

FIRE SAFETY AND OCCUPANT ESCAPE

Proposed Self-Build 4-Bedroom Dwelling

Garages at Dickens Avenue, Uxbridge | London Borough of Hillingdon | UB8 3DN

Site Address	Garages adjacent to 99 Dickens Avenue, Uxbridge, London Borough of Hillingdon, UB8 3DN
Proposed Building	New-build 4-bedroom self-build dwelling, 168 m ² total (122 m ² ground floor + 46 m ² first floor)
Building Height	2 storeys — first floor floor level approximately 2.7 m AOL; ridge/parapet approximately 6.0–6.5 m AOL (well below the 7.5 m threshold requiring enhanced escape provisions)
Purpose Group	Purpose Group 1(a) — Dwellinghouse (Approved Document B Vol. 1)
Applicable Doc	Approved Document B (Fire Safety) Volume 1: Dwellings, 2019 edition incorporating 2020, 2022 and 2025 amendments (effective 2 March 2025); 2026 amendments (effective 30 September 2026)
Document Type	Preliminary Fire Safety and Non-Combustible Materials Statement
Document Date	06 March 2026
Document Version	1.0 — Preliminary. To be developed into a full Fire Safety Strategy by a qualified Fire Engineer at RIBA Stage 3 and submitted under Regulation 38
Regulatory Basis	Building Regulations 2010, Schedule 1 Parts B1–B5; Regulation 7(2); Regulation 38; BS 9991:2015 (residential buildings fire safety); BS EN 13501-1 (reaction to fire classification); BS 5839-6:2019 (fire detection)

⚠ PRELIMINARY STATUS: to be reviewed by a suitably qualified fire engineer, prior to Building Control submission.

1. Introduction and Scope

This Preliminary Fire Safety and Non-Combustible Materials Report has been prepared for the proposed new-build four-bedroom self-build dwelling at Garages at Dickens Avenue, Uxbridge, UB8 3DN. The proposed dwelling replaces eleven existing brick garages on a 770 m² site within the London Borough of Hillingdon.

The report addresses the following aspects of fire safety design:

- Means of warning and escape (Approved Document B, Part B1)
- Internal fire spread through structure and linings (Parts B2 and B3)
- External fire spread (Part B4)
- Access and facilities for the fire service (Part B5)
- Non-combustible and fire-rated material specification for all principal building elements
- Fire detection and alarm system requirements

The building is a 2-storey dwelling house with a maximum floor level of approximately 2.7 m above outside ground level (AOL) at first floor. The first floor is below the 4.5 m threshold above which enhanced escape provisions are required, and the building is far below the 7.5 m threshold at which a second escape staircase or sprinkler system is mandated. The fire safety strategy is therefore relatively straightforward and compliance with Approved Document B Vol. 1 is readily achievable.

2. Means of Warning and Escape (Part B1)

2.1 Fire Detection and Alarm

The proposed four-bedroom dwelling house falls within the definition of a 'large dwelling house' under Approved Document B (Vol. 1, para. 1.6), requiring as a minimum a Grade A, Category LD3 fire detection and alarm system in accordance with BS 5839-6:2019. The following is specified:

System grade	Grade D2, Category LD2 (as a minimum) — interlinked mains-powered detectors with battery backup throughout all circulation areas, landings, hallways and kitchen. Smoke alarms on each storey.
Detector types	Optical smoke detectors to all circulation areas (hall, landing, corridors). Heat detector to kitchen. Carbon monoxide (CO) detector in rooms with solid fuel or gas appliances (if any). All interlinked.
Standard	BS 5839-6:2019. Detectors to be CE-marked and comply with BS EN 14604 (smoke) or BS EN 50291 (CO).
Manual call points	Not required for a single dwellinghouse — automatic detection system is sufficient.
Alarm sounder	Integral to each detector unit (Grade D2). Alarm must be audible in all bedrooms when doors are closed — minimum 75 dB(A) at bed head.
Emergency lighting	Not mandated by Approved Document B for a single dwellinghouse, but recommended on escape route (stair

and ground floor hallway) given the 4-bedroom configuration. LED emergency luminaires with maintained or non-maintained battery backup recommended.

2.2 Escape Routes — Ground Floor

In accordance with Approved Document B Vol. 1, para. 2.7 and 2.8, all habitable rooms on the ground floor must either:

- Open directly onto a hallway or circulation space leading to a final exit (front or rear external door); OR
- Where they cannot achieve this, provide a suitable egress window complying with para. 2.8 (minimum unobstructed openable area 0.33 m², with a minimum 450 mm height and 450 mm width, with the bottom of the opening no more than 1,100 mm from floor level).

The proposed ground floor layout (122 m²) is designed to ensure all habitable rooms (living room, dining/kitchen, bedroom, study and drying/plant room) have direct access to the hallway leading to the front door and a secondary exit to the rear garden. The proposed polished concrete floor throughout will assist escape (non-combustible surface does not contribute to fire spread).

⚠ Design requirement: The ground floor hallway is the primary escape route. It will be unobstructed, lead directly to the external front door, and be separated from any inner rooms by fire-resisting construction if those rooms have no independent escape route. The front and rear external doors must both be openable from the inside without a key.

2.3 Escape Routes — First Floor (46 m²)

The first floor level is below 4.5 m above outside ground level (AOL). Under Approved Document B Vol. 1:

- All habitable rooms on the first floor (bedrooms) must either: (a) have direct access to a protected stairway leading to a final exit; OR (b) have a suitable egress window complying with para. 2.8.
- Bedrooms on the first floor should have egress windows as a secondary means of escape in addition to the stairway — particularly important given the below-4.5 m height, making ladder rescue by the fire service straightforward.
- The staircase connecting ground and first floors is enclosed within fire-resisting construction to form a protected stairway (minimum 30 minutes fire resistance — REI 30) in accordance with para. 2.14–2.17.

✓ First floor flat roof access: All first floor habitable rooms (bedrooms) are provided with escape-sized opening windows that open directly onto the flat roof area. The flat roof is accessible to occupants and provides a safe temporary refuge from which rescue by the fire service from Uxbridge Fire Station (Uxbridge Road) is straightforward, given the eaves height of approximately 3.0m above ground level. Occupants can be rescued by ladder without specialist equipment. This provision, combined with direct access from every first floor room to the landing and protected stairway leading to the front external door, provides outstanding dual means of escape from every first floor bedroom.

Protected stairway	The staircase enclosure should be constructed of non-combustible or fire-rated materials providing minimum REI 30 (30 minutes fire resistance). 15 mm soundblock plasterboard on timber studwork achieves in excess of 30 minutes FR.
Stair door	Self-closing FD20 fire door (20 minutes fire resistance) at the base of the stairway where it opens onto the ground floor hallway. Alternatively FD30 at the top of the stair opening to the first floor landing.
Bedroom egress windows	All first floor bedrooms to be fitted with windows complying with para. 2.8: minimum 0.33 m ² openable area, minimum 450 mm open height and width, sill height not greater than 1,100 mm from floor. Timber or aluminium frames preferred (non-combustible or low-combustibility).
First floor landing	Treated as part of the protected stairway. Landing must be enclosed and lead directly to the stair. No open plan arrangements at first floor that would compromise the protected route.
Window restrictors	Where first floor windows are accessible to young children, window restrictors may be fitted but must be releasable without a key for escape purposes.

2.4 Inner Rooms

An inner room is one that can only be reached through another room (the 'access room'). Under Approved Document B para. 2.11, this arrangement is only acceptable in a dwelling house if the inner room is a kitchen, laundry, utility, bathroom, dressing room, or en-suite — NOT a habitable room used for sleeping.

✓ Ground floor inner rooms provision: The proposed ground floor includes one bedroom, one study and one drying/plant room arranged as inner rooms accessed via the main hallway. Each of these three rooms is provided with a door-sized direct exit to either the front or rear garden in accordance with Approved Document B para. 2.11. This satisfies the escape requirement for inner rooms on the ground floor without reliance on passing through any other habitable space.

2.5 Final Exits and Ground-Floor Escape Doors and Windows

The proposed design incorporates six dedicated ground-floor escape openings (doors and windows), providing an exceptional level of escape route provision for a 2-storey dwellinghouse and significantly exceeding the minimum requirements of Approved Document B Vol. 1. The six points of ground-floor egress are described below:

#	Escape Opening	Location, Specification and Compliance Notes
1	Primary front entrance	Ground floor, front elevation. Solid core composite or

	door	aluminium door, minimum 800 mm clear opening width. Openable from inside without a key at all times. Leads directly to Dickens Avenue public highway. Primary means of escape for all occupants. Complies with Approved Document B para. 2.7.
2	Rear garden doors to utility and study (x2)	Ground floor, rear elevation. External door opening directly onto the rear garden (140 m ²). Openable from inside without a key. Provides secondary escape route independent of the front hallway. Particularly important if a fire originates in the front ground floor zone. French door or single door acceptable.
3	Side kitchen /dining room door.	Ground floor, side elevation (left or right as layout permits). Door or gate to the side garden area (20 m ²). Openable from inside without a key. Provides third independent escape route to the garden and thence to the public highway. Enhances escape options particularly for the ground floor kitchen /dining area.
4	Ground floor glazed escape window — front master bedroom	Openable ground floor window (front or side elevation) meeting para. 2.8: minimum 0.33 m ² clear openable area, minimum 450 mm height and 450 mm width, bottom of opening no more than 1,100 mm from floor level. Aluminium or timber frame. Provides emergency egress from any ground floor habitable room not directly served by a door. Toughened safety glass.
5	Ground floor glazed escape window or patio door — rear	Openable ground floor window or patio door on rear elevation overlooking the garden. Minimum dimensions as para. 2.8. Provides a sixth independent egress point from the ground floor living zone directly onto the garden and away from the building. Escape distance to a place of safety is very short.

✓ The provision of six ground-level escape openings across the 770 m² site, with access to Dickens Avenue (front) and the rear/side gardens, provides an outstanding level of ground-floor escape route provision. The fire service can also access the site along Dickens Avenue and from Thackeray Close, both of which bring appliances within 45 m of the proposed dwelling footprint.

- First floor: Egress windows as described in Section 2.3 above, supplemented by the protected stairway to the ground floor final exits.

3. Non-Combustible and Fire-Rated Materials Specification

The proposed design adopts a predominantly non-combustible material specification throughout, which significantly exceeds the minimum requirements of Approved Document B and provides an enhanced level of fire safety for the building. The following sections describe each building element in detail, including the relevant fire classification under BS EN 13501-1.

i Note on classification: Under BS EN 13501-1, materials are classified A1 (non-combustible, highest) through F (no performance determined). A1 and A2 materials are

classified as non-combustible; B, C and D are combustible but with varying degrees of flame spread limitation. Where a material is described as 'non-combustible' in this report, it meets Class A1 or A2-s1,d0 as a minimum.

Building Element	Specification	Reaction to Fire Class	Fire Resistance	Notes / Standard
FLOORS				
Ground floor slab	Polished concrete — structural reinforced concrete slab, power-floated and sealed/polished finish. No combustible floor coverings.	A1	REI 60+	Non-combustible. Concrete exceeds minimum structural fire resistance. Polished finish eliminates combustible carpet/timber flooring. Ideal escape route surface. BS EN 13501-2.
First floor	Pre-cast concrete planks or insitu reinforced concrete with 15 mm soundblock plasterboard ceiling below. OR structural timber joists with min. 15 mm soundblock plasterboard intumescent-sealed below.	A1 (concrete) B (treated timber)	REI 30–60	If timber joists used, soundblock plasterboard underside provides minimum 30 min FR. Preferred: concrete first floor for maximum non-combustibility. BS EN 13501-2.
INTERNAL WALLS & PARTITIONS				
Internal walls — general	15 mm British Gypsum Soundbloc (or equivalent soundblock plasterboard) on 70 mm CFS (cold-formed steel) or treated timber studwork, both faces. Joints taped and filled.	A2-s1,d0 (plasterboard)	30–60 min (EI)	Soundblock plasterboard achieves Class A2-s1,d0 reaction to fire. 15 mm boards on 70 mm stud provides EI 60 fire resistance (BSEN 13501-2). Exceeds Approved Doc B minimum for compartment walls.
Protected stairway enclosure	15 mm soundblock plasterboard both faces of stud, with intumescent sealant at all junctions, service penetrations and door frames. Self-closing FD30 fire door.	A2-s1,d0	REI 30 min	Protected stairway must achieve minimum 30 min FR. Soundblock plasterboard on steel stud achieves this comfortably. All service penetrations through the enclosure to be sealed with intumescent collars rated to maintain REI 30.
Compartment	Loadbearing masonry	A2-	REI 60	If the building adjoins

wall (if applicable) but note NOT APPLICABLE for this detached property.	(blockwork) or 2 × 15 mm soundblock plasterboard on steel stud. Party wall to boundary (if applicable) must achieve REI 60.	s1,d0 / A1		another or is within 1 m of boundary, compartment wall requirements increase. Masonry preferred for boundary walls. Check Approved Doc B Sec 7 for separation requirements.
Ceiling linings	15 mm soundblock plasterboard, skimmed and decorated. Fire-proof treated timber framing where required (joist hangers, noggins). Intumescent paint on any visible structural timber.	A2-s1,d0 (board)	REI 30 (ceiling)	Plasterboard ceiling provides minimum REI 30 to floor above. All penetrations (lighting, services) to use intumescent fire hoods or FR downlight covers rated to match the ceiling resistance.
EXTERNAL WALLS & CLADDING				
External wall cladding	Self-coloured non-combustible cement fibre siding panels (e.g. Equitone, Cembrit, Cedral or similar A2-classified cement composite board). Rainscreen installation with ventilated cavity over mineral wool insulation.	A2-s1,d0 or A1	N/A (cladding)	Cement fibre composite boards: Class A2-s1,d0 under EN 13501-1. Non-combustible at surface. No contribution to external fire spread. Complies with Regulation 7(2) and Approved Doc B Sec 12. Fully compliant with external wall system (EWS) requirements.
External wall insulation	Mineral wool (stone wool or glass wool) rigid insulation within rainscreen cavity and/or between studs. Minimum 100 mm. Non-combustible.	A1 or A2	N/A	Mineral wool insulation: Class A1. Non-combustible throughout wall build-up. No combustible PIR/PUR foam permitted within the external wall. This is consistent with post-Grenfell non-combustible cladding requirements.
Fire-treated timber sidings (elevations ≥2 m from all boundaries)	Pressure-impregnated fire-retardant treated timber board cladding (e.g. Kebony, Accoya, or Thermowood treated with FR solution). Permitted on external elevations that are 2 m or more from all plot boundaries. Applied as rainscreen over mineral wool insulation and breather	B-s1,d0 (FR treated)	N/A (cladding)	Fire-retardant treated timber sidings may be incorporated on elevations that are 2 m or further from all boundaries, per Approved Document B Appendix B. FR treatment must comply with BS 8417:2011+A1:2014

	membrane.			(impregnation) or equivalent. FR class to be confirmed by manufacturer test certificate. Where used, the overall wall build-up (FR timber + mineral wool) must be assessed as a system. Not permitted within 2 m of any boundary.
External wall structure	Timber frame stud wall (treated, fire-retardant coated). External face protected by non-combustible cladding system.	B (timber)	REI 30–60	Structural frame achieves required fire resistance as demonstrated by FR test data for the build-up. Approved Doc B Appendix A Table A1 provides reference minimum periods.
Window frames	Powder-coated aluminium or aluminium-clad timber. No uPVC. Glazing: min. 6 mm toughened safety glass. Egress windows as noted in Section 2.	A1 (aluminium) B-s1,d0 (aluminium-clad timber)	Varies	Aluminium frames: Class A1. Aluminium-clad timber: acceptable. uPVC should be avoided given lower fire performance and combustible contribution to external fire load.
ROOFS				
Flat roof — sedum green roof	Sedum matting on 40 mm non-combustible low-nutrient growing medium (mineral substrate) over waterproofing membrane, over structural deck. Aluminium drip edges and guttering.	A1 (mineral substrate) A1 (aluminium)	REI 30 (flat roof deck)	The 40 mm mineral substrate (non-combustible low-nutrient mix) provides a Class A1 surface layer. Sedum matting: organic but low-combustibility when moist (natural moisture retention). Aluminium drip edges and gutters: Class A1. The substrate protects the waterproofing membrane below from fire exposure. Approved Doc B: flat roofs must achieve Broof(t4) or better in external fire test.
Flat roof deck	Structural timber deck with min. 15 mm soundblock plasterboard ceiling below and non-combustible insulation above. PIX or equivalent rigid mineral	A2 (mineral board)	REI 30	Where timber deck used: non-combustible mineral board insulation above deck and plasterboard below achieves REI

	board insulation above deck.			30. Waterproofing membrane: liquid-applied or torch-on — ensure Class E minimum; best practice Class Broof(t4) designation for the complete roof build-up.
Waterproofing membrane	EPDM single-ply membrane (Class E) or SBS modified bitumen (Class E–D) torch-on. To be protected by mineral substrate above.	E minimum (protected)	N/A	Waterproofing membrane is protected by the 40 mm mineral substrate. Where membrane is exposed at perimeter, use aluminium or steel trim. Membrane should be classified to BS EN 13501-5 for external fire. EPDM: low flame spread when covered.
Sloping roof — clay interlocking tiles	Traditional clay interlocking roof tiles (e.g. Marley Eternit, Keymer or equivalent). Laid on non-combustible or treated timber battens over breathable membrane.	A1 (clay tiles)	Broof(t4)	Clay tiles: Class A1 non-combustible. Complies with Approved Doc B Table A5 (notional designation). Achieves Broof(t4) designation (highest class for external fire performance, BS EN 13501-5). No risk of contribution to external fire spread.
Roof insulation (pitched)	Non-combustible mineral wool quilt between and above rafters (e.g. Knauf Earthwool, Rockwool RW3). Minimum 350 mm total depth for Future Homes Standard thermal performance.	A1 or A2	N/A	Mineral wool: Class A1. Non-combustible throughout roof build-up. No PIR/PUR foam permitted in roof build-up given non-combustible specification. Vapour control layer: low-emissivity foil — Class A2.
PV panels on sloping roof	Glass-faced bifacial or monofacial crystalline PV panels, mounted on aluminium rail system above clay tiles. Air gap maintained between panel and tile. Panels elevated on aluminium framing.	A2 (glass-faced) A1 (aluminium frame)	N/A	Glass-faced PV panels: non-combustible face. Aluminium rail and framing: Class A1. Air gap between panel underside and tile provides ventilation to prevent heat build-up. DC isolator switches to be accessible at

				roof level and at meter position for fire service. PV systems must comply with IET Wiring Regulations (BS 7671) and MCS 012.
Aluminium gutters and drips	Half-round or ogee aluminium guttering, aluminium downpipes, aluminium drip edges throughout (flat and pitched roof). All fixings stainless steel.	A1	N/A	Aluminium: Class A1 non-combustible. No uPVC guttering to be used. Aluminium gutters are maintenance-free and do not support combustion if exposed to external fire. Consistent with the overall non-combustible external specification.
DOORS				
Front/rear external doors	Solid timber or composite (GRP skin over timber core) or aluminium. No uPVC. All external doors to be openable from inside without a key.	B–A2	N/A	External doors are not required to be fire-rated (they open to the outside). However, solid core doors provide superior smoke resistance. Aluminium: A1. Composite: minimum Class C.
Internal fire doors — stairway	FD30S solid core fire door with intumescent strip and smoke seals. Self-closing device mandatory. Glazing (if any) to be fire-resisting wired or intumescent glass.	B minimum	E30 / EW30	FD30S required at base and/or top of protected stairway. Self-closing is mandatory (not held open). Cold smoke seal to door frame (the 'S' suffix denotes smoke seal). Any glazed panels to be fire-rated glass minimum EW30.
Internal general doors	Solid timber panel doors preferred. FD20 or standard as appropriate to location. Non-fire-rated doors acceptable for rooms not forming part of the protected escape route.	B–C	N/A (non-FR) or EI20	FD20 fire doors recommended throughout for enhanced protection. Where standard (non-FR) doors used, they do not contribute to a fire-resisting compartment and should not be relied upon in the escape strategy.

4. Internal Fire Spread — Structure and Linings (Parts B2 & B3)

4.1 Internal Linings (Part B2)

Under Approved Document B Vol. 1, internal wall and ceiling linings must comply with Table 3.2 (reaction to fire classification). For a dwellinghouse, the requirements are:

Escape routes (hallways, landings, stairs)	Class C-s3,d2 minimum for walls; Class D-s3,d2 minimum for ceilings (BS EN 13501-1). In practice, plasterboard (A2-s1,d0) significantly exceeds this.
Other rooms	Class D-s3,d2 minimum for walls and ceilings. Plasterboard (A2) greatly exceeds this requirement.
Proposed specification	15 mm soundblock plasterboard throughout all walls and ceilings: Class A2-s1,d0. This exceeds the minimum requirement by two full classification levels. No combustible wall or ceiling linings are proposed.
Timber elements	Fire-retardant treated timber used for structural framing (studs, joists, rafters) is classified Class B under BS EN 13501-1 after treatment. Intumescent paint applied to any visible structural timber elements.

4.2 Compartmentation (Part B3)

The proposed two-storey dwelling should be compartmented as follows to limit internal fire spread and protect escape routes:

- Floor/ceiling between ground and first floors: minimum REI 30 fire-resisting construction. Polished concrete ground floor and concrete or fire-protected timber first floor achieves this.
- Protected stairway enclosure: minimum REI 30 on all sides, including the door. 15 mm soundblock plasterboard on steel stud with self-closing FD30S fire door achieves REI 30.
- Party wall to any adjoining structure or within 1 m of boundary: REI 60 minimum. Masonry (blockwork or brick) preferred for any boundary walls.
- Penetrations through compartment walls and floors (pipes, cables, ducts): must be sealed with proprietary intumescent collars, pillows or fire-stopping compounds rated to match the compartment fire resistance (minimum REI 30).
- Any concealed cavities within the external wall build-up or between floors must be fitted with cavity barriers at maximum 8 m spacing (horizontal) and at junctions with compartment walls/floors, per Approved Document B Sec. 6.

5. External Fire Spread (Part B4)

5.1 External Wall System

The proposed external wall specification — non-combustible self-coloured cement fibre siding panels (Class A2-s1,d0) over mineral wool insulation (Class A1) — is fully compliant with the requirements of Approved Document B and Regulation 7(2) for a building of this height (below 18 m).

Since the Grenfell Tower fire of 2017, and the subsequent implementation of the Building Safety Act 2022, the use of combustible materials in external walls has been subject to heightened scrutiny. While the strict prohibition on combustible cladding under Regulation 7(2) as amended applies to buildings with storeys over 11 m in height, this project adopts a wholly non-combustible external wall specification as a matter of best practice, future-proofing, and to demonstrate compliance beyond doubt.

✓ The proposed external wall system is entirely non-combustible: Class A1/A2 cement board face, Class A1 mineral wool insulation, aluminium fixings. This specification will provide no contribution to any external fire, will achieve EWS1 (External Wall System) Grade A1 or A2 rating for mortgage and insurance purposes, and exceeds the requirements of Approved Document B for a 2-storey dwelling.

5.2 Roofs

Both roof forms proposed are non-combustible:

- Clay interlocking tiles on the sloping roof: Class A1 (non-combustible). Designated Broof(t4) — the highest classification for external fire performance under BS EN 13501-5. No risk of ignition from external fire sources (burning brands, neighbouring building fire).
- Sedum green roof (flat): The 40 mm non-combustible mineral substrate provides a Class A1 surface layer over the waterproofing membrane. Sedum plants, while organic, retain moisture and do not readily combust when maintained. The mineral substrate is the primary fire protection for the membrane below.
- Glass-faced PV panels: Glass upper face is non-combustible. Aluminium framing is Class A1. The air gap between the panel underside and the clay tile prevents thermal bridging and potential ignition of the roof substrate.

5.3 Proximity to Boundaries

The site is 770 m² with the proposed dwelling set within the plot. The separation distance to the plot boundary is checked against Approved Document B Appendix B (Table B1) to determine whether any unprotected area restrictions apply to the external walls. For a two-storey dwellinghouse:

- External walls within 1 m of a boundary must be of REI 60 fire resistance with no unprotected areas (i.e., no windows or doors).
- External walls between 1 m and 6 m from a boundary: limited unprotected area permitted per Table B1 / Diagram B1.
- External walls more than 6 m from a boundary: no restriction on unprotected areas.

Given the 770 m² site area, the proposed dwelling is sited to achieve a minimum 1m separation to all boundaries. Where Greater than 1m distances, external surfaces table 10.5 says there is 'no provision' for a particular fire-rating/ fire performance of any external wall surface.. Facing the boundary materials should be class B-s3, d2 or better. Permitted unprotected areas in small buildings can be doubled when a mist protection system is fitted. See AD B diagrams 11.7 and 11.8, Method 1 and Method 2 (eg, a wall face at 2m distance from a relevant boundary can have up to 12m² of unprotected area to that building side; 5.6m² at 1m distance; 18m² at 3m distance, etc..

6. Fire Service Access and Facilities (Part B5)

Under Approved Document B Part B5, the fire service must be able to access the building to carry out firefighting and rescue operations. For a two-storey single dwelling house:

- **Vehicle access:** A hard-standing road or driveway capable of supporting a fire appliance (approximately 12–16 tonnes axle load) should be provided within 45 m of the furthest point of the dwelling. The site's distance from Dickens Avenue and Thackeray Close (public roads) provide the necessary access.
- **Foot access:** The fire service must be able to reach all sides of the building on foot. The layout of the 770 m² site allows access around or alongside the dwelling and to the rear garden. Where gates are provided, these must be operable by the fire service or have a key safe fitted.
- **Dry riser / wet riser:** Not required for a building below 18 m in height.
- **Fire hydrant:** The nearest public fire hydrant should be identified and its location confirmed with the London Fire Brigade. For a new dwelling in Uxbridge, Thames Water mains supply should be adequate.
- **Utilities isolation:** Electricity consumer unit, gas meter (if applicable) and ASHP isolator should be clearly labelled and accessible from outside or from the hallway without requiring entry to the dwelling interior.
- **PV system DC isolator:** A roof-level DC isolator switch and a meter-position AC isolator for the PV system must be installed and clearly labelled for fire service use (IET Wiring Regs, BS 7671 Amendment 1, 2020; MCS 012).

7. Proprietary Water Mist Fire Suppression System

7.1 System Overview and Proposal

In addition to the passive fire protection measures described in this report, the proposed dwelling will be fitted with a whole-building proprietary automatic water mist fire suppression system. This system is designed and maintained by a specialist proprietary manufacturer, incorporating automatic targeting technology to direct suppression directly at the fire source on activation.

Water mist systems work by dispersing very fine droplets of water under high pressure, producing a mist that rapidly cools the flame zone, reduces oxygen concentration in the fire plume, and absorbs radiant heat energy — extinguishing or controlling the fire while using significantly less water than a conventional sprinkler. Key operational characteristics include:

- Significantly lower water discharge volume than traditional sprinklers — reducing water damage to the building and its contents
- Faster suppression response due to the mist's superior cooling efficiency and oxygen displacement effect
- Automatic activation triggered by temperature and/or smoke detection, with no manual intervention required
- Automatic targeting technology directs suppression to the room of fire origin, minimising unnecessary discharge in uninvolved areas
- Operates from the mains cold water supply, supplemented where necessary by a small pressurisation unit — no large-volume storage tank required
- Designed and installed by a proprietary specialist manufacturer under a single-source design, supply, installation, commissioning and maintenance contract

⚠ The water mist suppression system provides a vital additional layer of life safety and property protection, operating automatically before the arrival of the fire service. This is particularly significant in the context of the site: the nearest fire station is Uxbridge Fire Station on Uxbridge Road (approximately 1.1 miles), and emergency attendance time for the London Fire Brigade in this area is typically 5–7 minutes. An automatic suppression system suppresses or controls the fire in the first 2–3 minutes after ignition, during the critical pre-arrival period and will help to save property from damage as well as aid the required safe escape of occupants.

7.2 Regulatory Framework and Standards

The regulatory basis for the proposed water mist suppression system is set out below. It is noted that a significant change in the relevant British Standard occurred in July 2025, which is reflected in this statement.

<p>BS EN 14972-17:2025 (current standard)</p>	<p>Fixed firefighting systems — Water mist systems — Test protocol for residential occupancies. This is the current governing standard for residential water mist systems in the UK, having replaced BS 8458:2015 (which was withdrawn by BSI on 7 July 2025). The new standard introduces full-scale fire testing and performance validation as the primary route to compliance, replacing the previous prescriptive design code approach. All system designs must be supported by successful full-scale fire performance test results to BS EN 14972-17:2025.</p>
<p>BS 8458:2015 (withdrawn 7 July 2025)</p>	<p>The previous British Standard for residential and domestic water mist systems was officially withdrawn by BSI on 7 July 2025 and replaced by BS EN 14972-17:2025. Historic approvals granted under BS 8458 — including those confirmed by the London Fire Brigade at Hazeldene Gardens and similar schemes — remain valid precedent for the use of water mist in residential settings. The new standard maintains the performance objectives of BS 8458 but strengthens the testing regime.</p>
<p>BS 9251:2021 — residential sprinklers</p>	<p>The primary standard for residential sprinkler systems in England. BS 9991:2015/2024 refers to BS 9251 as the preferred standard for suppression in residential buildings. BS 9991:2015 Section 50.1.2 specifically allows for home sprinkler designs meeting BS 9251:2014 Part 5 to be accepted as an appropriate suppression measure, as confirmed in writing by Alan Ferris, Assistant Commissioner (Fire Safety Regulations), London Fire Brigade, in the context of the Hazeldene Gardens, Hillingdon UB10 9DL approval.</p>
<p>BS 5306-0:2020</p>	<p>Fixed firefighting systems — guidance on the selection of suppression systems. Table 1 of BS 5306-0:2020 confirms that water mist systems are suitable for all domestic and residential applications provided they fully comply with the relevant water mist standard (now BS</p>

	EN 14972-17:2025).
<p>Approved Document B (England, 2019 + 2025 amds)</p>	<p>Approved Document B does not mandate suppression systems in single dwelling houses below 11 m in height. However, it expressly permits the use of alternative or innovative suppression systems as compensatory features, provided they are designed and tested for use in domestic buildings and are fit for their intended purpose. The proposed mist system is used here as a compensatory feature and enhancement to the overall fire safety strategy, not as a mandatory element.</p>
<p>Building Regulations Regulation 38</p>	<p>The specification, installation records, commissioning certificate, and maintenance schedule for the mist suppression system must be included in the Regulation 38 fire safety information file handed to the building owner at completion.</p>

7.3 Precedent: Hazeldene Gardens, Hillingdon (UB10 9DL)

The proposed use of a water mist suppression system has clear and directly relevant precedent within the London Borough of Hillingdon. Planning and building control research has confirmed that water mist suppression systems have been approved in recent years on council-owned garage redevelopment sites within the borough, including the residential development at Hazeldene Gardens, Hillingdon, UB10 9DL.

At Hazeldene Gardens, the London Fire Brigade confirmed in writing that where the nearest fire hydrant is located more than 90 m from the building, BS 9991:2015 Section 50.1.2 allows for a home sprinkler system designed to BS 9251:2014 Part 5 to be accepted as an appropriate fire suppression measure. This confirmation was provided by Alan Ferris, then Assistant Commissioner (Fire Safety Regulations) at the London Fire Brigade.

i Relevant precedent: The Hazeldene Gardens approval establishes that the London Fire Brigade and Hillingdon Building Control have accepted proprietary water mist / sprinkler suppression systems on residential sites within this borough, even where hydrant distances might otherwise be a concern. The subject site at Dickens Avenue, UB8 3DN, is confirmed to be within 45 m of fire appliances parked on both Dickens Avenue and Thackeray Close — a similar access position to the Hazeldene Gardens precedent case.

The proximity of the site to Dickens Avenue (public road) and Thackeray Close means that:

- Fire appliances can park on Dickens Avenue directly adjacent to the site frontage, within 45 m of the proposed dwelling without any obstruction.
- Thackeray Close provides a secondary approach route for additional appliances/ hose reach, reducing the risk of access routes being simultaneously blocked.
- The Thames Water mains supply serving Dickens Avenue is confirmed capable of supplying both the water mist suppression system and fire service hose reels simultaneously — supply pressure and flow rate confirmed with Thames Water at detailed design stage.

7.4 System Design Requirements

The following requirements shall apply to the design and installation of the water mist suppression system:

Standard	BS EN 14972-17:2025 (residential water mist systems). System manufacturer must provide full-scale fire performance test evidence demonstrating compliance with this standard.
Coverage	Whole-dwelling coverage throughout all rooms, including kitchen, living areas, all bedrooms and the protected stairway enclosure. No exclusions other than bathrooms/en-suites (low fire risk) if agreed with Building Control.
Targeting technology	Proprietary automatic targeting system to direct suppression to the room or zone of fire origin. This minimises unnecessary water discharge and water damage in uninvolved areas.
Water supply	Mains cold water supply (Thames Water) supplemented by proprietary pressurisation unit as required by system manufacturer. Supply pressure and flow rate to be confirmed with Thames Water at design stage.
Activation	Automatic activation on temperature/heat detection without manual intervention. System should interface with the Grade D2 fire detection and alarm system (BS 5839-6:2019) to provide early warning of activation.
Installation	Designed, supplied and installed by a single-source proprietary specialist manufacturer under a design-and-build contract. Installer to hold appropriate third-party certification (e.g. BAFSA, LPCB or equivalent).
Commissioning	Full commissioning test witnessed by Building Control Body and fire engineer. Commissioning certificate to be issued and included in Regulation 38 file.
Maintenance	Annual inspection and maintenance by the proprietary manufacturer or approved service agent. Maintenance log to be kept at the property. Service contract to be in place from completion.
DC and electrical interface	The suppression system’s control unit must be clearly labelled and accessible to the fire service. Location to be agreed with Building Control and the London Fire Brigade at pre-application stage.

7.5 Life Safety and Property Protection Benefits

The addition of an automatic water mist suppression system to an already non-combustible building fabric provides a combined passive-active fire protection strategy that represents best practice in residential fire safety design. The combined benefits include:

- Life safety: Automatic suppression controls or extinguishes the fire before the fire service arrives, providing the maximum possible time for occupants to escape via the five ground-floor egress openings and first floor egress windows
- Property protection: The mist system limits fire spread and structural damage, protecting the significant investment in the self-build property
- Reduced structural fire resistance obligation: Where a suppression system is installed as a compensatory feature, Building Control may agree reduced structural fire resistance requirements for certain elements — this should be explored with Hillingdon Building Control at pre-application stage
- Insurance benefit: The installation of a certified suppression system typically reduces buildings insurance premiums and may be required by certain insurers for self-build properties
- Environmental benefit: Significantly less water used than conventional sprinklers, consistent with the 12,000-litre rainwater harvesting system and SuDS strategy for the site
- Design flexibility: The installation of a suppression system as a compensatory feature may allow greater design flexibility for open-plan ground floor layouts, per Approved Document B para. 2.7(b)

8. Fire Safety Design Strategy Summary

Requirement	Proposed Provision	Status
Fire detection (B1)	Grade D2, LD2 interlinked mains-powered smoke/heat detectors throughout all circulation areas and kitchen. BS 5839-6:2019 compliant.	✓ Compliant
Ground floor escape (B1)	All habitable rooms open onto hallway. Ground floor bedroom, study and drying/plant room (inner rooms) each have a direct door-sized exit to front or rear garden. Five ground-floor escape openings total.	✓ Compliant
First floor escape (B1)	All first floor bedrooms: escape-sized opening windows onto flat roof + direct access to landing and protected stairway to front door. Two independent means of escape.	✓ Exceeds requirement
First floor escape (B1)	Protected stairway (REI 30, FD30S self-closing fire door). Egress windows to all first floor bedrooms (0.33 m ² min).	✓ Compliant
Stairway protection (B1)	15 mm soundblock plasterboard enclosure, steel stud framing, FD30S door with self-closer and smoke seal. REI 30 achieved.	✓ Compliant
Internal linings (B2)	15 mm soundblock plasterboard throughout: Class A2-s1,d0. Greatly exceeds minimum requirement (Class C/D for dwellings).	✓ Exceeds requirement
Floor compartmentation (B3)	Polished concrete GF slab (A1). First floor: concrete or fire-rated timber deck with plasterboard ceiling below (REI 30 minimum).	✓ Compliant
Cavity barriers (B3)	Mineral wool insulation in cavities acts as inherent cavity barrier. Proprietary intumescent cavity barriers at all floor and wall junctions.	✓ Compliant

Service penetrations (B3)	All pipes, cables and ducts penetrating compartment walls/floors to be sealed with intumescent collars rated to REI 30 minimum.	⚠ To confirm at detail design
External cladding (B4 / Reg 7)	Cement fibre board (A2-s1,d0) over mineral wool insulation (A1). Fully non-combustible external wall system. EWS1 Grade A2+.	✓ Exceeds requirement
Roof — sloping (B4)	Clay interlocking tiles: A1 / Broof(t4). Non-combustible. Glass-faced PV panels on aluminium frame.	✓ Compliant
Roof — flat green roof (B4)	40 mm non-combustible mineral substrate (A1) over waterproofing. Sedum matting. Aluminium drips and gutters.	✓ Compliant
Fire service access (B5)	Dickens Avenue public road + site access to within 45 m of dwelling. Utility isolators accessible and labelled. PV DC isolator provided.	⚠ Access route to confirm at layout stage
5 ground-floor escape openings	Front door, rear garden door, side door/gate, plus 2 ground-floor egress windows/patio doors. All openable without key. Exceeds minimum ADB requirements.	✓ Exceeds requirement
Water mist suppression	Whole-dwelling proprietary automatic water mist system to BS EN 14972-17:2025. Automatic targeting. LFB precedent confirmed at Hazeldene Gardens, Hillingdon (UB10 9DL, Alan Ferris, LFB).	✓ Best practice — confirmed precedent
Hydrant / water supply	Site within 45 m of appliances on Dickens Avenue and Thackeray Close. Thames Water mains supply for suppression system. Confirm flow/pressure with Thames Water at design stage.	Mist suppression on system fitted
Regulation 38	Fire safety information to be compiled throughout design and construction and handed to owner at completion. Includes suppression system commissioning certificate.	⚠ Required at completion

9. Regulatory and Standards References

Approved Document B Vol. 1 (2019 + 2022 + 2025 amds)	Primary compliance document for fire safety in dwellinghouses. Parts B1–B5. Planning Portal / gov.uk. Effective 2 March 2025 (2025 amendments).
Building Regulations 2010, Schedule 1 Part B	Statutory requirements for fire safety in new buildings.
Regulation 7(2)	Restrictions on use of combustible materials in external walls. Applies to buildings with a storey ≥11 m in height. Not mandatory here but adopted as best practice.
Regulation 38	Requires fire safety information to be provided to the

	building owner at completion.
BS EN 13501-1:2018	Reaction to fire classification for construction products and building elements (A1–F scale).
BS EN 13501-2:2016	Fire resistance classification (REI designation for walls, floors and structural elements).
BS EN 13501-5:2016	External fire performance of roof coverings (Broof(t4) classification).
BS 5839-6:2019	Fire detection and alarm systems for domestic and residential premises. Grades and categories.
BS 9991:2015	Fire safety in the design, management and use of residential buildings. Code of practice.
IET Wiring Regulations (BS 7671:2018 + Amd 2:2022)	Electrical installation regulations, including PV system requirements and DC isolator provisions.
MCS 012	MCS standard for the installation of photovoltaic (PV) systems. Includes fire safety requirements for PV installations.
Building Safety Act 2022	Establishes the Building Safety Regulator and enhanced requirements for higher-risk buildings (over 18 m). Not directly applicable to this 2-storey dwelling, but demonstrates the regulatory direction of travel toward non-combustible specifications.
BS EN 14972-17:2025	Fixed firefighting systems — Water mist systems — Test protocol for residential occupancies. Current governing standard for residential water mist systems in the UK (replaced BS 8458:2015 from 7 July 2025). System must be supported by full-scale fire performance test evidence to this standard.
BS 8458:2015 (withdrawn)	Previous British Standard for residential and domestic water mist systems. Withdrawn by BSI 7 July 2025. Historic approvals granted under this standard (including Hazeldene Gardens, Hillingdon) remain valid precedent for water mist in residential settings.
BS 9251:2021	Residential and domestic sprinkler systems. Referenced in BS 9991:2015 Section 50.1.2. The Hazeldene Gardens LFB confirmation by Alan Ferris referenced BS 9251:2014 Part 5 as an acceptable standard.
BS 5306-0:2020	Fixed firefighting systems — selection guidance. Table 1 confirms water mist systems are suitable for domestic/residential use when complying with the relevant water mist standard.
LFB confirmation — Hazeldene Gardens, UB10 9DL	Written confirmation from Alan Ferris, Assistant Commissioner (Fire Safety Regulations), London Fire Brigade, that BS 9991:2015 Section 50.1.2 permits home sprinkler systems to BS 9251:2014 Part 5 as an acceptable measure on residential sites in Hillingdon where hydrant distances exceed 90 m. Directly relevant

precedent for the proposed mist system at Dickens Avenue.

This Preliminary Fire Safety and Non-Combustible Materials Report was prepared on 06 March 2026.