

External Doorsets – Specifiers' Guide

Programme C5

Effective from 1 January 2008

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The LHC Network C5 arrangement is for the supply and fix or supply and delivery of external doorsets.

This document provides guidance to buyers and specifiers on the efficient and compliant procurement of external doorsets for public sector construction projects using the LHC Network arrangement, reference C5.

This framework arrangement was established as a result of a Europe-wide public tender, which was advertised in the Official Journal of the European Union.

It can be used by Public Sector organisations, including Local Authorities and other Registered Social Landlords, in accordance with the European procurement rules. Users are therefore able to award contracts to a specific LHC Network supplier by applying the terms of the arrangement without competitive tender. However, if the user wishes to test the market on a 'like for like' basis, a 'mini tender' may be carried out involving the companies appointed to this framework.

For procurement of:

- Aluminium windows and doors
- PVC-U windows and doors
- External doorsets
- Timber windows
- Window and door maintenance
- External envelope repairs
- Insulation and associated works
- Integrated property and security services
- Door entry and CCTV systems
- Steel, timber and concrete fencing
- Kitchen units and worktops
- Kitchen and bathroom replacement works
- Heating management services

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THE SUPPLIERS

Three LHC Network suppliers have been appointed to serve this arrangement, and they provide an installation service across the UK (excluding Northern Ireland). Their details are as follows:

> IG Doors Ltd

Blaenwern
Avondale Industrial Estate
Cwmbran
Torfaen
NP44 1TY

Contact at IG: Ian Lewis
T: [REDACTED]
F: [REDACTED]
E: ian.lewis@igdoors.co.uk
W: www.igdoorsltd.co.uk

> Manse Masterdor Ltd

Hambleton Grove
Knaresborough
North Yorkshire
HG5 0DB

Contact at Manse: John Tapscott
T: [REDACTED]
F: [REDACTED]
E: john.tapscott@masterdor.co.uk
W: www.masterdor.co.uk

> SBP Ltd - Permadoor

Head Office
Upton-upon-Severn
Worcestershire
WR8 0RX

Contact at SBP: Adrian Wyatt
T: [REDACTED]
F: [REDACTED]
E: awyatt@permadoor.co.uk
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THE ARRANGEMENT

This LHC Network arrangement provides for:

- The supply and fix or supply only of external doorsets for all categories of public sector projects
- A wide range of ancillary products, accessories and specialist hardware

Main features of this LHC Network arrangement:

- Competitive prices
- Main contractor/principal contractor option, offering the potential for considerable cost efficiencies
- Overhead charges for many preliminary items included in the LHC tender
- Full technical assistance and design advice
- Inward and outward opening residential doors (available with low thresholds for wheelchair access)
- Enhanced security options on doors to PAS 24-1
- Specialist optional hardware available for means of escape in case of fire, safety in use and operation by persons with special needs
- Half hour (FD30) firecheck doorsets available from the three companies, with a one-hour FD60 Masterdor from Manse
- Products compliant with Parts L and M of the Building Regulations
- Component manufacture, fabrication and installation controlled by third party Quality Assurance accreditation
- Advanced environmental strategies and practices for raw materials, profile production, window manufacture and managed recycling programmes
- FENSA registered companies
- 10 year guarantees

This LHC Network arrangement is suitable for:

- All public sector contracts for Local Authorities and Registered Social Landlords including houses, flats, sheltered accommodation and educational buildings
- Partnering projects for the short or long term

All orders under this arrangement should be placed with the chosen LHC Network supplier at the address given on page 3

OPERATION OF THE ARRANGEMENT

LHC Network Users' Guide and Price Lists

Most of the information you will need to use this arrangement is contained on the LHC Network website www.lhc.gov.uk. This includes details on how to specify and order LHC Network components and services.

In addition, you may contact the [LHC Business Development Team](#) who can arrange for the regional Business Development Manager to visit your offices and talk through specific proposals giving individual guidance.

In addition to this LHC document, full details of the LHC Network suppliers' products and services offered under this arrangement are available via the LHC website.

Also, you may obtain a Price List from the LHC, on request, which includes the LHC conditions applicable to this arrangement.

Use of this arrangement

This arrangement was set up, primarily, for the supply and fix of external doorsets to all public sector bodies. However, each LHC Network supplier will be able to enter into a 'supply only' arrangement, if required.

The LHC Network suppliers were evaluated on their experience, ability and quality of service given to public sector contracts. This LHC arrangement provides for a full measurement survey, design services, technical advice and guidance, resident liaison and budget planning assistance. To qualify for these services, terms and prices, the project must be registered with the LHC. This can be done on the LHC website in [My LHC](#).

Quotations may be obtained from any one of the LHC Network suppliers; or more than one, if desired.

The quotation request or tender documentation should include the words 'under the LHC C5 Bulk Quotation Arrangement.'

Key Performance Indicators

LHC will be monitoring the arrangement with the inclusion of Key Performance Indicators (KPIs) for each LHC Network supplier. The user related indicators will be as follows:

- Resident satisfaction
- Defects at Practical Completion
- Safety (number of reportable incidents)
- Predictability in cost
- Predictability in time

If the user requires other performance measures this should be discussed with the Network supplier.

Partnering

Following Sir John Egan's 'Rethinking Construction' report, 'Construction Best Practice' and the combined 'Construction Excellence' initiative, Social Housing providers are re-considering their approach to construction works. At the same time, housing related construction work is expanding due to an increase in stock transfers, the development of Arms Length Management Organisations (ALMOs) and the local authority Major Repairs Allowance (MRA).

These fundamental changes, combined with a need to achieve the strict performance targets laid down, initially, by the Construction Task Force and subsequently reinforced by the Local Government Efficiency Review, have led to a series of initiatives involving Social Housing providers, Social Housing Contractors and the product/service supply chain in partnership.

Partnering has been a key element within the principles of all LHC Network arrangements for several years. The approach has always been to be involved with the client from day one, enabling all parties to contribute their knowledge and experience so as to minimize potential difficulties with project delivery, reduce errors, shorten timescales and ultimately reduce costs. The LHC, in partnership with its Network supplier, provides specialist knowledge of building components and services for the Public Sector market and is actively working on a number of new and established partnering agreements throughout the UK.

From this experience it can be seen that the LHC Network C5 arrangement is ideally suited to a partnering approach.

Response times

The periods of notice from the receipt of written order or agreement of final drawings and details, whichever is the later, for any project is:

- | | |
|--|-----------------|
| ● Issue of quotation | 15 working days |
| ● Delivery/fixing of first consignment | 30 working days |
| ● Postponement of deliveries/fixing | 10 working days |

PRODUCTS OFFERED

Specification

One of the main advantages of using the LHC Network arrangements is the confidence of knowing that the components and services provided by an LHC Network supplier must comply with the requirements and specification agreed with them at the outset of the arrangement. As a minimum benchmark, all components must conform with their relevant British and European Standards. Any changes to the specification should be notified and approved by the LHC in advance of being implemented.

However, this does not preclude the client from requesting a bespoke specification, if desired, as long as there is no conflict of compatibility or accredited certification (eg. British Standards Kitemarking). Both LHC and the Network supplier will be able to advise further.

The requirements and specification for this arrangement were drawn up by experienced LHC professionals in order to cover critical aspects of the provision of high performance doorsets. Included in the design options is a comprehensive range of sizes and products available for:

- Enhanced security doors
- Safety in use
- Part L (Conservation of fuel and power) compliant energy efficient doors
- Part M (Access and facilities for disabled people) compliant special needs hardware and low door thresholds.

Certification and approvals

The three LHC Network suppliers hold third party accreditation for their Quality Management Systems to BS EN ISO 9001: 2000 including products, production and installation.

In addition Manse and Permadoor have ISO 14001 for their environmental management policies.

SERVICES OFFERED

Technical advice

The LHC Network suppliers serving this C5 arrangement will provide technical advice free of charge. All matters concerning the level of performance and suitability of each product can be discussed. This would also encompass regulatory requirements such as Building Regulations and Health and Safety as well as Planning issues. Samples can be provided by the companies for large projects and visits to the manufacturing premises can be arranged.

Budget estimates and quotations

The LHC Network suppliers will provide budget estimates and quotations for individual projects on request. In addition, the companies will give general advice on the cost of doorsets including the various specification options available.

Supply and delivery or supply and fix

The LHC Network suppliers may be appointed as a named, nominated or domestic sub-contractor for the supply and delivery or the supply and fix of doorsets. Past arrangements have shown a considerable user preference for the supply and fix option, which is also favoured by LHC.

A supply and fix package presents a number of important advantages over a supply and delivery option. A significant element within the tender exercise was given to evaluating companies' site fixing services and programme management capabilities.

The LHC specification demands doorsets should be surveyed and installed to the requirements of BS 8213-4. Furthermore, a sound knowledge of the product is essential to enable the correct adjustments to be made and allowing the residents to familiarise themselves with the operation. Should the product be installed incorrectly, then this may invalidate any guarantee or warranty issued by the component manufacturer (see also Installation). Other important considerations such as health and safety, storage, handling and programming are more directly managed when using the supply and fix option.

Main contractor/principal contractor option

The LHC Network suppliers are each able to act as main contractor on projects requiring just the installation of doorsets. It is advisable to discuss the requirements of a project with the selected company at an early stage. Appointing an LHC company to act as main contractor can save the user considerable time and money.

Normally, the main contractor is also the appointed Principal Contractor as defined by the Construction (Design and Management) Regulations, 2007. Each LHC Network supplier is able to undertake this role. Please note, however, that whilst the LHC evaluates the Health and Safety experience and management of a company, the client must appoint a Principal Contractor where the CDM Regulations require it.

Residents' choice

All LHC Network suppliers have considerable expertise in public sector refurbishment contracts and are well acquainted with residents' consultation exercises on choice of styles, colours etc. If required, this should be discussed with the LHC Network supplier.

Leaseholder enquiries

All LHC Network suppliers will provide clients with technical and cost information to enable them to conduct leaseholders' enquiries.

SERVICES OFFERED

CONTINUED

Building Regulations and British Standards updates

The LHC Network suppliers are able to offer advice and guidance on planned and implemented revisions to relevant publications such as the Building Regulations and British and European standards. Particular attention is drawn to the 2006 revisions of the Building Regulations Parts L (Conservation of Fuel and Power) and Part M (Access and Facilities for disabled people). Proposed revisions to other Parts of the Building Regulations are currently being reviewed.

For Scotland and Northern Ireland, reference to the Building (Scotland) Regulations and Building Regulations (Northern Ireland) should be made.

Planning and Building Regulations applications

The LHC Network suppliers are registered with FENSA and are also prepared to act as the client's agent in checking and obtaining approvals from the local authority in those cases where application has to be made in respect of the relevant Parts of the Building Regulations, on non domestic projects.

Planned, cyclic and responsive maintenance

A maintenance service may be offered which would be provided either directly by the LHC Network supplier or sub-contracted to a specialist maintenance company. LHC offers a window and door maintenance arrangement (WM3) through Mila Maintenance and Projects Services Ltd.

Guarantees

Each appointed company may offer a guarantee(s) to cover the performance of its products and components. Under this C5 arrangement, the guarantee period will be 10 years.

These guarantees are on condition of normal usage and care and cover product, fabrication and installation as appropriate. Further details are available from the Network Supplier.



DESIGN AND SPECIFICATION

Introduction

This section provides guidance and information relating to the design and specification of external doorsets which would be included in the product assembly. It encompasses matters, which should be considered for individual projects and used in conjunction with the guidance offered by the LHC Network supplier.

The arrangement offers a GRP faced, through coloured, composite door in a PVC-U outer frame from three suppliers. All companies offer a choice of door designs and a basic range of five colours, with other colours and woodstains available as an applied finish. The outer frames can include fanlights and sidelights.

IG Doors Ltd can also supply the doors in a timber frame and are a leading supplier of steel faced composite doors. Manse Masterdor Ltd offer their GRP 'Suredor' as well as their timber engineered 'Masterdor', which is particularly suitable for unusual structural opening sizes. Permadoor Ltd has developed their GRP door specifically for the social housing market, and along with the other two companies can supply an FD30S fire rated doorset.

Guide to the specification of composite doors

Thermoplastic skins and fibre reinforced thermoset skins compared

When choosing composite doors the differences between doors with thermoplastic skins and those with fibre-reinforced thermoset (FRT) skins, should be considered. While the internal construction of the leaf, the choice of hardware and the type of frame are very important in the specification of any composite door, the choice of skin type will significantly affect performance and long term appearance.

Material characteristics

The most familiar type of fibre reinforced thermoset is GRP (glass fibre reinforced polyester), but there are other types using other resins and other fibres, for example carbon fibre, to enhance performance. Thermoplastics, usually PVC-U or ABS, have a different chemical composition from these FRT materials, so that when heated to very high temperatures, thermoplastics eventually melt, whereas FRT will char.

Appearance

The FRT doors offered under this LHC arrangement are available in a range of through colours, including woodgrain effects, and can be redecorated if desired. Thermoplastics are usually white, and after a few years may begin to show discoloration; redecoration to change the colour or restore the appearance is not usually possible.

With FRT, very accurately detailed moulding is possible, including realistic simulation of a high class timber door, which together with a suitable woodgrain effect or colour can give a very impressive effect. This sharpness of detail cannot be achieved with thermoplastic mouldings.

Performance

Neither material is susceptible to decay. Both materials are capable of being formulated to give good resistance to accidental scratching. Owing to their fibre content, however, FRTs are likely to have better impact resistance, and are hard and rigid which makes them less vulnerable to cutting and puncturing than thermoplastics. The high-compression moulding of the FRT skins available on doors offered under this LHC arrangement enhances these characteristics.

In hot sunshine a dark-coloured thermoplastic skin is likely to expand, which may lead to bulging of the surface of the door leaf, or to the leaf binding in its frame. This is why thermoplastic faced doors are usually available only in white, although new formulations are being developed with the aim of overcoming this problem. FRT's are dimensionally stable within the range of temperatures encountered in normal use. In very cold temperatures thermoplastics can become brittle. In a fire, thermoplastics give off dangerous hydrochloric acid fumes, while if an FRT burns, the combustion products are similar to those given off when wood is burnt.

For these reasons all the doors offered under this arrangement have GRP facings.

Doors with thermoplastic facings are available through the LHC U7 Network/framework arrangement for PVC-U windows and doors.

Timber doors are available through the LHC TW2 framework arrangement for timber windows and doors.

DESIGN AND SPECIFICATION

Insulating glass units

The insulating glass units (IGUs) are sealed units made up of 2 panes of glass with a perimeter frame of (most commonly) aluminium spacer bards sealed with a butyl mix. This forms a hermetically sealed air gap, which can also be filled with argon gas for enhanced thermal efficiency. The sealed units are Kitemarked to BS EN 1279 for manufacture and testing.

In order to comply with the requirements of Part L of the 2006 Building Regulations, low emissivity (Low-E) glass may be used to manufacture insulating glass units. At least one pane of Low-E glass will be used to achieve the required performance. Clear glass is offered where appropriate but the units can also be made using patterned glass, toughened glass, laminated glass or other types of glass in varying thicknesses.

Frame fixing

Frames are fixed in accordance with the guidance laid out in BS 8213: Part 4. Plastic sleeved, stainless steel through-frame fixings are used as standard with high corrosion options being available at extra cost for more severe exposure situations.

Fixing lugs are used where through-frame fixing is not possible, or desirable.

Gap filling foam

Polyurethane foam is used as a void filler and to assist thermal insulation around the perimeter of the frame when large gaps are encountered. It can also prove a useful adjunct to mechanical fixings where the presence of, say, precast concrete or steel lintels pose severe difficulties in achieving specified fixing distances. In such circumstances, the user may wish to discuss the possible alternatives with the LHC Network supplier although it should be noted that foam fixing should not be used as the sole method of fixing the entire door frame into the reveal.

External sealant

A one-part silicone sealant conforming to BS EN ISO 11600 is applied around the perimeter of the frame to form a weather tight joint. This is tooled to provide a neat finished appearance.

Building Regulations

It should be noted that the information offered is relating to requirements within the Building Regulations for England and Wales. For projects in Scotland, the user should be aware that requirements within the Building (Scotland) Regulations could differ significantly in some areas. Likewise, for Northern Ireland, the Building Regulations (Northern Ireland) should be followed.

All Parts of the Building Regulations apply to new work. The following Parts of the Building Regulations should be particularly referenced when specifying replacement doors:

- Part L – Conservation of fuel and power
- Part M – Access to and use of buildings
- Part N – Glazing - safety in relation to impact, opening and cleaning

There is a general requirement within the Building Regulations which states that when replacing windows and doors, the existing situation should not be made worse by the new components in respect of Part B, Part F and Part J. However, legislation within (and pertaining to) the Building Regulations is constantly being reviewed. The specifier must, therefore, ensure the guidance being followed is current.

Environmental considerations

Users have become increasingly aware of the effects various building materials have on our environment and the composite doors industry has been particularly active in developing materials and environmental management systems to encourage local authorities and social landlords to specify its products. LHC has been closely involved in the progress of policies aimed at fulfilling environmental control and improvements.

The United Kingdom has signed up to the Kyoto Protocol, which has set targets for the reduction in carbon dioxide emissions. Doors in buildings are a major source of energy wastage and improvements in the thermal efficiency will lessen the energy required to heat the building, thereby lessening the carbon dioxide emissions expelled to produce energy. The thermal performance requirements set out in the 2006 Approved Document L are readily met (see 'Conservation of fuel and power' above) and can be exceeded.

Security

With the Crime and Disorder Act 1998 and the Human Rights Act of 1998 all local authorities and registered social landlords have a duty to consider and record crime and disorder reduction whilst exercising all of their duties.

Ground floor doors and those accessible from balconies are vulnerable to forced entry by the opportunist burglar. Developments in the design, specification and testing of hardware are ensuring enhanced security against intruders.

For high-risk areas, or to protect the elderly, standard window and door hardware can be upgraded with enhanced security options. Products that have obtained accreditation to PAS 24-1 (for single leaf entrance doors) are offered by the LHC Network suppliers. This standard is undergoing continuous review and the specifier is advised to consult with the LHC Network suppliers to establish the current conditions relating to their products.

Enhanced security doors to PAS 24-1 are presented as a product package comprising nominated high performance hardware and toughened or laminated glass. The extent of profile reinforcement and maximum overall sizes of frames will also be stated. Any variation from the accredited schedule and specification would invalidate the certification.

It should also be noted that Section 17 of the Crime and Disorder Act states design consideration should be made 'without prejudice to any other obligation imposed upon it'. An example of this would be designing for means of escape in case of fire whereby the protection of life and limb would need to take priority over any other design consideration.

Access to buildings

There are a number of regulatory and guidance publications dealing with access to dwellings and other buildings. Firstly, there is Part M of the Building Regulations supported by Approved Document M (2004). For people with impaired mobility, this draws much on the recommendations given in BS 8300: 2001: 'Design of buildings and their approaches to meet the needs of disabled people'. Then there is the information published by the Department for Communities and Local Government in 'Planning and access for disabled people: A good practice guide'.

Not only should the dimensions of door openings be considered but also the provision of low thresholds to provide ease of access; particularly for wheelchair users.

Consideration should also be given to people with visual impairments, particularly in terms of colours.

Product limitations

All door types and associated hardware are subject to size and weight limitations. The use of oversize products can affect performance, durability and the need for maintenance. In situations subject to severe exposure or gusting wind conditions, engineering assessment may be required from the LHC Network supplier to ensure structural suitability (see also Weather performance).

References will also be made to profile system supplier guidelines and hardware manufacturers' information to ensure that all components used are within recommended minimum and maximum limitations, by the Network suppliers.

Weather performance

The chosen door design must meet the weather performance requirements for the project and comply with PAS 23-1.

For any building in an exposed position, the level of wind resistance should be determined. This can be done by reference to BS 6375: Part 1 and BS 6399: Part 2. Each of the LHC Network suppliers can offer assistance in this exercise and advise on the suitable product specification to match the performance requirements. The user should be satisfied the doors are adequate for the intended applications.

If there are significant differences in the size, configuration or the hardware specified for the project, then the user should allow in the contract price for the cost of further testing.

This LHC Network arrangement provides for the following range of exposure categories as described in BS 6375: Part 1:

For doors –

- All types 800 Pa

Manufacturers may offer alternative performance categories depending on the type and severity of exposure. It should also be borne in mind that the accreditation for the tested performance will state maximum size limits. Guidance and confirmation should be sought from the manufacturer where weather performance may be a particular issue.

Safety

For applications in Scotland, the specifier is advised to consult with the local authority Building Control Department for details of their current requirements and guidance.

Safety glazing is required in certain vulnerable areas where there is a potential risk of accidental injury. Specifiers should refer to Building Regulations Approved Documents N1 and N2.

As a precautionary note, the recently published BS EN 12150 (replacing BS 6206) for toughened safety glass does not include a compulsory requirement for an impact test. It is therefore possible that some toughened glass, particularly that imported from other European countries, may fracture unsafely (in large shards) when impacted. In order to ensure that toughened glass has been tested to impact it is necessary to invoke another standard, BS EN 12600, in addition to BS EN 12150. Similarly, BS EN 14449 applies to laminated glass. The Approved Document N1 requires that safety glass (that fractures safely) should be used in all risk areas such as low level glazing. All LHC Network suppliers have ensured their safety glass conforms to that requirement and has been accredited as such.

Performance of hardware

The LHC Network supplier will offer a standard range of hardware for each door type, as submitted in the LHC tender evaluation. Some items may be substituted for aesthetic or specialist requirements subject to compatibility and suitability. The LHC Network supplier would need to advise the user accordingly. For enhanced security products, the hardware specification must be the same as that scheduled on the relevant PAS 24-1 accreditation. Any deviation would invalidate the test certificate.

General

All door-sets, including the hardware, 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'.

Handles

Handles are 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. 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 includes a cylinder guard for the security protection required under the PAS 24-1, 2006 amendment.

Cylinder locks

Cylinders 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 is by thumb turn internally and by key operation externally.

Hinges

Three hinges per door-leaf, to meet the requirements of PAS 23-1, and BS EN 1670: 1998 Grade 3 'high' corrosion resistance. They are 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).

DESIGN AND SPECIFICATION

CONTINUED

Letter plates

Letter plates 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 provides in excess of half hour integrity to BS 476- 20/22 and is fitted with smoke-seals. Finishes are silver anodised, gold anodised, polished gold anodised, black, or white. The inner-hinged flap of the letter plate has 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.

Door viewer and chain

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

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

Other requirements

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

All components are supplied by a manufacturer complying with a 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 issued by the hardware manufacturer on completion of the project.

Door hardware is 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 capable of offering adaptations in accordance with the Disability Discrimination Act Part 3 2005 and the housing providers Disability Equality Duty 2006.



DESIGN AND SPECIFICATION

CONTINUED

British Standards and other authoritative references

BS 3621:	Specification for thief resistant locks
BS 6375:	Performance of windows: Part 1. Classification for weathertightness
BS 6375:	Performance of windows: Part 2. Specification for operation and strength characteristics
BS 6399:	Loadings for buildings: Part 2: Code of practice for wind loads
BS 7412:	Specification for plastics windows made from PVC-U extruded hollow profiles
BS 7479:	Salt spray corrosion tests in artificial atmospheres
BS 8213:	Windows, doors and rooflights: Part 1. Design for safety in use and during cleaning of windows and doors including door-height windows and roof windows. Code of practice
BS 8213:	Windows, doors and rooflights: 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 for push pad
BS EN 951/2:	Door leaves - Measurement method
BS EN 1026:	Windows and doors - Air permeability - Test methods
BS EN 1027:	Windows and doors - Watertightness - Test methods
BS EN 1279:	Glass in buildings. Insulating glass units. Part 2: Long term test method and 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 1670:	Building hardware. Corrosion resistance. Requirements and test methods
BS EN 1906:	Building hardware - Requirements and test methods
BS EN 12150:	Glass in building. Thermally toughened soda lime silicate safety glass
BS EN 12600:	Glass in building. Pendulum test. Impact test method and classification for flat glass
BS EN 13724:	Apertures of private letterboxes and letterplates
BS EN 14351-1:	Product standards for windows and doors
BS EN 14449:	Glass in building - laminated glass and laminated safety glass - evaluation of conformity/product standard
PAS 23-1:	General performance requirements for door assemblies. Part 1: Single leaf, external door assemblies to dwellings
PAS 24-1:	Enhanced security performance requirements for door assemblies. Part 1: Single leaf, external door assemblies to dwellings

INSTALLATION

Overview

LHC recommends that the Network supplier carries out the installation of doorsets. The correct fitting of the product requires the use of trained installers who are familiar with the system design and methods of adjustment to ensure optimum performance. Furthermore, the safe disposal of existing frames, glass and other materials needs to be assured together with Health and Safety aspects. The LHC Network suppliers' site operatives hold Construction Skills Certification Scheme (CSCS) cards.

Whenever practicable, it is recommended that a pilot installation be undertaken to establish reference criteria and identify any problems with the existing construction. Some fine-tuning of the specification may also be identified and this will allow for any adjustment that may be necessary to the works programme.

When fixing is carried out by the LHC Network supplier, the survey and installation of the replacement doors will be carried out in accordance with BS 8213: Part 4: 'Code of practice for the installation of replacement windows and doorsets in dwellings'.

In the event of a second party undertaking the fixing, the specifier must ensure these codes of practice are adhered to. Any non-conformity may affect the terms and conditions of guarantees issued for the project, as well as the fact that the performance of the door could be undermined.

Structural assessment and measurement

The LHC Network supplier's surveyor will take measurements of all apertures to receive replacement doors. An assessment will be made as to the type and condition of the structure. Any defects found will be relayed to the specifier, as agreement may need to be reached as to who will assume responsibility for rectifying these defects. There are occasions where unforeseen structural difficulties may become apparent only during removal of existing frames or installation - for instance friable brickwork or hidden obstructions. Again, the specifier will be informed as repairs may be necessary or alternative fixing techniques and materials may have to be used.

For new-build situations, the specifier should provide the company with all necessary construction details.

Site measurements

Where acting as main contractor, the LHC Network supplier will normally undertake site measurements, and can also carry out measurements as a sub-contractor if required, for which a measuring charge may be made. Where it is not possible to take accurate measurements of each structural opening at the time of the measurement survey, due to height or structural restrictions, the manufacture of the doorsets should be delayed until access and measurement are possible. If the specifier decides that this would be too costly or delay the progress of work excessively, the Network supplier may, in conjunction with the specifier, agree the dimensions to be used for production, based on existing drawings or other available data.

Supervision of work

On larger projects there may be a requirement for a permanent on-site qualified site supervisor who will be responsible for liaising with the specifier on all matters relating to the satisfactory running of the work. The Site Supervisor will be empowered to make prompt decisions on behalf of the LHC Network supplier and in the case of smaller projects will be a 'working foreman'.

INSTALLATION

CONTINUED

Clearing the work area and protection

Removal of furniture and fittings should normally be arranged by the specifier. However, the LHC Network supplier will carefully move furniture within a room to prevent damage as part of the general installation operation. In addition, all furniture and fittings which remain in the work area will be protected by the Network supplier.

Site clearance

In addition to the requirements of BS 8213: Part 4, the LHC Network supplier will be responsible for clearing all debris arising from the removal or installation process.

Fixing the doors

Fixing should be in accordance with the relevant sections of BS 8213: Part 4. Generally, the jambs and head should be secured as follows:

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

The presence of pre-cast concrete or steel lintels may make it impractical to achieve the specified fixing distances. In these instances, the use of polyurethane foam has proved a useful adjunct to mechanical fixings. It should be noted, however, that foam fixings should never be used as the sole method of fixing the entire frame into the reveal. See also Frame fixing.

Resident liaison

The replacement of doors is particularly intrusive for the resident, with fixers requiring access to the dwelling throughout the work. To lessen the impact and inconvenience to the resident, communication and planning is considered an essential part of the contract.

The LHC Network supplier when acting as Principal Contractor will contact all residents (normally by letter) in advance of the replacement works and confirm the date of installation. A door will be removed and replaced to a weather-tight and secure condition within a working day.

Some minor adjustments to hardware or making good is occasionally required after the main installation but every effort is made to avoid repeat visits.

On larger programming contracts, the LHC Network supplier will provide a Residents' Liaison Officer to co-ordinate the works and be on hand to address any difficulties or special requirements.

Maintenance

Following installation, written operating and maintenance instructions will be provided to each resident/building user. To ensure that maximum performance and life is achieved by the doors, they should be checked annually.

Should the user require a regular maintenance arrangement, to prolong the life of the products, this can be awarded through LHC arrangement WM3 with Mila Maintenance and Project Services.

