

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A653/A653M-06a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM B29-03, Standard Specification for Refined Lead.
 - .3 ASTM B749-03, Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
 - .2 CGSB 41-GP-19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- .4 Canadian Steel Door Manufacturers' Association (CSDMA)
 - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
 - .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, 1990.
- .5 National Fire Protection Association (NFPA)
 - .1 NFPA 80, Standard for Fire Doors and Fire Windows.
 - .2 NFPA 252-03, Standard Methods of Fire Tests of Door Assemblies.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S701-01, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
 - .2 CAN/ULC-S702-97, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
 - .3 CAN/ULC-S704-03, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
 - .4 CAN4-S104-M80, Standard Method for Fire Tests of Door Assemblies.
 - .5 CAN4-S105-M85, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

1.2 SYSTEM DESCRIPTION

- .1 Design Requirements:
 - .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.
 - .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

- .3 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 / NFPA 252 for ratings specified or indicated.
- .4 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104, ASTM E152 or NFPA 252 and listed by nationally recognized agency having factory inspection services.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Saskatchewan, Canada.
 - .2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvred, arrangement of hardware and fire rating]and finishes.
 - .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing, fire rating, finishes.
 - .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
- .4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .5 Submit one 300 x 300 x 45 mm corner sample of each type of frame.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

Part 2 Products

2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
- .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.

2.2 PRIMER

- .1 Touch-up prime CAN/CGSB-1.181.
 - .1 Maximum VOC limit 50 g/L to GC-03.

2.3 PAINT

.1 Field paint steel doors and frames in accordance with Sections 09 91 23 - Interior Painting. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

.1 Maximum VOC emission level 50 g/L to GS-11.

2.4 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Interior top and bottom caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma steel.

.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 Metallic paste filler: to manufacturer's standard.

.5 Fire labels: metal riveted.

.6 Sealant: silicone..

.1 Maximum VOC limit 50 g/L to SCAQMD Rule 1168.

.7 Glazing: 6 mm clear float glass.

.8 Make provisions for glazing as indicated and provide necessary glazing stops.

.1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws.

2.5 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Interior frames: 1.6 mm welded type 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.

- .10 Insulate exterior frame components with polyurethane insulation.

2.6 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 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

2.7 FRAMES: WELDED TYPE

- .1 Welding in accordance with CSA W59.
- .2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
- .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.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION GENERAL

- .1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.
- .2 Install doors and frames to CSDMA Installation Guide.

3.3 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.

3.4 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 if required.

3.5 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.

3.6 GLAZING

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

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 06 20 00 - Finish Carpentry.
- .3 Section 08 11 00 - Metal Doors and Frames.
- .4 Section 08 71 00 - Door Hardware - General.
- .5 Section 08 80 50 - Glazing.

1.2 REFERENCES

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
 - .1 Quality Standards for Architectural Woodwork latest edition.
- .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 O115-M1982 (R2001), Hardwood and Decorative Plywood.
 - .2 CAN/CSA O132.2 Series-90 (R1998), Wood Flush Doors.
 - .3 CAN/CSA-O132.5-M1992 (R1998), Stile and Rail Wood Doors.
 - .4 CSA Certification Program for Windows and Doors 2000.
- .4 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.
- .5 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 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .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 - Submittal Procedures.
- .2 Submit one 300 x 300 x 45 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. Wrap doors.
 - .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 packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

Part 2 Products

2.1 FIRE RATED WOOD DOORS

- .1 Wood doors: tested in accordance with CAN4-S104 / NFPA 252 to achieve rating as scheduled.
 - .1 Face panels: one hour.

2.2 WOOD FLUSH DOORS

- .1 Solid core: to CAN/CSA-O132.2.1.
 - .1 Construction:
 - .1 Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks and special wood blocking, 7-ply construction.
 - .2 Solid wood core:
 - .1 Stile and rail core.
 - .2 7-ply construction.
 - .3 Solid, wood block, lined core: with two core liners:
 - .1 Stile and rail core.
 - .2 7-ply construction.
 - .2 Face Panels:
 - .1 Hardwood; veneer grades: Grade I (Premium), oak species.
 - .3 Adhesive: Type II (water resistant) for interior doors.

2.3 STILE AND RAIL DOORS

- .1 Fabricate doors as indicated to AWMAC / CAN/CSA-O132.5.
- .2 Construction:
 - .1 Architectural grade veneered doors: to AWMAC mortise and tenon joints, vertical edge AWMAC Detail No.1, stile and rail widths to AWMAC Type II (interior) adhesive. Veneer oak species, premium grade.
- .3 Type: flat panel door.

2.4 GLAZING

- .1 Glass: 3 mm clear
- .2 Accessories: setting blocks and stops.

2.5 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.

2.6 FABRICATION

- .1 Vertical edge strips to match face veneer.
- .2 Prepare doors for louvres and glazing. Provide oak species to match face veneer, 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.

- .4 Radius vertical edges of double acting doors to 60 mm radius.

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.
- .7 Secure transom and side panels by means of concealed fasteners or countersunk screws concealed by means of wood plugs matching panel in grain and colour.

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 SECTIONS

- .1 Section 01 61 00 - Common Product Requirements.
- .2 Section 01 78 00 - Closeout Submittals.
- .3 Section 08 14 16 - Flush Wood Doors.
- .4 Division 25: Electrical wiring for magnetic strikes, 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 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-69.17-M86 (R1993), Bored and Preassembled Locks and Latches.
 - .2 CAN/CGSB-69.18-M90/ANSI/BHMA A156.-1981, Butts and Hinges.
 - .3 CAN/CGSB-69.19-93/ANSI/BHMA A156.3-1984, Exit Devices.
 - .4 CAN/CGSB-69.20-M90/ANSI/BHMA A156.4-1986, Door Controls (Closers).
 - .5 CAN/CGSB-69.21-M90/ANSI/BHMA A156.5-1984, Auxiliary Locks and Associated Products.
 - .6 CAN/CGSB-69.22-M90/ANSI/BHMA A156.6-1986, Architectural Door Trim.
 - .7 CAN/CGSB-69.24-M90/ANSI/BHMA A156.8-1982, Door Controls - Overhead Holders.
 - .8 CAN/CGSB-69.26-96/ANSI/BHMA A156.10-1991, Power-operated Pedestrian Doors.
 - .9 CAN/CGSB-69.28-M90/ANSI/BHMA A156.12-1986, Interconnected Locks and Latches.
 - .10 CAN/CGSB-69.29-93/ANSI/BHMA A156.13-1987, Mortise Locks and Latches.
 - .11 CAN/CGSB-69.30-93/ANSI/BHMA A156.14-1991, Sliding and Folding Door Hardware.
 - .12 CAN/CGSB-69.31-M89/ANSI/BHMA A156.15-1981, Closer/Holder Release Device.
 - .13 CAN/CGSB-69.32-M90/ANSI/BHMA A156.16-1981, Auxiliary Hardware.
 - .14 CAN/CGSB-69.33-M90/ANSI/BHMA A156.17-1987, Self-closing Hinges and Pivots.
 - .15 CAN/CGSB-69.34-93/ANSI/BHMA A156.18-1987, Materials and Finishes.
 - .16 CAN/CGSB-69.35-M89/ANSI/BHMA A156.19-1984, Power Assist and Low Energy Power Operated Doors.
 - .17 CAN/CGSB-69.36-M90/ANSI/BHMA A156.20-1984, Strap and Tee Hinges and Hasps.

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.
 - .2 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
 - .3 After approval samples will be returned for incorporation in the Work.
- .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, size, finish and other pertinent information.
- .4 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
- .5 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 78 00 - Closeout Submittals.

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 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.

1.5 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.
- .2 Storage and Protection:
 - .1 Store finishing hardware in locked, clean and dry area.

1.6 WASTE DISPOSAL AND MANAGEMENT

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Dispose of corrugated cardboard, polystyrene, plastic and 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 78 00 - Closeout Submittals.
 - .2 Supply two sets of wrenches for door closers, locksets and fire exit hardware.

1.8 ACCESSIBILITY

- .1 Ensure all hardware supplied meets requirements of CAN/CSA B651-04, barrier-free design, as modified by the 2002 draft revision and any other subsequent amendments.

Part 2 Products

2.1 HARDWARE ITEMS

- .1 Use one manufacturer's products only for similar items.
- .2 All cylinders throughout the project to be supplied and installed by the Departmental Representative. Supplier to provide blank cylinders with each locking device specified.

2.2 FINISHES

- .1 All hardware items used throughout the project to match existing in colour, including door closers, thresholds, weatherstripping and kickplates.
- .2 Finish: 613 dark oxidized satin bronze, oil rubbed bronze (match existing).

2.3 HARDWARE CHART LEGEND

.1 FRAME TYPES

CWV	Custom welded frame
DEV	3 piece drywall expandable frame
DWV	3 piece drywall frame
ETG	Existing to remain
KVW	Welded frame
TVW	Thermally broken frame – welded
WD	Wood
AL	Aluminum

.2 DOOR CONSTRUCTIONS

P	Insulated (RSI 2.7 or 3.5)
S	Lockseam

- T Seam tacked (stitch welded) and filled
- WD Wood
- AL Aluminium

.3 DOOR CORES

- H Honeycomb
- P Thermal core (RSI 2.7 or 3.5 polystyrene)
- SC Solid Core Wood
- HC Hollow Core Wood

2.4 DOOR HARDWARE

.1 Locks and latches:

- .1 Mortise locks and latches: to CAN/CGSB-69.29, series 1000 mortise lock, grade 1, designed for function as stated in Hardware Schedule on Drawing A0.2
- .2 Lever handles: plain design.
- .3 Escutcheons: rectangle.
- .4 Normal strikes: box type, lip projection not beyond jamb.
- .5 Cylinders: supply blank cylinders. Departmental Representative to install own cylinders.

.2 Butts and hinges:

- .1 Butts and hinges: to CAN/CGSB-69.18, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.

.3 Door Closers and Accessories:

- .1 Door controls (closers): to CAN/CGSB-69.20, designated by letter C and numeral identifiers listed in Hardware Schedule, size 6 in accordance with CAN/CGSB-69.20, table A1.
- .2 Door controls - overhead holders: to CAN/CGSB-69.24, designated by letter C and numeral identifiers listed in Hardware Schedule.

.4 Architectural door trim: to CAN/CGSB-69.22, designated by letter J and numeral identifiers listed in Hardware Schedule.

- .1 Door protection plates: kick plate type, 1.27 mm thick.

.5 Thresholds: 63 mm wide x full width of door opening, bronze, plain surface.

.6 Weatherstripping:

- .1 Head and jamb seal:
 - .1 Adhesive backed neoprene material.
- .2 Door bottom seal:
 - .1 Concealed extruded aluminum frame and closed cell neoprene vinyl.

2.5 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.

2.6 KEYING

- .1 Provide construction cores. Permanent cylinders supplied and installed by Departmental Representative.

2.7 HARDWARE SYMBOLS

B	Butts / Hinges
C	Closers
DS	Door Seals
K	Kick Plates
L	Lock set / Latch set / Cylinder / Keyless / Magnetic Locks
S	Stops / Holders
ST	Strikes
T	Threshold

2.4 DOOR HARDWARE

- 1. "B" – Butts / Hinges / Pivots (Grade 1)
 - B1 Standard weight, average frequency, hollow metal or wood doors, wood or pressed steel frames, stainless steel construction, two ball bearings, ANSI A5112.

Hager BB-1191
McKinney TA-TB2314/TA314
Stanley FBB 191
 - B2 Heavy weight, high frequency, hollow metal or wood door, wood or pressed steel frames, stainless steel construction, four ball bearings, ANSI A5111.

Hager BB-1199
McKinney 4A-T4B3386 / TA38
Stanley FBB 199
- 2. "C" – Closers (ANSI / BHMA A156.4-2000 - Grade 1)
 - C1 Full rack and pinion
Adjustable spring power
Cast Iron case
Key control adjustment
Adjustable back check

High impact non corrosive cover
Interchangeable arms
Versatile delayed action
Meeting accessibility standards
Reversible / heavy duty

Sargent Powerglide 281 Series
LCN 4041 Series

3. "DS" - Door Seals (Grade 1)

DS1 Sound seals
Neoprene rubber
Silicone door gasket

Jambs and top:
K.N. Crowder Mfg. Inc. W22
Pemko SBB
Draftseal DS110

DS2 Auto Door Bottom
22W x 35H mm with closed cell neoprene drop down section activated
automatically

K.N. Crowder Mfg. Inc – CT53
Pemko – D34CRL
Draftseal – DS342CR

4. "K" – Kick plates (ANSI / BHMA A156.16-1997 – Grade 1)

K1 Countersunk screw holes
Screws to suit door type
1.27 mm (0.050") thickness
250 mm high x 40 mm less width of door

Standard Metal – K10A
Gallery – 80A
Hager – 190S

5. "L" – Lock set

L1 As specified in Hardware Schedule on Drawing A0.2

6. "T" Thresholds (ANSI / BHMA A156.21-2001 – Grade 1)

T1 Extruded 6.4 mm high
Ribbed, meeting barrier free design
Width to suit door frame (127 mm)

K.N. Crowder Mfg. Inc. - CT 31
Pemko - 173
Draftseal – DS-250

7. "S" Door Stops (ANSI / BHMA 156.8 Grade 1/CO-2541)

S1 Wall mounted, heavy duty, convex/concave rubber
Complete with screws or shields
50 mm diameter, 25 mm projection

Standard Metal S124 / S125

Hager – 232W / 236W

Gallery – 240B / 250B

S3 Floor mounted
One piece bronze or brass casting
c/w screws and shields

Standard Metal S101 / S103

Hager – 241F / 243F

Gallery – 200B / 218B

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 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.

- .4 Install hardware at following heights from finished floor to centre line of item:

Door pull	1050mm
Push plate	1050mm
Push bar	980mm
Door knob	950mm
Dead lock	1200mm

- .5 Co-ordinate work of this Section with door and frame suppliers.

- .6 Properly install rose of lock sets / latch sets with lock spring and inserts.
- .7 Install wall mounted interior doorstops as standard. Overhead stops to be used only where no adjacent wall is available.

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 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 and locksets.
 - .2 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.6 SCHEDULE

- .1 Refer to Hardware Schedule on Drawing A0.2

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 45 00 - Quality Control.
- .3 Section 01 78 00 - Closeout Submittals.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM D1003-00, Test Method for Haze and Luminous Transmittance of Plastics.
 - .2 ASTM D1929-96(R2001)e1, Test Method for Determining Ignition Temperature of Plastics.
 - .3 ASTM D2240-02b, Test Method for Rubber Property - Durometer Hardness.
 - .4 ASTM E84-01, Test Method for Surface Burning Characteristics of Building Materials.
 - .5 ASTM F1233-98, 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.
- .3 Flat Glass Manufacturers Association (FGMA).
 - .1 FGMA Glazing Manual - 1997.
- .4 Laminators Safety Glass Association (LSGA).
 - .1 LSGA Laminated Glass Design Guide 2000.

1.3 SYSTEM DESCRIPTION

- .1 Performance Requirements:
 - .1 Limit glass deflection to 1/200 with full recovery of glazing materials.

1.4 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 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 Procedure.
- .2 Submit duplicate 300 x 300 mm size samples of glazing, mirror 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.

1.5 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 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .2 Construct mock-up to including glass glazing and mirror installation.
 - .3 Mock-up will be used:
 - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
 - .4 Locate where directed.
 - .5 Allow 24 hours for inspection of mock-up before proceeding with work.
 - .6 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.
- .4 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.6 SITE CONDITIONS

- .1 Environmental Requirements:
 - .1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
 - .2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Divert unused caulking and sealant materials from landfill through disposal at special wastes depot.
- .2 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.

- .3 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .4 Dispose of corrugated cardboard 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 Float glass: to CAN/CGSB-12.3, Glazing quality, 6 mm thick.
- .2 Sheet glass: to CAN/CGSB-12.2, AA-Special selected, 6 mm thick.
 - .1 Type 1B-Float glass for high humidity use.

2.2 MATERIALS

- .1 Plastic Film: in accordance with Section 08 87 53 - Security Films.

2.3 ACCESSORIES

- .1 Setting blocks: Neoprene Shore A durometer hardness to ASTM D2240, length of 25 mm for each square meter of glazing and to suit glazing method, glass light weight and area.
- .2 Spacer shims: Neoprene Shore A durometer hardness to ASTM D2240, 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, Shore A durometer hardness to ASTM D2240; coiled on release paper; 3 x 19 mm size; black colour.
 - .2 Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2 %, designed for compression of 25 %, to effect an air and vapour seal; 19 mm size.
- .4 Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot, as selected.
- .5 Glazing clips: manufacturer's standard type.
- .6 Lock-strip gaskets: to ASTM C542.
- .7 Mirror attachment accessories:
 - .1 Stainless steel clips.
 - .2 Mirror frames: stainless steel.

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 EXAMINATION

- .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.

3.3 PREPARATION

- .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.

3.4 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)

- .1 Perform work in accordance with FGMA Glazing Manual 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.
- .3 Place setting blocks at 1/4 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.

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.

3.7 PROTECTION OF FINISHED WORK

- .1 After installation, mark light with an "X" by using removable plastic tape or paste.

3.8 SCHEDULE

- .1 Glazing in office partitions, sizes as shown on drawings.
- .2 Application of security film to new and existing glazing as shown on drawings.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes:
 - .1 Security and safety film placed on glass surfaces for increased security protection.
- .2 Related Sections:
 - .1 Section 01 33 00 - Submittal Procedures.
 - .2 Section 01 61 00 - Common Product Requirements.
 - .3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .4 Section 01 78 00 - Closeout Submittals.
 - .5 Section 08 80 50 - Glazing.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)
 - .1 ANSI Z97.1-1984(R1994), Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test.
- .2 International Window Film Association (IWFA)
 - .1 IWFA Visual Quality Standard for Applied Window Film 1999.
- .3 Consumer Product Safety Commission Publications (CPSC)/Code of Federal Regulations (CFR)
 - .1 CPSC, 16 CFR 1201 CAT I.
 - .2 CPSC, 16 CFR 1201 CAT II.
- .4 Government of Canada
 - .1 Canada Labour Code, WHMIS datasheets.

1.3 DEFINITIONS

- .1 Safety: reduction of risk of injury, loss or death of persons due to accidental, natural or unintentional causes.
- .2 Security: reduction of risk of injury, loss or death of persons due to intentional actions of others.
- .3 Security and Safety Film Types:
 - .1 Type 1 Safety: areas of concern related to common residential or light commercial accidents.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures.

- .3 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit one 500 x 500 mm sample of film installed on 7 mm thick clear plate glass.
- .4 Submit test reports in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit test reports from approved independent testing laboratory, certifying film's compliance with specified requirements.
- .5 Submit Closeout Submittals in accordance with Section 01 78 00 - Closeout Submittals.
 - .1 Provide operation and maintenance data for window film for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
 - .2 Follow manufacturers written instructions for care and maintenance of security and safety film.
 - .3 Use only cleaning solution recommended by manufacturer for regularly scheduled cleaning of security film.

1.5 QUALITY ASSURANCE

- .1 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .2 Comply with requirements of WHMIS regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Canada Labour Code.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with section 01 61 00 - Common Product Requirements.
- .2 Provide and maintain dry, off-ground weatherproof storage.
- .3 Store rolls of film flat on cross supports. Do not stand rolls of film on end.
- .4 Remove from storage, in quantities required for same day use.
- .5 Store materials in accordance with manufacturers written instructions.
- .6 Waste Management and Disposal:
 - .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .2 Place materials defined as hazardous or toxic waste in designated containers.
 - .3 Ensure emptied containers are sealed and stored safely.

1.7 WARRANTY

- .1 Contractor hereby warrants that Security Film will stay in place without delaminating, peeling or blistering for 10 years.
- .2 Ensure warranty includes items as follows:

- .1 Maintaining adhesion properties without blistering, bubbling or delaminating from glass surface.
- .2 Maintaining appearance without discoloration.
- .3 Removing, replace and reapply defective materials.
- .4 In event of product failure under warranty terms, remove and re-apply film without glass replacement at no cost to Engineer.

1.8 MAINTENANCE DATA

- .1 Provide operation and maintenance data for window film for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

Part 2 Products

2.1 MATERIALS

- .1 Materials and resources in accordance with Section 01 47 15 - Sustainable Requirements: Construction.
- .2 Security Film - General: optically clear polyester film, abrasion resistant coating and release liner.
 - .1 Type 1 Safety Film:
 - .1 Testing in accordance with ANSI Z97.1 and CPSC 16 CFR 1201 CAT II.

2.2 FABRICATION

- .1 Shop installation of security film to glass panels:
 - .1 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
 - .2 Examine glass under natural daylight and identify cracks, blisters, bubbles, discoloration, edge defects or other anomalies that may cause film to delaminate, or cause vision transparency or distortion problems.
 - .3 View glass from 2.0 m minimum. Report findings to Engineer.
 - .4 Proceed with Work only after receipt of written approval from Engineer.
 - .1 Install security film to glass panels ensuring no blisters, bubbles, scratches, edge defects or distortions.
 - .2 Cut film edges straight and square to within 3 mm of edge of panel.
 - .3 Deliver glass panels complete with security film installed and labels intact and legible to site in accordance with section 01 61 00 - Basic Product Requirements.

Part 3 Execution

3.1 PREPARATION

- .1 Clean glass before beginning installation using neutral cleaning solution.
- .2 Ensure no deleterious material adheres to glass by scraping surface of glass using industrial razors.

- .3 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
- .4 Examine glass under natural daylight and identify cracks, blisters, bubbles, discolouration, edge defects or other anomalies that may cause film to delaminate or cause vision transparency or distortion problems. Report findings to Departmental Representative.
- .5 Proceed with Work only after receipt of written approval from Engineer.
- .6 Before beginning Work, place absorbent material at sash frame to absorb moisture accumulation generated by film application.

3.2 INSTALLATION

- .1 Field Installation of Security Film to Glass Windows:
 - .1 Install film in the same manner as tested.
 - .2 Remove any window stops and window sealing device.
 - .3 Ensure no deleterious material adheres to glass by scraping surface of glass using industrial razors.
 - .4 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
 - .5 Examine glass under natural daylight and identify cracks, blisters, bubbles, discolouration, edge defects or other anomalies that may cause film to delaminate, or cause vision transparency or distortion problems. Report findings to Engineer before starting Work.
 - .6 Proceed with Work only after receipt of written approval from [Departmental Representative Engineer.
 - .7 Install security film to glass windows ensuring no blisters, bubbles, scratches or distortions.
- .2 Cut film edges straight and square.
- .3 Ensure film is installed behind window stops.
- .4 Cut edges 3 mm maximum from edge of glass sealing device in accordance with manufacturers written instructions.
- .5 Apply and attach film to glass in accordance with manufacturer's written instructions.
- .6 Splicing:
 - .1 Splice film only when glass is greater in width than film.
 - .2 Splice film only after receipt of written approval from Engineer.
 - .3 Use butt factory edges only.
 - .4 Ensure maximum overlap of 3 mm.
- .7 Use only water and film slip solution on glass to facilitate positioning of film.
- .8 Ensure removal of excess water from between film and glass.
- .9 Remove left over material from work area and return work area to original condition.

3.3 INSTALLER'S INSPECTION

- .1 Visual Inspection: in accordance with IWFA - Visual Quality Standard for Applied Window Film.
- .2 Remove and replace film that continues to show blisters, bubbles, tears, scratches, edge defects or vision distortion in film when viewed under natural daylight from 2.0 m minimum after 30 day period.

3.4 FINAL CLEANING

- .1 Wash interior and exterior of each window and film using cleaning solution recommended by film manufacturer.

END OF SECTION