

PART 1 – GENERAL

1.1 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
 - .1 ANSI/BHMA A156.1-2013, American National Standard for Butts and Hinges.
 - .2 ANSI/BHMA A156.2-2017, Bored and Preassembled Locks and Latches.
 - .3 ANSI/BHMA A156.3-2014, Exit Devices.
 - .4 ANSI/BHMA A156.4-2013, Door Controls - Closers.
 - .5 ANSI/BHMA A156.5-2014, Auxiliary Locks and Associated Products.
 - .6 ANSI/BHMA A156.6-2010, Architectural Door Trim.
 - .7 ANSI/BHMA A156.8-2010, Door Controls - Overhead Stops and Holders.
 - .8 ANSI/BHMA A156.16-2013, Auxiliary Hardware.
 - .9 ANSI/BHMA A156.18-2016, Materials and Finishes.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
 - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for door hardware and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
 - .4 After approval samples will be returned for incorporation in Work.
- .4 Hardware List:
 - .1 Submit contract hardware list.
 - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .5 Manufacturer's Instructions: submit manufacturer's installation instructions.

1.3 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

- .2 Operation and Maintenance Data: submit operation and maintenance data for door hardware for incorporation into manual.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra Stock Materials:
 - .1 Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Tools:
 - .1 Supply 2 sets of wrenches for door closers, locksets, and fire exit hardware.

1.5 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Only products meeting ANSI/BHMA standards are acceptable. Items that are equal in design, function and quality will be acceptable upon review of the Departmental Representative.
- .4 Only recognized contract hardware distributors will be considered for the work of this section. This distributor shall have on staff a qualified Architectural Hardware Consultant recognized by the Door and Hardware Institute or person with equivalent qualifications to assist installers and direct detailing, processing and delivery of material, and certify installation acceptance.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
- .4 Storage and Handling Requirements:
 - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect door hardware from nicks, scratches, and blemishes.
 - .3 Protect prefinished surfaces with strippable coating.
 - .4 Replace defective or damaged materials with new.

PART 2 – PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

- .1 Materials and products in accordance with Section 01 47 15 – Sustainable Requirements.

2.2 HARDWARE ITEMS

- .1 Use one manufacturer's products only for similar items.

2.3 DOOR HARDWARE

- .1 Locks and latches:
 - .1 Bored and preassembled locks and latches: to ANSI/BHMA A156.2, series 4000 bored lock, grade 1, designed for function as stated in Hardware Schedule.
 - .1 Cycle Test: exceeds 9 times A156.2 Grade 1 requirements
 - .2 Locks are required for fire doors shall be listed by Underwriters Laboratories for ratings of 3 hours (A label) and less.
 - .3 Lever handles: Lock levers shall be made of solid material available in a minimum of six different lever designs.
 - .4 Roses: round.
 - .5 Normal strikes: box type, lip projection not beyond jamb.
 - .6 70 mm backset.
 - .7 Cylinders: key into keying system as directed.
 - .8 Finished to 626.
 - .9 Locks shall have a seven year limited warranty
- .2 Butts and hinges:
 - .1 Butts and hinges: to ANSI/BHMA A156.1, type, size and finish as listed in Hardware Schedule.
 - .2 Continuous geared hinges: to ANSI/BHMA A156.26, heavy duty, 6063-T6 extruded tempered aluminum, three interlocking extrusions in pinless assembly installed in full height of door frame, complete with installation aids and fasteners to suit door and frame conditions.
- .3 Exit devices: to ANSI/BHMA A156.3, Grade 1, function and finish as per schedule.
 - .1 Exit devices of Rim type with push pad design, non-handed, field sizable with approved labeling as required or as indicated in the door schedule.
 - .2 Exit devices shall be complete with all devices to operate as per the functions indicated in the Hardware Group.
 - .3 Construction:
 - .1 Chassis shall be heavy duty cast design with one piece drawn nonferrous removable covers matching the material of the push and mounting rails.
 - .2 Mounting rails shall be formed from a solid single piece of stainless steel, brass or bronze no less than 1.83 mm thick.
 - .3 Push rails shall be constructed of 1.57 mm thick material in the same manner as the mounting rail. Painted or anodized aluminum shall not be considered heavy duty and are not acceptable.

- .4 Provide protective Lexan touchpad on the exit device push rail to prevent scratches and serve as a visible guide to the user.
 - .5 Metal end caps shall be formed from the same base metal as the push and mounting rails.
 - .4 Exit devices shall be complete with glass bead conversion kits to suit door lite cutouts.
 - .5 Lever trim shall be complete with thru-bolted mechanism.
 - .6 Exit devices shall have a five year limited warranty.
- .4 Door Closers and Accessories:
 - .1 Door controls (closers): to ANSI/BHMA A156.4, Grade 1 in accordance with ANSI/BHMA A156.4, table A1, finished to ANSI/BHMS 689.
 - .2 Closers of narrow slim line design complete with backcheck, rack and pinion hydraulic action.
 - .3 Closers equipped with full cover, as noted in Hardware Groups, complete with secure and concealed mounting screws.
 - .4 All manual closers with manufacturer's twenty-five (25) year warranty.
 - .5 Adapter plates are used for added reinforcing as well as door and frame conditions. Adapter plates shall be added to any opening if required to suit field conditions or door design.
 - .6 Closers shall include all necessary arm brackets, Cush arm supports and blade stop spacers to suit door swing, frame reveals or stop conditions.
 - .7 Size and hand closers prior to site delivery in accordance with the manufacturer's recommendations.
 - .8 Closers capable of field adjustments of at least fifteen (15) percent.
 - .9 Degree of openings to be as shown on the plans and indicated on the reviewed hardware schedule.
 - .10 Finish as stated in Hardware Group.
- .5 Overhead Stop/Holders
 - .1 Overhead stops to ANSI/BHMA A156.8.
 - .2 Overhead stops of stainless steel as noted in Hardware Group/List.
 - .3 Overhead stops to be sized according to manufacturer's recommendation.
 - .4 Overhead stops to include shock absorber except when used with electronic closers.
 - .5 Surface Overhead stops to include through bolts for door attachment.
 - .6 When closers are used on same opening provide any special adapters or modification to ensure a proper installation.
- .6 Architectural door trim: to ANSI/BHMA A156.6 as listed below, finished to 630.
 - .1 Door protection plates: kick plates, 1.27 mm thick stainless steel, finished to 630.
 - .2 Push plates: type, 1.27 mm thick, stainless steel, finished to 630.
 - .3 Push/Pull units: combination, stainless steel, finished to 630.
- .7 Auxiliary hardware: to ANSI/BHMA A156.16, listed in Hardware Schedule.
 - .1 Lever extension flush bolt, finish to 626.
- .8 Door bottom seal: heavy duty, door seal of extruded aluminum frame and hollow closed cell neoprene weather seal, surface mounted with drip cap, closed ends, clear anodized finish.
- .9 Thresholds: extruded aluminum mill finish, serrated surface, with thermal break of rigid PVC, with site applied door stop, vinyl door seal insert. Provide 50 mm longer than opening to allow fitting at job site. Fasteners of counter sunk type suitable to properly install to floor/sill conditions. Supply complete with screw anchors.

- .10 Weatherstripping:
 - .1 Head and jamb seal:
 - .1 Extruded aluminum frame and hollow closed cell neoprene insert, clear anodized finish.
 - .2 Adhesive backed vinyl covered foam material.
- .13 Astragal: adjustable overlapping, extruded aluminum frame with vinyl insert.
- .14 Electric strikes:
 - .1 To ANSI/BHMA A156.31, Grade 1.
 - .2 Strikes shall be designed for use with type of locks indicated in hardware options.
 - .3 Strikes shall be burglary-resistant and fire rated where required.
 - .4 Solenoids shall be of the continuous duty type for voltage specified.
 - .5 Strikes will be fail secure unless noted otherwise.
 - .6 Provide plug connectors where wiring is concealed in removable frame mullions to allow for easy disconnection when required.
- .15 Power supplies:
 - .1 Power supplies to operate hardware products as indicated in hardware groups.
 - .2 Power supplies shall be concealed in ceiling space or suitable adjacent area.
 - .3 Power supplies shall interface with all electrical security components and supplied complete with all relays and devices to operate as per the notes with each hardware group.
- .16 Bi-fold box track and hardware:
 - .1 To ANSI/BHMA A156.14.
 - .2 Extruded aluminum jump-proof style with "I" beam track.
 - .3 Hangers with 4-22 mm diameter wheels.
 - .4 Heavy duty top and bottom pivots with silod brass bottom socket assembly.

2.4 FASTENINGS

- .1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.
- .2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .3 Exposed fastening devices to match finish of hardware.
- .4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.
- .5 Use fasteners compatible with material through which they pass.

2.5 KEYING

- .1 Doors, padlocks and cabinet locks to be tied into the existing grand master keyed system on site. Prepare detailed keying schedule in conjunction with Departmental Representative.
- .2 Supply keys in duplicate for every lock in this Contract.

- .3 Supply 3 master keys for each master key or grand master key group.
- .4 Stamp keying code numbers on keys and cylinders.
- .5 Supply construction cores.
- .6 Hand over permanent cores and keys to Departmental Representative.

PART 3 – EXECUTION

3.1 INSTALLATION

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Supply manufacturers' instructions for proper installation of each hardware component.
- .4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).
- .5 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .6 Install key control cabinet.
- .7 Use only manufacturer's supplied fasteners.
 - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- .8 Remove construction cores when directed by Departmental Representative.
 - .1 Install permanent cores and ensure locks operate correctly.

3.2 ADJUSTING

- .1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.
- .2 Lubricate hardware, operating equipment and other moving parts.
- .3 Adjust door hardware to ensure tight fit at contact points with frames.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
 - .3 Remove protective material from hardware items where present.

- .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.4 DEMONSTRATION

- .1 Keying System Setup and Cabinet:
 - .1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards.
 - .2 Place file keys and duplicate keys in key cabinet on their respective hooks.
 - .3 Lock key cabinet and turn over key to Departmental Representative.
- .2 Maintenance Staff Briefing:
 - .1 Brief maintenance staff regarding:
 - .1 Proper care, cleaning, and general maintenance of projects complete hardware.
 - .2 Description, use, handling, and storage of keys.
 - .3 Use, application and storage of wrenches for door closers, locksets, and fire exit hardware.
- .3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by door hardware installation.

3.6 SCHEDULE

- .1 Group X-01
 - 1 Heavy duty continuous geared hinge x full height of door x AL
 - 1 Rim type exit device x push pad x lever trim x Night latch function x cyl x 630
 - 1 Electric strike x fail secure x 12/24V DC x 630 x face plate to suit rim exit device
 - 1 Transformer 12/24V from 120 V line voltage
 - 1 Heavy duty door closer x regular arm x full cover x mounting plate x AL
 - 1 Heavy duty auxiliary O/H stop x 630
 - 1 Set weather stripping x neoprene bulb x AL
 - 1 Door sweep x neoprene sweep x AL
 - 1 175mm deep threshold x thermal break x width of door x AL c/w site applied door stop strip x neoprene bulb x AL
 - 1 Set concealed door contact x 19 mm hole x 450mm lead x standard 25mm gap on steel door x closed loop x white
- .2 Group X-02
(RHR Active leaf)
 - 2 Heavy duty continuous geared hinge x full height of doors x AL
 - 1 Rim type exit device x push pad x lever trim x night latch function x cyl x strike x 630
 - 1 Set manual flush bolts x dust proof strike x 630
 - 2 Heavy duty door closers x regular arm x full cover x mounting plate x AL
 - 2 Heavy duty auxiliary O/H stop-holder x 630
 - 1 Bar coordinator x 626

- 1 Set weather stripping x neoprene bulb x AL
- 1 'T' Astragal x neoprene bulb x AL (Active Leaf)
- 1 Door sweep x neoprene sweep x AL
- 1 175mm deep threshold x thermal break x width of door x AL c/w site applied door stop strip x neoprene bulb x AL
- 1 Set concealed door contact x 19 mm hole x 450mm lead x standard 25mm gap on steel door x closed loop x white
- .3 Group X-03
 - 1 Electric strike x fail secure x 12/24V DC x 630 x weather stripping x face plate to suit rim exit device
 - 1 Transformer 12/24V from 120 V line voltage
 - 1 Set concealed door contact x 19 mm hole x 450mm lead x standard 25mm gap on steel door x closed loop x white

Note:
Modify existing door and frame to receive new door hardware
- .4 Group H01
 - 3 Concealed bearing hinges x standard weight x 114x101mm x 626
 - 1 Lockset x storeroom function x cyl x strike x 626
 - 1 Door closer x parallel arm w/stop x full cover x mounting plate x AL
 - 1 Set gaskets x self-adhesive x Black
 - 1 Floor dome stop x 630
- .5 Group H02
 - 3 Concealed bearing hinges x standard weight x 114x101mm x 626
 - 1 Lockset x office function x cyl x strike x 626
 - 1 Door closer x regular arm x full cover x mounting plate x AL
 - 1 Set smoke gaskets x AL
 - 1 Floor dome stop x 630
- .6 Group H03
 - 3 Concealed bearing hinges x standard weight x 114x101mm x 626
 - 1 Lockset x classroom function x lever x cyl x strike x 626
 - 1 Door closer x regular arm x full cover x mounting plate x AL
 - 1 Floor dome stop x 630
 - 1 Set smoke gaskets x AL
- .7 Group H04
 - 3 Concealed bearing hinges x standard weight x 114x101mm x 626
 - 1 Lockset x entrance function x cyl x strike x 626
 - 1 Door closer x regular arm x full cover x mounting plate x AL
 - 1 Set smoke gaskets x self-adhesive x black
 - 1 Floor dome stop x 630
- .8 Group H05
 - 3 Concealed bearing hinges x standard weight x 114x101mm x 626
 - 1 Lockset x privacy function x cyl x strike x 626
 - 1 Closer x regular arm x full cover x mounting plate x AL
 - 1 Set gaskets x AL
 - 1 Floor dome stop x 626

- .9 Group H06
 - 3 Concealed bearing hinges x standard weight x 114x101mm x 626
 - 1 Lockset x office function x cyl x strike x 626
 - 1 Set gaskets x self-adhesive x black
 - 1 Floor dome stop x 626
- .10 Group H07
 - 3 Concealed bearing hinges x standard weight x 114x101mm x 626
 - 1 Lockset x office function x cyl x strike x 626
 - 1 Set manual flush bolts x dust proof strike x 630
 - 1 Door closer x regular arm x full cover x mounting plate x AL
 - 2 O/H stop-holder x 630
 - 1 Set gaskets x AL
- .11 Group H08
 - 2 Extruded aluminum jump-proof style with "I" beam track
 - 2 Sets hangers with 4-22 mm diameter wheels
 - 2 Sets heavy duty top and bottom pivots with solid brass bottom socket assembly
 - 6 loose pin full mortise hinges
 - 2 Door pulls
 - 2 Door aligners
 - 2 Bumper stops
- .12 Group H09
 - 1 Lockset x storeroom function x cyl x strike x 626
 - 1 Electric strike x fail secure x 12/24V DC x 630 x face plate
 - 1 Transformer 12/24V from 120 V line voltage

Note:
Modify existing door and frame to receive new door hardware
- .13 Group H10
 - 3 Concealed bearing hinges x standard weight x 114x101mm x 626
 - 1 Lockset x storeroom function x cyl x 626
 - 1 Electric strike x fail secure x 12/24V DC x 630 x face plate
 - 1 Transformer 12/24V from 120 V line voltage
 - 1 Door closer x parallel arm w/stop x full cover x mounting plate x AL
 - 1 Set gaskets x self-adhesive x Black
 - 1 Floor dome stop x 630

END OF SECTION