

SECTION C. SPECIFICATION FOR PRODUCT AND SERVICE

C1. Introduction

It is in your interest to read and consider the whole of this Offer Document (Sections A to G) before preparing your offer.

For definitions of terms used in this Section see Section A.

This Section C sets out the LHC technical and performance requirements for this bulk quotation arrangement.

C2. Applications for which the bulk quotation component will be used

The bulk quotation component will be required for use in all types of new housing and sheltered accommodation, and also for estate modernisations, conversions, rehabilitation and small replacement work, as well as in other types of Public Authority and Housing Association buildings.

C3. Scope of LHC requirements

Offers are invited for the supply and installation of single leaf external door assemblies for dwellings, including the option of sidelights and fanlights. The door leaves may be fibre reinforced thermoset (FRT) faced composite or wood based sheet faced composite. A range of designs and glazing configurations will be required. This bulk quotation arrangement will provide for the supply and installation of these products.

The intention, depending on the evaluation of offers, is to appoint at least three companies, and for all appointed companies to provide both supply and installation, either by employing their own installers or by using suitable installing companies.

Offers are invited in addition to the above, for fire rated door assemblies and smoke check door assemblies for external locations or for entrances to corridor access flats.

C4. Regulations and standards

The products and services offered shall be capable of complying as a minimum with all relevant International, European and British Regulations and Standards.

Unless specifically stated otherwise, any reference in this Offer Document to any Regulation or British or European Standard shall be read as referring to the most recent edition including all amendments current at the date of submission of offers. Attention is drawn to the following:

BS EN ISO 3506-1	Specification for corrosion resistant stainless steel fasteners
BS EN ISO 9001:2000	Quality management systems – Requirements
The Building Regulations:	
- Approved Document B	Fire safety
- Approved Document L1	Conservation of fuel and power in dwellings
- Approved Document L2	Conservation of fuel and power in buildings other than dwellings
- Approved Document M	Access and facilities for disabled people
- Approved Document N	Glazing – safety in relation to impact, opening and closing
BS EN ISO 9227	Corrosion tests in artificial atmospheres: salt spray tests
BS 476-20	Fire tests on building materials and structures
BS 3621	Specification for thief resistant locks
BS 7412	Specification for plastics windows made from PVC-U extruded hollow profiles
BS 7479	Method for soft spray corrosion tests in artificial atmospheres
BS 8213: Part 4	Code of Practice for the installation of replacement windows and doorsets in dwellings
BS 8220	Security of buildings against crime
BS EN 179	Building hardware – Emergency exit devices operated by a lever handle or push pad – requirements and test methods
BS EN 300	Oriented strand boards (OSB) – Definitions, classifications and specifications

BS EN 312 (all parts)	Particleboards - Specifications
BS EN 622 (all parts)	Fibreboards – Specifications
BS EN 635 (all parts)	Plywood – Classification by surface appearance
BS EN 951	Door leaves – Height, width, thickness and squareness – Measurement method
BS EN 952	Door leaves – General and local flatness – Measurement method
BS EN 1026	Windows and doors – Air permeability – Test methods
BS EN 1027	Windows and doors – Watertightness – Test methods
BS EN 1154	Building hardware – Controlled door closing devices – Requirements and test methods
BS EN 1279	Product testing for sealed glazing units
BS EN 1279	Glass in buildings. Insulating glass units. Part 2: 2002 : Long term test method requirements for moisture penetration
BS EN 1279	Glass in buildings. Insulating glass units. Part 3: 2002 : Long term test method and requirements for gas leakage rate and for gas concentration tolerances
BS EN 1303	Cylinders for locks – Requirements and test methods
BS EN 1634-1	Fire resistance tests for door and shutter assemblies: Fire Doors and Shutters
BS EN 1670	Building hardware – Corrosion resistance – Requirements and test methods
BS EN 1774	Zinc and zinc alloys – Alloys for foundry purposes – Ingot and liquid
BS EN 1906	Building hardware – Lever handles and knob furniture – Requirements and test methods
BS EN 1935	Building hardware – Single axis hinges: Requirements and test methods
BS EN 10048	Hot rolled narrow steel strip – Tolerances on dimensions and shape
BS EN 10077	Thermal performance of windows, doors and shutters – Calculation of thermal transmittance
BS EN 12150	Toughened safety glass
BS EN 12207	Air permeability - Classification
BS EN 12208	Watertightness - Classification
BS EN 12210	Resistance to wind load - Classification
BS EN 12211	Windows and doors – Resistance to wind loads
BS EN 12600	Impact resistance of toughened glass
BS EN 13724	Apertures of private letterboxes and letterplates: Requirements and test methods
BS EN 14351-1	Product standard for windows and doors: Panel doorsets without resistance to fire
PAS 23-1	General performance requirements for door assemblies – Single leaf, external door assemblies for dwellings
PAS 24-1	Enhanced security performance requirements for door assemblies – Single leaf, external door assemblies for dwellings

C5. Evaluation of products and services offered

The initial evaluation of products and services offered, for the purpose of identifying the most promising offers, will be carried out on the basis of responses given by tenderers to Section G, on the basis of examination of sample items delivered to the offices of the Sponsoring Officer in accordance with C15, which will be assumed to be truly representative in all respects of the corresponding items referred to in this document and offered by the tenderer, unless the tenderer clearly states otherwise in Section G, and on the basis of the results of observations in accordance with D1.

Companies whose offers appear to be most promising at this stage will then be requested to provide evidence of independent testing in accordance with D1. Also at this stage, if a company has so far been unable to produce existing certification to the satisfaction of the Sponsoring Officer, there will be an opportunity for the necessary testing to be undertaken. Evidence of independent testing shall be obtained through a competent independent testing establishment, one accredited by UKAS.

The Sponsoring Officer may, at his discretion, waive the requirement for any evaluation procedure to be applied to any specimen if acceptable evidence of appropriate previous testing can be produced, or if a specimen is so similar to another specimen that the application of the evaluation procedure to both specimens is in his opinion unnecessary.

The Sponsoring Officer reserves the right to request the application of other evaluation procedures and the submission of other specimens if necessary to verify the performance of any product offered.

In Section G you are requested to provide as part of your offer samples, certification of successful testing and other evidence and information for the purpose of confirming that the products and services which you are offering comply with the requirements of this Section C.

C6. Permitted modifications to meet LHC requirements

Tenderers are recommended to study carefully the requirements of this Section C and to decide whether any modifications to their products will be necessary in order for them to comply.

The selected company may be permitted to make minor modifications to any offered item in the light of the Sponsoring Officer's evaluation, if this is found to be necessary to ensure that the item will comply with LHC requirements and if the modification can be satisfactorily incorporated prior to the start of the Bulk Quotation Period but such modification may be made only with the Sponsoring Officer's approval and without alteration to the price offered for that item in Section F of this document.

At G2 you are required to describe any differences between the offered products and services and the requirements of this Section C.

C7. Maintaining the agreed specification

Throughout the bulk quotation period, the bulk quotation component must satisfy the performance requirements set out in this Section C, must be consistent in quality and appearance, must be obtained from reliable sources, and must conform with the specification as finally agreed between the Sponsoring Officer and the appointed company. Deviations from this specification will be permitted only after written approval from the Sponsoring Officer, who at his sole discretion, may require additional testing the cost of which is to be borne by the appointed company if a characteristic of major importance is likely to be affected.

At Section G3 you are required to give your formal acceptance of these terms and conditions.

C8. Changes during the bulk quotation period

The appointed company will be required to give reasonable notice to the Sponsoring Officer of the introduction or withdrawal of any product, material or service. A reasonable period must also be allowed between the time when no further orders are accepted for a particular item and the time when that item ceases to be available, in order to give adequate continuity on projects for which that item has already been ordered.

At Section G4 you are required to give periods of notice of changes which may occur during the arrangement.

C9 . Service requirements

C9.1. Notice required for deliveries/attending site

It is envisaged that users of this arrangement will require doors to be delivered/fixed:

- In single consignments, if the site allows enough space for a compound, or more usually
- In split consignments, if the site is spread over a large area or for contractual or programming reasons, not less than one dwelling-lot

The periods of notice in working days from the receipt of written order or agreement of final drawings and details, whichever is the later, required in relation to any project for:

Attending site to take manufacturing sizes	7 days
Delivery/fixing in one consignment	30 days
First delivery/fixing of a split consignment	30 days
Postponement of deliveries/fixing	10 days
Change of rate of call-off (increase or decrease)	15 days

At Section G5.15 you are asked to confirm these periods of notice.

C9.2 Sales and service

Quotations for projects shall be provided on request in accordance with the terms, conditions and pricing structure agreed between the appointed company and the Sponsoring Officer as the basis of the bulk quotation arrangement. The period of time required to issue a quotation from receipt of initial enquiry shall be within 3 weeks provided that the user's brief adequately describes the work required.

Sales service is an essential part of the arrangement.

At G5.19 you are asked to state the number of sales/marketing staff employed.

C10. Products required

You may offer one or more door leaf construction systems as indicated in C3, for example, FRT faced composite doors.

Note that for the purposes of this offer document, a door leaf of composite construction can include any type that consists essentially of two skins enclosing a core of some kind between them.

Section G provides for the door leaf construction you wish to offer. If you wish to offer more than one, please make copies of the appropriate pages of Section G.

Door leaf designs should include at least those shown below. The door skins should be through coloured to include: white, red, blue and green as a minimum. The door leaves offered should preferably have been commercially available from your company for at least 12 months.

You may offer one or more door frame construction systems from the following:

PVC-U or hardwood

If you wish to offer alternative door frame systems, please submit suitably adapted versions of the appropriate pages of Section G.

At Section G5.14 please enclose a brochure of the products you intend to offer.

C10.1 Door leaf types



A



B



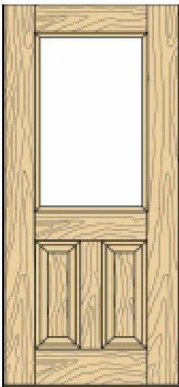
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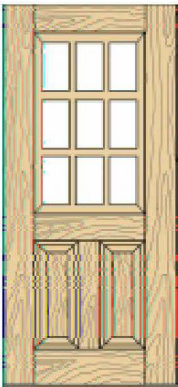
D



E



F



G

C11. Samples

You are not required to submit samples at this stage.

However, companies submitting the most promising offers may be asked to provide samples for inspection by the Sponsoring Officer. Such samples should demonstrate the following:

- Leaf construction including lock side and hinge side edges
- Frame construction including a top corner of the frame, and any seals
- Glazing system mounted in leaf
- Letter plate mounted in leaf
- Two hinges attaching leaf to frame; the sample should enable the swing of the leaf, and any adjustability on the hinges, to be demonstrated
- Standard threshold; the sample should include sill and part door leaf to enable the effectiveness of any threshold seal to be demonstrated
- Low threshold for wheelchair users; the sample should include sill and part door leaf to enable the effectiveness of any threshold seal to be demonstrated

These samples would be required to be cut away where appropriate to show sections through the leaf and glazing system.

C12. Manufacturing tolerances for door leaves and frames

When measured in accordance with BS EN 951 the overall height and width of the door leaf shall be within ± 3 mm, and the thickness shall be within ± 1 mm, of the nominal dimension.

When measured in accordance with BS EN 952 the deviation from flatness of the door leaf shall not exceed 4 mm for bow and twist, and 2 mm for cup.

Frames, with or without sidelights or fanlights, shall be capable of being installed with a maximum difference of 4 mm in the dimensions of the diagonals.

In Section G you are requested to confirm that the offered products meet these requirements.

C13. Glass specifications

Glass in door leaves, sidelights and fanlights shall meet the performance requirements for thermal insulation and impact safety, relevant to the location of the glass, set out in Approved Documents L and N of The Building Regulations. This will include the need for safety glass to be impact tested.

Sealed double glazing units shall conform to BS EN 1279.

In addition, glass in fire door assemblies including any sidelights and fanlights shall meet the relevant requirements of Approved Document B of The Building Regulations in respect of FD30 and doors.

Glazing with laminated glass at least 6.8 mm thick should be available as an option to conform with Secured by Design requirements in situations where PAS 24 applies.

In G5.2 you are requested to state the types of glass and double glazing units which you are offering in the locations concerned, in order to meet the relevant requirements of The Building Regulations.

C14. Timber and wood based materials

C14.1 Timber sources

Softwood and hardwood will not be permitted in any offered product, including wood based panel products, unless it is shown to be from sources currently certified by the FSC as sustainably managed sources.

In G5.3 you are requested to provide evidence of sourcing and FSC certification.

C14.2 Wood based panels

Wood based panels on or in door leaves should conform to the appropriate requirements of:

- BS EN 300, for oriented strand board;
- BS EN 312, for particleboard;
- BS EN 622, for fibreboard;

- BS EN 635, for plywood.

C15. Mechanical frame fixings

All ferrous fixings which are exposed or partly exposed to the weather when the door is closed shall be of austenitic steel to Grade A2 or A4 of BS EN ISO 3506-1.

Fixings which are concealed when the door is closed may be of ferritic steel with a corrosion resisting treatment conforming to Grade 3 of BS EN 1670.

In G5.13 you are requested to confirm that the offered products meet these requirements.

C16. Hardware specifications

C16.1 General

All door-sets, including the hardware, must meet the requirements of PAS 24-1: 1999, incorporating Amendments Nos. 1, 2, and 3 and Corrigendum No. 1. 'Enhanced security performance requirements for door assemblies'. The cylinders and handles should be capable of sustaining a minimum of 50,000 cycles of operation without any significant deterioration that would reduce their performance, as referred to in PAS 23-1 paragraph 6.11. All external components must meet BS EN 1670: 1998 Grade 3, 'high' corrosion resistance when tested in accordance with BS EN ISO 9227 'Corrosion tests in artificial atmospheres: salt spray tests'.

C 16.2 Handles

Handles should be Lever/Pad or Lever/Lever with a spring cassette system and snib retention of the latch, complying with BS EN 1906 'Building Hardware; lever handles and knob furniture' Security Grade 1, with Levers on fire doors complying with Fire Resistance Grade 1. To be manufactured from die cast zinc and powder coated in White, Silver, Gold PVD plate or Silver polished chrome. Corrosion resistant to BS EN 1670: 1998 Grade 3, 'high' corrosion resistance and tested to 50,000 cycles of operation in accordance with PAS 23-1. The handle should include a cylinder guard for the security protection required under the PAS 24-1, 2006 amendment.

C16.3 Cylinder locks

Cylinders should meet the requirements of BS EN 1303: 2005 'Building Hardware. Cylinder for locks: Requirements and test methods.'-Durability Grade 5- 50,000 cycles, Key related security to Grade 6- anti-pick, and attack resistance to Grade 2- anti-drill of 5-10 minutes. Locking shall be by thumb turn internally and by key operation externally.

C16.4 Hinges

Three hinges per door-leaf, and to meet the requirements of PAS 23-1, and BS EN 1670: 1998 Grade 3 'high' corrosion resistance. They should be tested to BS EN 1935:2002 'Building Hardware: Single axis hinges: Requirements and test methods' with 100Kg to each hinge and 25,000 cycles of operation (grade 4).

C16.5 Letter plates

Letter plates should comply with BS EN 13724: 2002, 'Apertures of private letterboxes and letter plates: Requirements and test methods.' Where installed in fire doors, the letter plate must provide in excess of half hour integrity to BS 476- 20/22 and be fitted with smoke-seals. Finishes to be silver anodised, gold anodised, polished gold anodised, black, or white. The inner-hinged flap of the letter plate shall have a restrictor hood so designed to limit the opening of the inner-hinged flap and to prevent intruders gaining access to the internal thumb turn via the letter plate aperture.

C16.6 Door viewer and chain

Each front door shall be provided with a door viewer with a wide angle of vision (min 70°), have a maximum diameter of 19mm, and shall be C.P. Brass, Aluminium, white powder coated or as specified by the contract administrator. The viewer shall be fitted with an internal swivel cover to prevent light emission and viewing from outside. The door viewer shall be positioned at a height to suit the occupant's requirements. Special consideration should be given to occupants with visual impairments.

All front doors are to be fitted with a security chain, with fixings to be strictly in accordance with the manufacturers instructions. Chains are to be fixed at 1440mm from the bottom of the door.

C16.7 Other requirements

The contractor will be required to provide the customer with a set of clear operating instructions, and these must explain the key locking process in simple terms together with a diagram illustrating the locking process. It must be made clear to the resident prior to handover that the door will remain insecure if not locked by the thumb turn internally.

All components should be supplied by a manufacturer complying with BS EN 9001: 2000 accredited quality system and be covered by the manufacturer's "Partnership Pledge", 10 Year Audited Warranty Scheme. A warranty certificate is to be issued by the hardware manufacturer on completion of the project.

Door hardware must be supplied from a manufacturer holding a product license under the auspices of the Home Office "Secured By Design" initiative with the aim of fulfilling the obligations placed on the housing provider to ensure a reasonable level of security to the occupants as outlined in Section 17 of the Crime and Disorder Act 1998. Components such as handles and locking mechanisms are to be capable of offering adaptations in accordance with the Disability Discrimination Act Part 3 2005 and the housing providers Disability Equality Duty 2006.

C17. Evaluation criteria

The following attributes will be evaluated by the Sponsoring Officer or his representative on the basis of visits to sites where the products have been installed:

- General appearance
- Uniformity of finish and colour
- Colour fastness
- Extent of distortion and deterioration
- Effectiveness of weatherseals
- Durability of surfaces and finishes
- Durability of seals and hardware fixings
- Workmanship

The following attributes will be evaluated in the course of factory visits by the Sponsoring Officer or his representative:

- Appearance
- General robustness of construction
- Attachment of hardware
- Adjustability of hinges
- Prevention of moisture penetration
- Suitability of glazing system, including possibility of glazing and re-glazing installed door assemblies without removing the door frame from the structure of the building.
- Suitability of door frame design and construction
- Suitability of threshold design and construction, including ability of low thresholds offered to conform to Part M of The Building Regulations
- Scratch resistance and adhesion of finishes

The adequacy of quality control procedures will be evaluated in the course of factory visits by the Sponsoring Officer or his representative.

C18. Performance requirements for doorsets

C18.1 BS EN 14351 Product standard for doorsets

The doorsets must meet the following exposure categories:

- Exposure category (Design wind pressure 800 Pa)
- Wind resistance: 800 Pa
- Air permeability: 300 Pa
- Water tightness: 100/50* Pa
- *Doorsets with accessible (low) threshold.

C18.2 General performance

C18.2.1 Door assemblies with leaves of composite construction

Composite door assemblies shall conform to PAS 23-1:2007 incorporating Amendments No. 1 and No. 2, including the requirements for Exposure Category 800X, except that the door leaves, instead of conforming to requirements in annexes A, B or C as required by clause 5.1 of PAS 23, shall conform instead to the requirements of this Section C of this Offer Document.

C18.2.2 Door assemblies with leaves of traditional timber framed construction

Door assemblies with timber framed leaves shall conform to PAS 23-1:2007 incorporating Amendments No. 1 and No. 2, including the requirements for Exposure Category 800X.

C18.3 Fire resisting and smoke check door assemblies

In addition to the above, door assemblies offered as fire doors and/or smoke check doors shall meet the requirements of The Building Regulations for FD30 and/or FD30S doors, as appropriate.

C18.4 Security

All door assemblies shall conform to PAS 24-1:2007 incorporating Amendments No. 1 and No. 2, and shall be capable of conforming to the requirements of Secured by Design.

In Section G you are requested to provide details of the construction of the door leaves, door frames, hardware, seals and glazing offered, and to submit evidence of performance of the door assemblies offered.

C18.5 Thermal insulation

All door assemblies, including any sidelights and fanlights, must achieve the 'U' value required by Approved Documents L1 and L2 of The Building Regulations.

In Section G you are requested to provide information about the thermal performance of the door assemblies offered.

It is anticipated that further improvements in thermal insulation will be required in the next revision of The Building Regulations.

In G5.12 you are requested to indicate whether you are taking steps to improve the thermal insulation of your products.

Appointed companies will be required to provide, on request, the data and calculations to verify that a door assembly for a particular project will provide sufficient thermal insulation to satisfy the requirements of Approved Document L1 or L2 of The Building Regulations.

In G5.12 you are requested to confirm your company's ability to provide the required data and calculations.

All appointed companies providing an installation service shall be members of FENSA in order to demonstrate their competence to install door assemblies in compliance with the requirements of Approved Document L1 and L2 of The Building Regulations.

In G5.12 you are requested to state your company's FENSA registration number.

C18.6. Aids for people with special needs

You are required to offer a low threshold conforming to the requirements of Approved Document M of The Building Regulations 2000 in conjunction with some or all of the door assemblies that you are offering.

The ability to provide hardware to assist people with special needs would be a distinct advantage.

In Section G5.17 you are requested to provide information on these points.

C19. Installation and fixing

C19.1 General

This part of Section C sets out the requirements for the service which users will expect from an LHC appointed company and describes the LHC requirements for the installation and fixing of doorsets in those cases where the appointed company is employed as a sub-contractor or main contractor.

The installation shall be carried out in accordance with BS 8213 Part 4.

C19.2 Measuring for production purposes

C19.2.1 The responsibility for the taking of site measurements for production purposes shall be clearly defined on each project and will be identified in project quotations. Normally the appointed company will be expected to take full responsibility for site measurements on a project.

C19.2.2 Where the appointed company is responsible for the taking of site sizes, this shall be done as a separate operation from the taking of site measurements for estimating purposes and in accordance with BS 8213: Part 4. In particular Section 3 which gives guidance on tolerances and allowances for expansion.

C19.2.3 In some circumstances, however, it may not be possible to take accurate measurements of each structural opening at the time of the measurement survey. In these cases it would be preferable to delay manufacture of the units in question until access and measurement are possible. If **the specifier** decides that this would be too costly or delay the progress of work excessively, the appointed company may, **in conjunction with the specifier**, agree the dimensions to be used for production, based on existing drawings or other available data.

C19.3 Planning the work

This shall be in accordance with BS 8213 Part 4.

C19.4 Supervision of work

It is ultimately the specifier's responsibility to ensure that the windows and doors on a project and the methods of installation employed by the appointed company comply with the project specification and are satisfactory. However, the appointed company must ensure in every case that the components supplied are consistent with the product specification finally agreed with the Sponsoring Officer and that the installation is carried out in accordance with these LHC requirements and with the details agreed with the specifier.

Note: It will often be advisable to complete a 'pilot' so that agreement can be obtained from the specifier to the product and the standards installation.

On all projects this will require the permanent attendance on site of a qualified Site Supervisor, employed by the appointed company, who will be responsible for ensuring that the required standards are achieved and for liaising with the specifier and residents/building users on all matters relating to the satisfactory running of the work. The Site Supervisor shall be empowered to make prompt decisions on behalf of the appointed company and to inform the specifier of any difficulties arising which may require instructions to be issued. On smaller projects this may be a 'working foreman'.

C19.5 Care of property

C19.5.1 Clearing the work area

On each project, unless the appointed company is instructed to remove furniture and fittings from areas where they might be damaged during installation, this will be arranged by the specifier. However, moving furniture within a room to prevent damage shall be deemed to be part of the general installation operation, and the appointed company shall ensure that such moving is carried out carefully and to the satisfaction of the occupant.

C19.5.2 Protection

All furniture, fittings, carpets and curtains which remain in the work area shall be protected by the appointed company.

C19.5.3 Making good

The removal of existing doors and the installation of new ones shall be undertaken with sufficient care and attention to minimise the amount of internal and external making good required. If asked to advise, the LHC will not support claims for additional cost when it is apparent that sufficient care had not been taken.

Unless the specifier issues instructions requiring making good to be carried out by others, the appointed company shall make good structural openings and plaster and render areas disturbed by the work done, including redecoration or the use of coverstrips.

Door installation base prices shall allow for a suitable external sealant, with backer material if necessary, and a suitable internal sealant. Alternative methods of making good will be priced separately but the actual work required on each site shall be confirmed with the specifier before work commences and a price agreed based on tendered rates.

C19.6 Installation

C19.6.1 Removal of existing doors

Every effort shall be made to minimise inconvenience to the resident or building user.

Old doors shall be taken directly to the outside of the building. Materials should be re-cycled wherever possible.

In Section G5.16 you should state your policy on re-cycling materials.

C19.6.2 Fixing the doors

Fixing of doors shall be in accordance with BS 8213: Part 4, Clause 9.4. In particular, note the following:

- Doors and screens when fixed directly into the structural openings, or when fitted into new surrounds, shall be secure against applied loadings. The fixings shall be of a material and diameter related to the loading and shall not be more than 600mm apart and between 150mm and 250mm from each corner. Drilled screw holes in the frame shall be plugged. Temporary wedges should be used to set the door frames in the structural openings and be removed when the fixings are secure.
- Door frames or door-sized windows shall be secured with expanding bolts or other high grip devices which have a minimum penetration of 50mm into sound material.
- These fixing guidelines apply to the whole of a door perimeter but in certain circumstances, and particularly where there is an existing concrete or steel lintel, it may not be possible to achieve suitable fixings at the head. In these cases and by agreement with the Supervising Officer, the appointed company may use alternative fixing methods such as extended brackets or foam fixing at the head.
- Every care shall be taken during installation to ensure that building materials such as wet plaster do not foul drainage holes or impair hardware or mechanism operations.
- To minimise distortion of the frame, fixings shall not be overtightened. To avoid overtightening, shims will be required at the fixing points. Shims shall be designed for the purpose and manufactured from extruded or moulded plastics material.

C19.7 Perimeter sealing to the structural opening

This shall be in accordance with BS 8213: Part 4, Clause 9.4.5.2.

C19.8 Operating and maintenance instructions

C19.8.1 Final inspection

The appointed company shall check that all products function correctly.

C19.8.2 Operating instructions

On completion the appointed company shall ensure that the resident/building user is fully aware of the means of operating the door hardware, and issue an appropriate leaflet.

C19.8.3 Maintenance instructions

The appointed company shall also advise on suitable materials for the cleaning and maintenance of the doorset and hardware and the recommended frequency of cleaning.

At Section G5.16 you are asked to supply typical user instructions.

C19.9. Warranties and guarantees

A 10 year guarantee should be offered to all users where doorsets are supplied and fitted.

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