

PART 1 - GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 73 - Procedures for Deconstruction of Structures.
- .3 Section 07 92 00 - Joint Sealers.
- .4 Section 08 14 10 - Wood Doors.
- .5 Section 08 71 00 - Door Hardware.
- .6 Section 08 80 50 - Glazing.
- .7 Section 09 91 99 - Painting for Minor Works.
- .8 Divisions 25 and 26 - Electrical

1.2 References

- .1 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A 653/A 653M-02a 653M-02a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
 - .2 CGSB 41-GP-19Ma, Rigid Vinyl Extrusions for Windows and Doors.
 - .3 CAN/CGSB-51.20-M87 Thermal Insulation, Polystyrene, Boards and Pipe Covering.
 - .4 GSB 51-GD-21M-78, Thermal Insulation, Urethane and Isocyanurate, Unfaced.
 - .3 Canadian Standards Association (CSA International)
 - .1 G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-13 (R2015), Welded Steel Construction (Metal Arc Welding) (Metric Version).
 - .3 CSA A101-M1988, Thermal Insulation Mineral Fibre For Building.
 - .4 CAN/CSA-G4-92, Structural Quality Steel.
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- .4 Canadian Steel Door Manufacturers' Association, (CSDMA).
 - .1 CSDMA, Specifications for Commercial Steel Doors and Frames, 1990.
 - .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 1990.
 - .3 Fabricate and install labelled steel fire-rated doors and frames to NFPA most recent edition, except where specified otherwise.
- .5 National Fire Protection Association (NFPA)
 - .1 NFPA 80-99, Standard for Fire Doors and Fire Windows.
 - .2 ANSI/NFPA 252-2003, Standard Methods of Fire Tests of Door Assemblies.
 - .3 NFPA 252-2003, Standard Methods of Fire Tests of Door Assemblies.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN4-S104-1980(R1985), Fire Tests of Door Assemblies.
 - .2 CAN4-S105-1985(R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104-1980(R1985).

1.3 Related Work

- .1 Caulking of joints between frames and other building components.
- .2 Finish hardware.

1.4 Work Included

- .1 Door gasketing along perimeter jams and header.
- .2 Door bottom gasketing.

1.5 Requirements of Regulatory Agencies

- .1 Product shall be tested in conformance with established test procedures for measuring acoustic performance and in particular, with ASTM E90-90 and ASTM E413-87

1.6 Compliance with Required Acoustic Performance

- .1 As part of the submittal process the manufacturer of the door/frame units shall submit independent test data from a recognized licensed laboratory indicating compliance with
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- .1 (Cont'd)
the Sound Transmission Class (STC) specified
by the project architect or engineer.

1.7 Warranty

- .1 Material and workmanship shall be warrantied
by manufacturer for a period of five (5) years
from the date of supply. Warranty shall apply
to replacement or retrofit of product only.

1.8 Shop Drawings

- .1 Submit shop drawings in accordance with
Section 01 33 00 - Submittal Procedures.
- .2 Indicate each type of door, material, steel
core thicknesses, mortises, reinforcements,
location of exposed fasteners, openings,
glazed, arrangement of hardware, fire rating
and finishes.
- .3 Indicate each type frame material, core
thickness, reinforcements, glazing stops,
location of anchors and exposed fastenings,
reinforcing and firerating finishes.
- .4 Include schedule identifying each unit, with
door marks and numbers relating to numbering
on drawings and door schedule.
- .5 Submit test and engineering data, and
installation instructions.

1.9 Samples

- .1 Submit samples in accordance with Section
01 33 00 - Submittal Procedures.
- .2 Submit one 300 x 300 mm top butt corner
sample of each type door.
- .3 Submit one 300 x 300 mm corner sample of each
type of frame.
 - .1 Show butt cutout, glazing stops 300 mm
long removable mullion connection snap-on trim
with clips.

1.10 Requirements

- .1 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104-M80(R1985) ANSI/NFPA 252-1999 for ratings specified or indicated.
- .2 Provide fire labelled frame products for those openings requiring fire protection ratings, as scheduled. Test products in strict conformance with CAN4-S104-1980(R1985), ASTM E 152-81a or ANSI/NFPA 252-1999 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

1.11 Waste Management and Disposal

- .1 Separate and recycle waste materials in accordance with Section 01 35 73 - Procedures for Deconstruction of Structures.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material for recycling in accordance with Waste Management Plan.
 - .4 Divert unused paint and sealant materials from landfill to official hazardous material collections site approved by Engineer.
 - .5 Do not dispose of unused paint and sealant materials into sewer systems, into lakes, streams, onto ground or in other locations where it will pose health or environmental hazard.
 - .6 Divert unused metal materials from landfill to metal recycling facility approved by Consultant.
 - .7 Divert unused wood materials from landfill to composting facility approved by Consultant.
 - .8 Damaged or broken glazing materials are not recyclable. These materials must not be disposed of with materials destined for recycling.
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PART 2 - PRODUCTS

2.1 Materials

- .1 Base steel thickness: 1.6 mm
- .2 Reinforcement channel: to CSA G40.20/G40.21-98, Type 44W, coating designation to ASTM A 653/A 653M-02a 653M-02a, ZF75.
- .3 The manufacturing process must adhere to lifecycle assessment standards as per CAU/CSA-150 14040.
- .4 Acoustic Composite Core: core material for units shall be manufacturer's proprietary standard, tested as part of a fully operable assembly in accordance with ASTM E90-90 and ASTM E413-87 to provide the Sound Transmission Class (STC) of 50.

2.2 Door Core Materials

- .1 Honeycomb construction:
 - .1 Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m³ minimum sanded to required thickness.
- .2 Stiffened: face sheets laminated, honeycomb, uninsulated and insulated in exterior walls core.
 - .1 Expanded polystyrene: CAN/ULC-S701-2001, density 16 to 32 kg/m³.

2.3 Adhesives

- .1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.
 - .2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.
 - .3 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.
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2.4 Primer

- .1 Touch-up prime CAN/CGSB-1.181-99.

2.5 Paint

- .1 Field paint steel doors and frames in accordance with Section 09 91 99 - Painting for Minor Works. Protect weatherstrips from paint. Provide final finish shall be free of scratches or other blemishes.

2.6 Accessories

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Exterior top and bottom caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.
- .3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- .4 Door bottom seal: Refer to Section 08 71 00 - Door Hardware
- .5 Metallic paste filler: to manufacturer's standard.
- .6 Fire labels: metal rivetted.
- .7 Sealant: Refer to Section 07 92 00 - Joint Sealants.
- .8 Glazing: Refer to Section 08 80 50 - Glazing
- .9 Make provisions for glazing as indicated and provide necessary glazing stops.
 - .1 Provide removable steel glazing beads for dry glazing of snap-on type.
 - .2 Design exterior glazing stops to be tamperproof.

2.7 Frames Fabrication General

- .1 Fabricate frames in accordance with CSDMA specifications.
 - .2 Fabricate frames to profiles and maximum face sizes as indicated.
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- .3 Interior frames: 1.6 mm welded type construction. Minimum frame material thickness applies only to frames not requiring heavier gages to meet specified fire-rated construction.
- .4 Blank, reinforce, drill and tap frames for mortised, templated hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
- .5 Protect mortised cutouts with steel guard boxes.
- .6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .7 Manufacturer's nameplates on frames and screens are not permitted.
- .8 Conceal fastenings except where exposed fastenings are indicated.
- .9 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

2.8 Frame Anchorage

- .1 Provide appropriate anchorage to floor and wall construction.
- .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
- .4 Frames for double doors or single doors wider than 915 mm, provide anchors installed in the door header similar to those in door jambs and located 150mm from the jamb and 610mm maximum.

2.9 Frames: Welded Type

- .1 Welding in accordance with CSA W59-13 (R2015).
 - .2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
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- .3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.
- .4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
- .5 Securely attach floor anchors to inside of each jamb profile.
- .6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.
- .7 Fabricate frame products for openings greater than 3 m in length in section, splice joints for field assembly. Provide 2 mm thick steel channel extension members for lateral support. Weld extension members to top of frame and extend to structure above.

2.10 Door Fabrication General

- .1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
 - .2 Fabricate doors with longitudinal edges locked seam welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
 - .3 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.
 - .4 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
 - .5 Reinforce doors where required, for surface mounted hardware. Provide flush PVC top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
 - .6 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
 - .7 Manufacturer's nameplates on doors are not permitted.
 - .8 Core shall be proprietary acoustic composite core as tested by manufacturer to meet specified STC rating.
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2.11 Doors: Honeycomb Core Construction

- .1 Form each face sheet for exterior doors from 1.7 sheet steel with polystyrene core laminated under pressure to face sheets.
- .2 Form each face sheet for interior doors from 1.3 mm sheet steel with honeycomb core laminated under pressure to face sheets.

2.12 Hollow Steel Construction

- .1 Form each face sheet for interior doors from 1.3 sheet steel.
- .2 Reinforce doors with vertical stiffeners, securely welded to each face sheet at 150 mm on centre maximum.
- .3 Fill voids between stiffeners of interior doors with honeycomb core.

PART 3 - EXECUTION

3.1 Installation General

- .1 Install doors and frames to CSDMA Installation Guide.

3.2 Frame Installation

- .1 Set frames plumb, square, level and at correct elevation.
 - .2 Secure anchorages and connections to adjacent construction.
 - .3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.
 - .4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
 - .5 Caulk perimeter of frames between frame and adjacent material.
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- .6 Maintain continuity of air barrier and vapour retarder.

3.3 Door Installation

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.
- .2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
 - .1 Hinge side: 1.0 mm.
 - .2 Latchside and head: 1.5 mm.
 - .3 Finished floor, top of carpet, noncombustible sill and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.
- .4 Install louvres.

3.4 Finish Repairs

- .1 Touch up with primer finishes damaged during installation.
- .2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

3.5 Glazing

- .1 Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.

PART 1 - GENERAL

1.1 Related Sections

- .1 Section 06 40 00 - Architectural Woodwork.
- .2 Section 08 11 00 - Steel Doors and Frames.
- .3 Section 08 71 00 - Door Hardware.
- .4 Section 08 80 50 - Glazing.
- .5 Section 09 091 99 - Painting for Minor Works.

1.2 References

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
 - .1 Architectural Woodwork Quality Standards Illustrated, 2014 Edition, published by Architectural Woodwork Manufacturers Association of Canada (AWMAC) and the Architectural Woodwork Institute (AWI).
- .2 The Canadian Door and Window Manufacturers Certification Program.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
 - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .4 Canadian Standards Association (CSA)
 - .1 CSA O115-M1982(R2001), Hardwood and Decorative Plywood.
 - .2 CAN/CSA-O132.2 Series-90(R1998) Series-90(R1998) Series-90, Wood Flush Doors.
- .5 Environmental Choice Program (EPC)
 - .1 ECP-44-92, Adhesives.
 - .2 ECP-45-92, Sealants and Caulking Compounds.

1.3 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate door types and cutouts for lights, sizes, core construction, transom panel construction and cutouts.
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1.4 Samples

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit one 300 x 300 mm corner sample of each type wood door.
- .3 Show door construction, core, glazing detail and faces.

1.5 Regulatory Requirements

- .1 Wood fire rated doors: labelled and listed by an organization accredited by Standards Council of Canada.

1.6 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. Wrap doors.

1.7 Waste Management and Disposal

- .1 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .2 Dispose of all corrugated cardboard, polystyrene, plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

1.8 Warranty

- .1 Submit a written warranty for the wood doors for life of original installation (unlimited lifetime). Warranty of flush wood doors includes replacement of doors showing warping, bowing or cupping in excess of 6 mm, delamination of face veneer, telegraphing of core construction, or any other defects in door construction. Warranty includes replacement, refinishing and rehanging.
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PART 2 - PRODUCTS

2.1 Wood Flush Doors

- .1 Solid core: to CAN/CSA-0132.2.1.
 - .1 Construction:
 - .1 Solid particleboard core: Stile and rail frame bonded to particleboard core with wood lock blocks 5-ply construction.
 - .2 Face Panels:
 - .1 Hardwood: Veneer grades: Grade I (Premium), Grade B to AWMAC Standard.
 - .2 Adhesive: Type I (waterproof) for interior doors.
 - .3 Provide hardwood plywood sub-face without veneer where doors are to be covered with paneling.

2.2 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: end-matched.

2.3 Fabrication

- .1 Vertical edge strips to match face veneer.
 - .2 Prepare doors for glazing. Provide glazing stops with mitred corners.
 - .3 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock side and 1.5 mm in 50 mm on hinge side.
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PART 3 - EXECUTION

3.1 Installation

- .1 Unwrap and protect doors in accordance with CAN/CSA-0132.2 Series-90(R1998), Appendix A.
- .2 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-0132.2 Series-90(R1998), Appendix A.
- .3 Adjust hardware for correct function.

3.2 Adjustment

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

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 73 - Procedures for Deconstruction of Structures
- .3 Section 01 61 00 - Common Product Requirements.
- .4 Section 01 78 00 - Closeout Submittals.
- .5 Section 06 40 00 - Architectural Woodwork.
- .6 Section 06 65 00 - Solid Polymer Fabrications.
- .7 Section 08 71 00 - Door Hardware.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-69.25-M90/ANSI/BHMA A156.9-1982, Cabinet Hardware.
 - .2 CAN/CGSB-69.27-93/ANSI/BHMA A156.11-1991, Cabinet Locks.
 - .3 CAN/CGSB-69.32-M90/ANSI/BHMA A156.16-1981, Auxiliary Hardware.
 - .4 CAN/CGSB-69.34-93/ANSI/BHMA A156.18-1987, Materials and Finishes.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .3 Hardware List:
 - .1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate specified hardware, including make, model, material, function, finish and other pertinent information.
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- .4 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
- .5 Closeout Submittals:
 - .1 Provide maintenance data, parts list, and manufacturer's instructions for incorporation into maintenance manual specified in Section 01 78 00 - Closeout Submittals.

1.4 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 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 items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
- .2 Storage and Protection:
 - .1 Store cabinet hardware in locked, clean and dry area.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with. Section 01 35 73 - Procedures for Deconstruction of Structures.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Dispose of corrugated cardboard polystyrene plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
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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, designated by letter B and numeral identifiers as listed below.
 - .1 Hinges: concealed self closing hinge, type 110° opening.
 - .2 Pulls: Back mounted stainless steel pull. "D" shaped with 90 degree square edges and corners. Overall Size: 113mm long x 38mm deep
 - .3 Catches: magnetic catch, type.
 - .4 Shelf rests and standards: adjustable shelf standards, with open shelf rests.

2.3 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.

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

3.3 ADJUSTING

- .1 Adjust cabinet hardware for optimum, smooth operating condition.
- .2 Lubricate hardware and other moving parts.
- .3 Adjust cabinet 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 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.

3.6 SCHEDULE

- .1 Cabinet swinging doors:
 - .1 1 pair hinges.
 - .2 1 "D" type pull.
 - .3 1 magnetic catch.

PART 1 - GENERAL

1.1 Scope of Work

- .1 Supply and deliver all finish hardware as specified in hardware sets for doors listed on door schedule. Hardware shall include all fasteners and devices necessary for the proper installation of hardware.

1.2 Related Sections

- .1 Section 08 11 00 - Steel Doors and Frames.
- .2 Section 08 14 10 - Wood Doors.
- .3 Section 08 70 05 - Cabinet and Miscellaneous Hardware.
- .4 Section 10 22 26 - Operable Partitions.

1.3 References

- .1 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 All hardware shall comply with the latest version of the National Building Code.
- .3 All hardware shall comply with CAN/CSA B651-95, Barrier Free Design.

1.4 Requirements Regulatory Agencies

- .1 Use ULC listed and labeled hardware for doors in fire separations and where noted on Door Schedule.

1.5 Submittals

- .1 Submit Hardware Schedule in accordance with Section 01 33 00 - Submittals.
 - .2 Submit copies of Finish Hardware Schedule for approval. schedule shall be written in accordance with DHI Sequence and format for vertical hardware schedule publication. Schedule shall reference item and door number to hardware set specified. Schedule must
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- .2 (Cont'd)
include door index referencing door number to hardware set scheduled.
- .3 Provide template drawings as requested.
- .4 Submit copies of keying schedules for approval. Schedule shall be written in accordance with DHI Handbook Keying Schedule Systems and Nomenclature. Coordinate all keying in writing.
- .5 At completion of job, supply a maintenance manual. for each lockset, door closer, door holder and exit device the manual shall include:
 - .1 Catalogue pages.
 - .2 Parts lists.
 - .3 Manufacturers representatives' name, address and telephone number.
 - .4 Maintenance instructions.

1.6 Quality Assurance

- .1 Manufacturers names and product numbers specified are to establish minimum standard of quality. Substitutions shall be considered providing a written request is received ten (10) days prior to tender closing. Catalogue information for each substitute must be submitted with request. Approved substitutions to be included in addendum.
- .2 Hardware supplier must have on staff an Architectural Hardware Consultant or person of equivalent qualifications and experience. Hardware supplier must have been in Hardware supply for a minimum of two (2) years, have supplied similar type projects, and have adequate facilities to service project.

1.7 Delivery and Storage

- .1 General Contractor to provide clean, dry locked room for storage of hardware on shelving. Coordinate location with departmental Representative.
 - .2 Each hardware item shall be delivered to site in manufacturers original packaging. Each item shall be labeled with door and item number to correspond with hardware schedule.
 - .3 All hardware will be delivered to one receiving area on site.
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1.8 Warranty

- .1 Furnish a one-year warranty for all products with exceptions of door closers which shall be warranted for ten (10) years and lifetime warranty for concealed ball bearing hinges low energy operators for five (5) years and mortise locksets for two (2) years.

PART 2 - PRODUCTS

2.1 Manufacturers

- .1 Specified in Hardware Sets
 - .1 Hinges: To meet ANSI/BHMA Standard 156.1 for butts and hinges. ANSI/BHMA 156.7 standard for Template Hinge Dimensions. 156.18 Standard for Material and Finishes.
 - .2 McKinney
 - .3 Stanley
 - .4 Hager
 - .2 Mortise Locksets: To meet or exceed ANSI/BHMA standard A156.13 operational and security Grade 1, and meet A117.1 accessibility code. Latch bolt to have 19.05mm projection of stainless less one piece latch bolt, reversible without opening the lock case. Strikes to be non-handed with curved lip. Functions specified ANSI F04, F07, F01, F22, F13, F14 trim to be lever with rose. Rose to be 2" diameter, lever to be 139.7mm curved design with 63.5mm to 76.2mm projection and 7.93mm to 12.7mm curved design with 63.5mm to 76.2mm projection and 7.9mm to 12.7mm clearance from face of door. Locks shall have a five year limited warranty.
 - .1 Sargent 8200 series schlage L9000 Series
 - .2 Trim Schlage LNP Trim 17B.
 - .3 Door closers: To meet or exceed ANSI/BHMA A156.4 Grade 1, mounting to permit standard, top jamb and parallel arm installations. Key Control valves to offer separate regulating for door speed, latching and back check. Each valve to be labelled. door closer to have 10 year warranty.
 - .1 Sargent 350/1430 series LCN 1460/4040 series.
 - .4 Overhead holders and stops to meet or exceed ANSI A156.8 Grade 1. Track, slide, arm and jamb bracket to be extruded bronze or
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- .4 (Cont'd)
stainless steel. Shock absorber spring to be heavy tempered steel.
 - .1 Sargent 590 x 26D series Glynn Johnson 90/100 series.
 - .2 Finish 590 series 26D 90 series x 630 690 SP28 100 Series SP28.
- .5 Invisible Hinges;
 - .1 Soss.
- .6 Weatherstrip, thresholds, Sweeps, Door Bottoms
 - .1 KN Crowder Hager.
- .7 Gasketing
 - .1 Pemko

2.2 Door Closers

- .4 All door closers to be mounted parallel arm unless otherwise noted in hardware sets.

2.2 Finish

- .1 Finish for this project in general shall be 26D/626 (Satin Chrome). Exceptions area as noted in hardware packages.

2.3 Keying

- .1 All cylinder to be be keyed to Existing Building System.
 - .2 All cylinders to be construction master keyed. Provide eight (8) Construction master keys. Ship to general contractor with hardware.
 - .3 All cylinder plug faces and key bows to be stamped with key code.
 - .4 Attend on-site meeting to chart key requirements with Departmental Representative/Consultant. Allow for 2 on-site meetings.
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PART 3 - EXECUTION

3.1 Installation Instructions

- .1 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
 - .1 Furnish manufacturers' instructions for proper installation of each hardware component.
 - .2 Recommended mounting heights shall be in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian steel Door and Frame Manufacturer's Association.

3.2 Adjusting and Cleaning

- .1 At final completion General Contractor shall leave hardware clean and free of any disfigurement. Installer shall make a final adjustment to all hardware items and ensure they are functioning properly. Defective hardware shall be replaced or repaired as covered under warranty. Damaged or abused hardware shall be replace by General Contractor.

3.3 Protection

- .1 Provide proper protection of all hardware items until Owner accepts project as complete.

3.4 Schedule

- .1 HW1 - 100
 - .1 3 HINGES TA714 114X100 26D
 - .2 1 LOCKSET 8205 LNP MK VK 26D
 - .3 1 CLOSER 1431-RO EN
 - .4 1 ACOUSTIC SEAL S88 TO SUIT TAN
 - .5 1 AUTO BOTTOM CT-54 TO SUIT
 - .2 HW2 - 101, 102, 103, 106
 - .1 3 HINGES TA714 114X100 26D
 - .2 1 LOCKSET 8205 LNP MK VK 26D
 - .3 1 ACOUSTIC SEAL S88 TO SUIT TAN
 - .4 1 AUTO BOTTOM CT-53 TO SUIT
 - .3 HW3 - 104 - SLIDING DOORS
 - .1 ALL HARDWARE BY DOOR SUPPLIER
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- .4 HW4 - 107
 - .1 3 HINGES TA714 114X100 26D
 - .2 1 LOCKSET 8205 LNP MK VK 26D
 - .3 1 CLOSER 1431-RO EN
 - .4 1 ELECTRIC STRIKE 1006 KM-630 26D
 - .5 1 ACOUSTIC SEAL S88 TO SUIT TAN
 - .6 1 AUTO BOTTOM CT-53 TO SUIT
- .5 HW5 - 101A
 - .1 2 PIVOT HINGES 370 26D
 - .2 2 MAGNETIC PUSH OPENS

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 07 92 00 - Joint Sealants.
- .2 Section 08 11 00 -Steel Doors and Frames.
- .3 Section 08 14 10 - Wood Doors.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C 542-94(1999), Specification for Lock-Strip Gaskets.
 - .2 ASTM D 2240-02b, Test Method for Rubber Property - Durometer Hardness.
 - .3 ASTM E 84-01, Test Method for Surface Burning Characteristics of Building Materials.
 - .4 ASTM F 1233-98, Test Method for Security Glazing Materials and Systems.
- .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
 - .2 CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.
 - .3 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
 - .4 CAN/CGSB-12.5-M86, Mirrors, Silvered.
 - .5 CAN/CGSB-12.8-97, Insulating Glass Units.
 - .6 CAN/CGSB-12.11-M90, Wired Safety Glass.
 - .7 CAN/CGSB-12.12-M90, Plastic Safety Glazing.
- .3 Environmental Choice Program (ECP).
 - .1 CCD-045-95, Sealants and Caulking.
- .4 Flat Glass Manufacturers Association (FGMA).
 - .1 FGMA Glazing Manual - 1997.
- .5 Laminators Safety Glass Association (LSGA).
 - .1 LSGA Laminated Glass Design Guide 2000.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with

1.3 SUBMITTALS
(Cont'd)

- .1 Product Data:(Cont'd)
 - .2 (Cont'd)
Section 01 33 00 - Submittal Procedures.
Indicate VOC's for glazing materials during application and curing.
- .2 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit duplicate 300 mm size samples of glazing and sealant material.
- .4 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
- .5 Closeout Submittals:
 - .1 Provide maintenance data including cleaning instructions for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 QUALITY
ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .1 Provide testing and analysis of glass under provisions of Section 01 45 00 - Quality Control.
 - .2 Provide shop inspection and testing for glass.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section.

1.5 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 35 73 - Procedures for Deconstruction of Structures.
- .2 Divert metal cut-offs from landfill by disposal into on-site Metal recycling bin at nearest metal recycling facility.
- .3 Divert uninstalled materials for reuse at nearest used building materials facility or similar type facility.
- .4 Divert unused caulking and sealant materials from landfill through disposal at special wastes depot.
- .5 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
- .6 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .7 Dispose of corrugated cardboard polystyrene plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

PART 2 - PRODUCTS

2.1 MATERIALS:
FLAT GLASS

- .1 Safety glass: to CAN/CGSB-12.1, transparent, 6 mm thick.
 - .1 Type 2-tempered.
 - .2 Class B-float.

2.2 ACCESSORIES

- .1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D 2240, to suit glazing method, glass light weight and area.
- .2 Spacer shims: Neoprene, Shore A durometer hardness to ASTM D 2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
- .3 Glazing tape:
 - .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A

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|-------------------------------------|----|--|
| <u>2.2 ACCESSORIES
(Cont'd)</u> | .3 | Glazing tape:(Cont'd) |
| | .1 | (Cont'd) |
| | | durometer hardness to ASTM D 2240; coiled on release paper. |
| | .2 | Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2. |
| | .4 | Glazing clips: manufacturer's standard type. |
| | .5 | Lock-strip gaskets: to ASTM C 542. |
| | .6 | Translucent Film. |

PART 3 - EXECUTION

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| <u>3.1 MANUFACTURER'S
INSTRUCTIONS</u> | .1 | Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets. |
| <u>3.2 EXAMINATION</u> | .1 | Verify that openings for glazing are correctly sized and within tolerance. |
| | .2 | Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing. |
| <u>3.3 PREPARATION</u> | .1 | Clean contact surfaces with solvent and wipe dry. |
| | .2 | Seal porous glazing channels or recesses with substrate compatible primer or sealer. |
| | .3 | Prime surfaces scheduled to receive sealant. |
| <u>3.4 INSTALLATION:
INTERIOR - DRY
METHOD (TAPE AND
TAPE)</u> | .1 | Perform work in accordance with FGMA Glazing Manual IGMAC and Laminators Safety Glass Association - Standards Manual for glazing installation methods. |
| | .2 | Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line. |
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- 3.4 INSTALLATION:
INTERIOR - DRY
METHOD (TAPE AND
TAPE)
(Cont'd)
- .3 Place setting blocks at 1/3 points, with edge block maximum 150 mm from corners.
 - .4 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.
 - .5 Place glazing tape on free perimeter of glazing in same manner described.
 - .6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
 - .7 Knife trim protruding tape.
- 3.5 INSTALLATION:
PLASTIC FILM
- .1 Install plastic film with adhesive, applied in accordance with film manufacturer's instructions.
 - .2 Place without air bubbles, creases or visible distortion.
 - .3 Fit tight to glass perimeter with razor cut edge.
 - .4 Install to locations indicated on drawings.
- 3.6 CLEANING
- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
 - .2 Remove traces of primer, caulking.
 - .3 Remove glazing materials from finish surfaces.
 - .4 Remove labels after work is complete.
 - .5 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacture's instructions.
 - .6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
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3.7 PROTECTION OF FINISHED WORK .1 After installation, mark light with an "X" by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

3.8 SCHEDULE .1 Interior doors (non-rated): Single pane, tempered glass, 6mm thick.