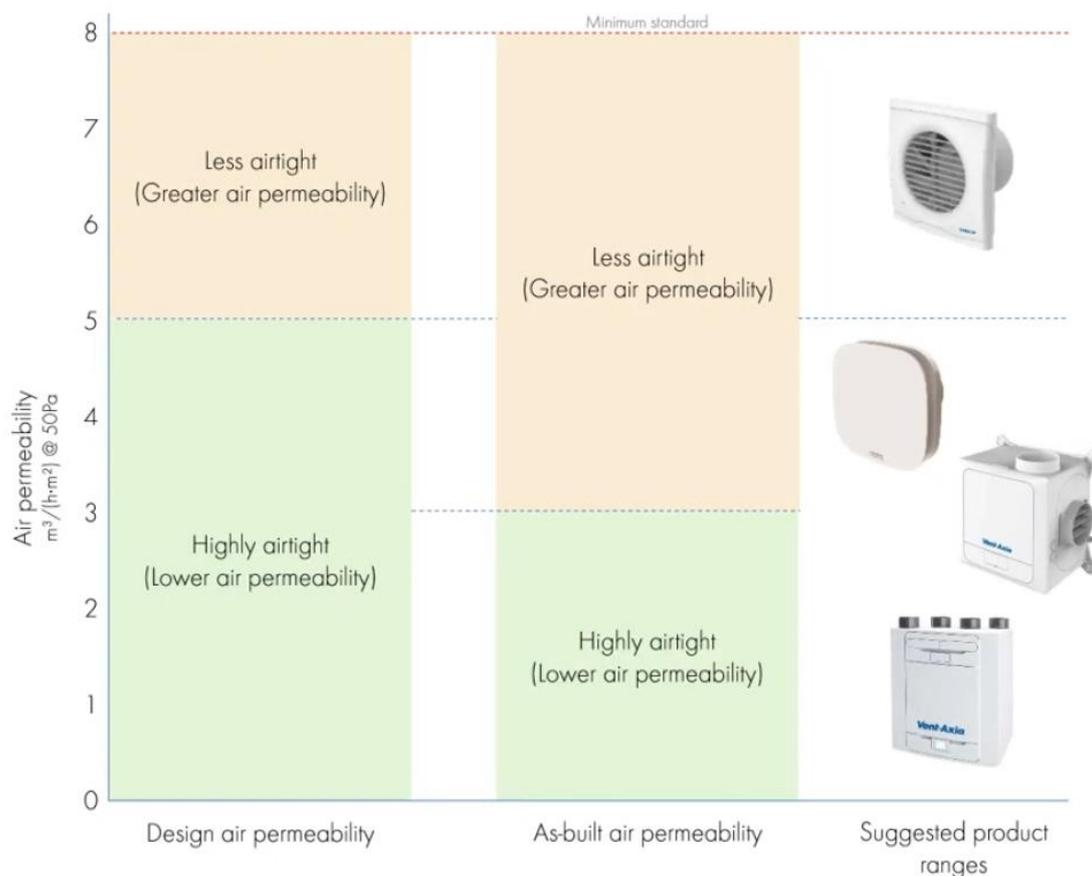
**All residential dwellings (New builds and renovation projects)**

### **General**

- Air Leakage rates, both design and actual, also have an influence on the amount of background ventilation required for any one solution. These must be carefully considered when formulating the ventilation strategy.
- For airtight new-build dwellings, as-built air leakage rates are set at a default of 5m<sup>3</sup>/(h.m<sup>2</sup>)@50Pa with design value set at 8m<sup>3</sup>/(h.m<sup>2</sup>)@50Pa. This will allow for a varied approach on air leakage testing to be agreed with Building Control.
- Few less airtight existing dwellings, airtightness should be set at a default greater than 3m<sup>3</sup>/(h.m<sup>2</sup>)@50Pa with the design value set at higher than 5m<sup>3</sup>/(h.m<sup>2</sup>)@50Pa
- Background ventilators should be positioned to avoid draughts e.g. typically 1.7m above floor level.

- In noisy areas it may be necessary to use either sound attenuating background ventilators or mechanical ventilation solutions depending on the noise level and any planning conditions. Manufacturers are required to provide options to these situations as requested.
- Ventilation systems should be designed to minimise the intake of pollutants. This could be achieved by using MVHR system with high grade filtration.
- Manufacturers are required to produce the appropriate background ventilation table for compliance with the Building Regulations in accordance with the ventilation strategy.
- Details of background ventilation to be added to all working drawings.

## Airtight Dwellings



### Interactions with other Building Regulation requirements

- **Interaction with Part B**  
The requirements of Part B apply if, for example, ducts pass through any of the following. a. A fire resisting structure. b. A fire compartment. c. A protected stairway. This approved document gives guidance on window openings for ventilation. In addition, Approved Document B gives guidance on the size of escape windows. The larger of the window openings specified in Approved Document B or Approved Document F should be applied in all cases.
- **Interaction with Part J**  
Ventilation fans might cause combustion gases to spill from open-flued appliances. These combustion gases might fill the room instead of going up the flue or chimney, even if the combustion appliance and fan are in separate rooms. The guidance in Approved Document J should be followed when installing

and testing ventilation appliances. Combustion appliances must operate safely whether or not fans are running.

- **Interaction with Part L**  
Energy efficiency should be considered when specifying ventilation systems. Energy efficiency, including the control of infiltration, is dealt with under Part L of the Building Regulations.
- **Interaction with Part K and Part M**  
Manual controls, where provided for a ventilation device, should be within reasonable reach of the occupants. Follow the guidance in Approved Documents K and M.
- **Interaction with Part O**  
This document sets minimum standards for purge ventilation for rapidly diluting indoor air pollutants and extracting water vapour where necessary in habitable rooms in dwellings. For domestic-type buildings, Part O may require a higher standard than the guidance given in this document for purge ventilation to remove excess heat. In this case, the higher of the two standards should be followed.

## Purge Ventilation

- Purge ventilation should be capable of achieving at least 4 air changes per hour (ACH) achievable via openings or mechanical extract ventilation.
- Purge ventilation to be in accordance with Approved Document F Appendix B which requires hinged or pivot windows that open 30° or more to have an opening part of at least 1/20<sup>th</sup> of the floor area of the room. For windows that open less than 30° reference should be made to the appendix.

**Table 1.4 Purge ventilation openings**

Opening type	Minimum total area of openings
Hinged or pivot windows with an opening angle of 15 to 30 degrees	1/10 of the floor area of the room
Hinged or pivot windows with an opening angle of greater than or equal to 30 degrees	1/20 of the floor area of the room
Opening sash windows	
External doors	

## Mechanical Ventilation with Heat Recovery System

- MVHR is a whole dwelling ventilation system which supply and extracts air continuously at a low rate. It has an in-built heat-exchanger that recovers energy from the stale air and recovers it into fresh incoming air.
- Mechanical Ventilation with Heat Recovery systems do not provide background ventilation. MVHR systems should have a minimum of 73% efficiency.
- Note: Background ventilators should not be installed with MVHR system as they can provide unwanted additional ventilation and reduce the system efficiency.

## Whole dwelling ventilation

- Supply air for the dwelling should be delivered through one of the following means:
  - Continuous supply fans
  - Background ventilators.

- The minimum whole dwelling ventilation rate for the supply of air to the habitable rooms in a dwelling should meet both points below:
  - i. A minimum rate of 0.3L/s per m<sup>2</sup> of internal floor area (this includes all floors, e.g., for a two-storey building, add the ground and first floor areas).
  - ii. A minimum rate determined by the number of bedrooms as specified in Table 1.3 below.
- Internal doors should be undercut by 10mm to floor finish or 20mm above floor surface. This applies to all ventilation systems.

**Table 1.3 Minimum whole dwelling ventilation rates determined by the number of bedrooms**

Number of bedrooms <sup>(1)(2)</sup>	Minimum ventilation rate by number of bedrooms (l/s)
1	19
2	25
3	31
4	37
5	43

**NOTES:**

1. If the dwelling only has one habitable room, a minimum ventilation rate of 13l/s should be used.
2. For each additional bedroom, add 6l/s to the values in Table 1.3.

### Installation of ventilation systems

- Adequate space should be available for access to maintain ventilation equipment.
- Rigid ducts should be used wherever possible. Flexible ducting should only be used for final connections where possible with max. 1.5 metre length. Flexible ducts should meet BSRIA's BG 43/2013 standard.
- Flexible ducts should be pulled taut to ensure the full internal diameter is maintained and flow resistance is minimised.
- Duct bends should be minimised.
- Duct connections should be both mechanically secured and adequately sealed to prevent leaks. Rigid connectors and jubilee clips should be used for flexible ducting to ensure a good seal.
- Use centrifugal fans for duct lengths over 1.5 metres. Axial fan will not be appropriate for use in this scenario.
- Each air terminal should have a free area of at least 90% of the free area of its associated duct.
- Mechanical ventilation systems must be commissioned in accordance with approved procedure. See completion checklist and commissioning sheet in Section 4 of Approved Document Part F1.

## Section 9 – Additional Items

### General

- This section deals with items that do not fall easily into other categories but play an important part in the construction of the dwellings.
- Due to changes in VOC legislation premature yellowing has occurred using solvent based paints. Along with reduced air leakage rates and further changes to the legislation proposed it is recommended to change to a water based acrylic paint all in accordance with manufacturers details.

### Decoration (internal)

#### Surface Preparation

- Architraves, Skirting's, Window Boards and Door Linings are to be pre-primed MDF.
- MDF surfaces should be de-nibbed using either a fine grade Scotch Brite Pad (grey) or a fine grade abrasive paper. Do not polish or break the surface of the base coating.
- All minor defects in the Walls, Ceilings and MDF surfaces are to be filled with fine surface filler. Do NOT use decorator caulk.
- Bare Smooth Planed Timber (PSE). Remove all excess resin from live knots and other resinous areas with a hot air paint stripper, wipe immediately with methylated spirit and apply two coats of "knotting".
- Localised damage or deterioration due to exposure of factory based coatings for longer than four months, must be treated with a primer suitable for the chosen paint system.
- All surfaces must be clean, dry and free from any other substance that will interfere with the application of the finishes.
- Prior to painting the moisture content of the surfaces to be decorated should not exceed 18%.

#### Walls & Ceilings

- Walls and Ceiling surfaces require stabilising, either with a coat of thinned paint or with a sealer recommended by the manufacturer and are then to receive two full coats of Crown Trade Covermatt Emulsion (or other Premium brand) to prepared sound and clean surfaces. Allow a minimum of four hours drying time between coats under normal drying conditions.

#### MDF and PSE timber

- MDF surfaces are to receive one full coat of Crown New Build Acrylic Primer Undercoat Water-Based and two full coats of Crown New Build Acrylic Gloss Water-Based (or other in accordance with the current group agreement at the time). Allow adequate drying time under normal conditions between applications (acrylic primer requires 2 – 3 hours drying time). Repair any surface blemishes between coats in accordance with the Surface Preparation Specification above.
- PSE timber following preparation is to receive one coat of Crown New Build Acrylic Primer Undercoat Water-Based followed by two full coats of Crown New Build Acrylic Gloss Water-Based (or other Premium brand). Allow a minimum of four hours drying time under normal drying conditions between applications. Repair any surface blemishes between coats in accordance with the Surface Preparation Specification above.
- External Softwood Door Frames (Factory Primed). Apply one coat of Crown New Build Acrylic Primer Undercoat Water-Based followed by two full coats of Crown New Build Acrylic Gloss Water-Based (or other Premium brand). Allow a minimum of four hours drying time under normal drying conditions between applications.
- **Do not apply** when temperatures are likely to fall below 8°C or when the relative humidity is above 80% during application or the drying period.

- Acrylic paints must be applied with a good quality synthetic brush. Pure bristles brushes will absorb moisture which can cause excessive brush marks.

## **Tiling**

### **Wall Tiling**

- All tiles are to be fixed using a proprietary waterproof adhesive and mould resistant waterproof grout. Wall tiles in shower enclosures are to be bedded on a solid bed and NOT A KEYED BED. All excess grout to be cleaned off and a tool finish applied to all joints. Tiling to be taken over the lip of shower trays when they have them. If electrical fittings and radiators are removed during the course of the works, they are to be rehung immediately after completing grouting. Wall tiling heights are as agreed with the client and to be carried behind all fixtures and fittings except kitchen units and baths.
- Alternative fixing may be suggested by the manufacturer. In this instance guarantees must be obtained from contractor and supplier.

### **Floor Tiles on Screeds**

- Screeds should be completely cured to allow for any shrinkage before tiling. Solid bed fixing is vital using a notched trowel and if necessary 'back buttering of tiles' to ensure no voids are left behind the tiles. It is recommended that a bed of adhesive between 3 and 6mm be applied to the screed. Once the adhesive has dried, normally after 24hrs, grouting may take place. Either ready mixed or cement based grout can be used.
- Alternative fixing may be suggested by the manufacturer. In this instance guarantees must be obtained from contractor and supplier.

### **Floor Tiles on Timber**

- Check floorboards are securely fixed as before described. Plywood of a minimum thickness of 18mm should then be laid over and secured at 300mm centres with additional fixings at the edges. It is recommended that the area to be tiled is then primed and left to dry. The same solid bed fixing method should then be carried out as above. If a normal cement based adhesive is to be used, it is recommended that an admix be added to increase bonding. Alternatively a flexible grout could be used. Grouting can normally take place 24 hrs after fixing. Check adjacent floor levels for compatibility with the sub base and tile thicknesses.
- Alternative fixing may be suggested by the manufacturer. In this instance guarantees must be obtained from contractor and supplier.