SECTION 09

BUILDERS HARDWARE

PART 1 - GENERAL

1.01 DESCRIPTION

A. The extent of builder's hardware is shown on the drawings, by the provisions of this section and in schedules. Builders hardware is hereby defined to include all items known commercially as builder's hardware, as required for swing and sliding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame. All builder's hardware sets, components and accessories shall be of stainless steel material type 316A.

B. The required types of builder's hardware and related items include (but are not necessarily limited to) the following:

1. Butts and Hinges.
2. Set of lever Handles
3. Lock cylinders and keys.
4. Lock and latch sets.
5. Flush Bolts.
6. Panic exit devices.
7. Push/pull units.
8. Door Closers.
9. Door control devices.
10. Protection plates.
11. Stripping and seals.
12. Thresholds.
13. Key Control.
14. Door stops.

C. A cabinet reserved for the keys shall be provided.

1.02 QUALITY ASSURANCE

A. Dimensions: Dimensions as given by the manufacturer's shall be subject to production tolerances of $\pm$ 0.25 mm.

B. Fire-Rated Openings: Provide hardware for fire-rated opening in compliance with BS 476. Provide only hardware which has been tested and approved for types and sizes of doors required.

C. Codes and Standards: Comply with the applicable requirements of the following:

BS - British Standards:

1.03 SUBMITTALS

A. Manufacturer's Data; Builders Hardware: Submit manufacturer's product data, including illustrations, for each item of hardware. Include whatever information may be necessary to show compliance with requirements and include instructions for installation and for maintenance of operating parts and exposed finishes. Wherever needed, furnish templates to fabricators of other work which shall receive finish hardware. Transmit copy of applicable data to the Engineer.

B. Hardware Schedules; Builders Hardware: Submit 5 copies of the hardware schedule in the manner and format specified. hardware schedules are intended for coordination of the work. Review and acceptance by the Engineer does not relieve the Contractor of his exclusive responsibility to fulfil the requirements as shown and specified.

C. Meet with the Engineer or the Client and determine his requirements regarding keying of locks. Submit 5 copies of a separate key schedule, showing clearly how the Client’s final instructions on keying of locks have been fulfilled. Also a master key shall be submitted.

D. Samples; Builders Hardware:

1. Prior to submittal of the final hardware schedule and prior to delivery of hardware, submit one sample of each exposed hardware unit, finished as required and tagged with full description for coordination with the schedule. Sample board of all hardware units shall be kept at site office until completion of the project. Sample will be reviewed by the Engineer for design, colour and texture only. Compliance with other requirements is the exclusive responsibility of the Contractor.

PART 2 - PRODUCTS

2.03 LOCK CYLINDERS AND KEYING

A. General: Provide keying as specified herein.

B. Master Keying: Except as otherwise indicated, provide master keying system for the new facilities.

C. Equip locks with manufacturer's special 6-pin tumbler cylinder, with construction master key feature, which permits voiding of construction keys without cylinder removal.

D. Metals: Construct locks cylinder parts from brass/bronze, stainless steel or nickel silver.

E. Comply with the Keying Schedule for master keying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.

F. Key Quantity: Furnish 3 changes keys for each lock; 5 master keys for each master system. Furnish one extra blank for each lock.

G. Key Material: Provide keys of nickel silver only.

H. Deliver Keys to the Engineer.

2.04 LOCKS, LATCHES AND BOLTS

A. Strikes: Provide manufacturer's standard strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.

B. Lock Throw: Provide 19 mm minimum throw of latch and deadbolt used on pairs of doors.

C. Provide barrel bolts not less than 150 mm long and lever action flush bolts not less than 225 mm long

2.05 PUSH/PULL UNITS

A. Exposed Fasteners: Provide manufacturer's standard exposed fasteners for installation; through-bolted for matched pairs, but not for single units.

2.06 CLOSERS AND DOOR CONTROL DEVICES

A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.

1. Where parallel arms are required for closers, provide closer unit one size larger than recommended for use with standard arms.

B. Unless otherwise specified do not install closers on the outside of any exterior door not on the corridor side of any room door. Wherever it is necessary to install a closer on the side of a door away from the butts, a parallel arm shall be used. Corner or soffit brackets will not be permitted. Corridor installation is

acceptable where abutting walls prevent normal installation. All fastenings to the door shall be by six bolts or other type of through bolts acceptable to the Engineer.

2.07 KICKING, PUSH AND ARMOUR PLATES

A. General: Fabricate kicking, push and armour plates with bevel on top and both sides. Fasten with screws spaced not more than 150 mm on centres.

B. Kicking Plates: Fabricate kicking plates from not less than 3 mm thick anodised aluminium, 300 mm high x width specified.

C. Push Plates: Fabricate push plates from not less than 3 mm thick anodised aluminium and of the sizes specified.

2.08 STRIPPING AND SEALS

A. General: Unless otherwise directed, all exterior doors shall be provided with adequate weather-stripping to the approval of the Engineer.

B. Continuity of Stripping: Except as otherwise indicated, it is required that the stripping at each opening be continuous and without unnecessary interruptions at door corners and hardware.

C. Replaceable Seal Strips: It is required that the resilient or flexible seal strip of every unit be easily replaceable and readily available from stocks maintained by the manufacturer.

2.09 THRESHOLDS

A. Metal: Extruded aluminium, smooth commercial finish.

B. Surface Pattern: Grooved tread, manufacturer's standard.

C. Width: Not less than 102 mm if not otherwise indicated.

D. Minimum Thicknesses: Produce units with the indicated minimum thicknesses, exclusive of surface pattern grooves.

1. Extrusions: 6.4 mm for direct tread surfaces, 4.76 mm for secondary tread surfaces and 3.2 mm for unexposed flanges and legs.

E. Construction: Single-piece or multiple-piece construction at Contractor's option, complying with manufacturer's recommendations.

2.10 SMOKE SEALS

A. Provide smoke seals for all corridor doors of adequate design approved by the Engineer.

PART 3 - EXECUTION

3.01 HARDWARE MOUNTING HEIGHTS

A. Mount hardware units at the following locations on each door or door opening, except as otherwise specifically indicated, or required to comply with governing regulations and except as otherwise directed by the Engineer.

1. Lowest Hinge: 254 mm above floor to bottom of hinge.

2. Highest Hinge: 127 mm below top of door to top of unit.

3. Intermediate Hinges: Equally spaced between lowest and highest hinge units.

4. Lock and Latch Sets: Knobs centred 965 mm above floor.

5. Dead Lock: Cylinder and strike centred 1524 mm above floor.

6. Door Push/Pull Plate: Pull centred 1143 mm above floor, also centred 127 mm from door edge, unless stile width necessitates other location.

7. Arm Pull: Centre arm pull 1219 mm from floor, also centred 305 mm from edge of door.

8. Exit Device: Operating bar centred 1067 mm above floor.

9. Bolts, Head and Sill: Operating device centred not more than 1829 mm above floor unless otherwise directed.

10. Bolts, pulls and other special units: Units mounted at height recommended by manufacturer.

** END OF SECTION **