

**SECTION 3**

**SOUTHAMPTON CITY COUNCIL**

**Door Entry System**

**ELECTRICAL PARTICULAR SPECIFICATION**

**RP300394**

**Capital Assets**

**3rd Floor**

**1 Guildhall Square**

**Above Bar Street**

**Southampton**

**SO14 7FP**

**Document Control**

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**ELECTRICAL SPECIFICATION**

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# 1.0 PRELIMINARIES

The contract preliminaries are included in the main bill/specification for this project and shall be read in conjunction with all the contract documents.

# 2.0 STANDARD SPECIFICATION

## 2.1 General

The works shall be executed entirely in accordance with the Southampton City Council, Property Services Standard Specification for Electrical Engineering Services Issue 10, 3rd December 2012, except where varied directly by the Particular Specification. Copies are available from the Property Services Division, Southampton City Council. The Works shall in all ways comply with the Electricity at Work Regulation, current edition of BS 7671 (IEE Wiring Regulations), the Health and Safety at Work Act and its associated regulations, and the Factories Act and associated regulations.

The electrical engineering services shall be carried out by a National Inspection Council for Electrical Installation Contracting (NICEIC) registered contractor or a member of the Electrical Contractors Association (ECA). All operatives employed on electrical installation work shall be competent and be in possession of an Electro technology Certification Scheme card (ECS) or Client/Contractor National Safety Group (CCNSG) Safety Passport. If any operatives are not in possession of this card they shall be deemed not competent to work at any of the Authority’s premises.

## 2.2 References to Standards

References to British, European, other National or International Standards shall be deemed to mean the latest edition of the Standard.

The door entry system will be supplied and installed in accordance with the following regulations:

Electromagnetic compatibility regulations

BSEN 50133-1:1997 system requirements for access control

BSEN 50133-2-1:2000 component requirements for access control systems

BSEN 50133-71999 application guidelines for access control systems

BSEN 12209-1 building hardware locks and latches

## 2.3 Testing and Certification - Electronic

The whole of the finished works shall be inspected and tested in accordance with the current edition of BS 5839. A full list of certificates required is shown below. In all cases, the certificates shall include test results, serial numbers and most recent calibration dates of instruments used.

Format shall be Adobe Acrobat portable document format (PDF).

Fire Alarm Installation Certificate in accordance with BS 5839-1

Fire Alarm Commissioning Certificate in accordance with BS 5839-1

The issue of a Certificate of Practical Completion and payment is subject to the satisfactory receipt of the above Certificates.

## 2.4 Electronic Certification

Printed original certificates are not required. Certification shall be sent by e-mail and must be validated accordingly with the status being duplicate mode or that dictated by the Contract Administrator. All files shall be WinZipped and it is important that the correct client reference is used. PDF files shall be named by property and date.

## 2.5 Materials and Equipment

The materials and equipment used throughout the sub-contract shall be the best of their respective kinds and in accordance with the drawings and particular specification to the entire satisfaction of the Contract Administrator. All materials shall be subject to approval and in the case of any which are different from the various approved alternative specified samples, must be submitted to the Contract Administrator before installation. The Electrical Contractor shall remove any materials which do not meet the requirements of the specification and replace them with approved material at his own expense and shall meet the cost of any additional builders work which may involve in so doing. Materials shall conform to the requirements of Southampton City Council, Property Services Standard Specification for Electrical Engineering, Issue 10.

## 2.6 Construction Design Management (CDM) Regulations - 2015

This project is Notifiable under the Construction (Design and Management) Regulations. Contractor is to provide input into the production of the Construction Stage Health & Safety Plan to include but not limited to on-site risk assessment, method statements with specific reference to the electrical installations. All work undertaken will be in accordance with the method statements provided and the current editions of all relevant legislation and recommendations, including Building Regulations, British Standards and Health & Safety legislation. The contractor is to provide a competent supervisor on site for the duration of the contract to oversee the works and to ensure that all work is completed in a neat and professional manner.

Prior to practical completion, provide input into the production of the Project Health & Safety File with specific reference to the safe operation and maintenance of the electrical installations. Provide an Operations & Maintenance manual (O&M) with all relevant technical data, as fitted drawings and completed test certification.

## 2.7 Asbestos Procedure

Before any work starts on site the contractor MUST have confirmation from SCC Environment and Safety Team that a site asbestos survey has been carried out and it is safe to work.

The Council’s asbestos procedure must be adhered to at all times.  A copy of safe working procedures will be available on site for all operatives to view.  If at any time there is any doubt as to material containing asbestos work must be stopped and the material tested.  The Contract Administrator must be informed and appropriate action taken. The type of work is not likely to present an asbestos risk. The asbestos database is available upon request and will be supplied BEFORE any work commences and this will normally be sufficient.  However, all asbestos risks should be considered at all times for each individual job, and if the work does involve a significant destructive element that might disturb concealed building materials, the contractor must arrange with the Contract Administrator that a project survey is carried out by SCC Environment and Safety Team so that the risk can be fully assessed. If there are any suspicious materials, all work must stop and a type 3 survey must be carried to prove the materials are free from asbestos before any work commences.  All contractors involved directly with the works must have carried out asbestos awareness training and within the last 12 months.

**Please Note**

These notes are for guidance only, please refer to the main contract preliminary documents for the contractual requirements for Health and Safety.

# 3.0 PARTICULAR SPECIFICATION

## 3.1 Introduction

This section of the specification details the electrical engineering services work that shall be carried out as part of door entry system in walk-up blocks situated in Southampton. This specification should be read in conjunction with all tender drawings and documents.

Description of Site

The sites comprise of a number of walk-up block Southampton City limits with each block will have its own Communal Entrance. This standard specification shall comprise of one communal entrance per block.

Scope of Works

The scope of the works shall include the electrical supply and installation of services to provide a complete installation as follows. The contractor will be responsible for and supplying and installing a fully functioning door entry system to the satisfaction of the contract administrator. The contractor’s responsibilities in this respect shall comprise:

The work specified in this document provides for the supply, delivery, off-loading, positioning, installation, testing, certification and setting to work of the following:

* Fire Alarm System
* Access Control Systems
* Production of design and working drawings
* Design of door entry panel facia
* Design of all routes for any new cabling requirements and interconnecting cabling
* Handset within each dwelling
* Supply & Programming of keyfobs for each flat (unique) or use existing key cylinder new keys and lock cylinder on Main Entrance Doors if specified.
* Fireman’s override switch shall be a master key SCC 12, which is a secure lock under license to SCC
* Door closer
* Electronic Locking
* Co-ordination of services routes and equipment locations with existing services and building.
* The contractor shall advise the Client if additional Communal Lighting be required to ensure there is enough light to operate the Door Entry Panel.
* The contractor to advise of mains power requirement for the system.
* Wiring accessories
* Cabling and the associated containment
* Builders work associated with work
* Testing and commissioning of door entry system
* Operating and maintenance manuals and record drawings

The works shall include:

i) Visit site to gain full acquaintance of the existing electrical system and define the requirements of the new systems within the building, especially where electrical works are being carried out.

ii) The contractor is to carry out prior testing of all systems and circuits affected by the work prior to starting informing the Contract Administrator

iii) Remove existing redundant and associated equipment. Ensure circuits are made safe. Follow all SCC procedures where asbestos may be present.

iv) Prepare a fully itemised sub contract programme for comment by the CA in advance of the pre contract site meeting.

v). Supply, install and commission new small power system in the building. Allow for all containment associated with these works.

vi) Allow for all earthing and bonding to IEE Regulations standard.

vii) Allow to investigate the site and bring to the Engineer’s attention any items not fully covered by this specification or not shown on the drawing.

viii) The status of the tender drawings is classified as schematic and is intended to depict the design intent. The contractor shall be responsible for producing working drawings to confirm the design intent and fully detail to permit installation of all services. The production and formal submission of the contractors working drawings shall be shown on the contractors Sub Contract programme allowing at least 14 days for the CA to comment and return.

ix) The Contractor shall make allowance for co-ordinating the electrical services with all other trades.

x) All discrepancies shall be brought to the attention of the Engineer before prices are submitted.

xi) Prepare co-ordinated working drawings showing the inter-relationship with the mechanical services installation and the building structure, and installation drawings which shall be submitted, to the Engineer prior to commencement of the installation, showing the proposed works.

xii) Prepare ‘as installed’ drawings upon completion of the work.

xiii) Submit all test certificates as described in the latest edition BS 5839 (Fire Alarms) on completion of the works. See SCC standard specification.

xiv) Prepare O&M manual upon completion of the work and submit to the Engineer for acceptance prior to handing to the client.

xiii) The proposed electrical installation shall be carried out in strict accordance with the latest edition of 17th edition of the IEE wiring regulations (BS 7671) including all amendments, SCC standard specification and this specification.

xiv) The Contractor shall allow for all builders work in connection with the above electrical works including making good, filling of holes etc.

and shall be carried out in accordance with this specification and the aforementioned drawings.

## 3.2 Removals

The contractor shall isolate, disconnect and remove the existing door entry system, if required, and its associated cabling

## 3.3 Distribution

The distribution of circuit cabling for this installation shall be via:

(i) Multicore LSOH Cables (6242B) within a steel trunking/tray/basket containment system.

(ii) Multicore LSOH Cables (6242B) within a non-metallic containment system.

(iii) Multicore LSOH Cables (6242B) clipped direct to the structure of the building.

(iv) Multicore LSOH Cables (FP200) clipped direct to the structure of the building.

(v) Multicore LSOH Cables (FP200) within a metallic or non-metallic containment system.

All cables must have a BASEC approved marking on the cable.

Cable Colours

Warning notices are to be fixed at the distribution board where there is a mix of cable colours. Notice should be black characters on yellow background and should read:

CAUTION

This installation has wiring colour to two versions of BS 7671. Great care should be taken before undertaking extension, alteration or repair, that all conductors are correctly identified.

Programming

Works are to commence and complete in accordance with the main contract

Note: All certification to be approved by the Engineer before Practical Completion is achieved.

## 3.4 Labels

Each accessory shall be marked as to the distribution board and way number that controls it by means of an adhesive label affixed to its top edge. eg. DB1-2. All key switched, switched and unswitched fuse connection units shall have an additional label with respect to their function. Eg Access Control

## 3.5 Earthing and Bonding

Main and Supplementary Bonding Conductors

Main and Supplementary Bonding Conductors shall be single core stranded copper conductors with L.S.F. insulation. Where main bonding conductors are connected to other services or supplementary bonding conductors to other metal parts of the building, a label, which shall be of a clear and permanent nature, shall be provided stating:

A schedule of main services and extraneous metalwork requiring bonding are shown below together with cable sizes.

Supplementary Bonding

Bonding shall generally comply with the requirements of BS 7671, the IEE Regulations and the Supply Authorities PME Regulations.

Earthing Conductors

Earthing conductors shall be separate single core; LSF (Low Smoke and Fume) insulated copper conductors.

## 3.6 Containment

All overhead surface containment must be either in metal conduits/trunking or non inverted tray/basket or if inverted then the cables be secured to the tray/basket using metal cable clips or if plastic containment is used then the cables must secured using metal clips/banding. NO plastic tie wraps are to used ONLY metal tie wraps.

Where cables are run in ceiling voids then the contractor is to allow for all cabling to be contained.

All conduits and cables passing through fire barrier walls or ceiling shall be provided with an inspection box either side of the fire barrier. Each box shall be fitted with a suitable intumescent gasket.

Where cables in trunking pass through fire barriers rock wool packing shall be used.

## 3.7 Fire Detection System

Where a fire alarm system is installed within a block the contractor shall supply, install, wire and connect the fire alarm Input / output interface unit connected to fire alarm system. The Input / output interface units to the manufacturer’s recommendations to ensure the correct operation in accordance with the cause and effect (section 3.9) below.

The interface shall be installed, put into service and documented in accordance with the latest edition BS5839-1.

The Contractor shall be responsible for carrying out all builders work associated with the fire alarm works including but not limited to the following:

1. Cutting away
2. Making Good
3. Redecorating – local decoration to match existing
4. Removal and reinstatement of ceiling tiles.

**Containment & Cabling**

Fire detection, sounder/beacon devices and power supply cabling shall be installed in fire rated cabling FP200 Gold (OHLS). All cables shall be 300/500V grade. Clips for the cable shall be of the type approved by the manufacturer for prolonged exposure to fire. All cabling shall be installed surface either clipped direct or in plastic trunking to match existing containment within the block.

**Cause and Effect**

Upon fire alarm activation via automatic detectors or manual call points the fire alarm interface shall unlock the door and relock the door when the fire alarm is reset.

**Certification, Documentation & Training**

Record drawings, operation instructions log book and certification and shall be provided in accordance with BS5839-1: 2002 requirements.

## 3.8 Door Entry System

## 3.8.1 General Conditions

The Standard System supplied must be a full specification, vandal resistant entry phone system. An unlimited number of doors with intercom panels/access control may be controlled, calling over 1000 entry phones on any one system. Entry phones shall be individually coded by the installer to respond to the relevant number being called.

Both functional and digital systems employ full status displays, engineers access codes and share all the same system components with the exception of software, reducing the amount of spares required and simplifying maintenance.

The approved company as detailed below shall manufacture the controlled entry equipment to the minimum criteria.

* All door entry and access control equipment to comply with this specification and only equipment that will have spare components available for a minimum of 10 future years shall be used.
* All door entry equipment to have TWO years parts only manufacturer’s warranty
* All Proximity Access Control equipment to have FIVE years parts only manufacturer’s warranty.
* All key fobs shall have a lifetime warranty
* All door entry, locking devices and associated system equipment shall be supplied via the proposed manufacturer. The contractor shall ensure that the requirement components as specified are purchased via the door entry manufacturer.

The type of system will be determined by the number of Flats in the Block and any Special Requirements as detailed by the authorising officer.

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| **Standard Functional System** | Where there are fourteen or less flats to a minimum of two flats in one block served by the same communal entrance the **Standard Functional System Specification** will apply unless otherwise instructed by the authorising officer. |
| **Standard Digital System** | Where there are fifteen or more flats in one block served by the same communal entrance the **Standard Digital System Specification** will apply unless otherwise instructed by the authorising officer. |

## 3.8.2 Standard Functional System Specification

**Fourteen or less Flats to a minimum of Two Flats in one Block served by the same Communal Entrance**

Where there are fourteen or less Flats to a minimum of two flats in one Block served by the same Communal Entrance the Standard Functional System Specification shall apply unless otherwise instructed by the authorising officer. The system shall be Audio Only. The panel shall be flush or Surface Mounted (flush is the preference) and Authorised by the Contract Administrator. The system shall be an Access Control Key Fob System.

The following requirements for equipment apply:

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| **Door Entry Panel** | |
| General | * The Door Entry Panel shall be manufactured from marine grade 316 or 304 stainless steel with solid 20mm diameter stainless steel keys, protected with weather membrane, deep filled engraving and a yellow halo milled around each button with yellow infill. * Panels shall house a proximity reader being in-built to the panel facia and protected by 6mm lexan polycarbonate windows. * Audio up and down is independently variable and panel reassurance tone volume shall be separately adjustable. * The weatherproof mylar cone panel speaker shall be protected by a stainless steel baffle plate and housed over 15mm away from microphone to reduce ‘howl’ and improve audio quality. * PCB hardware inputs for emergency access switch, fire alarm, door monitor contacts, fail safe and fail secure locks, warden interrupt phone, trades clock and entry phones. * Panel, entry phones and lock all independently fuse protected and of the “plug on” connector type. * No limitation on number of additional entry panels (except power consumption) and capable of calling 14 or less entry phones. * Panel fixed in place with stainless steel security screws and sealed with 4mm thick neoprene gasket. * The entry panels shall also accommodate a proximity access reader which shall be housed behind clear 6mm polycarbonate window with raised key symbol. * System must monitor handset inputs and prevent the system from being overridden i.e. System to prevent Door Release button been ‘jammed’ in enabling unauthorised entry into the building, when the affected handset is called due to a continuous lock release command given. * Keypad 20mm diameter solid stainless steel – buttons held in place by a steel retaining plate and weather protected by a neoprene gasket. * All buttons must have engraved yellow halo’s surrounding the buttons for easy location by the visually impaired. * The System Manufacturers Logo is to be engraved on the Panel facia in the bottom left corner. |
| LCD Display & Audible Reassurance | * An 8 digit back-lit LCD Display shall be fitted within all panels and shall be protected by a 6mm lexan polycarbonate window. * Numerals, not less than 12mm high and shall black in colour, message text in title & sentence case. * Full audible and visual reassurance i.e. key pad echo for pressing of buttons, warble tone to signify call in progress, intermittent ‘bleep’ to indicate door released and full English text. * Include message “CALLING” when call initiated alternating with flat/house/apartment number. * Include message “SPEAK” when handset is lifted in the Flat, to indicate to a hearing impaired person the call has been answered. * Include message “ENTER NOW” to Audible Alarm when Door Release is activated. * Include message “SYSTEM BUSY” to operate if system is busy – multi panel systems only. * Include message “HUNG UP” in the event of a call being terminated by the replacing of the handset. * Include message “PHONE OFF” should an entry phone be called that has the privacy facility switched on. * Include message “TRADES OFF” if the trades button is pressed outside of trades times or alternatively include message “CODE” will be displayed to prompt the entry of a 0-8 button-press access code. |
| Tradesman Facility | * Trades button with yellow ring engraved, “Trades” * Authorised Person access facility with trades button operation on time clock control or in conjunction with a code number, or pin number access only. * User programmable access code of between 0 and 8 digits on both digital and functional early panels using existing keypad. * Trades Clock to be BST/GMT self correcting. |
| Back Box | * Flush fitted galvanised steel back box incorporating marine grade stainless steel mitred bezel 12 SWG 2.5mm stainless steel. * Surface fitted Black Box to be constructed entirely of marine grade stainless steel. * Fix to structure of building with non-ferrous screws. * Back Box sealed to side screen or wall. * Provide concealed conduit installation without cables entering the top of the back box. |
| **Fire Switch** | |
| General | * The Unit shall be manufactured from zinc plated polyester powder coated steel and secured with vandal resistant screws. * The Plate shall be fixed with minimum of 4 no vandal resistant screws * The fire override switch shall be a master key SCC 12 under license to SCC. * Flush fitting, or surface mount if agreed with Contract Administrator * Provide each main access controlled entrance door and any other side/rear doors as indicated with a fire override switch to momentary disengage and cut the power to the electric lock release or magnetic lock while the switch is operated and also provide a timed entry period. |
| Location & Installation | * High level with top of door, above the call panel or reader fitted between 1900mm – 2100mm from FFL. * The switch shall be wired to break the 0v feed to the lock releasing the door when the key is operated and held. The switch shall also be wired to provide a timed release at the same time that the key momentarily operates the switch. |
| **Power Supply Unit Including Trades Clock Timer** | |
| General | The Door Entry System will be powered from a Power Supply Control Unit within a steel lockable enclosure housing 12v DC @ 1A, 2A, 3A or 5A power supply unit with fused inputs and outputs, LED indication for power failure, back up battery and BST/GMT self correcting trades time clock. |
| Trades Clock Timer | BST/GMT self correcting 12V DC trades time clock with up to 6 on/off settings per day. The clock may be programmed as a 24 hour, 7 day or 5+2 day unit. The Trades Clock to have LCD Display and programmed via three coloured programming buttons and be equipped with its own internal memory back-up battery, and located in the Main PSU enclosure. |
| Location & Installation | * The PSU enclosure should be located within a suitable lockable cupboard, unless authorised by Client. * The PSU enclosure should have suitable warning labels and information label detailing the installer and manufacturer. * The contractor shall advise quantity, rating and location of fused spurs that are required to power the system. |
| **Entry Phone Handsets** | |
| General | Provide each dwelling with a wall mounted handset to accept calls from the entry control and release the appropriate entry door panel. |
| Audio Handsets | * If the dwelling has an existing handset the contractor shall remove the handset, and fit the replacement to the same location. Location of handset for a completely new installation shall be agreed with the authorising officer. * Individual adjustable electronic ring tine. Ringing tones adjustable in each individual handset. * ABS resistant impact plastic, White or Black in colour. * Privacy/secrecy of speech. No calls between control panel and handsets may be eavesdropped by other handsets. * Timed privacy switch (On/Off button) with Red LED to display when activated and adjustable time cancel facility to switch the room terminal back on. * Green LED to including live Door Open/Door status * Permanent marked operating pictorial symbols on handset moulding to indicate privacy switch, lock release button and door monitoring LED. * Full discrete unlocking of entry door with anti lock down circuit. * Handset to be wall mounted. * Capable of accepting disabled aids, i.e. hearing amplification, inductive couplers, strobe lights, extension handsets and sounders without the need for extra cabling entering the dwelling or additional interface units. * Full Duplex two-way simultaneous speech * Individual handset adjustable call tone volume by engineer pot. Factory pre set at maximum. * Key Symbol to be printed to lock release button * Position and secure handset in vertical position * The call point within each dwelling shall be mounted within the hall at a height which allows use by disabled residents. * Audio handsets are to be addressable and uniquely programmed for the system during installation via the control/door panel. Specialist programming equipment of off-site software must not be employed. |
| Location & Installation | * Generally positioned within the hallway, in close proximity to lounge and kitchen preferably in a position where the handset shall not be damaged by moving furniture. * Positions shall be confirmed by the Contract Administrator * Mounted at 1200mm FFL to top of highest button on handset as per Part M, BS8300:2005 and DDA requirements. * Provide PVC mini trunking installation to enclose cables where required. Mini trunking shall be secured using suitable mechanical fixings which are to be plugged and screwed to the wall. Cables shall be metal clipped inside the trunking at intervals of one meter and plug and screwed to the wall. * Demonstrate the use of the handset to the resident. |
| **Intelligent Fault Isolation Controller** | |
| General | * Intelligent Fault isolation controller shall be an optional item to the system * Intelligent Fault isolation controller shall be supplied to provide Intelligent Fault Isolation to each individual handset, as and where directed by the authorising officer. * Intelligent Fault Isolation controller shall continuously monitor data lines for faults and isolate faulty handset automatically. Handset should be automatically reinstated on system by Fault Isolation controller upon rectification of Fault. * Power faults to be isolated on controller via self resetting fuses * The Intelligent isolation controller can be installed at any point on the system network. |
| Location & Installation | * Intelligent Fault Isolation controller must be located in suitable enclosure * Location dependant on design layout of cabling. |

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| **DISABLED ACCESS FOR DOOR ENTRY SYSTEM** | |
| The contractor shall ensure the system is in compliance with the Equality Act 2010. The contractor shall ensure that the door can be accessed and operated by wheelchair users. Card readers, call buttons and handsets within dwellings shall be operable by wheelchair users. The contractor shall set mounting heights for panels etc., and insure the panels meet the legislative requirements. | |
| **Access Control System** | |
| * The system shall be proximity based with a controller and reader per door and fitted with removable memory chip. * The contractor shall be responsible for supply and installing appropriate software to provide a fully functioning door entry system. The software selected shall be compatible with all components of the door entry system and shall allow the programming of key fobs for the system. * The contractor shall provide a door entry system which is simple to use allowing key fobs to be programmed at the Clients Office and be available to use by the resident immediately. The key fob shall contain the database of its access rights eliminating the need to update the onsite controller via modem or broadband connection. * The door access system key fob shall be encrypted with its own unique code. The key fob should be programmable allowing to block lost/restricted key fobs and to programme new key fob. * The contractor shall supply a data storage device within the controller, which will contain a database with the facility for retention of key fob holder detail and with backup copies of corruptible files. | |
| Software | The key fob to use **Mifare** technology. This is a reading and writing technology that makes the fobs “intelligent”. This enables the fob to carry the data and then in turn to update the central unit when it is used. Using this technology the new fob can also be used to remove any fobs in the system that may have been lost, stolen or simply not returned to the administrator.  This allows removal of old or lost fobs without:   * going to site * using a master fob * having the fob before/after   Note features:   * off site computer based system (separate operating database will not be acceptable). * up to 1000 users per site * up to 64 doors on 1 site * fobs programmed by the Client using Web Interface and enrolment reader. * fobs colour for easy replacement – software to prevent duplicate colours being assigned to the same Flat. * new fob deletes old fob * programmable time zones * programmable pass fobs. |
| Key fobs for Flats | * The contractor shall be responsible for supplying 3 key fobs per dwelling as standard. The key fob shall be programmed to the door entry system. The contractor shall number the key fob and shall provide all key fobs to resident with a suitable explanation of the operation of the key fob and what measures should be taken if a key fob is lost. * The key fob for the system shall be Mifare based with the unique fob number engraved on the key fob and be compatible with the card reader. * The key fob for Flats shall be unique. The key fob shall be protected against unauthorised change. * The key fob shall be programmable from a web based manufacturer’s software. |
| **Containment and Cabling** | |
| Interconnecting Cabling | * The contractor shall be responsible for the supply and installation of cabling between all components of the door entry system. The door entry panel, electronic lock, handsets, fireman’s switch and door openers shall be wired to provide a fully functioning system. * The wiring shall be installed to the satisfaction of the contract administrator. Should any wiring not meet the requirements of the specification the contractor shall remedy the installation to meet the desired standard. * The wiring should be sized to comply with voltage drop, signal loss and should carry the appropriate ratings. Low voltage signal cables should not be run in the vicinity of mains cables (240Vac RMS). * The wiring should be securely fixed and where possible run in secure areas. Wiring run in common areas shall be in secure galvanised encasement. * Cabling should be ultra low voltage * Data cables should be of sufficient size and type to transmit data and resist electromagnetic interference. * The cabling to handsets within the dwelling shall be wired in a neat fashion and shall be either metal clipped to doors and skirting at one meter intervals or within white PVC mini trunking. All cables shall be metal clipped at one meter distance inside the trunking and secured to the wall using suitable mechanical fixings which are to be plug and screwed to the wall. * The use of sticky-back/adhesive mini trunking is not acceptable unless it is fixed using suitable mechanical fixings which are to be plug and screwed to the wall. * There shall be no cable junctions in any Flat that link to another Flat. All junctions must be located in Accessible Communal Areas in suitable enclosure. |
| Containment | * External – all cables should be run in galvanised steel conduit or trunking. * Internal Communal Areas – all cables should be run in galvanised steel conduit, using necessary bends and covers. Contractor shall get confirmation from the Client per site as to preferred type of containment. * Internal Flat areas – all cables must be neatly metal clipped at one meter distance or when run in trunking be metal clipped and secured using suitable mechanical fixing plug and screwed to the wall at one meter distance as specified by the Client. |

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| **TESTING AND COMMISSIONING OF DOOR ENTRY SYSTEM** |
| The contractor shall be responsible for testing, commissioning and handing over of the door entry system to the satisfaction of the Contract Administrator/Client. The contractor shall demonstrate the operation of the system. The commissioning and testing shall include (not exclusively):   * All wiring correctly terminated * Correct operation of card reader and door entry point * Fireman’s override switch operation * Release time for each access door * Verification of access level for different key fobs * Operation of battery backup (if specified) * Programming of key fobs. |
| **HANDOVER DOCUMENTATION** |
| On completion of these works the contractor shall provide record drawings with O&M manuals for the works undertaken. This shall include manufacturer’s information and all relevant commissioning data and test certificates.  The documentation shall include the following:   * Operating instructions for the door entry system * All electrical test certificates * Maintenance information detailing schedule of Planned Preventative maintenance required. * Health & Safety information * User Guide. |

## 3.8.3 Standard Digital System Specification

**Fifteen or more Flats in one Block served by the same Communal Entrance**

Where there are fifteen or more Flats in one Block served by the same Communal Entrance the Standard Digital System Specification shall apply unless otherwise instructed by the authorising officer. The system shall be Audio Only. The panel shall be flush or Surface Mounted (flush is the preference) and Authorised by the Contract Administrator. The system shall be an Access Control Key Fob System.

The following requirements for equipment apply:

|  |  |  |
| --- | --- | --- |
| **Door Entry Panel** | | |
| General | * The Door Entry Panel shall be manufactured from marine grade 316 or 304 stainless steel with solid 20mm diameter stainless steel keys protected with weather membrane, deep filled engraving and a yellow halo milled around each button with yellow infill. * Panels shall house a proximity reader being in-built to the panel facia and protected by 6mm lexan polycarbonate windows. * Audio up and down is independently variable and panel reassurance tone volume is to be separately adjustable. * The weatherproof mylar cone panel speaker is to be protected by a stainless steel baffle plate and housed over 15mm away from microphone to reduce ‘howl’ and improve audio quality. * PCB hardware inputs for emergency access switch, fire alarm, door monitor contacts, fail safe and fail secure locks, warden interrupt phone, trades clock and entry phones. * Panel, entry phones and lock all independently fuse protected and of the “plug on” connector type. * No limitation on number of additional entry panels (except power consumption) and capable of calling 1000 or more entry phones. * Panel fixed in place with stainless steel security screws and sealed with 4mm thick neoprene gasket. * The entry panels shall also accommodate a proximity access reader which will be housed behind clear 6mm polycarbonate window with raised key symbol. * System must monitor handset inputs and prevent the system from being overridden i.e. System to prevent Door Release button been ‘jammed’ in enabling unauthorised entry into the building when the affected handset is called due to continuous lock release command. * Keypad 20mm diameter solid stainless steel – buttons held in place by a steel retaining plate and weather protected by a neoprene gasket. * All buttons must have engraved yellow halo’s surrounding the buttons for earlier location by the visually impaired. * Call buttons will be numbered 0-9, ‘CALL’ and ‘CLEAR’ with the facility for a ‘A-F’ alphanumeric key. The Flat number will be dialled and the ‘CALL’ button pressed to call the required handset. A ‘CANCEL’ button may be pressed to clear the display or cancel the call. * The System Manufacturers Logo is to be engraved on the Panel facia in the bottom left corner. | |
| LCD Display & Audible Reassurance | * An 8 digit back-lit LCD Display is to be fitted within all panels and is to be protected by a 6mm lexan polycarbonate window. * Numerals not less than 12mm high and be black in colour, message text in title & sentence case. * Full audible and visual reassurance i.e. key pad echo for pressing of buttons, warble tone to signify call in progress, intermittent ‘bleep’ to indicate door released and full English text. * Include message “CALLING” when call initiated alternating with flat/house/apartment number. * Include message “SPEAK” when handset is lifted in the Flat, to indicate to a hearing impaired person the call has been answered. * Include message “ENTER NOW” to Audible Alarm when Door Release is activated. * Include message “SYSTEM BUSY” to operate if system is busy – multi panel systems only. * Include message “HUNG UP” in the event of a call being terminated by the replacing of the handset. * Include message “PHONE OFF” should an entry phone be called that has the privacy facility switched on. * Include message “TRADES OFF” if the trades button is pressed outside of trades times or alternatively include message “CODE” will be displayed to prompt the entry of a 0-8 button-press access code. | |
| Tradesman Facility | * Trades button with yellow ring engraved, “Trades” * Authorised Person access facility with trades button operation on time clock control or in conjunction with a code number, or pin number access only. * User programmable access code of between 0 and 8 digits on both digital and functional early panels using existing keypad. * Trades Clock to be BST/GMT self correcting. | |
| Back Box | * Flush fitted galvanised steel back box incorporating marine grade stainless steel mitred bezel 12 SWG 2.5mm stainless steel. * Surface fitted Black Box to be constructed entirely of marine grade stainless steel. * Fix to structure of building with non-ferrous screws. * Back Box sealed to side screen or wall. * Provide concealed conduit installation without cables entering the top of the back box. | |
| **Fire Switch** | | |
| General | * The Unit shall be manufactured from zinc plated polyester powder coated steel and secured with vandal resistant screws. * The Plate shall be fixed with minimum of 4 no vandal resistant screws * The fire override switch shall be a master key SCC 12 under license to SCC. * Flush fitting or surface mount if agreed with Contract Administrator * Provide each main access controlled entrance door and any other side/rear doors as indicated with a fire override switch to momentary disengage and cut the power to the electric lock release or magnetic lock while the switch is operated and also provide a timed entry period. | |
| Location & Installation | * High level with top of door, above the call panel or reader fitted between 1900mm – 2100mm from FFL. * The switch shall be wired to break the Ov feed to the lock releasing the door when the key is operated and held. The switch shall also be wired to provide a timed release at the same time that the key momentarily operates the switch. | |
| **Power Supply Unit Including Trades Clock Timer** | | |
| General | The Door Entry System will be powered from a Power Supply Control Unit within a steel lockable enclosure housing 12v DC @ 1A, 2A, 3A or 5A power supply unit with fused inputs and outputs, LED indication for power failure, back up battery and BST/GMT self correcting trades time clock. | |
| Trades Clock Timer | BST/GMT self correcting 12V DC trades time clock with up to 6 on/off settings per day. The clock may be programmed as a 24 hour, 7 day or 5+2 day unit. The Trades Clock to have LCD Display and programmed via three coloured programming buttons and be equipped with its own internal memory back-up battery and located in the Main PSU enclosure. | |
| Location & Installation | * The PSU enclosure should be located within a suitable lockable cupboard, unless authorised by Client. * The PSU enclosure should have suitable warning labels and information label detailing the installer and manufacturer. * The contractor is to advise of quantity, rating and location of fused spurs that are required to power the system. | |
| **Entry Phone Handsets** | | |
| General | Provide each dwelling with a wall mounted handset to accept calls from the entry control and release the appropriate entry door panel. | |
| Audio Handsets | * If the dwelling has an existing handset the contractor shall remove the handset, fitting the replacement to the same location. Location of handset for a completely new installation shall be agreed with the Contract Administrator. * Individual adjustable electronic ring tine. Ringing tones adjustable in each individual handset. * ABS resistant impact plastic, White or Black in colour. * Privacy/secrecy of speech. No calls between control panel and handsets may be eavesdropped by other handsets. * Timed privacy switch (On/Off button) with Red LED to display when activated and adjustable time cancel facility to switch the room terminal back on. * Green LED to including live Door Open/Door status * Permanent marked operating pictorial symbols on handset moulding to indicate privacy switch, lock release button and door monitoring LED. * Full discrete unlocking of entry door with anti lock down circuit. * Handset to be wall mounted. * Capable of accepting disabled aids, i.e. hearing amplification, inductive couplers, strobe lights, extension handsets and sounders without the need for extra cabling entering the dwelling or additional interface units. * Full Duplex two-way simultaneous speech * Individual handset adjustable call tone volume by engineer pot. Factory pre set at maximum. * Key Symbol to be printed to lock release button * Position and secure handset in vertical position * The call point within each dwelling shall be mounted within the hall at a height which allows use by disabled residents. * Audio handsets are to be addressable and uniquely programmed for the system during installation via the control/door panel. Specialist programming equipment of off-site software must not be employed. | |
| Location & Installation | * Generally positioned within the hallway, in close proximity to lounge and kitchen preferably in a position where the handset shall not be damaged by moving furniture. * Positions to be confirmed by the Contract Administrator * Mounted at 1200mm FFL to top of highest button on handset as per Part M, BS8300:2005 and DDA requirements. * Provide PVC mini trunking installation to enclose cables where required. Mini trunking is to be secured using suitable mechanical fixings which are to be plugged and screwed to the wall. Cables shall be metal clipped inside the trunking at intervals of one meter and plug and screwed to the wall. * Demonstrate the use of the handset to the resident. | |
| **Intelligent Fault Isolation Controller** | | |
| General | * Intelligent Fault isolation controller shall be an optional item to the system * Intelligent Fault isolation controller shall be supplied to provide Fault Isolation to each individual handset as and where directed by the authorising officer. * Intelligent Fault Isolation controller shall continuously monitor data lines for faults and isolate faulty handset automatically. Handset should be automatically reinstated on system by Fault Isolation controller upon rectification of Fault. * Power faults to be isolated on controller via self resetting fuses * The isolation controller can be installed at any point on the system network. | |
| Location & Installation | * Intelligent Fault Isolation controller must be located in suitable enclosure * Location dependant on design layout of cabling. | |
|  | | |
| **DISABLED ACCESS FOR DOOR ENTRY SYSTEM** | | |
| The contractor shall ensure the system is in compliance with the Equality Act 2010. The contractor shall ensure that the door can be accessed and operated by wheelchair users. Card readers, call buttons and handsets within dwellings shall be operable by wheelchair users. The contractor shall set mounting heights for panels etc., and insure the panels meet the legislative requirements. | | |
| **Access Control System** | | |
| * The system shall be proximity based with a controller and reader per door and fitted with removable memory chip. * The contractor shall be responsible for supply and installation of appropriate software to provide a fully functioning door entry system. The software selected shall be compatible with all components of the door entry system and shall allow the programming of key fobs for the system. * The contractor shall provide a door entry system which is simple to use, allowing key fobs to be programmed at the Clients Office and be available for use by the resident immediately. The key fob shall contain the database of its access rights, eliminating the need to update the onsite controller via modem or broadband connection. * The door access system key fob shall be encrypted with its own unique code. The key fob should be programmable allowing to block lost/restricted key fob and to programme new key fobs. * The contractor shall supply a data storage device within the controller which will contain a database with the facility for retention of key fob holder details, and with backup copies of corruptible files. | | |
| Software | | The key fob to use Mifare technology. This is a reading and writing technology that makes the fobs “intelligent”. This enables the fob to carry the data and then update the central unit when it is used. Using this technology, the new fob can also be used to remove any fobs in the system that may have been lost, stolen or simply not returned to the administrator.  This allows removal of old or lost fobs without:   * going to site * using a master fob * having the fob before/after.   Note features:   * off site computer based system (separate operating database will not be acceptable). * up to 1000 users per site * up to 64 doors on 1 site * Fobs programmed by the Client using Web Interface and enrolment reader. * Fobs colour for easy replacement – software to prevent duplicate colours being assigned to the same Flat. * new fob deletes old fob * programmable time zones * Programmable pass fobs. |
| Key fobs for Flats | | * The contractor shall be responsible for supplying 3 key fobs per dwelling as standard and should be confirmed with Client. The key fob shall be programmed to the door entry system. The contractor shall number the key fob and shall provide all key fobs to the resident with a suitable explanation of the operation of the key fob and what measures should be taken if a key fob is lost. * The key fob for the system shall be Mifare based with the unique fob number engraved on the key fob and be compatible with the card reader. * The key fob for Flats shall be unique. The key fob shall be protected against unauthorised change. * The key fob shall be programmable from web based manufacturer’s software. |
| **Containment and Cabling** | | |
| Interconnecting Cabling | | * The contractor shall be responsible for the supply and installation of cabling between all components of the door entry system. The door entry panel, electronic lock, handsets, fireman’s switch and door openers shall be wired to provide a fully functioning system. * The wiring shall be installed to the satisfaction of the contract administrator. Should any wiring not meet the requirements of the specification the contractor shall remedy the installation to meet the desired standard. * The wiring should be sized to comply with voltage drop, signal loss and should carry the appropriate ratings. Low voltage signal cables should not be run in the vicinity of mains cables (240Vac RMS). * The wiring shall be securely fixed and where possible run in secure areas. Wiring run in public areas shall be secure galvanised encasement. * Cabling should be ultra low voltage * Data cables should be of sufficient size and type to transmit data and resist electromagnetic interference. * The cabling to handsets within the dwelling shall be wired in a neat fashion and shall be either metal clipped to doors and skirting at one meter intervals or within white PVC mini trunking. All cables shall be metal clipped at one meter distance inside the trunking and secured to the wall using suitable mechanical fixings which are to be plug and screwed to the wall. * The use of sticky-back/adhesive mini trunking is not acceptable unless it is fixed using suitable mechanical fixings, which are to be plug and screwed to the wall. * These shall be no cable junctions in any Flat that link to another Flat. All junctions must be located in Accessible Communal Areas in suitable enclosure. |
| Containment | | * External – all cables should be run in galvanised steel conduit or trunking. * Internal Communal Areas – all cables should be run in galvanised steel conduit, using necessary bends and covers. Contractor shall get confirmation from the Client per site as to preferred type of containment. * Internal Flat areas – all cables must be neatly metal clipped at one meter distance or when run in trunking be metal clipped and secured using suitable mechanical fixing plug and screwed to the wall at one meter distance as specified by the Client. |

|  |
| --- |
| **TESTING AND COMMISSIONING OF DOOR ENTRY SYSTEM** |
| The contractor shall be responsible for testing, commissioning and handing over of the door entry system to the satisfaction of the Contract Administrator/Client. The contractor shall demonstrate the operation of the system. The commissioning and testing shall include (not exclusively):   * All wiring correctly terminated * Correct operation of card reader and door entry point * Fireman’s override switch operation * Release time for each access door * Verification of access level for different key fobs * Operation of battery backup (if specified) * Programming of key fobs. |
| **HANDOVER DOCUMENTATION** |
| On completion of these works the contractor shall provide record drawings with O&M manuals for the works undertaken. This shall include manufacturer’s information and all relevant commissioning data and test certificates.  The documentation shall include the following:   * Operating instructions for the door entry system * All electrical test certificates * Maintenance information detailing schedule of Planned Preventative maintenance required. * Health & Safety information * User Guide. |
| Telephone based calling door entry system are not be acceptable. Only hard-wired systems shall be supplied and installed. |

## 3.09 Mounting Heights

Distances are to centre of accessory or equipment above finished floor level unless otherwise stated.

|  |  |  |
| --- | --- | --- |
| Accessories or Equipment | Location | Height (mm) |
|  |  |  |
| Fire Alarm | Interface | 2200 |
|  |  |  |
| Control Switches |  | 1200 top edge |

## 3.10 Training

The contractor is to allow for co-ordinating and arranging for a suitable training session(s) to the client and end users on or before practical completion to demonstrate how to use the following systems.

Automatic Doors

Access Control

**COLLECTION**

[1.0 PRELIMINARIES 3](#_Toc350150068)

[2.0 STANDARD SPECIFICATION 3](#_Toc350150069)

[2.1 General 3](#_Toc350150070)

[2.2 References to Standards 3](#_Toc350150071)

[2.3 Testing and Certification - Electronic 3](#_Toc350150072)

[2.4 Electronic Certification 4](#_Toc350150073)

[2.5 Materials and Equipment 4](#_Toc350150074)

[2.6 Construction Design Management (CDM) Regulations - 2007 4](#_Toc350150075)

[2.7 Asbestos Procedure 5](#_Toc350150076)

[3.0 PARTICULAR SPECIFICATION 6](#_Toc350150077)

[3.1 Introduction 6](#_Toc350150078)

[3.2 Removals 8](#_Toc350150079)

[3.3 Distribution 8](#_Toc350150080)

[3.4 Labels 9](#_Toc350150081)

[3.5 Earthing and Bonding 9](#_Toc350150082)

[3.6 Containment 9](#_Toc350150083)

[3.7 Fire Detection System 10](#_Toc350150084)

[3.8 Door Entry System 11](#_Toc350150085)

[3.8.1 General Conditions 11](#_Toc350150086)

[3.8.2 Standard Functional System Specification 12](#_Toc350150087)

[3.8.3 Standard Digital System Specification 19](#_Toc350150088)

[3.09 Mounting Heights 27](#_Toc350150089)

[3.10 Training 27](#_Toc350150090)

**Note: Within the Electrical Services Section the price shall be deemed to include (either within the rates or as a separate noted provision against this description) all Builders Work generally, including forming all holes and chases, their making good to finishes and providing fire resistance where fire walls are penetrated. Unless specifically mentioned within the Electrical Specification the encasement or decoration of pipework, ducts and cables other than for any type of insulation purpose is not deemed to be included. Services trenching external to the building is also not deemed to be included.**

**ITEM**

Above works shall be independently priced and may be subject to omission via a variation order. Claims for loss of profit will not be acceptable.