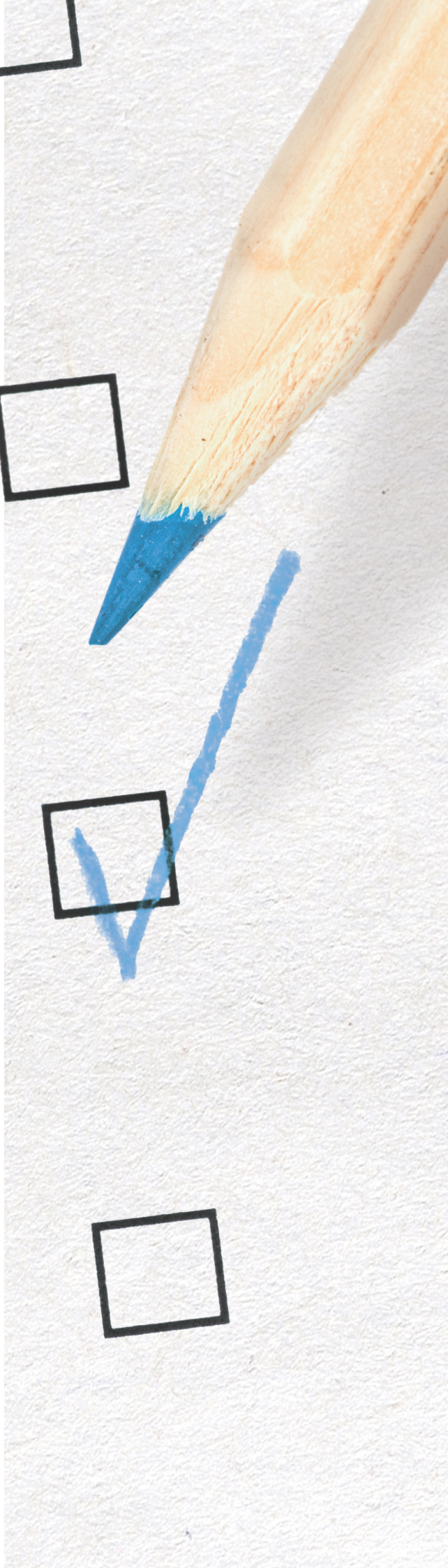
Survey Guide

PVC-U Windows & Doors



WHS HALO

A BOWATER BUILDING PRODUCTS COMPANY

1.0 INTRODUCTION

Survey guidlines have been based on manufacturing and installation knowledge of PVC-U windows and door sets and the British Standards BS8213 - 4. Due to the variety of installation conditions and building details found in the UK, it is not possible to cover all applications. The recommendations in this document shall be regarded as guide to good building practices to ensure satisfactory installations of PVC-U windows and door-sets. You should refer to the fabricator's technical manual, or local building control office for specific technical advice. The WHS Halo product range has been designed to meet the product specification required by Building Regulations.

1.1 SURVEYOR'S ROLE

Define the sales promise and the customer's requirements into products to fit for the purpose and application.

To provide concise information to allow the manufacturing and installation process to be undertaken efficiently.

To obtain from the customer confirmation of any details where the customer can exercise choice.

To verify contractual issues with the customer.

To ensure product designs will conform to statutory requirements.

Prepare a schedule of all consumable materials.

2.0 PRELIMINARY CHECKS

The Surveyor is responsible for ensuring the customer's property is structurally sound for the installation to be successfully undertaken. Preliminary checks:

Establish the suitability of the structural opening

- Presence of structural supports
- Condition of DPC
- Cracks
- Damp

Establish and record any damage to existing fitments and fitting, including:-

- Ceramic tiles
- Sanitary ware
- Roof or cladding material
- Work tops
- Fitted Units

Record the presence of any obstruction and agree an appropriate course of action with the customer:-

- Satellite Dishes
- Telephone Wires
- Aerials

Undertake a risk assessment of the proposed installation:-

- Access equipment
- Asbestos
- Customer and property protection

Consider the building detail and recommend appropriate installation instructions.

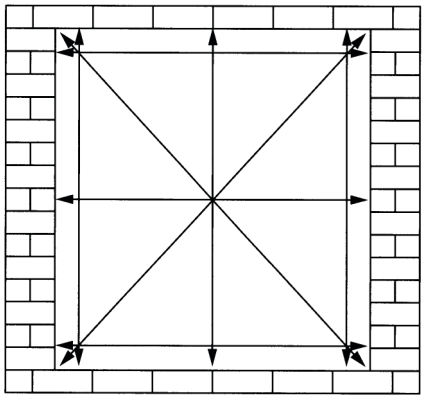
3.0 MEASUREMENT

The width of the aperture should be measured at three points - the top, middle, and bottom of the opening. The smallest of these is used to determine the aperture width.

The height of the aperture should be measured at three points - the left, middle and right of the opening. The smallest of these is used to determine the aperture height.

If the diagonals differ by more than 10mm in length then the smallest height and smallest width MUST be used.

When the resulting gaps exceed the requirements of good joint design, then the gaps may be filled with frame extensions and/or covered with internal/external trims.



The front to back dimension of the existing frame should be checked to ensure that three installation of the new frame would not cause problems with the DPC.

The frame set back dimensions should be calculated to ensure seals and building finishes are not compromised.

The wall surround the aperture should be checked to ensure that it is vertical, level and perpendicular.

The reveal sizes should be checked to ensure that the proposed replacement window or door-set will function.

The method of fitting the sub-sill - for example with horns - should be checked to determine the length of the sub-sill. The sub-sill overhang should project at least 25mm from the front face of the building.

To ensure accurate dimensions are obtained it may be necessary to chop back building finishes such as architraves and render.

3.1 Recommended manufacturing sizes

The deductions for dark-surface profiles including wood grain foiled profiles are 50% higher than for white profiles. This is caused by dark surface profiles reaching higher surface temperatures due to solar radiation than white profiles. These deductions are from the total width or height, and are not 'per side'. All height deductions will be at the head of the PVC-U frame. When calculating height deductions, allowance should be made for height of any silicone or mortar bed at the sub-sill level.

Profile colour	Width up to 3 m	Width up to 3m to 4.5 m
White	10mm	15mm
Dark colours	15mm	22mm

Profile colour	Width up to 1.5 m	Width up to 4.5 m
White	10mm	20mm
Dark colours	15mm	28mm

As stated by BS8213-4

White PVC-U frames will tend to expand or contract by 0.7 mm per linear metre per 10°C temperature increase or decrease. Assuming that a 3 metre wide frame has been manufactured and installed at 20°C, it can expand in total by 4.2mm when heated up to 40°C and can contract by 4.2mm when cooled down to 0°C. Using the 10mm deduction criteria, there will be a 5mm gap either side of the frame with 2.1 mm or 40% taken up by the frame movement which is well within the 50% expansion and contraction range of silicone sealants.

4.0 PRODUCT SPECIFICATION

4.1 Design wind load

Windows and door-sets are required to resist loads imposed by the wind without residual deformation or damage to the glazing. It is the Surveyor's responsibility to determine the Design Wind load for the application, and then to satisfy himself that the elements of the window or door-set – such as glazing, mullions and transoms are suitable.

4.2 Load bearing windows and door-sets

Most flat windows and door–sets are not load bearing, but all flat windows and door-sets must be checked to ensure that there is a lintel or other suitable load-transferring structure above the replacement frames.

It should be assumed that all bay window assemblies are load bearing.
In some cases, it will be necessary to remove render, plaster and / or trim sections to determine the construction methods used in the building.

If the surveyor is in any doubt as to the extent of the loads carried by the bay window, or the methods of construction used, then the advice of a qualified structural engineer must be sought prior to removal of the existing window assembly.

4.3 Frame specification

The surveyor is responsible for correctly specifying the customers frame specification. This shall include:

- Frame configuration: Openings and handling
- Product finish: White, redwood, or golden oak
- Outer frame type: Standard, non-standard
- Outer frame size: 56mm or 70mm
- Glazed: Internal or external
- Locking mechanism: Shootbolt or espag
- Ironmongery: Type, colour and position
- Glazing: Specification and pattern

5.0 BAY WINDOWS

5.1 Surveying of bay windows

There is no requirement for expansion gaps for individual bay segments less tha n 2500 mm wide. The same number of bay poles should be used again in any replacement bay assemblies. In some cases it will not prove possible to establish full construction details for a bay window, and whether there are any defects present in the window structure until the old bay window is removed.

The inspection of the head plate is essential during the survey to determine the condition, position, and type used. Where possible the existing head plate should be retained. Any evidence of timber infestation should be brought to the attention of the customer, and remedial action agreed.

Bay window assemblies traditionally used, have considerable amounts of decorative trims and fascias, which conceal a variety of edge conditions. The edge conditions will affect the manufacturing sizes of the bay segments. Some trims will have to be removed when surveying a bay window assembly.

In general, bay window section sizes and sill layouts are measured from the inside of the property. The fabricator requires back spans, projections and or sill angles for calculating the sill layout. When measuring the height of the bay window the surveyor should take into account the installation process.

5.2 Surveying of Bow, Oriel and Dormer windows

The strength calculations as for the bay poles and head plates are not normally required. In all other aspects they should be treated as bay window assemblies.

Checks should be made to ensure that any supporting member, such as gallows brackets below these types of windows, are sufficient to support them.

Where the cheeks of a Dormer window are to be formed from PVC-U frames, then the assembly should be treated as a bay window, and the applied loads calculated accordingly.

Where the cheeks are solid, and form part of the roof structure of the building an assessment must be made to determine whether the window is to be treated as a load-bearing flat window.

6.0 BUILDING REGULATIONS

6.1 Building Regulations

It is good practice to ensure that replacement windows and door-sets are manufactured and installed in compliance with the current Building Regulations. The most relevant to windows and door-sets are listed as a guide.

6.2 Approved document B: Fire safety

If a window is intended as part of an escape route in case of fire, it needs to provide a minimum unobstructed opening of:

- Minimum of 450mm high
- Minimum of 450 mm wide
- Openable area of 0.33sq metres
- Bottom of the openable area not higher than 1100mm above the floor

The opening shall be unobstructed, therefore the use of top hung sashes or sashes with lockable handles or restrictors are outside the scope of the Building Regulations. Therefore it may be necessary to seek expert advice.

6.3 Approved document E: Resistance to the passage of sound

Good sealing between the window and door-set and the building fabric is critical to the achievement of the desired acoustic insulation. The presence of the smallest gap can impair the effectiveness of the best acoustic window or door-set.

6.4 Approved document F: Ventilation

Building Regulations require the provision of background ventilation. A trickle ventilator built into or added to the window or doorset usually provides this. The required area of ventilation depends on the size of the room and its intended use, see table for general guidelines. Note: The presence of an open flue gas-burning appliance may require special provision of ventilation.

Commercially available 'Gas Board ventilators' fitted to frames will contradict other requirements of the Building Regulations i.e. Conservation of Fuel & Power and Resistance to the passage of Sound. It therefore may be necessary to seek expert advice.

Room	Rapid Ventilation	Background Ventilation	Extract ventilation Fan rates or PSV
Habitable room	1/20th of floor area	8000sqmm	-
Kitchen	Opening window No minimum size	4000sqmm	30 litres/second adjacent to a hob or 60 litres/second elsewhere or PSV
Utility room	Opening window No minimum size	4000sqmm	30 litres/second or PSV
Bathroom	Opening window No minimum size	4000sqmm	15 litres/second or PSV
Sanitary accommodation	1/20th of floor area or mechanical extract at 6 litres/second	4000sqmm	-

6.5 Approved document L: Conservation of Fuel & Power

Approved Document L outlines measures to limit the heat loss through the fabric of the building. A Standard Assessment Procedure (SAP) is described, by which a Building's Energy Rating may be calculated. Double-glazed windows and door-sets are virtually mandatory in all installations. Therefore air leakage and cold bridging are relevant, as is the perimeter aperture sealing of the window or door-set.

6.6 Approved document N: Glazing – materials and protection

Glazing used in the vicinity of the floor and in or near door-sets will usually require safety glazing, toughened or laminated, complying with the requirements of BS 6206. Compliance requires the presence of a permanent certifying mark on each item of glazing.

6.6.1 Critical Locations

Critical locations as described in the Building Regulation Document N are as follows:-

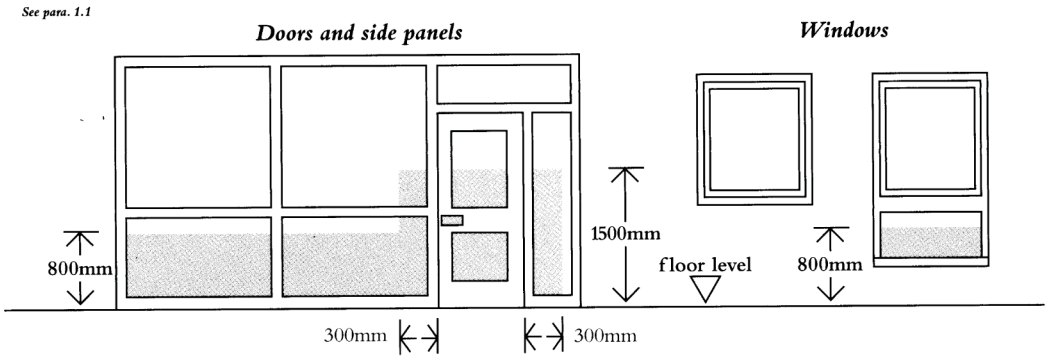
- Finish floor level and 800mm above that level in internal and external walls and partitions
- Between finished floor level and 1500mm above that level in a door or in a side panel close to the edge of the door

Critical locations are further extended in BS6262 glazing for building to cover bathing areas:

- Any glazing located adjacent to a bath or shower area shall constitute a potential danger due to the possibility of a person slipping on a wet surface

See table for general guidelines.

Critical locations in internal and external walls



7.0 Listed buildings

The existence of restrictions limiting the installation of PVC-U replacement frames should be checked, especially for listed buildings and / or buildings with special architectural or historic interest.
There are three main categories of LISTED BUILDINGS:

- Grade I: These are buildings of exceptional interest and outstanding national importance
- Grade II: These are buildings of special interest, which warrant preservation
- Grade II *: These are buildings of particular importance and of more than special interest

Under no circumstances should any attempt to survey and to install PVC-U frame products within these three categories. Surveyors should be aware that every part of the building (including new extensions) and any area / item within the boundary are listed.
The current criteria for LISTED BUILDINGS includes:

- All buildings built before 1700 which survived in anything like their original conditions
- Most buildings built in the period between 1700 and 1840. Buildings built between 1840 and 1914 of certain quality and character, including the work of the principal architect
- Selected buildings built between 1914 and 1939, and a few outstanding buildings built after 1939. Local planning authorities have a duty of care to determine which parts of their area are areas of special architectural or historic interest, and to designate them as CONSERVATION AREAS, and to develop policies and means to enhance or preserve them.

In areas of doubt, the surveyor must contact the Local Authority in order to obtain Conservation area consent for PVC-U replacement products. Surveyors should advise customers that approval may be subject to windows and door-sets designs being 'like for like' to the original.

8.0 FINAL CHECKS

The following details should be checked to ensure that none of these would adversely affect the installation:-

- Is the proposed configuration and handing of the replacement windows and door-sets correct?
- Is the proposed style of replacement window and door-set suitable for the geographical location?
- Is the proposed style of replacement window and door-set within the frame size limits?
- Will the proposed style of replacement window and door-set permit the opening lights to function?
- Will the proposed replacement window or door-set compromise the security of the property?
- Will the proposed replacement window or door-set compromise the safety in case of fire?
- Has the correct use of safety glass been identified in accordance with the Building Regulations?
- Has the required hinge clearance on tilt & turn windows and residential door-sets been maintained?
- Has the required door leaf clearance of 10mm for low threshold door been maintained?
- Has the site adequate access for the installers and the replacement products?

Have the additional requirements of night vents, restrictors, special hardware been identified?

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To discover more on how WHS Halo can help you deliver the sustainable communities agenda and to explore how the services we offer can produce real results, please contact us or visit our website.

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