

Planning Condition	
Subject: PL 15 INSTALLATION OF REPLACEMENT WINDOWS	
NHSPS- Northwood and Pinner Health Centre	
Project Ref: 1319	Date: February 2025



1. Surveying

Good surveying is the basis of ensuring a quality installation. Surveyors will be fully trained in window installation techniques and in the requirements of surveying for the particular window system being used.

The surveyor will carry out a risk assessment for the installation process and the Principal Contractor will provide all the H&S information including a safe working environment and safe access.

The surveyor will check for any apparent defects and deficiencies around the structural opening. If any defects are found, the Principal Contractor will be notified, and agreement reached as to who is responsible to rectify these defects prior to the new windows being installed.

Where bricks are to be removed to install the new windows, the method of any cavity closing will be specified.

Where windows are to be coupled, the surveyor will determine the method to be used including the position of the coupling.

Three measurements of width and height will be taken and the squareness of the aperture determined by taking diagonal measurements- see figure 1.

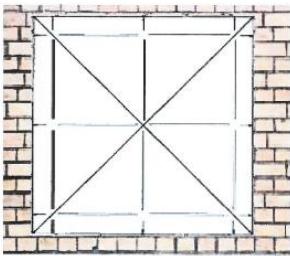


Figure 1 - Squareness measurements

The smallest measurement of width and height is used to determine manufacturing sizes. The need for any sub-sill will be determined. The size of the sub-sill should be such that there is an adequate overhand of at least 25mm from the face of the building. The difference between internal and external reveal sizes will be determined and checks made to ensure that the operation of any opening light will not be impeded by e.g. plaster, render.

2. Installation

General

Prior to the commencement of work, the sizes, type and condition of all windows will be checked both against the survey sizes and types and against the actual aperture size.

The installer is responsible for both internal and external protection of the property during the installation work.

If there are floor covering, these should be protected and care afforded to decorations and furnishings.

Reasonable steps should be taken to minimise any damage to adjacent reveals.

Wherever possible, the installer should install and seal the new windows on the same day that the existing windows are removed, to maintain security and weather tightness of the building. If this is not possible, an alternative arrangement weather tightness will be agreed in advance between installer and Principal Contractor.

The existing windows will be removed with care to avoid unnecessary damage to the building structure and its finishings and without permitting any subsidence of the superstructure during or after the installation procedure.

Window Removal Techniques

ALL WINDOWS TO BE REMOVED AND INSTALLED IN A SINGLE OPERATION AND IN SEQUENCE.

Before the removal of existing windows is started, a risk assessment should be carried out.

Appropriate protective equipment should be worn at all times and any non-essential personnel should be excluded from the immediate area.

Safe removal of putty-glazed fixed lights is imperative. This should preferably be carried out by removing the putty, glazing sprigs, beads or fixing nails and removing the glazing intact.

Alternatively, the glass should be carefully broken, so that the fragments are on the outside of the structure. It is good practice to run a sharp knife between the inside face of the frame and the adjoining plaster, to minimise damage to the plaster when the frame is removed.

Timber Frame windows

Opening casements should be removed first, complete with their glass, by levering the screws from the frames, by unscrewing the hinges, or by cutting through the hinges.

After removal of the casements and fixed light glazing, any mullions and transoms should be cut through and removed from the outer frame of the window.

If the frame fixing nails or screws cannot be found and removed, it will be necessary to cut through the outer frame at an angle which will allow it to be carefully levered from the surrounding aperture - in the plane of the window - so as to cause the minimum of damage to the aperture.

There are often problems with windows under the roof eaves. There may be a brick course resting on the existing frame between the top of the frame and the soffit board. This course is often purely decorative - not load-bearing - and should be wedged into position until the frame has been removed. Also the soffit board - plywood, timber- is frequently nailed to the existing window frame. This joint should be severed by carefully locating and removing or cutting the nails.

Box-Sash Windows

Most box-sash windows pre-date cavity walls and are built into the internal reveals of solid brickwork. The sashes can be removed fully glazed.

- a. Remove the mitred beading from around the frame.
- b. Carefully cut the sash cords to release and lower the weights.
- c. Remove the bottom sash, take off the parting bead and then take out the top sash.
- d. Cut the outer frame from the aperture, leaving the horns in the structure.
- e. Remove the counterweight from the sash box.
- f. Remove the sub-sill, if this is not part of the outer frame.

Metal Frames Windows

There are two distinct methods by which metal windows were fixed:

- Screw-fixed through the frame into timber sub-frames or direct. Firstly remove all glazing from fixed lights, and separate and remove all opening lights from the frames. Then locate the screws holding the metal frame in place and remove them. Finally remove any timber sub-frame as described for timber windows.
- Lug-fixed directly into the aperture. Firstly remove any opening lights with an angle grinder or hacksaw. Then cut through any transoms and mullions and remove them. Remove the lug screws from the frame by driving them through the frame using a suitable punch. Finally cut through each side of the frame with an angle grinder and lever away from the wall, taking care not to damage the fabric of the aperture.

PVC-U Framed Windows

All of the glazing should be removed by removing the glazing beads. A knife may be required to free the glass where glazing tapes have been used.

Opening lights should be separated from the frame and removed.

It is advisable to remove any trim profiles around the windows to allow easier access and to determine the presence of fixing brackets.

1. Through-frame fixings can usually be unscrewed to allow the frame to be removed from the aperture. Care should be taken to minimise damage to the fabric of the building.
2. Fixing brackets can be cut with an angle grinder. Alternatively, it might be possible to remove the screws from the fixing brackets, but this will inevitably cause more damage to the window or door surround.

Sub-Sills

Sometimes sub-sills, heads, window boards, and mullions are 'horned' into the fabric of the aperture. This may conceal DPC's, and lead to difficulties in removal. Great care should be taken when cutting and levering these items to reduce damage to plaster, renders, and brickwork to a minimum. If the DPC is damaged, then it must be repaired or replaced.

Windows Fixings

For correct window fixing, each frame member should be fixed to the structure or to an adjacent frame in order to resist all likely imposed loads which could cause the frame to deflect. These loads might be due to:

- Wind loads
- Operating loads
- Weight
- Accidental impact
- Attempted burglary

Fixing methods are affected by

- The presence or absence of a wall cavity

- The nature and condition of any cavity
- The relative position of the frame and cavity
- The position of the plaster line and the need to minimise disturbance and damage to interior decorations
- The design of the reveal
- Any requirements for fire resistance (timber frame)

Fixings

There are two principal methods of fixing available, which may be used separately or in combination. These are through frame fixings and lug fixings. The manufacturer's instructions should always be followed.

If lug fixings are used they should be of a suitable material to resist corrosion and, if used externally, they should be secured to the wall using "one-way" or other suitable security screws.

Screws should be sized to penetrate at least 25mm into timber, or 40mm into plugged holes in brick, block, or masonry, unless equivalent demonstrable provision can be made by other means, for example by complying with an appropriate structural code. Connections to steelwork up to 2mm thick such as folded sheet lintels should be made with appropriate thread cutting screws. Connections to steelwork over 2mm thick should be into pre-tapped holes with machine screws of minimum 2mm diameter or alternatively with power-driven hardened self-drilling screws.

Fixing Distances

PVC-U Windows

Where possible, all four sides of the frame should be secured as follows:-

- Corner fixings should be between 150 mm and 250 mm from the external corner.
- No fixings should be less than 150 mm from the centre line of a mullion or transom.
- Intermediate fixings should be at centres no greater than 600mm.
- There should be a minimum of two fixings on each jamb.

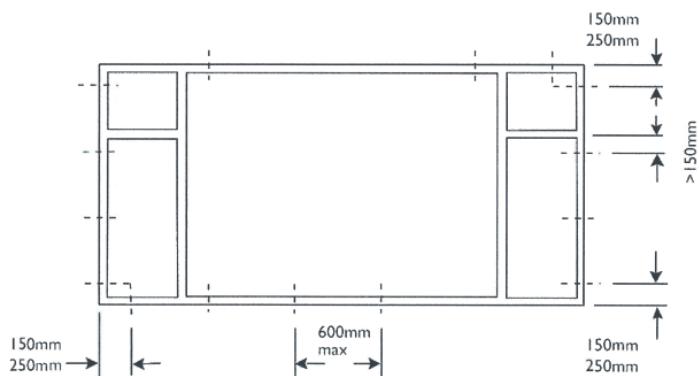
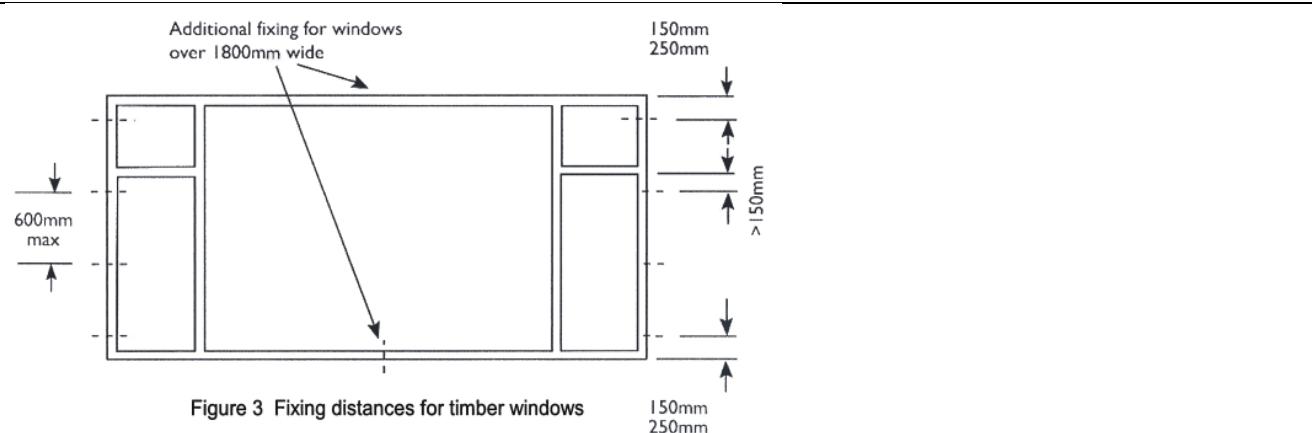


Figure 2 Fixing distances for PVC-U windows

Timber Windows

Where possible, the sides of the frame should be secured as follows:-

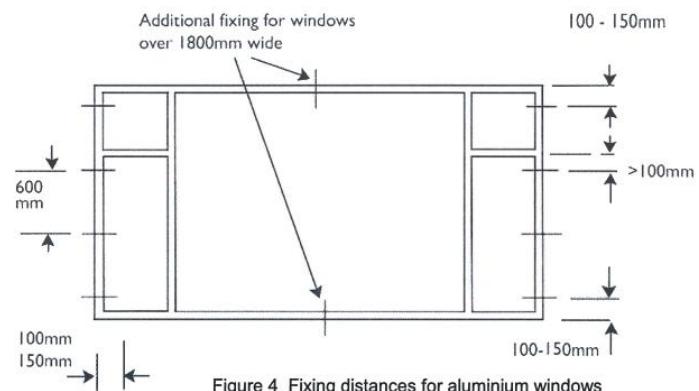
- a. Corner jamb fixings should be between 150 mm and 250 mm from the external corner.
- b. Intermediate fixings should be at centres no greater than 600mm.
- G. There should be a minimum of two fixings on each jamb.
- d. On windows over 1800 mm wide, central head and sub-sill fixings should be provided.



Aluminium Windows

Where possible, all four sides of the frame should be secured as follows:-

- Corner jamb fixings should be between 100 mm and 150 mm from the external corner.
- No fixings should be less than 100 mm from the centre line of a mullion or transom
- Intermediate fixings should be at centres no greater than 600mm.
- There should be a minimum of two fixings on each jamb.
- On windows over 1800 mm wide, central head and sub-sill fixings should be provided.



NOTE: ALWAYS THE FIXINGS TO BE CHECKED/ INSTALLED IN LINE WITH THE MANUFACTURER INSTRUCTION

Installation Packers

Installation packers should be used adjacent to fixing positions to prevent outer frame distortion during installation. Installation packers should be resistant to compression, rot and corrosion. They should span the full depth of the outer frame. The fixings should be tightened so that the frame is held securely against the packers. Over-tightening can lead to distortion and should be avoided.

Where enhanced security is required, additional packers might be necessary adjacent to hinge and locking points.

Finishings

Finishings, such as trims, are generally used to neaten the interface between a window and the substrate. They should not be used to provide or enhance the weather tightness of the window or door or the perimeter

joints. They should be good exterior quality materials used in accordance with the manufacturer's instructions, and colour matched where specified.

Frame position

Replacement windows will be positioned to minimize the amount of making good, taking into account the following points:-

- a. They should be installed plumb and square within the aperture, without twist, racking or distortion of any member in accordance with the manufacturer's recommended tolerances, to operate correctly after installation and in accordance with the surveyor's instructions.
- b. The new frame should bridge the DPC. Any damaged DPC should be repaired.
- c. The frame should be set as far back in the reveal as is feasible for better weather performance.
- d. The correct movement gap should be provided around the perimeter of the window or door.

Open cavities

Open cavities discovered between inner and outer skins of brick or blockwork should be closed with an insulating material. Care should be taken to maintain the integrity of the DPC and adequate purchase for fixing screws should be ensured, if necessary, with extended fixing lugs.

Box Sash Windows

When replacing a box sash window into the original check reveal, the window should be fitted from the inside, with the outer frame hidden behind the brickwork.

Packing should be placed at the ends of the sill to transfer the weight of the replacement sash window into the structure without bowing the sill member. A bowed sill will result in the hardware not engaging.

It is essential that the window be fitted level, without twist and with parallel jambs. Jambs bowing outward will make the sash window draughty, and jambs bowing inwards will mean that the sashes will be excessively tight to slide and will probably not tilt inwards for cleaning.

Expanding foam can be used as an aid to the mechanical fixings, but great care should be taken not to bow the outer frame jambs. If expanding foam is used then packing pieces should be placed between the frame and the sashes, or a brace put across the frame in order to prevent it bowing.

Glazing

All insulating glass units should be examined for damage prior to installation and defective units should not be used.

Insulating glass units incorporating safety glass should be oriented with the safety glass on the appropriate side.

It is a legal requirement that the marking on the safety glass remains visible after installation.

Many windows are delivered ready-glazed. Alternatively they can be supplied with glass units and pre-formed glazing gaskets to be applied on site in accordance with the manufacturer's instructions.

Some systems, e.g. steel windows, require butyl-based, polyethylene, PVC or acrylic glazing tapes. When used externally, these glazing tapes should be capped with silicone sealant.

Other systems use non-setting compounds, gun-grade solvent release sealants, one or two part curing sealants or two part rubberizing compounds.

In all cases the manufacturer's instructions should be followed.

Finishing off and making good

Debris or contaminants should be removed and any drainage paths should be cleared.

Internal reveals should be made good as agreed, ready for the purchaser to redecorate if necessary.

Any materials such as trims or sealant should not be applied on top of loose material.

Protective tapes should be removed as soon as practicable, as ageing of tapes can cause difficulties in removal. Refer to the manufacturer's guidance.

Sand and cement should not be used to fill the gap between the outer frame and the substrate except for backfill for steel windows, usually limited to windows in stone surrounds or interior fair-faced brick and concrete.

Where the replacement product has a smaller front to back dimension than the original, there might be a mastic and/or paint line visible on the substrate which should be removed as much as practicable or covered with a trim.

Sealing

The purpose of perimeter sealants is to repel water and prevent air leakage in the face of differential movement between the aperture and the window. Suitable sealants exhibit and retain flexibility. Sealants should be compatible with the frame, substrate and other materials with which it may come into contact.

The presence of old oil-based mastics and bituminous DPC's can adversely affect the behaviour or appearance of otherwise correctly specified and applied sealants through the migration of hydrocarbons to the surface of the new sealants. Consequent photo-oxidation of the migrant products can affect sealant performance and produce discolouration. This risk should be avoided by removal of unwanted mastic and by keeping sealant away from DPC's.

Perimeter joints should be sealed on both the outside and the inside, with a sealant appropriate to:

- the frame surface
- the substrate material
- joint size and configuration
- anticipated joint movement
- anticipated exposure to weather.

In situations where sealants rely upon atmospheric moisture to initiate curing, deep filling i.e. over 6mm, should be avoided.

The sealant should be applied against a firm backing e.g. foamed PE rod, so that it is forced against the sides of the joint during application. To avoid failure in service, the sealant should not adhere to the backing because this would restrict the lateral movement of the joint. This can be achieved through the use of a closed-cell foam strip such as a polyethylene foam tube.

Wherever practicable, an insulating fill should be inserted or injected around the full perimeter of the frame, between the frame and the structural opening. Any such insulation should be sufficiently flexible that it does not interfere with any expansion and contraction of the frame.

Final Inspection

After installation a final inspection should be carried out, to ensure that the installation is fully in accordance with the current works scope and manufacturer's instructions. Also that the products operate correctly. The installation team and Principal Contractor is to ensure that the final sign off procedure is complete.