7 IRONMONGERY

7.1 GENERAL

7.1.1 Scope

1 This Part deals with the specification of ironmongery items.

2 Related Sections are as follows:

Section 1	General
Section 17	Metal Work
Section 21	Electrical Works

7.1.2 References

1 The following standards are referred to in this Part:

BS 3621.....Lock assemblies operated by key from both the inside and outside of the door.

BS 5725.....Emergency Exit Devices

BS 5725-1 .....Emergency exit devices - Specification for panic bolts and panic latches mechanically operated by a horizontal push-bar

BS 6459.....Door closers - Specification for mechanical performance of crank and rack and pinion overhead closers

BS 6462.....Specification for mechanical performance of peg-type casement stays and face-fixed wedge-action fasteners

BS 7036.....Code of practice for safety at powered doors for pedestrian use; (BS 7036-0 Power operated pedestrian doorsets. Safety in use - Code of practice for risk assessment and risk reduction)

BS 7352.....Specification for strength and durability performance of metal hinges for side hanging applications and dimensional requirements for template drilled hinges; (EN 1935 Building hardware. Single-axis hinges. Requirements and test methods)

EN 60730 .....Electrically operated door locks; (EN 60730-1 Automatic electrical controls - General requirements; EN 60730-2-12 Automatic electrical controls for household and similar use - Particular requirements for electrically operated door locks; IEC 60730-2-12 Automatic electrical controls - Particular requirements for electrically operated door locks)

7.2 PRODUCTS

7.2.1 General

1 The Contractor is to provide and fix ironmongery required by the Project Documentation complete, including all necessary screws, bolts, plugs and other fittings. The use of nails for fixing ironmongery will not be permitted. The Contractor to hand over all work in a finished state and to the satisfaction of the Engineer.

2 All ironmongery is to be of first quality and be obtained form an approved manufacturer. Butt hinges are to be aluminium alloy, stainless steel or brass as specified with double stainless steel washers to BS 7352.

3 The Contractor will be required to submit for approval samples of all items of ironmongery that he proposes to use.

4 All doors are to be provided with an approved floor stop plugged and screwed to the floor or wall and all opening areas of aluminium work (louvered doors) are to be provided with appropriate stays (friction type to plant room or service area doors opening out) to BS 6462. The size, materials, finishes, type and quality of ironmongery will be as described in the Project Documentation.

7.2.2 Finish

1 The finish of the various items of ironmongery is to be as described in the Project Specification or shown on the Drawings.

2 Ironmongery not obtainable from the same range and/or manufacturer as the general ironmongery for the Works is to match the general ironmongery as closely as possible.

3 Ironmongery to metal windows and doors is generally to match the general framing and is to be supplied and fixed with matching metal fixing screws and bolts and additional plates.

7.3 FITTING AND TESTING

7.3.1 General Requirements

1 All screws used for fixing ironmongery are to be of the correct type, material, finish, size and shape to the approval of the Engineer.

2 The hinges on which doors, windows, flyscreen doors, etc., are hung are to be carefully housed or let into the door, window, flyscreen doors, etc., and to the frames.

3 All fittings are to be removed before commencing any painting operations and are to be refixed in place after all painting works are completed and approved by the Engineer.

4 All ironmongery is to be carefully wrapped and protected until the completion of the work and any items or parts which are damaged or defaced or found to be defective are to be replaced at the Contractor's expense before handing over.

5 On completion of all locks, catches and similar items of ironmongery they are to be properly cleaned, tested and oiled, and all keys are to be clearly labelled with metal tags approximately 50 x 20 mm and securely fixed to the keys and handed to the Engineer. Thief resistant locks are to BS 3621.

6 Door closers are to be fitted a maximum of two weeks before handover. Power door closers are to BS 7036 and other standard closers to BS 6459 as applicable.

7 All floor and door springs are to be fully charged with oil and their operation checked to the satisfaction of the Engineer.

8 Hinges are to be fitted in a standard position 250 mm from the top or bottom edge of the door to the centre of the hinge. Where a third hinge is fitted it is to be located centrally between the top and bottom hinges.

9 Locks are to be fitted so that the centre of the handle is at height of 1020 mm from the bottom of the door and to BS 3621 as applicable.

7.4 STANDARD IRONMONGERY FOR INTERNAL DOORS

7.4.1 General Requirements

1 Each door leaf is to be fitted with 1½ pairs of 100 x 75 mm satin anodised aluminium, stainless steel or brass, double stainless steel washered butts unless otherwise noted in the Particular Project documentation and drawings.

2 Where a supplier cannot offer the particular required ironmongery the Contractor is to produce samples of other supplier's items most nearly matching the general ironmongery and/or produce alternative ironmongery by the main supplier most closely conforming with the specification for the approval of the Engineer and to BS 7352.

3 All locks are to be provided with 2 keys on a key ring neatly labelled.

4 'Master Key' locking systems are as stated in the Project Documentation.

5 All knob sets are to include for the appropriate mortise latch or lock with a 70 mm backset and with standard face-plates and roses unless otherwise noted.

7.5 ELECTROMAGNETIC LOCKING SYSTEMS

7.5.1 Scope

1 This Part covers the furnishing and installation of a complete low-voltage electromagnetic locking device door control and monitoring system. Specified for all new or existing exterior doors as designated on drawings by a hardware set number.

2 Supply and install all electric hardware devices, mounting brackets, power supplies, switches and controls, monitoring console and other components of the system as specified and to BS 7036.

3 Supply templates, wiring diagrams and installation instructions necessary for the co-ordination of the work and for proper installation, connection and operation of the system.

4 Provide all outlets, junction boxes, conduit, connectors, wiring, and other accessories necessary to complete the system installation. Requirements to be in accordance with Section 21, Electrical Works.

5 Requirements for conduit, wiring, devices, boxes and other items required to provide line current (110V-AC to 125V-AC) to refer Section 21, Electrical Works.

7.5.2 Quality Assurance

1 Manufacturer's Qualifications: Approval of the Engineer is required for products or services of proposed manufacturer, supplier and installer and will be based upon the following criteria:

(a) Locking devices, power supplies, controls and monitoring system to be products of a single manufacturer regularly and currently engaged in production of electromagnetic security locking systems.

(b) The manufacturer's products to have been in satisfactory operation on at least three similar installations for not less than three years..

(c) The installer to be a permanent organisation approved by the manufacturers, having facilities and employing trained personnel with technical qualifications and experience to prepare the installation, to install the required system and to provide periodic maintenance. The installer is to maintain a parts inventory and employ trained personnel at a location within a 100 mile radius of the project. The installer should have been installing security systems for a period of not less than three years.

2 Door and frame components, including locking device, are to have been tested by an approved independent testing laboratory.

7.5.3 Submittals

1 In accordance with procedures of Section 1, General, the Contractor is to furnish manufacturer's literature and product data including, but not limited to the following:

(a) complete descriptive data and details for each component, including dimensions, finishes, wiring diagrams, test reports, operation, and installation instructions.

(b) details for the complete system, including colour-coded wiring diagrams, interface with other systems, specific locations of all concealed components, operation, maintenance procedures, and information concerning requirements not included in printed data.

7.5.4 Delivery and Storage

1 Components of the system are to be delivered to the job site in their original cartons, labelled with complete information for identification and containing installation instructions, screws and mounting accessories.

2 Store equipment in a dry storage facility and in an orderly manner, protected from the damage by weather and construction operations.

7.5.5 Warranties

1 A written manufacturers warranty for a period of not less than five years from the date of final acceptance against manufacturing defects in principal components of the system, including the control console, electromagnetic locks and power-control units to be provided. Components under warranty which prove to be defective are to be satisfactorily repaired or replaced without additional cost to the Client.

2 A written service contract for a period of two years from the date of final acceptance providing for periodic inspection and call-back service and prompt adjustment, repair or replacement of malfunctioning components without additional cost to the Client is to be provided.

7.5.6 System Description

1 The locking system is to be a "fail-safe open" system so that all doors will fail unlocked in the event of a power failure. The electromagnetic locking system should not be connected to the emergency power supply.

2 Electromagnetic locks are to release immediately (authorised exit) if one of the following occurs, without setting off alarms.

(a) fire alarm is activated by sprinkler system

(b) power fails

(c) key operated switch is activated

(d) console release switch is activated

(e) other authorised release is activate

3 Electromagnetic locks are to release after 30 seconds (field adjustable 10 to 30 seconds) unauthorised exit but immediately notify central console if one of the following occurs and shall set off local alarms:

(a) exit device push bar is activated

(b) push plate operator is activated

(c) pull station operator is activated

(d) other unauthorised release is activated

4 Electromagnetic locks are to be controlled by time devices and be wired through the console to allow locks to be unlocked or locked as required during certain time of day. Field programmable time clocks are to be provided so that each exit can be individually controlled.

5 Each lock is to be wired through a separate power supply and be controlled and monitored by a central control console and additionally monitored by a second console.

6 The lock control wiring is to be supervised so that any break between lock and console will cause a notice at the console.

7 Manual Doors: Pushing on the cross bar of either exit device shall activate an irreversible 30 second time delay device (field adjustable 10 to 30 seconds) and set of an alarm (unless authorised exit device has been activated first in which case the alarm will not sound), and in 30 seconds electromagnet will release and allow the door to open in accordance with BS 5725.

8 Automatic Doors: A push plate wall switch or other method to operate automatic doors should to conform to EN 60730 Section 2.12, and wired through a 30 second time delay (field adjustable 10 to 30 seconds) so that the switch will not open the doors until the delay release of electromagnet has occurred. When the electromagnet is deenergised, normal switches to operate the automatic doors will be operable.

9 An Exit device is to be installed on each exterior door equipped with an electromagnetic lock to accomplish activation of 30 second time delay.

7.5.7 Locking Devices

1 Locks are to be electromagnetic type, without a mechanical linkage utilising no moving parts, and securing the door to its frame solely by electromagnetic force. For a pair of swinging doors, the two electromagnetic devices are to be mounted in a common housing. For bi-parting sliding doors the unit is to be designed with an electromagnetic component mounted in stile of one leaf and the armature in the other.

2 The lock are to have an internal, replaceable voltage kick-back protection.

3 A door status switch, single pole double throw adjustable for sensitivity, is to be semi or fully concealed within the lock housing to prevent tampering and attempts to defeat the system.

4 The door-mounted armature is to have provisions for adjusting alignment to compensate for normal door wear and tear.

7.5.8 Power Supply and Control Unit

1 The power supply-control unit is to power and control the electromagnetic lock. One unit to be provided for each entrance and be capable of supplying and controlling a pair of doors. If located more than 12 m from the lock, the wire size will be increased for the additional voltage drop.

2 The unit will have provisions for interfacing with a panic hardware exit switch.

END OF PART