

Part 1 General**1.1 RELATED SECTIONS**

- .1 Division 01-General Requirements
- .2 Section 08 11 00 – Metal Doors and Frames.
- .3 Division 26: Electrical wiring for, electric releases and electric locks.

1.2 REFERENCES

- .1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).
 - .1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
- .3 DHI: Door and Hardware Institute of Canada
- .4 NBC 2010, National Building Code of Canada
- .5 American National Standards Institute and Builders Hardware Manufacturers Association (ANSI/BHMA). Standards for the manufacturing and testing of finish door hardware
 - .1 ANSI/BHMA A156.1-2006, Butts and Hinges
 - .2 ANSI/ BHMA A 156.3-2001, Exit Devices
 - .3 ANSI/BHMA A 156.4-2008 Door Controls (closers)
 - .4 ANSI/BHMA A 156.5-2001 Auxiliary Locks and Associated Products
 - .5 ANSI/BHMA A 156.13-2005 Mortise Locks and Latches
 - .6 ANSI/BHMA A 156.18-2006 Materials and Finishes
 - .7 ANSI/BHMA A 156.19-2002 Power Assist and Low Voltage Energy Power Operated Doors
 - .8 ANSI/BHMA A 156.31-2007 Electric Strikes and Frame Mounted Actuators.

1.3 SUBMITTALS

- .1 Product Data: Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 00 10 – General Instructions.
- .2 Hardware List:
 - .1 Submit contract hardware list in accordance with Section 01 00 10 – General Instructions.
 - .2 Obtain the services of a qualified Architectural Hardware Consultant (AHC), certified by the Door and Hardware Institute to develop hardware schedule.
 - .3 Coordinate hardware with Departmental Representative, the requirements of the Building Code, CAN/CSA-B651-2004, and Authorities having Jurisdiction.

- .4 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .5 Include with Hardware list a copy of manufacturer's technical product data, for each hardware item being supplied.
- .3 Manufacturer's Instructions: Submit manufacturer's installation instructions.
- .4 Closeout Submittals
 - .1 Provide operation and maintenance data for door closers, locksets, door holders electrified hardware and fire exit hardware for incorporation into manual specified in Section 01 00 10 – General Instructions.

1.4 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 Ensure that door and hardware are tested as an assembly to maintain labelling requirements.
- .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .3 Standard of Acceptance: Products are to be compatible with and match existing hardware already in the building. Departmental Representative to confirm. Named manufacturer and model number when listed in this section are included for the sole purpose of describing hardware function and to further define the level of quality required for a specific hardware item. Products from other manufacturer are not excluded.
- .4 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 Common Product Requirements.
 - .2 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
 - .3 Storage and Protection: Store finishing hardware in locked, clean and dry area.

1.6 WASTE DISPOSAL AND MANAGEMENT

- .1 Separate and recycle waste materials in accordance with Section 01 00 10 – General Instructions.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Dispose of corrugated cardboard, polystyrene, and plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

1.7 MAINTENANCE

- .1 Extra Materials:
 - .1 Provide maintenance materials in accordance with Section 01 00 10 – General Instructions.
 - .2 Supply two sets of wrenches for door closers, locksets and fire exit hardware.

Part 2 Products**2.1 HARDWARE ITEMS**

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

2.2 DOOR HARDWARE

- .1 Hardware schedule for specific hardware for each door, to be prepared by a qualified Architectural Hardware consultant AHC Certified, by the Door & Hardware Institute. Reference Drawings and hardware schedule for requirements.
- .2 Locksets and latchsets: mortised type for all doors to ANSI A156.13, series 1000, heavy duty grade 1, designed for function as stated in Hardware Schedule and having 19 mm latch bolt throw and 25 mm deadbolt throw and as follows:
 - .1 Trim Design: lever design, solid handle contoured C shape angle return.
 - .2 Provide rectangular escutcheons with concealed tamperproof fasteners on secure doors as identified by Departmental Representative. Round roses are suitable for most doors.
- .3 Cylinders (for locksets, exit devices and other locks): 6 pin mortised unit, high security pick proof and drill resistant in accordance with UL 437 standard, restricted and registered keyway, suitable for master keying and grand master keying all buildings of project into one system for entire site.
- .4 Butts and hinges: to ANSI/BHMA A156.1, minimum 2 ball bearing type for all doors, 4 ball bearing type or continuous hinge on heavy weight and high use doors, size and number of hinges per door to suit door type.
 - .1 Finish: stainless steel on exterior and humid areas.
 - .2 Provide non removable pins on all out swinging doors.
 - .3 Electric Hinge: heavy duty high quality grade, long life, maintenance free hinge as proven in use, concealed switch or monitoring device purposely suited as required to function with electrical or electronically operated hardware item.
 - .1 Surface mounted or exposed power transfer armoured door loop devices are not acceptable.
- .5 Electric strike: to ANSI/BHMA A156.5 and A156.31, heavy duty grade 1, mortised design, and as follows:
 - .1 All stainless steel body and parts, tamper resistant, minimum opening force resistance of 10.7 KN, tested to meet 2,000,000 cycles of operation.

- .2 Function: fail secure type for most locations; fail safe type in conditions where the locking device is locked on both sides of door and does not provide immediate free egress except by key. Use fail safe only when directed by Departmental Representative.
- .3 Voltage: to suit access control system.
- .4 Monitoring: Latch bolt and strike monitor option as deemed required to suit building security system.
- .5 Provide stainless steel protective lock guard plate with tamperproof through-bolt fasteners for all exterior strikes and for interior strikes where security or detention may be compromised.
- .6 Door Closers and door control devices: to ANSI/BHMA A156.4, heavy duty grade 1, fully adjustable from size 1 to 5 to meet all barrier free conditions, complete with arms and brackets as required. Closer bodies to be cast iron and tested to minimum of 10 million cycles.
- .7 Exit Devices: to ANSI/BHMA A156.3, heavy duty grade 1, modern design push pad, of function as stated in schedule, exterior trim when specified to be lever of same design to match locksets, equipped with breakaway feature. All dogging of push pad, when specified, to be done by cylinder dogging. All exterior and interior vestibule doors and high use doors to have stainless steel 630 finish.
- .8 Protective Plates: to ANSI/BHMA A156.6. Provide kick plate, mop plate or armour plate as recommended by DHI best practices for application on doors of Vestibules, Corridors, Mechanical & Electrical rooms, washrooms and other doors subject to damage. All type 304 #4 brushed finish stainless steel and attached with suitable double sided tape.
- .9 Sound Seals: to ANSI/BHMA A156.22. For STC rated rooms and including door accessing the new Generator Room:
 - .1 Jamb & Head Gasketing: commercial quality, adjustable type, silicone gasket, suitable design to achieve STC rating of 40.
 - .2 Bottom Seal: automatic drop seal, surface mounted door edge, adjustable with felt insert for floor finish and over thresholds, neoprene insert for sheet or smooth surface flooring.
- .10 Threshold to ANSI/BHMA A156.21: extruded aluminum, barrier free design of maximum 12mm height.
- .11 Weather Strip to ANSI/BHMA 156.22: extruded aluminum with silicone bulb seal. Aluminum frame to be solid type acceptable for installation of hardware on top of it. Door sweeps in aluminum frame with integral built in drip cap and minimum 25mm brush seal.

2.3 FENCE HARDWARE

- .1 Reference drawings and hardware schedule for requirements, contractor to provide hardware list and catalogue cuts.
- .2 Fence door design to include galvanized metal plates to take required hardware.

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 to be keyed differently, master keyed and grand master keyed such that all openings of this project are tied into one keying system compatible with existing keying schedule. Prepare a detailed keying schedule in conjunction with the Departmental Representative prior to proceeding with keying. Provide all permanent cores and keys for submittal to Departmental Representative.
- .2 Provide 3 factory cut keys for every lock in this Contract. Provide 3 keys for every Master key groups and for the Grandmaster key.
- .3 Stamp keying code on keys and cylinders barrels. Do not stamp codes on cylinder face.
- .4 Construction keying: perimeter doors of all buildings to be controlled by a temporary key system during construction.
 - .1 Supply 3 copies of construction keys to Departmental Representative for his use.
 - .2 Restrict distribution and control of other copies of construction key to limited personnel as approved by Departmental Representative.
- .5 Turn over all final cut keys, complete with keying schedule as one package, directly to Departmental Representative.
- .6 Supply key control system complete with lockable key box, control tags and register. Size system to be expanded by 50% in future.

2.6 HARDWARE SCHEDULE
Openings Schedule

Hardware Group	Quantity	Opening Number	Location	To/ From	Location 2	Door Type	Nominal Width	Nominal Height	Door Thickness	Hand	Door Mat'l	Frame Mat'l	Label
001	1	D001	EXT STAIR	FROM	ELECTRICAL EQUIP	E3/	915, 915	2134	45	LHRA /RHR	IHM	PS	90 MIN
001	1	D004	EXT STAIR	FROM	GENERATOR	E3/	915, 915	2134	45	LHRA /RHR	IHM	PS	90 MIN
002	1	D002	EXTERIOR	FROM	FUEL PUMP ROOM	E2	1220	2134	45	RHR	IHM	PS	90 MIN
003	1	D003	EXT STAIR	FROM	ELECTRICAL EQUIP	E1	914	2134	45	LHR	IHM	PS	90 MIN
003	1	D005	EXT STAIR	FROM	GENERATOR	E1	914	2134	45	LHR	IHM	PS	90 MIN
004	1	D008	FUEL PUMP	FROM	FUEL PUMPELECTRICAL EQUIP	E6	1220	2134	45	RHR	IHM	PS	90 MIN
004	1	D009	GENERATOR	FROM	ELECTRICAL EQUIP	E6	1220	2134	45	RHR	IHM	PS	90 MIN
005	1	G001	EXTERIOR AREA			GATE	915, 915	2180			GALV	CI	
005	1	G003	EXTERIOR AREA			GATE	915, 915	2180			GALV	CI	
005	1	G005	EXTERIOR AREA			GATE	915, 915	2180			GALV	CI	
005	1	G006	EXTERIOR AREA			GATE	915, 915	2180			GALV	CI	
006	1	G002	EXTERIOR	FROM	EXISTING OUTSIDE FENCE	GATE	915	2180		RHR	GALV	CI	
006	1	G004	EXTERIOR	FROM	EXISTING OUTSIDE FENCE	GATE	915	2180		RHR	GALV	CI	
006	1	G006	EXTERIOR	FROM	EXISTING OUTSIDE FENCE	GATE	915	2180		RHR	GALV	CI	

Hardware Schedule

UCSH#1

1 Pair of doors D001, EXT STAIR FROM ELECTRICAL EQIP

LHRA/RHR

1 Pair of doors D004, EXT STAIR FROM GENERATOR

LHRA/RHR

915, 915 x 2134 x 45 - IHM DR x PS FR - 90 MIN

NOTES:

1830W X 914H FR REMOVABLE TRANSOM PANEL & MULLION

16	Standard Hinge	A5111 114 x 101 NRP 630	630
2	Exit Device	9875-L-F US32D 996L-M C26D LHR #17 Lever 915 x 2134 Door	C26D
2	Exit Device	9875-L-F US32D 996L-M C26D RHR #17 Lever 915 x 2134 Door	C26D
2	Cylinder	Final Mortise Cyl. - By Departmental Representative 626	626
4	Flush Bolt	A156-3 Type 27 Constant x 305mm 630	630
12	Flush Bolt	A156-16 L14251 x 305mm 626	626
2	Flush Bolt	A156-3 Type 21B 626	626
4	Closer	C020210-PT4H-PT4F-PT4J - Spring Cush 689	689
4	Kick Plate	J102 203 x 889 3M Tape 630	630
2	Threshold	J38190-152 x 1930mm 628	628
2	Weatherstripping	R3E155 1 @ 1828 + 2 @ 2134 628	628
36	Ft. of Smoke Seal	R0E165 BRN	BRN
4	Door Sweep	R3A536 x 914mm 628	628
2	Astragal	R5Y635 x 2134mm 630	628
2	Rain Drip	R3Y970 x 1828mm 628	628
2	Astragal	W-7 x 2134 CP (or Similar) c/w Security Sleeve Bolt	CP

NOTES:

6 FLUSH BOLTS #A156-16 L14251 - 2 MOUNTED ON EACH PUSH SIDE
AND 1 AT TOP & BOTTOM OF REMOVABLE TRANSOM PANEL FACE
TO SECURE IN PLACE IN FRAME.

SMOKE SEAL TO BE MOUNTED AS WEATHERSEAL FOR REMOVABLE TRANSOM PANEL.

COPE THRESHOLD AROUND FRAME FACE.

INSTALL WEATHERSTRIPPING BEFORE DOOR CLOSERS.

MOUNT ASTRAGAL ON PULL SIDE FACE OF ACTIVE LEAF.

MOUNT RAIN DRIP ON PULL SIDE FACE OF REMOVABLE TRANSOM MULLION.

MOUNT ASTRAGAL ON PULL SIDE OF DOOR.

ASA STRIKE LIP TO BE CUT ON SITE TO SUIT.

UCSH#2

1 Single door D002, EXTERIOR FROM FUEL PUMP ROOM
1220 x 2134 x 45 - IHM DR x PS FR - 90 MIN

RHR

NOTES:

1220W X 914H FR REMOVABLE TRANSOM PANEL & MULLION

4	Standard Hinge	A5111 114 x 101 NRP 630	630
1	Exit Device	9875-L-F US32D 996L-M C26D RHR #17 Lever 4' Bar 1220 x 2134 Door	C26D
1	Cylinder	Final Mortise Cyl. - By Departmental Representative 626	626
4	Flush Bolt	A156-16 L14251 x 305mm 626	626
1	Closer	C020210-PT4H-PT4F-PT4J - Spring Cush 689	689
1	Kick Plate	J102 203 x 1181 3M Tape 630	630
1	Threshold	J38190-152 x 1320mm 628	628
14	Ft. of Smoke Seal	ROE165 BRN	BRN
1	Weatherstripping	R3E155 1 @ 1219 + 2 @ 2134 628	628
1	Door Sweep	R3A536 x 1219mm 628	628
1	Rain Drip	R3Y970 x 1219mm 628	628
1	Astragal	W-7 x 2134 CP (or Similar) c/w Security Sleeve Bolt	CP

NOTES:

4 FLUSH BOLTS #A156-16 L14251 - 2 MOUNTED ON EACH PUSH SIDE
OF REMOVABLE TRANSOM PANEL FACE TO SECURE IN PLACE IN FRAME.
SMOKE SEAL TO BE MOUNTED AS WEATHERSEAL FOR REMOVABLE TRANSOM PANEL.
INSTALL WEATHERSTRIPPING BEFORE DOOR CLOSERS.
MOUNT RAIN DRIP ON PULL SIDE FACE OF REMOVABLE TRANSOM MULLION.
MOUNT ASTRAGAL ON PULL SIDE OF DOOR.
ASA STRIKE LIP TO BE CUT ON SITE TO SUIT.

UCSH#3

1 Single door D003, EXT STAIR FROM ELECTRICAL EQUIP	LHR
1 Single door D005, EXT STAIR FROM GENERATOR	LHR

NOTES:

914 x 2134 x 45 - IHM DR x PS FR - 90 MIN

6	Standard Hinge	A5112 114 x 101 NRP 630	630
2	Exit Device	9875-L-F US32D 996L-M C26D LHR #17 Lever 914 x 2134 Door	C26D
2	Cylinder	Final Mortise Cyl. - By Departmental Representative 626	626
2	Closer	C020210-PT4H-PT4F-PT4J - Spring Cush 689	689
2	Kick Plate	J102 203 x 876 3M Tape 630	630
2	Threshold	J38190-152 x 1014mm 628	628
2	Weatherstripping	R3E155 1 @ 914 + 2 @ 2134 628	628
2	Door Sweep	R3A536 x 914mm 628	628
2	Rain Drip	R3Y970 x 1219mm 628	628
2	Astragal	W-7 x 2134 CP (or Similar) c/w Security Sleeve Bolt	CP

NOTES:

INSTALL WEATHERSTRIPPING BEFORE CLOSERS.

CUT RAIN DRIP TO SIZE ON SITE.

MOUNT ASTRAGAL ON PULL SIDE OF DOOR.

ASA STRIKE LIP TO BE CUT ON SITE TO SUIT.

UCSH#4

1 Single door D008, FUEL PUMP FROM FUEL PUMPELECTRICAL EQUIP RHR
 1 Single door D009, GENERATOR FROM ELECTRICAL EQUIP RHR

1220 x 2134 x 45 - IHM DR x PS FR - 90 MIN

8	Standard Hinge	A5111 114 x 101 NRP 630	630
2	Exit Device	9875-L-F US32D 996L-M C26D RHR #17 Lever 4' Bar 1220 x 2134 Door	C26D
2	Cylinder	Final Mortise Cyl. - By Departmental Representative 626	626
8	Flush Bolt	A156-16 L14251 x 305mm 626	626
2	Closer	C020210-PT4H-PT4F-PT4J - Spring Cush 689	689
2	Kick Plate	J102 203 x 1181 3M Tape 630	630
2	Weatherstripping	R3E155 1 @ 1219 + 2 @ 2134 628	628
2	Auto Door Bottom	R3E336 x 1219mm 628	628
2	Astragal	W-7 x 2134 CP (or Similar) c/w Security Sleeve Bolt	CP

NOTES:

4 FLUSH BOLTS #A156-16 L14251 - 2 MOUNTED ON EACH PUSH SIDE
 OF REMOVABLE TRANSOM PANEL FACE TO SECURE IN PLACE IN FRAME.
 INSTALL WEATHERSTRIPPING BEFORE DOOR CLOSERS.
 MOUNT ASTRAGAL ON PULL SIDE OF DOOR.
 ASA STRIKE LIP TO BE CUT ON SITE TO SUIT.

UCSH#5

1 Pair of doors G001, EXTERIOR AREA
 1 Pair of doors G003, EXTERIOR AREA
 1 Pair of doors G005, EXTERIOR AREA
 1 Pair of doors G006, EXTERIOR AREA

915, 915 x 2180 x ___ - GALV DR x CI FR

GALVANIZED GATE

4 Pad Lock Pad Lock - By Owner

BALANCE OF HARDWARE BY GATE SUPPLIER

UCSH#6

1 Single door G002, EXTERIOR FROM EXISTING OUTSIDE FENCE	RHR
1 Single door G004, EXTERIOR FROM EXISTING OUTSIDE FENCE	RHR
1 Single door G006, EXTERIOR FROM EXISTING OUTSIDE FENCE	RHR

915 x 2180 x ___ - GALV DR x CI FR

GALVANIZED GATE
CONFIRM HANDING FOR EXIT DEVICES

3	Exit Device	55EO 626 (Exit Only)(All Non-ferous Construction)RHR 915 x 2180 Door	626
3	Closer	C02011-PT4H-MC 689	689

BALANCE OF HARDWARE BY GATE SUPPLIER

NOTES:
GATE HEADER REQUIRED FOR THIS CLOSER.**Part 3 Execution****3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

- .1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.
- .2 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .3 Install key control cabinet.
- .4 Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- .5 Remove construction cores when directed by Departmental Representative; install permanent cores and check operation of locks.

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 provide tight fit at contact points with frames.

3.4 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.
- .3 Remove protective material from hardware items where present.
- .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.5 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 General Contractor for submittal 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.

END OF SECTION