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Portland Inn Dilapidation Report

2nd May 2018

**Specification of servicing**

**Stoke on Trent City Council**

**Public Buildings**

**Glass , Glazing & windows**

May 2019

**requirements**

Trevor Wheeldon

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| Stoke on Trent City Council Public Buildings |   |
| **Specification of servicing requirements** |

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| **Procedure title :** | Windows |

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|  **No :** | S56 | **Issue date** | May 2019 |

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| **Scope** |

* Carry out window repairs to public buildings owned by Stoke on Trent City Council.

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| **Standards** |

Basic requirement – attendance/call out response

* Priority Emergency – attend within 2hours, complete work within 14 days
* Emergency – attend within 24 hours, complete work within 14 days
* Urgent – attend within 3 days, complete work within 21 days
* Routine – attend and complete as requested

Frequency

* As required under responsive maintenance and as detailed above.
* Contractor must have the capacity to be able to complete such works as required outside of usual business hours to ensure minimal disruption/inconvenience to each building.

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| **Documentation** |

Certification required

* All persons employed on this contract must have current Asbestos Awareness training and where applicable must be non-licensed trained (UKATA or IATP) – due to GDPR Unitas do not need to see the certificates, records of this training needs to be kept on the contractor’s database, Matrix to be issued with RAMS upon receipt of order.
* All persons employed on this contract must have DBS certification – due to GDPR Unitas do not need to see the certificates, records of this needs to be kept on the contractor’s database, Matrix to be issued with RAMS upon receipt of order.
* All persons employed on this contract must have current CSCS.
* All supervisors/site managers employed on this contract are required to possess a current SSTS or equivalent.
* On-Site Log Book Signed where applicable.
* FENSA Certification to be supplied upon completion of work where applicable.
* All persons employed on this contract who undertakes working at heights by means of temporary scaffolds, working platforms and MEWPS etc. must be PASMA and IPAF trained.

On site

* On arrival contractor must report to reception to sign the asbestos register.
* On-Site Log Book Signed where applicable
* Signed engineers report placed in the site log book before leaving site where applicable.
* Signed, written confirmation of works undertaken, placed in the site log book before leaving the site where applicable. (Certificates)
* Signed certificate placed in the site log book to be entered within 14 days of the installation/repair where applicable.

Off site

* Web based access to an electronic copy of the certificate to be available within 7 days of test where applicable.
* Invoice within 7 days for each individual site completed

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| **Remedial Works** |

* Call out rate, to include 2 hours for operative(s) and vehicle which must include a minimum of 1 hour on site to complete works/make safe and provide full report on further requirements if necessary, for normal working hours and for out of hours emergencies.
* Uplift percentage required for materials purchased on behalf of the contract
* Day work rate – to include for operative(s), vehicle and sundry plant normally used to carry out their work (for works on site in excess of the call-out period)
* Estimated schedule of works as listed, all costs to be for works in excess of the call-out period

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| **Supporting subject specific legislation/ Statutory Guidance** |

Where an appropriate British or equivalent European Standard Specification or Code of Practice issued by any national Standards Institution or other equivalent is current, all construction operations, goods used or supplied shall, as a minimum requirement, be in accordance with that Standard or Code of Practice, without prejudice to any higher standard required by the Contract.

Materials supplied to British Standards and EU standards must be forwarded with relevant manufacturer’s certification as required.

The workmanship is to be of the best quality in accordance with the current BS and EU Code of Practice where such exists appropriate to the works.

All goods and materials used on the works will be handled, stored and fixed in strict accordance with manufacturer’s instructions and details.

All goods and materials used shall be new and fit for purpose.

Re-conditioned or reclaimed goods shall not be used unless specifically instructed by the client.

All components, goods and materials requiring replacement as part of maintenance or repairs should match those originally fitted and so far as possible shall be obtained from the original supplier.

Every element of workmanship shall be carried out in strict accordance with the current British codes of practice, BS8000 “Workmanship on building sites”, European standards and good building practice at all times.

All workmanship shall be carried out in order of priority of the project and run in a sequential route agreed by the client. Works should be carried out in an efficient, logical, methodical and cost effective manner.

The following list refers to standards, specifications, recommended procedures, & output quality.

This list is by no means exhaustive. Notwithstanding the standards referred to hereunder, the Contractor will ensure full compliance with all relevant standards & codes

**The Building Regulations 2010**

Approved Document Regulation 7: Materials and workmanship.

Approved Document A: Structure

Approved Document B: Fire safety - Volume 2 Buildings other than dwelling houses (2006 edition incorporating 2007, 2010 and 2013 amendments) (only applicable in England)

Approved Document C: Site preparation and resistance to contaminants and moisture

Approved Document E: Resistance to the passage of sound (2003 edition)

Approved Document F: Ventilation

Approved Document J: Combustion appliances and fuel storage systems

Approved Document K: Protection from falling, collision and impact.

Approved Document L: Conservation of fuel and power

Approved Document M: Volume 2 – Access and use of buildings other than dwellings

Approved document N: Glazing (1998 edition)

**British Standards**

Working at heights

* BS EN 280:2013+A1:2015. Mobile elevating work platforms. Design calculations. Stability criteria. Construction. Safety. Examinations and tests.
* BS EN 131-2:2010+A2:2017. BS EN 131-2+A2/COR1 Ladders. Part 2: Requirements, testing, marking
* BS EN 1004. Mobile access and working towers made of prefabricated elements. Materials, dimensions, design loads, safety and performance requirements.
* BS EN 1298:1996. Mobile access and working towers. Rules and guidelines for the preparation of an instruction manual.
* BS EN 1495:1997+A2:2009. Lifting platforms. Mast climbing work platforms.
* BS EN 1808:2015. Safety requirements for suspended access equipment. Design calculations, stability criteria, construction. Examinations and tests.
* BS EN 5395-1:2000. Stairs, ladders and walkways. Code of practice for the design and maintenance of straight stairs and winders.
* BS 5974:2017. Planning, design, setting up and use of temporary suspended access equipment. Code of practice.
* BS 7981:2017. Code of practice for the installation, maintenance, thorough examination and safe use of mast climbing work platforms (MCWPs).
* BS 8454:2006. Code of practice for the delivery of training and education for work at height and rescue.
* BS 8460:2017. Code of practice for the safe use of MEWPS.
* BS 8560 AMD 1. Code of practice for the design of buildings incorporating safe work at height.
* BS 8560:2012. Code of practice for the design of buildings incorporating safe work at height.
* BS 8620:2016. Low level work platform with one working platform with side protection for use by one person with a maximum working platform height no greater than 2.5 m. Specification.
* BS 9102:2014. Code of practice for safe working on lifting platforms.
* BS EN 12811-3:2002. Temporary works equipment. Load testing
* BS EN 12811-4:2013. Temporary works equipment. Protection fans for scaffolds. Performance requirements and product design
* BS ISO 16653-1:2008. Mobile elevating work platforms. Design, calculations, safety requirements and test methods relative to special features. MEWPs with retractable guardrail systems
* BS EN 12810-2:2003. Facade scaffolds made of prefabricated components. Particular methods of structural design
* BS EN 12811-1:2003. Temporary works equipment. Scaffolds. Performance requirements and general design
* BS EN 12811-2:2004. Temporary works equipment. Information on materials

Windows

* BS 644:2012. Timber windows and doorsets. Fully finished factory-assembled windows and doorsets of various types. Specification.
* BS EN 1627:2011. Pedestrian doorsets, windows, curtain walling, grilles and shutters. Burglar resistance. Requirements and classification.
* BS EN 1634-1:2014+A1:2018. Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. Fire resistance test for door and shutter assemblies and openable windows
* BS EN 1991-1-4:2005+A1:2010. Eurocode 1. Actions on structures. General actions
* BS 3621:2017. Lock assemblies operated by key from both the inside and outside of the door.
* BS 4873:2016. Aluminium alloy windows and doorsets. Specification.
* BS 5606:1990. Guide to accuracy in building.
* BS 6375-1:2015+A1:2016. Performance of windows and doors. Classification for weather tightness and guidance on selection and specification
* BS 6375-2:2009. Performance of windows and doors. Classification for operation and strength characteristics and guidance on selection and specification
* BS 6375-3:2009+A1:2013. Performance of windows and doors. Classification for additional performance characteristics and guidance on selection and specification
* BS 6510:2010. Steel-framed windows and glazed doors. Specification.
* BS 7412:2007. Specification for windows and doorsets made from unplasticized polyvinyl chloride (PVC-U) extruded hollow profiles.
* BS 8213-1:2004. Windows doors and roof lights. Design for safety in use and during cleaning of windows, including door-height windows and roof windows. Code of practice
* BS 8213-4:2016. Windows and doors. Code of practice for the survey and installation of windows and external door sets
* BS 8621. Thief resistant lock assembly. Keyless egress [2007+A2:2012}
* BS EN 13049:2003. Windows. Soft and heavy body impact. Test method, safety requirements and classification.
* BS EN 13115. Windows. Classification of mechanical properties. Racking, torsion and operating forces
* BS EN 13126-2:2011. Building hardware. Requirements and test methods for windows and doors height windows. Window fastener handles
* BS EN 13126-4:2008. Building hardware. Requirements and test methods for windows and doors height windows. Espagnolettes
* BS EN 13126-7:2007. Building hardware. Requirements and test methods for windows and door height windows. Finger catches
* BS EN 13126-10:2008. Building hardware. Requirements and test methods for windows and doors height windows. Arm-balancing systems
* BS EN 13126-11:2008. Building hardware. Requirements and test methods for windows and doors height windows. Top hung projecting reversible hardware
* BS EN 13126-13:2012. Building hardware. Hardware for windows and balcony doors. Requirements and test methods. Sash balances
* BS EN 13126-15. Building hardware. Hardware for windows and door height windows. Requirements and test methods. Part 15. Rollers for horizontal sliding and hardware for sliding folding windows
* BS EN 13126-16. Building hardware. Hardware for windows and door height windows. Requirements and test methods. Part 16: Hardware for Lift and Slide windows
* BS EN 13126-17. Building hardware. Hardware for windows and door height windows. Requirements and test methods. Part 17. Hardware for Tilt and Slide windows
* BS EN 13126-19:2011. Building hardware. Requirements and test methods for windows and door height windows. Sliding closing devices
* BS EN 14220:2006. Timber and wood-based materials in external windows, external door leaves and external doorframes. Requirements and specifications.
* BS EN 14221:2006. Timber and wood-based materials in internal windows, internal door leaves and internal doorframes. Requirements and specifications.
* BS EN 14351-1:2006+A2:2016. Windows and doors. Product standard, performance characteristics. Windows and external pedestrian doorsets
* BS EN 15269-3:2012. Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware. Fire resistance of hinged and pivoted timber doorsets and openable timber framed windows
* BS EN 15269-20:2009. Extended application of test results for fire resistance and/ or smoke control for door, shutter and openable window assemblies, including their elements of building hardware. Smoke control for hinged and pivoted steel, timber and metal framed glazed doorsets
* BS EN 17213. Windows and doors. Environmental Product Declarations. Product category rules for windows and pedestrian door sets

Glazing

* BS EN 356:2000. Glass in building. Security glazing. Testing and classification of resistance against manual attack.
* BS EN 357:2004. Glass in building. Fire resistant glazed elements with transparent or translucent glass products. Classification of fire resistance.
* BS EN 410:2011. Glass in building. Determination of luminous and solar characteristics of glazing.
* BS 476-7:1997. Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products
* BS 476-22:1987. Fire tests on building materials and structures. Method for determination of the fire resistance of non-loadbearing elements of construction
* BS EN 572-1:2012+A1:2016. Glass in building. Basic soda-lime silicate glass products. Definitions and general physical and mechanical properties
* BS EN 572-2:2012. Glass in building. Basic soda lime silicate glass products. Float glass
* BS EN 572-3:2012. Glass in building. Basic soda lime silicate glass products. Polished wired glass
* BS EN 572-4:2012. Glass in building. Basic soda lime silicate glass products. Drawn sheet glass
* BS EN 572-5:2012. Glass in building. Basic soda lime silicate glass products. Patterned glass
* BS EN 572-6:2012. Glass in building. Basic soda lime silicate glass products. Wired patterned glass
* BS EN 572-7:2012. Glass in building. Basic soda lime silicate glass products. Wired or unwired channel shaped glass
* BS EN 572-8:2012+A1:2016. Glass in building. Basic soda-lime silicate glass products. Supplied and final cut sizes
* BS EN 572-9:2004. Glass in building. Basic soda lime silicate glass products. Evaluation of conformity/Product standard
* BS EN 673:2011. Glass in building. Determination of thermal transmittance (U value). Calculation method.
* BS EN 674:2011. Glass in building. Determination of thermal transmittance (U value). Guarded hot plate method.
* BS EN 675:2011. Glass in building. Determination of thermal transmittance (U value). Heat flow meter method.
* BS EN 1036-1:2007. Glass in building. Mirrors from silver-coated float glass for internal use. Definitions, requirements and test methods
* BS EN 1036-2:2008. Glass in building. Mirrors from silver-coated float glass for internal use. Evaluation of conformity; product standard
* BS EN 1051-1:2003. Glass in building. Glass blocks and glass pavers. Definitions and description
* BS EN 1051-2:2007. Glass in building. Glass blocks and glass pavers. Evaluation of conformity/Product standard
* BS EN 1063:2000. Glass in building. Security glazing. Testing and classification of resistance against bullet attack.
* BS EN 1096-1:2012. Glass in building. Coated glass. Definitions and classification
* BS EN 1096-2:2012. Glass in building. Coated glass. Requirements and test methods for class A, B and S coatings
* BS EN 1096-3:2012. Glass in building. Coated glass. Requirements and test methods for class C and D coatings
* BS EN 1096-4. Glass in building. Coated glass. Part 4. Evaluation of conformity. Product standard.
* BS EN 1096-5:2016. Glass in building. Coated glass. Test method and classification for the self-cleaning performances of coated glass surfaces
* BS EN 1279-1:2004. Glass in building. Insulating glass units. Generalities, dimensional tolerances and rules for the system description
* BS EN 1279-2. Glass in building. Insulating glass units. Part 2. Long term test method and requirements for moisture penetration.
* BS EN 1279-3. Glass in building. Insulating glass units. Part 3. Long term test method and requirements for gas leakage rate and for gas concentration tolerances.
* BS EN 1279-4. Glass in Building. Insulating glass units. Part 4. Methods of test for the physical attributes of edge seal components and inserts.
* BS EN 1279-5. Glass in building. Insulating glass units. Part 5. Evaluation of conformity.
* BS EN 1279-6. Glass in building. Insulating glass units. Part 6. Factory production control and periodic tests.
* BS EN 1288-1:2000. Glass in building. Determination of the bending strength of glass. Fundamentals of testing glass
* BS EN 1288-2:2000. Glass in building. Determination of the bending strength of glass. Coaxial double ring test on flat specimens with large test surface areas
* BS EN 1288-3:2000. Glass in building. Determination of the bending strength of glass. Test with specimen supported at two points (four point bending)
* BS EN 1288-4:2000. Glass in building. Determination of the bending strength of glass. Testing of channel shaped glass
* BS EN 1288-5:2000. Glass in building. Determination of the bending strength of glass. Coaxial double ring test on flat specimens with small test surface areas
* BS EN 1364-4:2014. Fire resistance tests for non-loadbearing elements. Curtain walling. Part configuration
* BS EN 1748-1-1. Glass in building. Special basic products. Borosilicate float glass. Part 1-1. Definitions and general physical and mechanical properties
* BS EN 1748-2-1. Glass in Building. Special basic products. Glass ceramics. Part 2-1. Definitions and general physical and mechanical properties.
* BS EN 1748-2-2. Glass in building. Special basic products. Glass ceramics. Part 2-2. Product standard.
* BS EN 1863-1:2011. Glass in building. Heat strengthened soda lime silicate glass. Definition and description
* BS EN 1863-2:2004. Glass in building. Heat strengthened soda lime silicate glass. Evaluation of conformity. Product standard
* BS 5357:2007. Code of practice for installation and application of security glazing.
* BS 5516-2:2004. Patent glazing and sloping glazing for buildings. Code of practice for sloping glazing
* BS 6180:2011. Barriers in and about buildings. Code of practice.
* BS 6262-1:2017. Glazing for buildings. General methodology for the selection of glazing
* BS 6262-2:2005. Glazing for buildings. Code of practice for energy, light and sound
* BS 6262-3:2005. Glazing for buildings. Code of practice for fire, security and wind loading
* BS 6262-4:2018. Glazing for buildings. Code of practice for safety related to human impact
* BS 6262-6:2005. Glazing for buildings. Code of practice for special applications
* BS 6262-7:2017. Glazing for buildings. Code of practice for the provision of information
* BS EN 12046-1. Operating forces. Test method. Part 1. Windows
* BS EN 12150-1:2015. Glass in building. Thermally toughened soda lime silicate safety glass. Definition and description
* BS EN 12150-2:2004. Glass in building. Thermally toughened soda lime silicate safety glass. Evaluation of conformity/Product standard
* BS EN 12337-1:2000. Glass in building. Chemically strengthened soda lime silicate glass. Definition and description
* BS EN 12337-2:2004. Glass in building. Chemically strengthened soda lime silicate glass. Evaluation of conformity/Product standard
* BS EN 12488:2016. Glass in building. Glazing recommendations. Assembly principles for vertical and sloping glazing.
* BS EN 12600:2002. Glass in building. Pendulum test. Impact test method and classification for flat glass.
* BS EN 12603:2002. Glass in building. Procedures for goodness of fit and confidence intervals for Weibull distributed glass strength data.
* BS EN 12898:2001. Glass in building. Determination of the emissivity.
* BS EN 13022-1:2014. Glass in building. Structural sealant glazing. Glass products for structural sealant glazing systems for supported and unsupported monolithic and multiple glazing
* BS EN 13022-2:2014. Glass in building. Structural sealant glazing. Assembly rules
* BS EN 13024-1:2011. Glass in building. Thermally toughened borosilicate safety glass. Definition and description
* BS EN 13024-2. Glass in building. Thermally toughened borosilicate safety glass. Part 2. Product standard
* BS EN 13541:2012 Glass in building. Security glazing. Testing and classification of resistance against explosion pressure.
* BS EN 14178-2:2004. Glass in building. Basic alkaline earth silicate glass products. Evaluation of conformity/Product standard
* BS EN 14178-1:2004. Glass in building. Basic alkaline earth silicate glass. Float glass
* BS EN 14179-1:2016. Glass in building. Heat soaked thermally toughened soda lime silicate safety glass. Definition and description
* BS EN 14179-2. Glass in building. Heat soaked thermally toughened soda lime silicate safety glass. Part 2. Product standard
* BS EN 14321-1:2005. Glass in building. Thermally toughened alkaline earth silicate safety glass. Definition and description
* BS EN 14321-2:2005. Glass in building. Thermally toughened alkaline earth silicate safety glass. Evaluation of conformity/Product standard
* BS EN 14449. Glass in building. Laminated glass and laminated safety glass. Product standard.
* BS EN 15254-4. Extended application of results from fire resistance tests. Non-loadbearing walls. Part 4. Glazed constructions.
* BS EN 15254-6:2014. Extended application of results from fire resistance tests. Non-loadbearing walls. Curtain walling
* BS EN 15434:2006+A1:2010. Glass in building. Product standard for structural and/or ultra-violet resistant sealant (for use with structural sealant glazing and/or insulating glass units with exposed seals).
* BS EN 15651-2:2017. Sealants for non-structural use in joints in buildings and pedestrian walkways. Sealants for glazing
* BS EN 15681-1:2016. Glass in building. Basic alumina silicate glass products. Definitions and general physical and mechanical properties
* BS EN 15682-2:2013. Glass in building. Heat soaked thermally toughened alkaline earth silicate safety glass. Evaluation of conformity/Product standard
* BS EN 15683-2:2013. Glass in building. Thermally toughened soda lime silicate channel shaped safety glass. Evaluation of conformity. Product standard
* BS EN 15752-1:2014. Glass in building. Adhesive backed polymeric film. Definitions and requirements
* BS EN 15755-1:2014. Glass in building. Adhesive backed polymeric filmed glass. Definitions and requirements
* BS EN 15998:2010. Glass in building. Safety in case of fire, fire resistance. Glass testing methodology for the purpose of classification.
* BS EN 16477-2. Glass in building. Painted glass for internal use. Evaluation of conformity.
* BS EN 16612. Glass in building. Determination of the lateral load resistance of glass panes by calculation.
* BS EN 16613. Glass in building. Laminated glass and laminated safety glass. Determination of interlayer mechanical properties.
* BS ISO 16932:2016. Glass in building. Destructive-windstorm-resistant security glazing. Test and classification.
* BS EN 17257-1. Glass in building. Acid etched glass. Part 1. Definitions and description
* BS EN 17257-2. Glass in building. Acid etched glass. Part 2. Product standard
* BS EN 17258-1. Glass in building. Sand blasted glass. Part 1. Definition and description
* BS EN 17258-2. Glass in building. Sand blasted glass. Part 2. Product standard

**Publicly available specifications**

* PAS 7:2013. Fire risk management system. Specification.
* PAS 79:2012. Fire Risk Assessment. Guidance and a recommended methodology.
* PAS 24:2016. Enhanced security performance requirements for doorsets and windows in the UK. Doorsets and windows intended to offer a level of security suitable for dwellings and other buildings exposed to comparable risk. PAS 3621:2011. Multipoint locking assemblies. Keyed egress. Performance requirements and test methods.
* PAS 8621. Multipoint locking assemblies. Keyless egress. Performance requirements and test methods [2011]
* PAS 8812:2016. Temporary works. Application of European Standards in design. Guide.
* PAS 10621. Multipoint locking assemblies. Dual mode egress. Performance requirements and test methods [2011]
* PAS 79:2012. Fire Risk Assessment. Guidance and a recommended methodology.

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| **Workmanship** |

GENERAL MATTERS

The contractor is to include in his rates for all preambles noted hereunder particularly where measured items are not included later in the documentation

All materials, workmanship and installation methods shall comply with current and relevant Building Regulations along with British and European Standards.

Pay particular attention to Building Regulations Approved Document 7, Regulation 7 2013.

It is the responsibility of the contractor to acquaint themselves with all relevant codes of practice referred to within the specification and to familiarise themselves with all aspects of the work whether explicitly referred to not.

The contractor must familiarise themselves with the site in order to fully appreciate the means of access, facilities for the storage of plant & materials etc. and, be satisfied with all site conditions prior to commencement.

Any works required outside of the specification should be brought to the attention of the client at the earliest opportunity.

In all circumstances guidance provided by the Health and Safety Executive will be strictly adhered to; including, but not limited to the removal and disposal of asbestos containing materials.

For completeness and accuracy all measurements provided are to be checked by the contractor. Any measurements and specification queries should be raised at the earliest opportunity and pre construction stage.

All prices must be inclusive of cutting, marking, health & safety processes, hazard and waste removal, making good and any other related works required to successfully complete each task to the satisfaction of the client.

Temporary removal or replacement of household items and equipment, setting out and cutting of holes, chases etc., lifting and replacing floorboards, traps etc. and making good the fabric of the building for all elements of work must be also included.

Prior to commencement the contractor is to locate, temporarily protect, and/or disconnect as required, any services or utilities affected by works specified. The contractor must ensure subsequent reconnection of the said services upon completion ensuring minimal disturbance to the occupants, with no services being decommissioned overnight unless otherwise agreed with the client.

The buildings may be occupied for the duration of the works and the contractor will be required to carry out the work in such a manner as to cause minimum disturbance to the public use of the properties, avoiding damage to goods, moving and replacing furniture and restitution of any damage caused by their workforce.

The contractor is responsible for ensuring that all finished works are suitably protected from damage during subsequent operations. Any damage that occurs through failure to protect completed works must be rectified at the contractor’s expense, to the agreed specification.

Corridors and entrance doors are to be strictly well maintained and clutter free.

Glazing Generally

011 All glazing shall be undertaken in accordance with the Glass and Glazing Federation Code of Practice and the current Building Regulations Approved Document L as appropriate. In all cases where glazing is associated with window or door replacement involving removal of the primary frame from the building then Works shall be undertaken only by FENSA registered firms of operatives.

012 All glass shall be accurately cut to size with a small clearance.

013 All glass, except that bedded in patent glazing strip, shall be bedded back and front and around perimeter with the putty or mastic neatly trimmed and cleaned off.

014 Glazing shall be sprigged to wood, clipped to metal, or fixed with aluminium, timber beads or, PVCu beads and security clips.

015 Alternatively if gasket glazing is required, glazing gaskets and weather seals shall be extruded from EPDM (Ethylene Propylene Diene Monomer) to comply with the relevant Standard.

016 Obscured glass in single glazing is to be installed with the "rough" side to the inside of the property. Obscure glass to sealed double glazed units is to be installed with the "rough" side to the inside of the unit and the obscure glass to the inside of the property.

017 Rebates and beads shall be sealed or primed before glass is inserted.

Double Glazing Units

018 Setting blocks and distance pieces must be used to centralise the glass, unit or infill within the opening and to ensure that it cannot move under wind loading. Setting blocks are used at the bottom edge of the frame. For fixed windows, they should be positioned as near quarter points as possible, but where it is necessary to avoid undue deflection of the frame, they may be placed nearer the sides, but never less than 85mm from the corner. Each setting block should be 3mm wider than the glass unit or infill and thick as the designed edge clearance. Allow for toeing and healing.

019 Their length should not be less than 25mm and they should be approximately 25mm in length for each metre of major glass dimension. For vertically pivoted windows, they should never be less than 75mm in length.

020 Location blocks should be used between the edges of the glass unit or infill and the top and sides of the frame in an opening light.

021 Distance pieces should be 25mm long and in height 3mm less than the rebate depth. The thickness should be at least 3mm and such as to ensure that the glass is held firmly in the lazing rebate. Rigid PVC shims should be inserted if necessary, to ensure that the distance pieces are a tight fit between the face of the glass and rebate. For beads which fit into continuous grooves, the first distance pieces should be 75mm from each corner, and the remainder to be located at approximately 30mm centres. For beads which are fixed by screws or other studs, distance pieces should coincide with fixing points provided.

Neoprene Glazing Gaskets

022 Glass should be fitted to PVCu windows using glazing gaskets appropriate to the window profile and should be fitted in accordance with manufacturer’s instructions. All glazing gaskets should be angled if possible, but in any event all corners must be mitred.

 Client’s Preferred Manufacturers/Suppliers/Products

023 The following is a sample list of approved manufacturers, suppliers and/or brand names of the Client’s preferred products that shall be used in undertaking the Works associated with Glazing. The Service Provider shall make provision for maintaining adequate stock levels and mixes of such products to be available for use throughout the duration of the Contract. Other equal and approved products may be used only on the Service Provider obtaining prior written approval of the Client Representative.

Glass

001 All glass shall be free from all specks, bubbles, bladders and all other defects.

002 Clear float glass shall be 'ordinary glazing quality'.

003 Obscure/patterned glass shall be clear cast glass to match the existing or of a pattern approved by the Client Representative.

004 Polished plate glass shall be 'glass for glazing quality'.

005 Wired glass shall be Georgian wired cast or Georgian wired polished plate glass, as specified. The wire shall extend to the edges of the glass and be free from rust.

Double Glazed Units

006 Flat hermetically sealed double glazing units are to be manufactured using low-E glass and have a minimum 5 year guarantee details of which must be provided to the Client Representative.

Window Ventilators

007 All window ventilators shall be obtained from an approved manufacturer and shall be fitted in accordance with the manufacturer’s instructions.

Putty

008 Putty for glazing to wood to be linseed oil putty or equal and approved.

009 Putty for glazing to metal is to be metal casement putty.

Intumescent Mastic

010 All mastic to fire doors shall be of an approved type of fire protection sealant tested to BS 476-22:1987.

Key client requirements for workmanship include:

A high quality finish is required to all aspects of workmanship.

All workmanship shall be carried out in order of priority of the project and run in a sequential route agreed by the client. Works should be carried out in an efficient, logical, methodical and cost effective manner.

All operatives shall be appropriately skilled and experienced in their allocated work streams.

All materials for use shall be inspected prior, any defective materials shall be rejected.

All works shall be fixed or laid in alignment using suitable packing’s to take up tolerances and prevent distortion. Do not over tighten or under tighten fixings.

All works are to be completed to ensure there are no unacceptable changes in plane, line or level and finishes have a true and regular appearance.

Tolerances shall be no greater than those emphasised in BS5606:1990, Tables 1&2 (including subsequent amendments)

All repair works shall match as closely as practically possible to the existing design, style and pattern with no exceptions unless agreed in writing by the client representative.

Any defects that arise in completing the works shall be the responsibility of the contractor to rectify. Any defects that result because works are left standing or are damaged during works shall also be rectified by the contractor at his expense.

Any works liable to be damaged by frost are not to be carried out unless precautions against low temperatures are implemented.

All necessary temporary supports for drains, water pipes, gas pipes, electrical cables and telephone cables, should be provided and maintained until the permanent supports are reinstated.

Where necessary temporary flexible tubing should be provided for the efficient discharge of rainwater from the buildings to protect the site and structures during the progress of the works.

Protect all existing works, approaches and adjacent surfaces including windows and doors, etc. using suitable sheeting, boards, covers etc.

Remove all splashes, droppings, etc. from completed works and adjacent surfaces immediately.

All existing surfaces shall be free from staining and damage upon completion

Materials

In the event that any material is not fully specified then the appropriate product used is to be suitable for its purpose and application.

The materials used shall be in accordance with good building practice, complying strictly with all relevant and current British standards or equivalent European standards.

Where a British Standard is referred to within this document the product described shall carry the British Standard kite mark or the manufacturer shall guarantee in writing that the product is made in accordance with the relevant British Standard.

Materials are to be stored, mixed, handled and fixed in strict accordance with the manufacturer’s instructions and recommendations along with the aforementioned workmanship standards.

If any products conflict with the installation procedure or specified requirements, then the client shall be notified at the earliest opportunity.

The contractor shall ensure he has access to a readily available supply of all project related products on commencement of the works.

Where practicably possible, all products shall be obtained from the same source to uphold consistency.

No damaged, degrading, rotting, infested or substandard products shall be installed under any circumstances, and must be immediately removed from site.

In the event of a non-specified product being required then a like for like material to match existing finishes shall be used to the satisfaction of the client.

Reinstatement Materials and Goods

In the event of additional materials or goods being required for reinstatement works, they shall be of matching type and of at least equal quality to the original materials or goods. Contractors are to include provision for careful removal and re-use/renewal of materials and components that would otherwise require reinstatement/replacement

Quality Control

The contractor is to develop, oversee and implement a Quality Control Plan (QCP) to coordinate all project testing, inspections and reporting matters, keeping the client informed at all stages. In the event of poor workmanship the contractor must use appropriate elements of the QCP to intercede directly and stop unsatisfactory work and control further processing, delivery or installation of non-conforming material.

The contractor's inspection process must form three stages:

* Preparatory - a plan of works is to be developed and agreed prior to each phase of work commencing or where sub-contractors carrying out the work phase change.
* Initial Inspections - Are to be undertaken and findings recorded as each work phase commences or where sub-contractors carrying out the work phase change. An acceptable standard of workmanship to be achieved across the works phase must be identified and agreed during this inspection, ensuring compliance with design and material standards.
* Follow Up Inspections - Daily follow up inspections are to be undertaken and results recorded to document evidence of QCP implementation, to identify and rectify non-conformance and to identify any requirement for rectification and subsequent re-inspection.

Documentary evidence illustrating the implementation of the QCP in relation to each work phase and properties worked upon must be made available to the Client throughout the works. On final handover to the Client, the Contractor must ensure that all QCP records are included as part of the Health & Safety Manual.

WINDOW & DOOR SYSTEM

Attention is drawn to the following key Instructions:

The Contractor is responsible for ensuring that the new framing system installation fits to each aperture correctly.

The finished installation dimensions must provide a maximum tolerance of 5mm to the perimeter of the unit.(10mm overall Height & Width)

Should pre-manufacture surveys indicate that this is not achievable the contractor must notify the client immediately.

Prior to starting work on designated items the contractor must take site dimensions, record on shop drawings and use to ensure accurate fabrication.

Off-site fabrication is completely at the risk of the contractor and any additional costs incurred or remediation required as a result of inaccuracies will not be accepted in any event.

All dimensions contained within this document and associated drawings are for tendering purposes ONLY

It is essential that the successful contractor completes an onsite inspection, survey and detailed measure of each property aperture individually, having consideration and understanding of any variances both internally and externally.

Typical archetypal variances observed in this design relate to internal floor screed and external dpc levels

Certification

Provide independently certified evidence to the client that all incorporated components comply with specified performance requirements prior to commencement of work on site.

Preparation

Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication. All dimensions contained within this document are for tendering purposes ONLY.

Fabricate one window of each type as part of the quantity required for the project, and obtain approval of appearance and quality before proceeding with manufacturer of the remaining units.

Application

All framing and infill's shall be capable of withstanding the design wind loadings calculated in accordance with BS EN 1991-1-4:2005+A1:2010. Eurocode 1. Actions on structures. General actions. All windows to be certified Extreme rated in terms of exposure categorisation. Ensure testing is undertaken by accredited UKAS test house. Provide copies of all Kitemark certificates.

Materials (windows)

Allow for the supply and fitting of new REHAU Total 70C (or other equal and client approved equivalent) (Top hung casement window) Colour/ Texture: White (RAL 9016 in strict accordance with BS8213) profile window. The fabricated product is to conform to BS 7412:2007 and BS 6375 Parts 1, 2 & 3

All frames to be factory double glazed to achieve whole frame U-value of 1.5Wm2/k. Toughened safety glass to all triple glazed units within 800mm of finished floor level. 6.4mm laminated outer panes to all GF and accessible windows to comply with Secured by Design, PAS 24 accreditation scheme. Inclusive of all FENSA registration per property and evidence of compliance is to be provided.

All PVCu profiles must be Class "A" in accordance with BS EN12608, achieving minimum BRE 'Green Guide to Specification Online' eating A+.

All frames to be factory double glazed to achieve whole frame U-value of 1.5 Wm2/k. Toughened safety glass to all triple glazed units within 800mm of finished floor level, and to all windows coupled to doors. Obscured glass to inner panel in bathrooms/WCs (Cotswold pattern TBC) 6.4mm laminated outer panes to all GF, FF and accessible windows to comply with Secured by Design, PAS 24 accreditation scheme. Evidence of compliance is to be provided. All window heads to carry PVCu slotted trickle ventilation complete with internal insect screen.

Allow for the following ironmongery/ accessories: , Trojan Key Locking (cranked) White handle, MACO R.A.I.L. (reverse action inline Espagnolettes) or similar approved and 180mm cill, PVC-U slot ventilation.

All horizontal lower rails of frames, transoms and sashes within a window or door shall be drained to allow water to escape. Drain slots (30mm x 55mm) are to be in accordance with the manufacturers technical manual. The frames are to incorporate an adequate means of concealed self-drainage. This is to be achieved using a sub-cill or drainage tray, according to site requirements, allowing drainage through frame of window and exiting via hidden drainage holes in the nose of the sub-cill or drainage tray.

Glazing packers should not obstruct the drainage and profile specific bridging packers must be used. Cill ends to be closed with plastic end caps and sealed. Cill profiles to be selected according to the position of each frame within the structural opening.

Installation (Windows)

Install new windows in accordance with manufactures recommendations on suitable DPC, contractor to submit proposals for approval by PM

All coupled frames MUST be fixed together by the use of 8mm stainless steel schuring or similar bolts; these must be fixed at a maximum of 500mm centres and 200mm from corners/mullions. Drill holes are to be sealed to prevent water ingress. Gaps between frame edges and surrounding construction should be a minimum of 5mm and a maximum of 10mm, all windows should be fitted without twist or diagonal racking.

All framing and infill's shall be capable of withstanding the design wind loadings calculated in accordance with BS EN 1991-1-4:2005+A1:2010. Eurocode 1. Actions on structures. General actions. All windows to be certified Extreme rated in terms of exposure categorisation. Ensure testing is undertaken by accredited UKAS test house. Provide copies of all Kitemark certificates

Materials (doors)

Contractor to allow for the supply and fit new composite doors and frame - System to be REHAU Limited (or other equal and client approved equivalent), reference Total 70C Longleaf style (TBC) 44mm “through” colour white (RAL 9016 in strict accordance with BS8213)external skin (fibreglass faced leaf) wood grained effect, with White PVC-u RAL 9016 inner leaf with white capping to full perimeter of door edge. Damp proof courses in prepared openings must be correctly positioned in relation to door frames and must not be displaced during fixing operations.

Factory double glazed units to achieve a whole frame U-value of 1.6 W/m2k with 6.8mm laminated outer pane and 4.0mm “toughened” inner pane

Doors to be “Secured by Design”, consisting Part M compliant low threshold.

Contractor must consider and include for all allowances and tolerances to existing finished floor levels and step details.

The maximum upstand must account for internal and external levels inclusive of the existing coverings. (i.e carpets etc)

The installation must either achieve a betterment or retain the existing provision.

The door and frame must be fit for purpose & operate in the correct manner.

All surveys must be carried out having completed both an internal and external inspection. Should the above specification be unachievable due to existing conditions within the property, it must be raised immediately prior to instructing manufacture.

Fabrication and installation (doors)

Doors to be sized and fitted in existing opening fixed back to either SFS / Window frame, masonry structure or supporting steel post as required. To be constructed and installed as per manufacturers instructions and recommendations, BS 8213-4:2016/ PAS 2030:2017

Improving the energy efficiency of existing buildings. Specification for installation process, process management and service provision.

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| Good Practice Guide |

General

Prior to the commencement of work the sizes, type and condition of all windows and

doorsets should be checked both against the survey sizes and types and against the

actual aperture sizes.

At the request of the installer, prior to the commencement of the work, the customer

should be given adequate notice to remove any furniture, fixtures or fittings that may

otherwise be damaged during the installation.

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

installation work.

Floor coverings 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 and doorsets

on the same day that the existing windows or doorsets are removed, to maintain security

and weather tightness of the building. If this is not possible, an alternative arrangement

for security and weather tightness should be agreed in advance between installer and

client.

The existing windows and doorsets should 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.

Any electrical or specialist items, such as television aerials or telephone wires should

be re-routed around the frame of the window. Where this is not feasible, then alternatives

should be agreed with the customer. The appropriate service provider should be

employed where necessary.

On completion of the site operations remove from site all debris associated with the works and leave the area clean and tidy ready for reoccupation by the client and to the satisfaction of the Contract Administrator. All plant and equipment etc. are to be removed from site in preparation for occupation.

Window removal techniques

Before the removal of existing windows and doorsets 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 framed windows and doors

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 or asbestos cement (see page 17)

- 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 framed 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 and doors

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.

1. 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.

Roof windows

Remove sash from frame. Roofing material and flashing are then removed from around the

frame to expose the fixing brackets. Remove screws securing the brackets to the roof structure

and remove the frame. At this point the internal lining will either be left in place or removed

depending on re-installation principle.

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.

Window and door fixing

For correct window and door 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 5mm diameter or alternatively with power-driven hardened self-drilling screws.

Other proprietary mechanical fixing methods should be assessed for suitability, preferably by

obtaining an appropriate third party assessment.

Fixings should be at least as corrosion–resistant as BS EN 1670:2007.

The presence of pre-cast concrete or steel lintels may make it impracticable or pose severe

difficulties in achieving the specified fixing distances. In these instances the use of

polyurethane foam has proved a useful adjunct to mechanical fixings. However, foam fixings

should never be used as the sole method of fixing the entire frame into the reveal.

Fixing distances

PVC-U windows and doors

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.

If the head is fixed with polyurethane foam, then the fixings at the head may be as follows:

• Frame width up to 1200mm – no fixings

• Frame width 1201mm to 2400mm – one fixing

• Frame width 2401mm to 3600mm – 2 equally spaced fixings.



 Figure 2 Fixing distances for PVC-U windows

Timber windows and doors

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.

c. 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



Figure 3 Fixing distances for timber windows

Aluminium windows and doors

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

a. Corner jamb fixings should be between 100 mm and 150 mm from the external comer.

b. No fixings should be less than 100 mm from the centre line of a mullion or transom

c. Intermediate fixings should be at centres no greater than 600mm.

d. There should be a minimum of two fixings on each jamb.

e. On windows over 1800 mm wide, central head and sub-sill fixings should be provided



 Figure 4 Fixing distances for aluminium windows

Steel windows

The recommended maximum pitch of fixing positions for steel frames of hot rolled solid section

is 175mm from corners, and then at 750mm intervals. For steel frames of cold formed hollow

section it is 200mm from comers, and then at 900mm intervals. Note that not all holes pierced

around the frame perimeter for fabrication and assembly purposes will necessarily require a

fixing screw.

Roof windows

Remove sash from frame and install frame into existing aperture using new brackets provided.

Provide/renew insulation and felt around frame. Install new flashing and replace roofing

material. If internal lining is being replaced provide additional insulation and vapour barrier

before fitting new lining.

Bay Poles

Where significant loads are being transferred (e.g. several storeys or just a roof) it is

recommended that the bay poles are carried through the sill to the bearing plate. If unsure,

consult a Structural Engineer

For lesser loads it may be possible to position bay poles directly on to reinforced sills. In this

case it is imperative that:

1. the reinforcing system is designed to perform this task, and

2. the system manufacturer’s guidelines are followed.

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.

Cellular extruded PVC-UE trims should conform to BS 7619.

Frame position

Replacement windows and doorsets should generally 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 (if

that option is present).

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 glazing should conform to the recommendations given in the relevant part of BS 6262 and

in BS 8000-0:2014. In addition, any glass or insulating glass unit manufacturer’s instructions

should be followed.

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.

Insulating glass units with low emissivity coatings should be oriented in accordance with the

manufacturer's instructions. Failure to do so can render the coating less effective.

Many windows and doorsets 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. Insulating glass units should be

installed in accordance with BS 8000-0:2014, requiring, where appropriate, the correct use of

setting and location blocks, distance pieces, frame to glass and bead to glass gaskets, bead to

frame air seals, corner sealing blocks, beads and bead end caps, and bedding and capping

sealants.

Scratched glass

The surface of glass can become damaged in a variety of ways. Scratches, graffiti, pollution and other contaminants are the more common causes which can impair the visual quality of the glazing. There is a widely held belief that replacement is the only option for damaged glass. This in fact is not always the case. In common with repairs that are carried out to other building surfaces, on site glass repair by competent GGF members delivers a consistently high quality result that is cost effective, time efficient and sustainable.

The process of repair involves the removal of a minimal amount of the glass surface in order to

rectify the defect, without impairing the visual quality.

In some cases the severity of the surface damage may make repair impractical, this would

normally be advised during the initial survey. In exceptional circumstances an unacceptable

level of distortion may only become evident during or after treatment. In these instances

replacement would be advised.

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.

The method of, and responsibility for, repair to any render should be as agreed with the

purchaser.

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 discoloration. 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, preferably accompanied by the

purchaser, to ensure that the installation is fully in accordance with the surveyor's and

manufacturer's instructions and that the products operate correctly.

The purchaser should be made aware of the method of operation, locking and unlocking and

fire egress. Written operating and maintenance instructions should be provided.. Ideally, all

occupants of a household, other than small children, should carry out the operation of the

windows and doorsets, particularly the operation of safety restrictors and their release for

egress, in order to identify any difficulties any occupant might have and to agree remedies.

Where it is not possible to pass the instructions directly to the occupant, then it is the

responsibility of the purchaser to ensure that the instructions are passed on.

Information on the ordering of spare keys should he provided.

In addition, it is good practice to have the purchaser or purchaser's designated representative

sign off the installation after the inspection has been passed.

**Best Practice Note**

Lintels

It is essential to maintain the integrity of the building.

The necessity for lintels is dependent on the design of the structure, however even If no lintel is

fitted above the existing aperture, the installation company is responsible for assessing if lintels

should be installed because of potential movement in the brickwork. If required, a lintel should

be installed. The installation company cannot avoid the issue on the grounds that because the

original window did not have a lintel, then the replacement does not need one either. The

installation company is responsible for advising whether or not lintels are required. A disclaimer

issued by the customer is not an acceptable practice.

If a lintel is required, the lintel contract can be separate from the window contract and a separate cost would be involved. The installation company would be within their rights to charge for the lintels and for them to be installed. Retrospective remedial work required due to the lintels not being installed would normally be at the installation company’s cost.

Summary:

When existing windows are removed from a cavity wall, the vertical DPC or cavity closer

should be inspected to ensure it is complete and un-damaged. Remedial works to ensure

compliance should be completed prior to the installation of window.

When existing windows are removed from a cavity wall, the horizontal cavity, DPC or cavity

closer at the base of the window should be inspected to ensure moisture will not penetrate

from the external skin of the wall to the inner skin of the wall. Remedial works to ensure

compliance should be completed prior to the installation of window.

When existing windows are removed from a wall built with a checked rebate, the vertical DPC

or cavity closer should be inspected to ensure it is complete and un-damaged. Remedial works

to ensure compliance should be completed prior to the installation of window. Windows should

be re-fitted with a check rebate to ensure compliance with Approved Document C.

Windows should be installed on a bed of sealant across the sill and beads of sealant applied

vertically to the DPC or cavity closer and horizontally across the head of the window to form a

seal between the rear of the window and the wall. Either insulation of suitable backing

materials such as closed cell foam roll should be used in the gap between the window and wall

to ensure the external sealant applied pressure to the frame and wall when applied.

Suitable external sealant should be applied to cover and form a water resistance joint between

the frame and wall.

When the existing door is removed, confirm the type of sill detail fitted, this will either be a

conventional sill or an accessible threshold sill.

If a conventional sill is fitted, the DPC and vertical DPC should be inspected for damage and if

necessary repaired or replaced prior to the installation of the new door. Where a door with accessible threshold is removed, the original method of installation needs to be determined (e.g. directly onto a concrete sill with a DPC wrapped between the threshold and sill, on a timber sill fitted below finished floor level etc.) and the water tightness of the system confirmed.

If a conventional sill is being installed, the door should be fitted in a similar way as described

above for windows.

If an accessible (low) threshold is being installed into an opening that originally had an

accessible threshold fitted, the door should be installed in the same manner as the original

door was fitted with a DPC between the bottom of the threshold and the stone or timber sill

with a sealant between the threshold and DPC.

If an accessible threshold is being installed where a conventional sill was originally fitted, some

additional works may be necessary to correct the height of the sill below the door and to

ensure surface water is directed away from the door to a suitable drainage channel or run-off.

Details of accessible threshold designs can be obtained from The Stationary Office –

Accessible thresholds for new housing or BRE guidance IP17/01.

Doors should be sealed externally as described for windows above but care should be taken to

ensure drainage holes in the external face of the threshold are not blocked.