



## Hydro Building Systems Limited

### Specification for Aluminium Windows

**Project:** 181-189 Victoria Street, 4-7 Victoria Buildings,  
17-22 Terminus Place, Victoria, SW1E 5NE, London

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<b><u>Revision number</u></b>	<b><u>Date</u></b>	<b><u>Description of change</u></b>
1.11	03.08.2020	First Issue
1.12	04.08.2020	Added configuration
1.13	18.08.2020	Additional info
1.14	25.08.2020	Removed trickle vents
1.15	16.07.2021	Added concealed trickle vents

## SPECIFICATION REFERENCE DOCUMENT FOR ALUMINIUM WINDOWS

### L10 WINDOWS/ROOFLIGHTS/SCREENS/LOUVRES

To be read with Preliminaries/General conditions.

## GENERAL

The footnotes at the end of this Specification apply to the information contained herein and the reader's attention is drawn to them.

## 110 EVIDENCE OF PERFORMANCE

The frames are to comply with all relevant British Standard Specifications, Codes of Practice, and Statutory Requirements (including all revisions and amendments), as well as the guides and recommendations laid down by the relevant trade organisation relating to their performance, constituent materials, methods of assembly and use. Any exceptions to the above are to be advised in writing by the specifier.

All frames and other sections to be extruded to BS EN 755-9: 2016, Specification 6060 T6 or 6063 T6.

All materials and ancillary products are to be used and fitted entirely in accordance with the instructions of the relevant manufacturer.

The window systems manufacturer must hold British Standard Kitemark licences for BS4873 "Specification for Aluminium Alloy Windows" and PAS 24-1:2016 "Enhanced Security performance requirements for doorsets and windows in the UK". Prior to commencement of work on site, the Specialist Contractor shall forward copies of the Kitemark Certificate or equivalent to the Contract Administrator.

## 120 DESIGN, SITE DIMENSIONS AND SURVEY

The Window Fabricator/Installer (Specialist Contractor) is expected to make a pre-tender visit to site in order to ascertain all relevant conditions, structural details and site layout. No additional claim will be entertained for items that would be apparent during the pre-tender site visit and/or inspection of documents. The Specialist Contractor must allow in his tender for the replacement of all items specified and/or required.

The Specialist Contractor shall allow in his price for a survey visit to site in order to take the dimensions and adjacent structural details of every window and door that is to be replaced.

The units supplied are to be manufactured to suit existing openings.

Notwithstanding any information within this Specification, all framing and infills shall be capable of withstanding the design wind loadings calculated in accordance with BS6399 Pt2: 1997 or BS EN 1991-1-1 and imposed loads as defined in BS6399 Pt1: 1996 or BS EN 1991-1-4, and the Specialist Contractor shall carry out calculations to demonstrate this.

The Specialist Contractor is responsible for ensuring that all new windows are square and central in the opening, and that a perimeter gap shall be provided to allow adequate thermal expansion and contraction of the framing, consistent with the site location and limitations of the perimeter sealant used. Any packing sections or materials required to compensate for misaligned apertures shall be agreed by the Contract Administrator prior to manufacture.

The Specialist Contractor shall provide drawings to the Main Contractor depicting all profiles, glazing, weather seals, gasket fixings and sealants to be used and the relationship of the above to the adjacent structural details for each window/door type.

Allow for anomalies and variations in the size of the openings, and for out-of-square openings. This is to include for the manufacture of “specials” as necessary.

The Specialist Contractor is to provide drawings showing the relationship of framing to structure, including all profiles, sealants, fixings, trims and weatherseals.

Opening lights within 800mm of FFL should be guarded in accordance with BS6180:2011 and BS6399:1 or BS EN 1991-1-1

## PRODUCTS

### 330 ALUMINIUM WINDOWS; PRODUCTS

#### **MANUFACTURER AND REFERENCE**

Hydro Building Systems Limited, Severn Drive, Tewkesbury, GL208SF. Tel 01684853500  
**Technal Dualframe 75 Si Casement, Dualslide Vertical Sliding Window System.**

### 335 ALUMINIUM WINDOWS; PERFORMANCE

All windows should meet the requirements of BS4873 “Specification for Aluminium Alloy Windows”

Notwithstanding any information within this Specification, all framing and infills shall be capable of withstanding the design wind loadings calculated in accordance with BS6399 Pt2: 1997 or BS EN 1991-1-4, and imposed loads as defined in BS6399 Pt1: 1996 or BS EN 1991-1-1, and the Specialist Contractor shall carry out calculations to demonstrate this.

The thermal barrier section is achieved using two separate aluminium extrusions and two glass reinforced polyamide extrusions mechanically jointed to form a single compound profile. The sections forming the windows are to incorporate a thermal break, achieved using a high strength, glass reinforced polyamide barrier to PA6.6 GF25.

The thermal break is to be applicable to all profiles, including vents, couplers and cills.

Window frame profiles are to be fabricated using 45° mitred joints. Corners to be reinforced with stainless steel corner ties and two extruded aluminium cleats, joined with two-part adhesive, and secured by mechanical crimping.

Joints to be sealed with sealants as specified by the aluminium systems company fabrication manual.

All fabrication to be strictly in accordance with the system company's Fabrication and Specification Manuals and all current Technical Bulletins.

Aluminium window system to have been tested in accordance with BS EN 1027: 2000 (Windows and Doors. Water tightness. Test method), to meet Exposure Category shown below as defined by BS 6375:1 2009, and to have achieved the following:

<u>Air Permeability</u>	<u>Water Penetration</u>	<u>Wind Resistance</u>	<u>Category</u>
<b>DF 75 Si Casement</b>			
Class 4 (600pa)	Class 9A (600pa)	Class A5 (2000pa)	2000*
<b>Dualslide Vertical Sliding Windows (Non Tilting)</b>			
Class 3 (600pa)	Class 9A (600pa)	AE (2200pa*)	
<b>Dualslide Vertical Sliding Windows (Tilt In)</b>			
Class 3 (600pa)	Class 7a (300pa)	Class A5 (2000pa*)	

\* exposure category varies with width/ height of window and mullion/ transom profile used as these are the only unsupported members. An accurate figure can be obtained from the relevant Eurocode, BS EN 1991-1-4 or BS6399:Part2: 1997 calculations and the profile inertia figures given in the relevant product manual.

The window specified is to achieve a U value ( $U_w$ ) of  $1.8W/m^2K$  when glazed with the materials outlined in Clause 336 below. U value to be calculated according to the smaller window configuration defined in BS EN14351-1; Conventions for U value calculations, in accordance with Approved Document L2B.

## 336 ALUMINIUM WINDOWS; GLAZING

Glazing to windows to be secured by means of internal glazing beads

Glazing to be hermetically sealed double-glazed 28mm units, comprising inner pane of 6.8mm Laminated glass with a low emissivity "soft coat" and an outer pane of 6mm Toughened glass, with an argon filled cavity and Warm edge spacer bar. The sealed units are to have a centre pane U value no greater than  $1.1W/m^2k$ .

All glazing in WCs and bathrooms shall have obscured glass to the inner pane.

All glass within 800mm from FFL shall be toughened or laminated. (Below 1500mm if within a door or 300mm of a door)

All glass and glazing shall conform to:

- BS EN12600: 2002 Glass in building. Pendulum test. Impact test method and classification for flat glass
- BS EN 1279: Glass in Buildings. Insulating Glass Units.
- Part 1:2004 Generalities, dimensional tolerances and rules for the system description
  - Part 2:2002 Long term test method and requirements for moisture penetration
  - Part 3:2002 Long term test method and requirements for gas leakage rate and for gas concentration tolerances.
  - Part 4:2002 Methods of test for the physical attributes of edge seals
  - Part 5:2005+A2:2010 Evaluation of conformity
  - Part 6:2002 Factory production control and periodic tests

Manifestation design and location to be confirmed by the Contract Administrator

Recommendations of the Glass and Glazing Federation should be adhered to.

#### **Notes:**

##### **Heatsoak Testing Procedure**

We recommend Heatsoak testing is carried out where required in accordance with European Standard BS EN 14179: Heat soaked thermally toughened soda lime silicate safety glass. The emphasis of this procedure is to ensure that the glass temperature is maintained at  $290^{\circ}\text{C} \pm 10^{\circ}\text{C}$  during the holding phase of the process cycle. The heat soak process cycle consists of a heating phase, a holding phase and a cooling phase. In summary the procedure consists of controlled heating of a complete volume of toughened glass from ambient room temperature to a temperature of  $290^{\circ}\text{C} \pm 10^{\circ}\text{C}$  and then holding it at that temperature for a minimum period of 2 hours before then allowing it to cool naturally. The procedure is carried out at various locations in audited ovens to ensure that the glass temperature during the holding phase is maintained at  $290^{\circ}\text{C} \pm 10^{\circ}\text{C}$ .

##### **Thermal Safety Check Requirement**

As with all laminated on non heat treated glass types we strongly recommend that a thermal safety check is carried out by via the Installer. This should be carried out where blinds, external brise soleil, ceiling trench or similar may trap warm air pockets close to the non heat treated pane. It is to be noted that laminated or non heat treated glass are not compatible in spandrel areas.

Full Height Barrier glazing must comply with; BS6180: 2011 Barriers in and about buildings. Code of practice.

Please note that if glazed areas form a full height barrier then the glass may need to comply with BS6180:2011 which means that the inner pane may be required to meet relevant POINT, U.D.L and LINE LOADS. If this is the case then the inner pane of glass would have to be a class A non break – either minimum 8.8mm thick or 10mm toughened or greater depending upon acoustic , wind loading , size & dimension of DGU's.

## **337 ALUMINIUM WINDOWS IRONMONGERY /ACCESSORIES**

### **DF 75 Si Casement Windows**

#### **Mechanism**

Technal shootbolt Espagnolette locking system comprising two rods, moving in opposite directions from side of the sash frame into keeps securely fixed to perimeter frame, and with additional centre cam unit. All keeps being profile related supplied by Hydro Building Systems Limited.

#### **Handles**

In line handles to be equipped with a key-deadlocking, push button mechanism with “push to unlock” autolock operation. Hydro Building Systems Limited part number DFP1213/. Handles finished to white/satin silver/black.

#### Hinges

Standard/Heavy-duty stainless-steel friction stays, supplied by Hydro Building Systems Limited and separate lockable restrictor, Hydro Building Systems Limited part code DFP576-579.

#### **Dualslide Vertical Sliding Window (Non Tilt):**

Sliding sashes shall be supported by Caldwell Torso pre tensioned balances, as appropriate for the sash weights.

Integral full width sash lifts and pulls extruded within sash profiles.

The top sash shall be fitted with ring pull for pole use. Poles where needed are to be supplied by the specialist contractor, quantity and length to be advised by the CA.

Single/tandem concealed stainless-steel hook catch operated by a key lockable retained die cast zinc lever.

An Allen key lockable restrictor is to be fitted to the jamb, engaging in the stile of the lower sash, to provide 100mm clear opening of the lower sash. Restrictor to be capable of locked mode, finger releasable mode or disengaged mode allowing unrestricted travel of both sashes.

#### **Dualslide Vertical Sliding Window (Tilt In):**

Sliding sashes shall be supported by Caldwell Torso pre tensioned balances, as appropriate for the sash weights.

Integral full width sash lifts and pulls extruded within sash profiles.

The top sash shall be fitted with ring pulls for pole use. Poles where needed are to be supplied by the specialist contractor, quantity and length to be advised by the CA.

Single/tandem concealed stainless steel hook catch operated by a key lockable retained die cast zinc lever.

A key lockable restrictor is to be fitted to the lower sash interlock, the pin of the restrictor engaging in the stile of the upper sash via a moulded insert. This is to provide 100mm travel of either sash or a combination of both sashes. Restrictor to be disengaged by means of a key which is captive when the restrictor is disengaged.

Sashes shall be fitted with a tilt mechanism, supported on a proprietary pivot shoe and shackle assembly, accurately fixed to the underside of the bottom rail on each sliding sash.

Tilt restriction shall by means pair of Caldwell RA-xxx-GP steel arm and sliding shoe, securely fixed to both upper and lower sashes. Unrestrained tilting sashes shall not be acceptable.

The windows shall not be capable of being tilted without the operation of purpose designed concealed safety catches. Operator knob for safety catch to be removable to prevent inadvertent or unauthorized use of the tilt mode.

No external weather bars.

The Specialist Contractor is to obtain the written confirmation of the Contract Administrator as to the type and position of all ironmongery before commencing manufacture.

### 338 ALUMINIUM WINDOWS TRICKLE VENTILATION

Each window unit is to be fitted with colour-matched powder coated aluminium trickle ventilators, to meet Building Regulations (Part F1, 2010). Ventilator to be secure and adjustable, complete with insect screen. Ventilator to be fitted through the head of the outer frame, with a sleeve between inner and outer units.

Trickle vents to be included at the head of each window and include aluminium cap to conceal external view of trickle vent.

Where the window is of insufficient width to accommodate the level of ventilation required by Approved Document F1 the Specialist Contractor shall bring this to the attention of the Contract Administrator.

Trickle ventilation shall also comply with Approved Document J and BS5440 Part 2: 2009 with respect to ventilation of gas burning appliances. This requirement shall take precedence over the requirements of Approved Document F1.

### 339 ALUMINIUM WINDOWS FINISH

Aluminium sections to be polyester powder-coated to BS EN 12206-1:2004

Colour: RAL Colour to be confirmed by Contracts Administrator.

All finishing to be undertaken by Hydro Building Systems Limited prior to delivery to fabricator.

## EXECUTION

### 710 PROTECTION OF COMPONENTS

Do not deliver to site components which cannot be put immediately into suitable clean, dry, floored and covered storage. Stack near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

Any protective films must be removed within 3 months delivery.



## 750 BUILDING IN

Building in will not be permitted except where specifically stated on the drawings.

## 765 WINDOW INSTALLATION

Frames are to be positioned to cover the cavity within the reveals, and level with the existing external window line wherever possible, ensuring that they are plumb, level and without bow.

The removal of existing windows must be programmed to ensure that units are only removed if they are to be replaced within the same working day. Immediately on removal, the existing windows, together with any debris associated with the removal of existing units, are to be cleared away to an approved tip or storage location. At the end of each working day, the Specialist Contractor shall be responsible for the removal of any debris from the existing units and new materials from site and shall thoroughly clean the working area in accordance with the requirements of the Schedule of Works.

The Specialist Contractor shall allow for all necessary making good of all work disturbed.

Integral timber cills and sub frames with any existing windows and doors are to be removed completely with glazing and ventilation intact. Should any glazing be broken on removal, all glass must be immediately cleaned up, both internally and externally.

Upon completion of the installation of each replacement window, all glazing, window frames, handles and all other surfaces are to be cleaned with a mild detergent. All components are to be checked for security of fixings, adequacy of clearances, adjustment of hinges, locks etc. as may be necessary to leave the window/door units in good working order.

## 770 PREPARED OPENINGS

On removal of the existing windows, doors and associated frames, sub frames, cill etc the reveal surfaces of the opening are to be cleaned to remove all existing frame sealant, mastic, beading mortar etc. ready for the installation of the new units.

DPC materials are to be repaired/renewed as necessary and tucked into the new framing.

## 782 FIXING OF ALUMINIUM FRAMES

As section Z20 using appropriate fixings.

Window framing to be securely fixed direct to the building structure, no further than 150mm from each corner and at centres not exceeding 600mm, as laid down in procedures issued by the systems company.

## 810 SEALANT JOINTS

Seal all external joints between framing and structure with low modulus neutral cure silicone sealant to BS EN ISO 11600: 2003 + A1: 2011. Sealant backing to be provided and detailed in drawings.

## 820 IRONMONGERY

Assemble and fix carefully and accurately using fastenings with matching finish supplied by ironmongery manufacturer. Prevent damage to ironmongery and adjacent surfaces. At completion check, adjust and lubricate as necessary to ensure correct functioning.

### **Footnotes for Specifiers only**

*Footnotes to be used on all specifications which includes NBS*

*Information is given on an advisory basis only and specifiers are particularly recommended to contact suppliers of non-Hydro Building Systems Limited products to ensure that such products are suitable.*

*Hydro Building Systems recommends that a pilot window be installed prior to the commencement of the works.*

#### *Glazing*

*Hydro sealed unit supplier/manufacturer.*

#### *Scope*

*The Specification and accompanying Schedule of window configurations have been designed to replicate the existing arrangements.*

*Any Window and Door Schedules are issued by Hydro Building Systems Limited for the principal purpose of defining the window and door sizes and configurations that this specification refers to. Hydro Building Systems Limited are not liable for the accuracy of any quantities shown on the Schedule, which should be re-assessed by the Specifier.*

#### *Calculation*

*Due to possible changes of design and usage after the compilation of this specification we recommend that the window fabricator/installer calculate framing requirements to comply with Approved Document K3 and BS6180 with regard to loading and barriers. Wind load calculations relating to framing and profile specifications have been carried out on a preliminary basis only using information available at the time, and a basic form of calculation to BS6399 Pt2 1995 or BS EN1991-1-4. The fabricator/installation contractor should provide detailed wind load calculations based on full and final information at the point of order, based on BS6399 Part 2 1997 or BS EN 1991-1-4.*

*Specifiers are advised to check as to whether solar control glass is required to comply with Approved Document L (April 2006/10 of the Building Regulations in respect of solar overheating, or if other methods of solar shading are necessary).*

#### *Fire Exit*

### **Footnotes for Specifiers only (continued)**

*In accordance with BS EN 1125, panic exit bars **alone** should be fitted to doors located at designated escape points. The Specifier should ensure that all such locations are identified as such prior to manufacture.*

#### *Fire Escape*

*Certain Window configurations may not meet the requirement of Approved Document B (2000) of the Building Regulations for a fire escape window. Altering the configurations may achieve compliance.*

#### *Safety in Use*

*Due to client preference or conflicting regulations and standards the windows described above **may not/do not** comply with the safe internal cleaning requirements of BS8213-1:2004 terms of reach.*

*Introducing alternative window configurations may result in a greater degree of compliance with BS8213 Pt. 1.*

*BS8213: Part 1 2004 (Code of Practice for Design For Safety In Use and During Cleaning of Windows...) requires a Risk Assessment to be carried out. Please note that Hydro Building Systems cannot carry out such an assessment as we have insufficient knowledge of the occupation and operation of the building. However we will be happy to contribute our specialist knowledge to a Risk Assessment carried out by others. Consult your Hydro Building Systems Project Consultant for more details.*

#### *Thresholds*

*Door thresholds have not been specified to comply with Approved Document M due to the multi storey nature of the building.*

#### *Document L*

*The windows/screens ref xxxxxx is assumed to be "display glazing" and therefore not subject to Building Regulation Part L.*

*The information contained in this Specification is given on an advisory basis only and specifiers should contact suppliers of non- Hydro Building Systems Limited products to ensure that such products are suitable.*

*Unless expressly agreed otherwise in writing by Hydro Building Systems Limited, specifiers and/or any third party to whom this Specification may be provided must carry out their own design work (including calculations etc) to ensure that Hydro Building System Limited's products are suitable for their particular project. Hydro Building Systems Limited accepts no liability to specifiers and/or any third party in contract, tort (including negligence or breach of statutory duty) or otherwise howsoever in respect of the design of the particular project.*

*In respect of the information contained in this Specification, unless expressly agreed otherwise in writing by Hydro Building Systems Limited:*

*(a) specifiers and/or any third party to whom this Specification may be provided should satisfy themselves as to suitability or not of Hydro Building System Limited's products for their particular project; and*

*(b) Hydro Building Systems Limited shall not be liable to specifiers and/or any third party in contract, tort (including negligence or breach of statutory duty) or otherwise howsoever, and whatever the cause thereof, (i) for any increased costs or expenses, or (ii) for any loss of profit, business, contracts, revenues or anticipated savings, or (iii) for any special indirect or consequential damage of any nature whatsoever."*

*In any event, specifiers will (unless expressly agreed otherwise in writing by Hydro Building Systems Limited) indemnify Hydro Building Systems Limited against all actions, proceedings, claims or demands in any way connected with the information contained in this Specification including (but not limited to) the use of such information in the design of the particular project.*

**NO FIRE-RATED PRODUCTS HAVE BEEN DISCUSSED OR PROPOSED IN THIS DOCUMENT.**