

## **PART 1 - GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 01 33 00 – Shop Drawings, Data Products and Samples
- .2 Section 01 74 21 – Construction/Demolition Waste Management And Disposal
- .3 Section 06 20 00 – Finish Carpentry
- .4 Section 08 11 00 – Metal Doors and Frames
- .5 Section 08 71 00 – Door Hardware

### **1.2 REFERENCES**

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
  - .1 Quality Standards for Architectural Woodwork 1998.
- .2 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
  - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .3 Canadian Standards Association (CSA International).
  - .1 CSA A440.2-98, Energy Performance of Windows and Other Fenestration Systems.
  - .2 CSA O115-M1982(R2001), Hardwood and Decorative Plywood.
  - .3 CAN/CSA O132.2 Series-90(R1998), Wood Flush Doors.
  - .4 CAN/CSA-O132.5-M1992(R1998), Stile and Rail Wood Doors.
  - .5 CAN/CSA-Z808-96, A Sustainable Forest Management System: Guidance Document.
  - .6 CSA Certification Program for Windows and Doors.
- .4 Environmental Choice Program (ECP).
  - .1 CCD-045-92, Sealants and Caulking Compounds.
  - .2 CCD-046-92, Adhesives.
- .5 National Fire Protection Association (NFPA).
  - .1 NFPA 80-1999, Standard for Fire Doors and Fire Windows.
  - .2 NFPA 252-1999, Standard Method of Fire Tests of Door Assemblies.
- .6 Underwriters' Laboratories of Canada (ULC).
  - .1 CAN-4S104M-80(R1985), Fire Tests of Door Assemblies.
  - .2 CAN4-S105M-85 (R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104.

### **1.3 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Shop Drawings, Data Products and Samples.

- .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Shop Drawings, Data Products and Samples. Indicate VOC's:
  - .1 For caulking materials during application and curing.
  - .2 For door materials and adhesives.
- .2 Shop Drawings:
  - .1 Submit shop drawings in accordance with Section 01 33 00 - Shop Drawings, Data Products and Samples.
  - .2 Indicate door types and cutouts for lights and louvres, sizes, core construction, transom panel construction and cutouts.

#### 1.4 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Shop Drawings, Data Products and Samples.
- .2 Submit one 300 x 300 mm corner sample of each type wood door.
- .3 Show door construction, core, glazing detail and faces.
- .4 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.

#### 1.5 QUALITY ASSURANCE

- .1 Regulatory Requirements:
  - .1 Wood fire rated doors: labelled and listed by an organization accredited by Standards Council of Canada.
- .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .4 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Storage and Protection:
  - .1 Protect doors from dampness. Arrange for delivery after work causing abnormal humidity has been completed.
  - .2 Store doors in well ventilated room, off floor, in accordance with manufacturer's recommendations.
  - .3 Protect doors from scratches, handling marks and other damage.
  - .4 Store doors away from direct sunlight.

## 1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Dispose of corrugated cardboard polystyrene plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
- .3 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
- .4 Divert unused adhesive material from landfill to official hazardous material collections site approved by Departmental Representative.
- .5 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

## PART 2 - PRODUCTS

### 2.1 FIRE RATED WOOD DOORS

- .1 Wood doors: tested in accordance with CAN4-S104 to achieve rating as scheduled.

### 2.2 WOOD FLUSH DOORS

- .1 Solid core: to CAN/CSA-O132.2.1.
  - .1 Construction:
    - .1 Solid wood core:
      - .1 Glued block core with wood edge band.
      - .2 Framed block glued core.
      - .3 Framed block nonglued core.
      - .4 Stile and rail core.
      - .5 5-ply construction.
    - .2 Face Panels:
      - .1 Hardwood; veneer grades: Grade II (Good), white birch species.
    - .3 Adhesive: Type II (water resistant) for interior doors.

### 2.3 GLAZING

- .1 Glass: Refer to Section 08 80 50 – Glazing for Safety Glass and Wired Glass.

### 2.4 TRANSOM AND SIDE PANELS

- .1 Construction: to match adjacent door.
- .2 Meeting edges of doors and transom panels: square.
- .3 Veneer of doors and transom panels: colour matched.

## 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.

### **3.2 INSTALLATION**

- .1 Unwrap and protect doors in accordance with CAN/CSA-O132.2 Series, Appendix A.
- .2 Install labelled fire rated doors to NFPA 80.
- .3 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-O132.2 Series, Appendix A.
- .4 Adjust hardware for correct function.
- .5 Install glazing in accordance with Section 08 80 50 - Glazing.
- .6 Install louvres and stops.

### **3.3 ADJUSTMENT**

- .1 Re-adjust doors and hardware just prior to completion of building to function freely and properly.

### **3.4 CLEANING**

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Remove traces of primer, caulking; clean doors and frames.
- .3 Clean glass and glazing materials with approved non-abrasive cleaner.
- .4 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 – Shop Drawings, Product Data and Samples
- .2 Section 01 61 00 – Common Product Requirements
- .3 Section 01 78 00 – Closeout Submittals
- .4 Section 06 40 00 – Architectural Woodwork
- .5 Section 08 71 00 – Door Hardware

### **1.2 REFERENCES**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-69.25-M90/ANSI/BHMA A156.9-2003, Cabinet Hardware
  - .2 CAN/CGSB-69.32-M90/ANSI/BHMA A156.16-2008, Auxiliary Hardware
  - .3 CAN/CGSB-69.34-93/ANSI/BHMA A156.18-2006, Materials and Finishes

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Shop Drawings, Product Data and Samples.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for cabinet hardware and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Hardware List:
  - .1 Submit contract hardware list.
  - .2 Indicate specified hardware, including make, model, material, function, finish and other pertinent information.
- .4 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .5 Manufacturer's Instructions: submit manufacturer's installation instructions.
- .6 Sustainable Design Submittals:
  - .1 Construction Waste Management:
    - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
    - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.
  - .2 Recycled Content:
    - .1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.
  - .3 Regional Materials: submit evidence that project incorporates required percentage 10% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.

#### 1.4 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for cabinet hardware for incorporation into manual.

#### 1.5 QUALITY ASSURANCE

- .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

#### 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 cabinet hardware from nicks, scratches, and blemishes.
  - .3 Protect prefinished surfaces with wrapping.
  - .4 Replace defective or damaged materials with new.
- .5 Develop Construction Waste Management Plan related to Work of this Section.
- .6 Packaging Waste Management: remove for reuse of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

### PART 2 - PRODUCTS

#### 2.1 HARDWARE ITEMS

- .1 Use one manufacturer's product for all similar items.

#### 2.2 CABINET HARDWARE

- .1 Cabinet hardware: to CAN/CGSB-69.25-M90/ANSI/BHMA A156.9 as listed below.
  - .1 Hinges: concealed, "European cup hinge", 4 way adjustable, self-closing hinge, finish nickel-plated.
  - .2 Pulls: back mounted pull, brushed chrome finish, wire "D" – pull, 100 mm c/c.
  - .3 Latches: touch or secret panel latch, finished to brushed chrome.
  - .4 Shelf rests and standards: channel shaped, screw fastened, adjustable type shelf standards for recessed end gable application, 13mm incremental height adjustment, with closed shelf rests, finished to bright plated steel.
  - .5 Drawer slides: side mounted drawer slides, full extension type, ball bearing roller type, bright plated steel, rated to support a load of 45 kgm, self-closing, suitable for drawers up to 400mm wide, side space dimension 12.7mm.

- .2 Cabinet locks: to CAN/CGSB-69.27-ANSI/BHMA A156.11, designated by letter E and numeral identifiers listed in Hardware Schedule as listed below.
  - .1 Door or drawer locks: half mortised into back of door or drawer, CAM type or dead bolt type.
  - .2 Cylinders: key all doors/drawers in a room the same, different for each room.
  - .3 Finished to brushed nickel.

### 2.3 MISCELLANEOUS HARDWARE

- .1 Auxiliary hardware: to CAN/CGSB-69.25-ANSI/BHMA A156.16, designated by letter and numeral identifiers listed in Hardware Schedule, finished to 603 (zinc plated steel).
- .2 Closet shelf supports: heavy duty support with brace for shelf and closet rod, wrought steel, finished to 603 (zinc plated), 25mm dia. size.
- .3 Closet hanger bar and supports:
  - .1 Metal pole sockets for metal poles, 25mm dia. size, finished zinc plated steel.

### 2.4 FASTENINGS

- .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .2 Exposed fastening devices to match finish of hardware.
- .3 Use fasteners compatible with material through which they pass.

### 2.5 KEYING

- .1 Cabinet locks to be keyed alike in groups (each room), master keyed as directed. Submit keying schedule for approval.
- .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 Install key cabinet where indicated.

## 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 Install hardware to standard hardware location dimensions in accordance with manufacturer's recommendations and to project design requirements.
- .3 Install key control cabinet and establish key control set-up.

### 3.2 ADJUSTING

- .1 Adjust cabinet hardware for optimum, smooth operating condition.
- .2 Lubricate hardware and other moving parts.
- .3 Adjust cabinet door hardware to ensure tight fit at contact points with frames.

### 3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 11 55 – General Instructions.
  - .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 11 55 – General Instructions.
- .2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### 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 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 cabinet and miscellaneous hardware installation.

END OF SECTION

## **PART 1- GENERAL**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 – Shop Drawings, Product Data and Samples
- .2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal
- .3 Section 01 61 10 – Product Requirements
- .4 Section 01 78 30 – Closeout Submittals
- .5 Section 08 11 00 – Metal Doors and Frames
- .6 Section 08 14 16 – Flush Wood Doors
- .7 Section 08 70 05 – Cabinet and Miscellaneous Hardware

### **1.2 REFERENCES**

- .1 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-69.18-M90/ANSI/BHMA A156.1-2000, Butts and Hinges.
  - .2 CAN/CGSB-69.20-M90/ANSI/BHMA A156.4-2000, Door Controls (Closers).
  - .3 CAN/CGSB-69.22-M90/ANSI/BHMA A156.6-2005, Architectural Door Trim.
  - .4 CAN/CGSB-69.24-M90/ANSI/BHMA A156.8-2005, Door Controls - Overhead Holders.
  - .5 CAN/CGSB-69.29-93/ANSI/BHMA A156.13-2002, Mortise Locks and Latches.
  - .6 CAN/CGSB-69.31-M89/ANSI/BHMA A156.15-2006, Closer/Holder Release Device.
  - .7 CAN/CGSB-69.32-M90/ANSI/BHMA A156.16-2002, Auxiliary Hardware.
  - .8 CAN/CGSB-69.34-93/ANSI/BHMA A156.18-2006, Materials and Finishes.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
  - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 -Shop Drawings, Product Data and Samples.
- .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 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .6 Manufacturer's Instructions: submit manufacturer's installation instructions.
- .7 Sustainable Design Submittals:
  - .1 Construction Waste Management:
    - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
    - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.
  - .2 Recycled Content:
    - .1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.
    - .3 Regional Materials: submit evidence that project incorporates required percentage 10% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.

#### 1.4 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.

#### 1.5 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 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.

#### 1.7 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, labeled 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.
  - .4 Replace defective or damaged materials with new.
- .5 Develop Construction Waste Management Plan related to Work of this Section.
- .6 Packaging Waste Management: remove for reuse of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **PART 2 - PRODUCTS**

### **2.1 HARDWARE ITEMS**

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

### **2.2 DOOR HARDWARE**

- .1 Locks and latches:
  - .1 Mortise locks and latches: to CAN/CGSB-69.29-93/ANSI/BHMA A156.13, series 1000 mortise lock, grade 1, designed for function and keyed as stated in Hardware Schedule.
  - .2 Lever handles: plain design
  - .3 Escutcheons : round
  - .4 Normal strikes: box type, lip projection not beyond jamb.
  - .5 Cylinders: key into keying system as directed.
- .2 Butts and hinges:
  - .1 Butts and hinges: to CAN/CGSB-69.18-M90/ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.
  - .2 Self-closing hinges and pivots: to ANSI/BHMA A156.17, designated by letter K and numeral identifiers listed in Hardware Schedule.
- .3 Exit devices: to ANSI/BHMA A156.3, grade [1].
  - .1 Auxiliary item[s]: [door co-ordinator, type 21, for pairs of doors with overlapping astragals].
- .:Door Closers and Accessories:
  - .2 Door controls (closers): to ANSI/BHMA A156.4, designated by letter C and numeral identifiers listed in Hardware Schedule, in accordance with ANSI/BHMA A156.4, table A1.
  - .3 Door controls - overhead holders: to ANSI/BHMA A156.8, designated by letter C and numeral identifiers listed in Hardware Schedule.
  - .4 Closer/holder release devices: to ANSI/BHMA A156.15, designated by letter C and numeral identifiers listed in hardware schedule.
  - .5 Door co-ordinator: concealed for pairs of doors with overlapping astragal.
- .4 Door Operators:
  - .1 Power-operated pedestrian doors: to ANSI/BHMA A156.10.
  - .2 Power assist and low energy power operated doors: to ANSI/BHMA A156.19.

- .5 Auxiliary locks and associated products: to ANSI/BHMA A156.5, designated by letter E and numeral identifiers listed in Hardware Schedule.
- .6 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule.
- .7 Sliding and folding door hardware: to ANSI/BHMA A156.14, designated by letter D and numeral identifiers listed in Hardware Schedule.
- .8 Auxiliary hardware: to ANSI/BHMA A156.16, designated by letter L and numeral identifiers listed in Hardware Schedule.
- .9 Door bottom seal: heavy duty, door seal of extruded aluminum frame and solid closed cell neoprene weather seal, recessed in door bottom, closed ends, automatic retract mechanism when door is open, clear anodized finish.
- .10 Thresholds: 100 mm wide x full width of door opening, extruded aluminum mill finish, plain surface, with thermal break of rigid PVC, with lip and vinyl door seal insert.
- .11 Weatherstripping:
  - .1 Head and jamb seal:
    - .1 Extruded aluminum frame and solid closed cell neoprene insert, clear anodized finish.
    - .2 Adhesive backed neoprene material.
  - .2 Door bottom seal:
    - .1 Extruded aluminum frame and closed cell neoprene sweep, clear anodized finish.
- .12 Astragal: overlapping, extruded aluminum frame with finished to match doors.
- .13 Barrier Free Pneumatic Door Operator:
  - .1 Heavy duty pneumatically assisted door closer, capable of multi-door operation, complete with actuators, control boxes, pneumatic tubing and compressed air source.
  - .2 Self contained control box/compressor combination for independent operation of two door leaves.
  - .3 Control boxes: complete with electric strike relay.
  - .4 Mount operators on either push or pull sides of doors as required to place them inside rooms.
  - .5 Actuation of operators by card readers.
  - .6 Electrical box and actuator: Hardwired low voltage actuator with stainless steel 114 mm round plate, engraved blue filled with handicap symbol. Box 51 mm wide x 102 mm high x 50 mm deep single gang electrical box, flush mounted in wall, locations indicated.
  - .7 Supply switched line voltage to control box. Locate switch adjacent to box.
  - .8 Supply low voltage wiring to each actuator and 6 mm diameter air tubing to each operator.
  - .9 Mount control box in location as directed by Departmental Representative.

### 2.3 MISCELLANEOUS HARDWARE

- .1 Indexed key control system: to ANSI/BHMA A156.5, designated by letter E and numeral identifiers, wall mounted enamel paint finish.

## 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 as directed. 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.
- .2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### 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.

DOOR INDEX

Dr. #	Set #										
B01a	ST01	B15	OT01	101b	OT04	203	WA01	M07	OF03	307a	OT01
B01b	ST02	B16	OT01	101c	ST05	204	WA02	M09	ST02	307b	OT01
B02	OT01	B17	ST03	103	OT06	205	WA02	M10	OT01	308a	OT01
B03	OT01	B18	OT01	104	SE03	208	ST02	M11	ST10	308b	OT01
B04	OT01	B19a	EX01	105	OT01	209	ST09	M12	OT01	308c	OT01
B05a	OT01	B19b	ST02	106	OT01	212	OF02	M13	OT01	309a	OT01
B05b	OT01	B20	ST04	107	WA01	213a	OF02	M14	OT01	309b	OT01
B06	OT01	B21	OT01	108	SE04	213b	OF02	M15	SE06	309c	OT01
B07	OT01	B24	OT01	109	OT01	214	OF02	M16	SE08	310	ST02
B08	OT01	B25a	SE01	110	OT01	215	OF02	M17	OT01	311	ST09
B09	OT01	B25b	SE02	111	OT05	216	OF02	300a	ST07	312	OF02
B10	OT01	B26	ST01	112a	EX02	M01	ST06	300b	ST07	313	OF02
B11	OT01	B29a	OT01	112b	ST02	M02	OT01	303	WA01	314	OF02
B12	OT01	B29b	OT01	112c	OT01	M03	WA03	304	WA02	317	SE07
B13	OT01	100	OT02	115	OF01	M05	WA01	305	WA02	318	OF02
B14	OT01	101a	OT03	200	OT01	M06	SE05	306	ST08	320	ST02

Hardware List

2.2.2 Hinges:

- A1 – Hinge 5 Knuckle-.180 gauge-114mm x 101mm x Non Removable Pin x 652
- A2 – Hinge 5 Knuckle-.134 gauge- 114mm x 101mm x Non Removable Pin x 652
- A3 –Hinge 5 Knuckle-.180 gauge-114mm x 101mm x Non Removable Pin x 630
- A4 –Transfer Hinge 5 Knuckle-.134 gauge- 114mm x 101mm with 12 wires x 652  
 Conduits & wiring in door from transfer to locking device by door supplier  
 Conduits & wiring from transfer to junction box by electrical
- A5 –Transfer Hinge 5 Knuckle-.180 gauge-114mm x 101mm with 12 wire x 652  
 Conduits & wiring in door from transfer to locking device by door supplier  
 Conduits & wiring from transfer to junction box by electrical
- A6 –Transfer Hinge 5 Knuckle-.180 gauge-114mm x 101mm with 12 wire x 630  
 Conduits & wiring in door from transfer to locking device by door supplier  
 Conduits & wiring from transfer to junction box by electrical
- A7 –Transfer Hinge 5 Knuckle-.134 gauge- 114mm x 101mm with 12 wires x 630  
 Conduits & wiring in door from transfer to locking device by door supplier  
 Conduits & wiring from transfer to junction box by electrical

2.2.1 Locks, Dead bolts and Privacys:

- B1 - Cylinder Type x length x cam to suit 626
- B2-Indicator Bolt Cylindrical bolt with indicator 626
- B3 - Latch set ANSI F01 626
- B4 - Lock set ANSI F20 with indicator 626
- B5 - Lock set ANSI F09 626
- B6 - Lock set ANSI F07 626
- B7 - Lock set ANSI F04 626
- B8- Lock set ANSI F88 626
- B9- Lock set ANSI F05 626
- B10 – Bolt indicator inside T Turn inside throws or retracts bolt, outside indicator with emergency release 626

2.2.4 Closers:

Note: Include thru-bolts and grommet nuts fasteners.

- C1 - Institutional, non sized, regular arm x delayed action x 689
- C2 - Institutional, non sized, compression spring buffer arm x delayed action x 689
- C3 - Institutional, non sized, rigid parallel arm x delayed action x 689

2.2.13 Operators:

C4- Operator see 2.1 HARDWARE ITEMS Item 2.2.13 for details

2.2.3 EXIT DEVICES: To meet ANSI A156.3 – 2008-Grade 1

- D1 - Exit Device Request to exit Fire rated mortise lock latch function with 15 sec delay module, mag lock and hook up to fire alarm, conduits, wiring junction box, power supply and all hook ups by electrical
- D2 - Exit Device fire rated Mortise lock with levers key outside to lock or unlock trim x 630
- D3 - Exit Device vertical rod surface mount, cylinder dogged, electrified lever trim, key to lock or unlock lever and conduits, wiring junction box, power supply and all hook ups by electrical
- D4 - Exit Device vertical rod surface mount Exit only
- D5 - Exit Device fire rated vertical rod surface mount, electrified lever trim, key to lock or unlock lever and conduits, wiring junction box, power supply and all hook ups by electrical
- D6 - Exit Device fire rated vertical rod surface mount, exit only
  
- D7 - Exit Device (Adams Rite) Mortise lock, night latch function with pull x key override x US32D
- D8 - Exit Device concealed electrical latch retraction vertical rod (Adams Rite) key locks lever function momentary electric latch retraction x US32D (LHR) Card reader, power supply junction box, conduits & wiring to transfer from junction box & all hook ups by electrical.

2.2.8 AUXILIARY HARDWARE:

- F1 - Floor stop Low dome 28.57mm high x 50mm Dia solid cast x 626
- F2 - Wall stop Cast concealed mount, concave bumper with back plate x 626
- F3 - Electric Strike Fire rated, 12 VDC, 1500Lbs holding, 19mm keeper depth, Fail secure With deadbolt prep x 630
- F4 - Electric Strike Fire rated, 12 VDC, 1500Lbs holding, 19mm keeper depth, Fail secure x 630
- F5 - Concealed door contact Installed by hardware supplier  
All conduits, wiring and hook ups by electrical

2.2.6 Architectural door trim::

- J1 -Pull ANSI J401 25mm dia x 304mm with base plates x 630
- J2 -Kick Plate 1.27 mm thickness x 254mm height x width less 25mm x 630
- J3 -Kick Plate 1.27 mm thickness x 254mm height x width less 38mm x 630
- J4 -Push Plate 101mm x 406mm x 630

2.2.9, 2.2.10, 2.2.11, 2.2.12 Threshold, seals, door bottoms, astragal::

- M1 -Threshold Thermal Barrier -free latching panic exit Saddle 127mm x 6.4mm x 6.4 stop strip.-lenght
- M2 -Threshold Barrier free Saddle 127mm x 6.4mm x width
- M3 - Seals Compression bulb adhesive backing x 2/height x 1 width
- M4 -Door Bottom Mortise type for steel doors x silicone insert-width
- M5 - Meeting stiles Split with snap on covers with Brush inserts (set)
- M6 - Astragal Off set security bar x height welded to door by door supplier

Other items:

- N1 – Existing door and hardware
- N2 – Remove Existing locking device and replace as specified.  
Fill patch and make good all altered hardware preps Balance of hardware existing
- N3 – Remove 1 ea existing hinge and replace with new transfer hinge. Remove one existing  
Exit device and replace with specified new exit device.  
Fill patch and make good all altered hardware preps Balance of hardware existing
- N4 – Balance of hardware existing
- N5 – Remove existing lockset & replace with new add new electric strike  
Fill patch and make good all altered hardware preps Balance of hardware existing
- N6 – All Hardware by door supplier

Hardware Schedule

Hardware Set EX01

5-A3, A6, 2-B1, D3, D4, 2-C2, M1, M3, M4, M5, 2-F5

Hardware Set EX02

3-A3, B1, D2, C2, M1, M3, M4, M6, F5

Hardware Set OF01

3-A2, B1, B7, F1

Hardware Set OF02

3-A2, B3, F2

Hardware Set OF03

3-A1, J1, J4, C4, F2, J3

Hardware Set OT01

N1

Hardware Set OT02

D7, F4, N2, N4

Hardware Set OT03

A7, D8, N3, N4

Hardware Set OT04

A4, D8, N3, N4

Hardware Set OT05

B8, F4, F5, N5

Hardware Set OT06

N6

Hardware Set SE01

3-A1, B1, B6, F4, C1, F2, M2, F5

Hardware Set SE02

3-A2, B1, B6, C1, F2, M2

Hardware Set SE03

3-A2, B1, B6, F2

Hardware Set SE04

3-A2, B1, B6, F4, C1, F2, M2, F5

Hardware Set SE05

3-A2, B1, B6, F4, C3, F2, M2, F5

Hardware Set SE06

3-A2, B1, B6, C3, F2

Hardware Set SE07

3-A2, B1, B6, F4, C1, F1, F5

Hardware Set SE08

3-A2, B1, B6, F4, C3, F2

Hardware Set ST01

2-A1, A5, B1, D1, C1, F1, M1, M3, F5

Hardware Set ST02

3-A1, B1, D2, F4, C1, F1, M1, M3, M4, F5

Hardware Set ST03

2-A3, A6, B1, D2, F4, C2, M1, M3, M4, F5

Hardware Set ST04

3-A1, B1, B5, F4, C4, F2, M2, F5

Hardware Set ST05

3-A1, 2-B1, B5, F4, C4, M2, M3, M4, F5

Hardware Set ST06

3-A1, 2-B1, B5, C2, J3

Hardware Set ST07

3-A1, D2, B1, F4, C2, J3, M2, M3, M4, F5

Hardware Set ST08

3-A1, B1, B5, F4, C3, F2, J3, F5

Hardware Set ST09

5-A1, A5, D5, D6, 2-C1, M2, M3, 2M4, M5, 2-F5

Hardware Set ST10

3-A1, D2, B1, C1, J3, M2, M3, M4, F5

Hardware Set WA01

3-A1, B1, B4, F3, C4, F2, J3

Hardware Set WA02

3-A1, B1, B9, F4, C1, F2, J3, F5

Hardware Set WA03

3-A1, B4, F3, C1, F2, J3

**END OF SECTION**