

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 08 44 13 - Glazed Aluminum Curtain Walls
- .2 Section 08 71 00-A1 – Door Hardware – Annex 1, Hardware groups
- .3 Division 26 - Electrical

1.2 REFERENCES

- .1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA)/Association canadienne des fabricants de portes d'acier (ACFPA).
 - .1 CSDFMA/ACFPA, Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.
- .2 Canadian Standards Association (CSA).
 - .1 CAN/CSA B-651-04, Accessible design for the built environment.
- .3 American National Standards Institute (ANSI).
 - .1 ANSI/BHMA A156.1-2000, Butts and Hinges.
 - .2 ANSI/BHMA A156.2-2003, Bored and Preassembled Locks and Latches.
 - .3 ANSI/BHMA A156.3-2001, Exit Devices.
 - .4 ANSI/BHMA A156.4-2000, Door Controls - Closers.
 - .5 ANSI/BHMA A156.5-2001, Auxiliary Locks and Associated Products.
 - .6 ANSI/BHMA A156.6-2001, Architectural Door Trim.
 - .7 ANSI/BHMA A156.8-2000, Door Controls - Overhead Stops and Holders.
 - .8 ANSI/BHMA A156.13-2005, Mortise Locks and Latches, Series 1000.
 - .9 ANSI/BHMA A156.16-2002, Auxiliary Hardware.
 - .10 ANSI/BHMA A156.18-2000, Materials and Finishes.
 - .11 ANSI/BHMA A156.19-2002, Power Assist and Low Energy Power Operated Doors.
 - .12 ANSI/BHMA A156.21-2001, Thresholds.
 - .13 ANSI/BHMA A156.22-2005, Door Gasketing and Edge Seal Systems.
 - .14 ANSI/BHMA A156.26-2000, Continuous Hinges.
 - .15 ANSI/BHMA A156.30-2003, High Security Cylinders.

1.3 DOCUMENTS/SAMPLES SUBMITTALS

- .1 Submit documents and samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit required product data sheets and manufacturer's specifications and documentation concerning the products including ANSI functions when ANSI is used in the present specifications, category, type, series, BHMA finish, fire resistance class in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Samples:

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- .1 Submit samples for review and approval of each element type.
- .2 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
- .3 After approval samples will be returned for incorporation in Work.
- .4 Hardware List:
 - .1 Submit door hardware element list.
 - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .5 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.4 MAINTENANCE MATERIALS SUBMITTALS

- .1 Submit documents or items required in accordance with Section 01 78 00 – Closeout Submittals.
- .2 Provide operation and maintenance data sheets on door closers, locks, door retainers and accessories for emergency exit doors, and incorporate them in emergency exit manual.

1.5 MAINTENANCE MATERIALS 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.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 All codes relating to fire safety and security of persons must be complied to in conformity to requirements of the competent authorities.
 - .2 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.
 - .3 Unless otherwise indicated, use locksets and latches provided with lever type handle in conformance with standard CAN/CSA-B651 Accessible design for the built environment.
- .2 Tests reports: submit tests reports certifying that products and materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Certificates: submit certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .4 Meeting prior to installation: hold a meeting in which will be examined the works requirements, manufacturer's installation instructions and his warranty of products.
- .5 Inspection of work: by supplier of hardware parts during performance of work. Errors, omissions and corrective measures to be taken must be recorded in writing following each visit and send to Departmental Representative.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .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 wrapping strippable coating.
 - .4 Replace defective or damaged materials with new.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste in conformity with section 01 74 21 – Construction/Demolition Waste management and Disposal.

1.9 DEPARTMENTAL REPRESENTATIVE'S SUPPLIER

- .1 Cylinders and keys shown in hardware groups are provided and installed by Departmental Representative's sole supplier, Serrurier Excel inc.
- .2 Supplier's contact information:

Serrurier Excel Inc.
97 rue Industrielle
Delson, Québec
J5B 1V9
- .3 Contractor's bid must include costs for supply and installation of these components and preparation of shop drawings.
- .4 This supplier is under contractor's full responsibility. Coordinate supplier's activities so that hardware and keying items are integrated into project at appropriate times in accordance with project timeline.

1.10 ACCEPTABLE MATERIALS OR PRODUCTS

- .1 When materials or products are prescribed by brand name, consult Bidder Instructions to learn procedure for requesting approval of substitute materials or products.

Part 2 Products**2.1 GENERAL**

- .1 Only door hardware items certified according to standards ANSI/BHMA are acceptable for the present project.
- .2 All items of the same type must come from the same manufacturer.

2.2 DOOR HARDWARE

- .1 Continuous hinges

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- .1 Continuous hinges must be in aluminum when installed on aluminum doors, and mounted on edge (concealed leaves), heavy duty, no set back, having at least 32 butt bearings and holes for screws in staggered rows. Cut in factory for required lengths for the height of door. A visible heel of door of 12.7 mm is acceptable and recommended to ensure that the mobile pan of the hinge does not prolong beyond bottom of the door. For exterior doors, length must be reduced to permit installation of door sweep on the whole width of the door, without being a nuisance to the leaf of the hinge. To reduce cold transfer from aluminum exterior doors, hinge leaves must not be as thick as the aluminum doors.
- .2 Authorized products:
 - .1 Ives 112HD, finish 628;
 - .2 Hager 780-112HD, finish 628;
 - .3 Zero 914, finish AA (628);
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .2 Mortise Lock: conforming to ANSI/BHMA A 156.13
 - .1 Mortise lock, 1000 series, category 1. Die Cast zinc lever with forged rose. The lever must be designed with a flat face (116mm length) returning 13 mm from face of door.
 - .2 Functions as prescribed.
 - .3 Authorized products:
 - .1 Schlage series L, lever 17B, finish 626;
 - .2 Sargent series 8200, lever LNP, finish 626;
 - .3 Dorma series M9000, lever LC, finish 626;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .3 Auxiliary locks and associated products: deadlock conforming to ANSI/BHMA A156.5.
 - .1 Mortise deadlock with small casing, with course of 25 mm E06071- deadlock functioning with key from exterior and a turn button inside. E06081 – deadlock functioning with key on one side only.
 - .2 Authorized products:
 - .1 Schlage series L400, finish 626;
 - .2 Sargent series 4870, finish 626;
 - .3 Dorma series D900, finish 626;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .4 High security cylinder: Cylinders conforming to standard ANSI/BHMA A156.30.
 - .1 Cylinders must be high security type from Abloy.
- .5 Exit door opening device.
 - .1 Type 1: exit door device for surface mounted lock with panic bar.
 - .2 Type 8: exit door device with concealed vertical rod and panic bar.
 - .3 Authorized products:
 - .1 Von Duprin Series 35A or 98, finish 626;

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- .2 Adams Rite Series 8400, finish 626;
 - .3 Precision Series 2000, finish 626;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .6 Decorative hardware accessories (architectural) for doors: push bars conforming to ANSI/BHMA A156.6.
- .1 Type J402 push bar: round, 25.4 mm diameter, with 90 degrees canting, at 308.8 mm to center. Stainless steel type 304. Crossing mounting bolt concealed by an extremity cap, except at required recess to avoid concealed vertical rod.
 - .2 Type J405 pull bars: round, 25.4 mm diameter, installed at 228.6 mm to center on a rectangular plate 88.9 x 381.0 x 0.05 mm, of stainless steel type 304.
 - .3 Authorized products:
 - .1 CBH, finish 630;
 - .2 Ives, finish 630;
 - .3 Gallery, finish 630;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .7 Decorative hardware accessories (architectural) for doors: push bars conforming to ANSI/BHMA A156.6.
- .1 Type J501: round, 25.4 mm diameter, centered between door supports, Stainless steel type 304. Crossing mounting bolt concealed, by an extremity cap.
 - .2 Authorized products:
 - .1 CBH, finish 630;
 - .2 Ives, finish 630;
 - .3 Gallery, finish 630;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .8 Secondary hardware accessories: flush bolts conforming to ANSI/BHMA.156.16.
- .1 Flush bolt with rod and lever: rod length as indicated. Certified firestop at prescribed locations.
 - .2 Authorized products:
 - .1 Hager, finish 626;
 - .2 Ives, finish 626;
 - .3 Gallery, finish 630;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .9 Door closers: door closer conforming to ANSI/BHMA A156.4.
- .1 Heavy duty, hydraulic rack and pinion, in cast iron cylindrical casing. Adjustable spring power and holding device. Metal cover.
 - .1 PT4F – delayed action
 - .2 EDA – extra heavy duty arm
 - .3 LPA – minus parallel arm
 - .2 Authorized products:
 - .1 LCN, 4040XP, finish 689;

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- .2 Sargent series 281, finish EN;
 - .3 Hager series 5100, finish 689;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .10 Doors with assisted opening and doors with automatic opening and closing with low kinetic energy: automatic door opener:
- .1 Heavy-duty automatic door opener for swing door, with electronic control and adjustable opening, hold open device, delayed speed and closure time. Interface relay for electric strike where required. Includes also an on/off switch, an integrated adjustable stop device, and a circular push button control of 114 mm diameter for wall mounting, with engraved handicap 1 logo, vandal proof and water proof for exterior mounting. The maneuvering device must be installed in an extruded aluminum casing (114 mm wide x 165 high) with incorporated extremity caps. Removable full length cover.
 - .2 Authorized products:
 - .1 LCN, series 4600, finish ANCLR;
 - .2 Gyro Tech, series 710, finish 628;
 - .3 Dorma, ED200, finish 622;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .11 Decorative hardware accessories (architectural) for doors: push plates conforming to ANSI/BHMA A156.6.
- .1 Type J301 : Stainless steel type 304, 1,27mm thick, with tapped and countersunk screw holes and beveled edges.
 - .2 Type J102: Stainless steel type 304, 1,27mm thick, at prescribed height x appropriate length, with tapped and countersunk screw holes and bevelled edges.
 - .3 Authorized products:
 - .1 CBH, finish 630;
 - .2 Ives, finish 630;
 - .3 Gallery, finish 630;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .12 Secondary hardware accessories: wall and floor mounted door stops conforming to ANSI/BHMA 156.16
- .1 Zinc casted under pressure
 - .2 Wall stoppers must have a metal back plate fixed to the wall with (2) screws and protectors. The casing and the rubber piece must be adjusted on the back plate and fixed with a concealed screw. No screw or hole must be visible on the face of the stopper.
 - .3 Authorized products:
 - .1 CBH, finish 630;
 - .2 Ives, finish 630;
 - .3 Gallery, finish 630;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.

- .13 Sills conforming to ANSI/BHMA 156.21
 - .1 Extruded aluminum profile, with slope and height complying to requirements of easy access. Width must be appropriate to frames and to floor conditions. Foresee longer elements to permit the scrolling around steel frame faces.
 - .2 Authorized products:
 - .1 Zero, finish AA;
 - .2 Unique, finish 627;
 - .3 KNC, finish 627;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .14 Sill lip conforming to ANSI/BHMA 156.21
 - .1 Aluminum with velvet sealant piece. Install on flat surface of sill against interior face of door.
 - .2 Authorized products:
 - .1 CBH, finish 630;
 - .2 Ives, finish 630;
 - .3 Gallery, finish 630;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.
- .15 Door perimeter sealant system: weather stripping conforming to ANSI/BHMA 156.22
 - .1 Extruded aluminum frame and closed cell neoprene insert. Oblong screw holes tapped in advance for adjustments. Conceived for continuous waterproofing at lintels and jambs. Surface mounted door hardware must be fixed to frame through the weather stripping. Confirm that butt of frame cadre has sufficient width to support a profile of ± 44 , 5 mm wide. Provide wedges as needed.
 - .2 Extruded aluminum frame and closed cell neoprene insert. Additional support leg on the profile to prevent waving. Oblong screw holes tapped in advance for adjustments. Fixation by screws does not affect the neoprene.
 - .3 Authorized products:
 - .1 CBH, finish 630;
 - .2 Ives, finish 630;
 - .3 Gallery, finish 630;
 - .4 Or a substitute product approved by addenda in accordance with Bidder Instructions.

2.3 FASTENINGS

- .1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels. Self-tapping Tek screws are not acceptable for the present project.
- .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 Protection plates for door bottoms must be furnished with countersunk screws, flush mounted, appropriate to the material of the door.

2.4 KEYING

- .1 The supplier of hardware items must prepare detailed keying schedule in conjunction with the engineer and with his approval.
- .2 All locks must be integrated in the existing keying system of the Departmental Representative.
- .3 Number of keys
- .1 Provide six (6) construction master keys.
 - .2 Provide three (3) extraction keys
 - .3 Provide four (4) master keys by group
 - .4 Provide two (2) spare keys per cylinder
- .4 Except for construction keys who must be delivered to the Contractor, all permanent keys must be delivered directly to the Departmental Representative.
- .5 All cores must be furnished with appropriate cams/bolts for the prescribed locking functions. Furnish appropriate compression washers, collars and blocking rings.
- .6 Contractor must submit to Departmental Representative a two-level keying chart (one level per floor) including diagrams of key paths and codification of cylinders as well as twenty-five (25) additional codes.

2.5 FINISHES

- .1 General recommendations for materials and finishes:

| | | |
|-----------------------------|-----|---|
| Hinges | 628 | transparent anodized aluminum |
| | 630 | satin finish stainless steel |
| | 652 | satin chrome finish on steel |
| Locksets | 626 | Satin chrome finish |
| Exit devices | 626 | Chromed |
| Door handles | 630 | satin finish stainless steel |
| Flush bolts | 626 | Satin chrome finish |
| Door-closers | 689 | aluminum finished with paint applied by pulverization |
| | SRI | special rust inhibitor |
| Automatic door operator | AAT | transparent anodized aluminum |
| Butt / protection plates | 630 | satin finish stainless steel |
| Door/wall butts | 626 | Satin chrome finish |
| Sills and weather stripping | AL | transparent anodized aluminum |

2.6 Abbreviations

- .1 Equipment – material

| <u>English</u> | <u>French</u> | |
|----------------|---------------|----------------|
| ALD | PAL | aluminum door |
| ALF | CAL | aluminum frame |

DOOR HARDWARE

| | | |
|---------|----------|--------------------------------------|
| T.B.ALF | BARPT | thermal break aluminum frame |
| HMD | PMC | hollow metal door |
| INS.HMD | PMC ISO. | Insulated hollow metal door |
| PSF | BAE | steel frame |
| SCWD | PPB | solid core wood door |
| LH | PGP | left hand handle on push |
| RH | PDP | right hand handle on push |
| LHR | PGT | left hand handle reverse |
| RHR | PDT | right hand handle reverse |
| CLR | AAT | clear anodized aluminum |
| MS | VM | metal screw |
| WS | VB | wood screw |
| HR/FR | CF/H | hour of resistance / fire-resistance |
| L.T.S. | LA | length |
| FHTB | MBTPT | flat head through bolt |

.2 Manufacturer

| | |
|-----|----------------------------------|
| IVE | Ives Hinges |
| KNC | KN Crowder |
| SCH | Schlage |
| ADA | Adams Rite |
| VON | Von Duprin |
| ASA | Assa Abloy |
| CBH | Canadian Builders Hardware |
| GLY | Glynn Johnson |
| LCN | LCN |
| SCE | Schlage Electronics |
| BYO | By manufacturer |
| UNI | Société industrielle Unique Ltée |
| ZER | Zero International |
| RRB | RR Brink locking systems, Inc |
| TRI | TRIMCO |

Part 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

- .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.

3.2 INSTALLATION

- .1 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction), elaborated by the Canadian Steel Door and Frame Manufacturers' Association (CSDFMA) or as indicated for special conditions
- .2 Only competent workers must be employed for the installation of door hardware. The installer must adjust, clean and bring to new all installed hardware items to the satisfaction of the engineer.
- .3 Division 26 (Electricity) must furnish electric embedded boxes, conduits with lead cords and electrical power (115V at lintels) for the two door operators. Install all hardware for the functioning of door operators at the most 1200 mm from the center line to finished floor. The hardware supplier is responsible for the installation of door operators and all related hardware.
- .4 Height : install all hardware for the operation of the door openers to more than 1200 mm from the center line to the finished floor. The supplier of the hardware is responsible for door openers installation and any related hardware.
- .5 The manufacturer, with the cooperation of hardware supplier, must prepare wiring diagrams with all the details of electrical components for each opening. Diagrams must indicate all components of systems listed in the present section.
- .6 The contractor must ensure that walls have the required blocking reinforcements so that they will not be eventually damaged by the wall door stops.
- .7 Sills must prolong from masonry opening to masonry opening and must be scrolled around exterior steel frame jamb. Installer must apply a sealant at the base of sills to ensure weather proofing.
- .8 During fabrication of templates, the supplier must take into account of the surface mounted weather stripping. 7.9 mm thick. The strikes of exit devices, parallel arms of door closers and supports of hold-open and butt devices installed at top of doors shall be installed over the weather stripping.

3.3 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.
- .4 Adjust door closers of doors with manual operation so that they open with a force inferior to 22 Newton.

3.4 CLEANING

- .1 Cleaning during construction: clean in accordance with Section 01 74 11 – Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Clean hardware items with a humid cloth and a non-abrasive cleaner and polish them in conformity to manufacturer's instructions
 - .3 Remove protective material from hardware items where present.

- .4 Upon completion of works remove from site surplus materials, rubbish, tools, equipment and security enclosures in conformity with section 01 74 11 - Cleaning.

3.5 DEMONSTRATION

- .1 Keying System Setup and Cabinet:
 - .1 Set up key control system in accordance with the Departmental Representative system: 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.
- .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.

3.6 PROTECTION

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

3.7 LIST OF HARDWARE ITEMS

- .1 Refer to annex.

END OF SECTION