

## **FIRE STOPPING**

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### **1. GENERAL**

#### **1.1 RELATED WORK**

- .1 Fire stopping and smoke seals within mechanical assemblies (i.e., inside ducts, dampers) and electrical assemblies (i.e., inside cable trays) are specified in Divisions 15 and 16 respectively.

#### **1.2 References**

- .1 Underwriter's Laboratories of Canada (ULC)
  - .1 ULC-S115-[1995], Fire Tests of Firestop Systems.

#### **1.3 Samples**

- .1 Submit samples in accordance with Section 01330 – Submittal Procedures.

#### **1.4 Shop Drawings**

- .1 Submit shop drawings in accordance with Section 01330 – Submittal Procedures.
- .2 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.

#### **1.5 Product Data**

- .1 Submit product data in accordance with Section 01330 – Submittal Procedures.
- .2 Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation.

### **2. PRODUCTS**

#### **2.1 Materials**

- .1 Fire stopping and smoke seal systems: in accordance with ULC-S115.
  - .1 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of ULC-S115 and not to exceed opening sizes for which they are intended.
  - .2 Service penetration assemblies: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.

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- .3 Service penetration firestop components: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.13 and ULC Guide No.40 U19.15 under the Label Service of ULC.
- .4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
- .5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
- .6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
- .8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
- .10 Sealants for vertical joints: non-sagging.

### **3. EXECUTION**

#### **3.1 Preparation**

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.
- .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
- .3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
- .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

#### **3.2 Installation**

- .1 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions.
- .2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.

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- .3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
- .4 Tool or trowel exposed surfaces to a neat finish.
- .5 Remove excess compound promptly as work progresses and upon completion.

### 3.3 Inspection

- .1 Notify Engineer when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.

### 3.4 Schedule

- .1 Firestop and smoke seal at:
  - .1 Penetrations through fire-resistance rated gypsum board partitions and walls.
  - .2 Openings and sleeves installed for future use through fire separations.
  - .3 Around mechanical and electrical assemblies penetrating fire separations.
  - .4 Rigid ducts: greater than 129 cm<sup>2</sup>: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

### 3.5 Clean Up

- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application.
- .2 Remove temporary dams after initial set of fire stopping and smoke seal material.

**END OF SECTION**

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## JOINT SEALERS

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### 1. GENERAL

#### 1.1 Related Work

- .1 Section 07465 - Preformed Metal Wall Cladding/Siding.
- .2 Section 08111 - Steel Doors and Frames.

#### 1.2 References

- .1 CAN/CGSB-19.1-M87, Putty, Linseed Oil Type.
- .2 CAN/CGSB-19.2-M87, Glazing Compound, Nonhardening, Modified Oil Type.
- .3 CGSB 19-GP-5M, Sealing Compound, One Component, Acrylic Base, Solvent Curing.
- .4 CAN/CGSB-19.6-M87, Caulking Compound, Oil Base.
- .5 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .6 CGSB 19-GP-14M, Sealing Compound, One Component, Butyl-polyisobutylene Polymer Base, Solvent Curing.
- .7 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .8 CAN/CGSB-19.18-M87, Sealing Compound, One Component, Silicone Base, Solvent Curing.
- .9 CAN/CGSB-19.20-M87, Cold-applied Sealing Compound, Aviation Fuel-resistant.
- .10 CAN/CGSB-19.21-M87, Sealing and Bedding Compound Acoustical.
- .11 CAN/CGSB-19.22-M89, Mildew Resistant, Sealing Compound for Tubs and Tiles.
- .12 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

#### 1.3 Delivery, Storage and Handling

- .1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

#### 1.4 Environmental and Safety Requirements

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.

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## JOINT SEALERS

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- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

## 2. PRODUCTS

### 2.1 Sealant Materials

- .1 Sealants acceptable for use on this project must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers.

### 2.2 Elastomeric Sealant Material Designations

- .1 One part modified Polyurethane sealant to CAN/CGSB-19.24-M90, Type 2, Class 2.
  - .1 Acceptable material: Tremco Dymonic.
- .2 Two modified Polyurethane to CAN/CGSB-19.24-M90, Type 2, Class B.
  - .1 Acceptable material: Tremco Dymmeric 240.

### 2.3 Non-Elastomeric Sealant Material Designations

- .1 Latex sealant to CAN/CGSB-19.17-M90, non-sag, mildew resistant, paintable material.
  - .1 Acceptable Material: Tremco Sliconized Acrylic Latex.
- .2 Acoustical Sealant:
  - .1 To CAN/CGSB-19.21-M87.
  - .2 Acceptable material: Tremco.
- .3 Preformed Compressible and Non-Compressible back-up materials:
  - .1 Polyethylene, Urethane, Neoprene or Vinyl Foam:
    - .1 Extruded closed cell foam backer rod.
    - .2 Size: oversize 30 to 50%.
  - .2 Neoprene or Butyl Rubber:
    - .1 Round solid rod, Shore A hardness 70.

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### .3 High Density Foam:

- .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/mn density, or neoprene foam backer, size as recommended by manufacturer.

### .4 Bond Breaker Tape:

- .1 Polyethylene bond breaker tape which will not bond to sealant.

## 2.4 Sealant Selection

### .1 Non-Elastomeric sealant:

- .1 Between pressed steel interior door frames and adjacent finishes.
- .2 Perimeters of exterior frames.

### .2 Elastomeric sealant:

- .1 Joints at tops of non-load bearing walls at underside of poured slabs.

### .3 Acoustic sealant: at joints in polyethylene vapour barriers.

## 2.5 Joint Cleaner

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- .2 Primer: as recommended by manufacturer.

## 3. EXECUTION

### 3.1 Protection

- .1 Protect installed work of other trades from staining or contamination.

### 3.2 Preparation of Joint Surfaces

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work.

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- .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .4 Ensure joint surfaces are dry and frost free.
- .5 Prepare surfaces in accordance with manufacturer's directions.

### 3.3 Priming

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

### 3.4 Back-up Material

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

### 3.5 Mixing

- .1 Mix materials in strict accordance with sealant manufacturer's instructions.

### 3.6 Application

- .1 Sealant:
  - .1 Apply sealant in accordance with manufacturer's written instructions.
  - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
  - .3 Apply sealant in continuous beads.
  - .4 Apply sealant using gun with proper size nozzle.
  - .5 Use sufficient pressure to fill voids and joints solid.
  - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
  - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
  - .8 Remove excess compound promptly as work progresses and upon completion.

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**.2 Curing:**

- .1 Cure sealants in accordance with sealant manufacturer's instructions.
- .2 Do not cover up sealants until proper curing has taken place.

**.3 Clean-up:**

- .1 Do not cover up sealants until proper curing has taken place.
- .2 Remove excess and droppings, using recommended cleaners as work progresses.
- .3 Remove masking tape after initial set of sealant.

**END OF SECTION**



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**DIVISION 8**



**DOORS**

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### DIVISION 8 - DOORS

Section No.	Description
08111	Steel Doors and Frames
08710	Door Hardware

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## STEEL DOORS AND FRAMES

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### 1. GENERAL

#### 1.1 RELATED WORK

- .1 Section 07900-Joint Sealers.
- .2 Section 08710-Door Hardware
- .3 Section 09900 - Painting.

#### 1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM).
  - .1 ASTM A 653/A 653M-00 653M-00, 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 CAN/CGSB-51.20-M87, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .3 Canadian Standards Association (CSA).
  - .1 CSA A101-M1983, Thermal Insulation, Mineral Fibre, for Buildings.
  - .2 CSA G40.21-98, Structural Quality Steels.
  - .3 CSA W59-M1989 (R1998) (R1998), Welded Steel Construction (Metal Arc Welding).
- .4 Canadian Steel Door and Frame Manufacturers' Association, (CSDFMA).
  - .1 CSDFMA, Specifications for Commercial Steel Doors and Frames, 1990.
  - .2 SDFMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 1990.

#### 1.3 DESIGN REQUIREMENTS

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

## STEEL DOORS AND FRAMES

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### 1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01300 – Submittals.
- .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.
- .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings, reinforcing and finishing finishes where applicable.
- .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.

### 2. PRODUCTS

#### 2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet: to ASTM A 653/A 653M-00, ZF75, minimum base steel thickness in accordance with CSDFMA Table 1 - Thickness for Component Parts.
- .2 Reinforcement channel: to CSA G40.21-98, Type 44W, coating designation to ASTM A 653/A 653M-00, ZF75.

#### 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/m<sup>3</sup> minimum sanded to required thickness.
  - .2 Stiffened: face sheets honeycomb insulated core.
    - .1 Expanded polystyrene: CAN/CGSB-51.20-M87, Type 1, density 16 to 32 kg/m<sup>3</sup>.
    - .2 Polyurethane: to CGSB 51-GP-21M rigid, modified poly/isocyanurate, closed cell board. Density 32 kg/m<sup>3</sup>.
- .3 Temperature rise rated (TRR): core composition to limit temperature rise on unexposed side of door to 250°C at 30 minutes. Core to be tested as part of a complete door assembly, in accordance with CAN4-S104-1980(R1985), ASTM E 152-81a or ANSI/NFPA 252-1999, covering Standard Method of Tests of Door Assemblies and listed by nationally recognized testing agency having factory inspection service.

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## STEEL DOORS AND FRAMES

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### 2.3 PRIMERS

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

### 2.4 PAINT

- .1 Steel doors and frames shall be field painted in accordance with Section 09900. Weatherstrips shall be protected from paint. Finish shall be free of scratches or other blemishes.

### 2.5 ACCESSORIES

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Exterior and 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 Sealant: See Section 07900.
- .6 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 dry glazing of snap-on type.
  - .2 Design exterior glazing stops to be tamperproof.

### 2.6 FRAMES FABRICATION GENERAL

- .1 Fabricate frames in accordance with CSDFMA specifications.
- .2 Fabricate frames to profiles and maximum face sizes as indicated.
- .3 Exterior frames: 1.6 welded thermally broken type construction.
- .4 Interior frames: 1.2 mm knocked-down type construction.
- .5 Blank, reinforce, drill and tap frames for mortised, templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
- .6 Protect mortised cutouts with steel guard boxes.

## **STEEL DOORS AND FRAMES**

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- .7 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .8 Manufacturer's nameplates on frames and screens are not permitted.
- .9 Conceal fastenings except where exposed fastenings are indicated.
- .10 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

### **2.7 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 o.c. maximum.

### **2.8 WELDED TYPE**

- .1 Welding in accordance with CSA W59-1989 (R1998) (R1998).
- .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.
- .7 Securely attach lead to inside of frame profile from return to jamb soffit (inclusive) on door side of frame only.

### **2.9 DOOR FABRICATION GENERAL**

- .1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
- .2 Exterior doors: honeycomb core construction. Interior doors: hollow steel construction.

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### STEEL DOORS AND FRAMES

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- .3 Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
- .4 Doors: manufacturers' proprietary construction, tested and/or engineered as part of a fully operable assembly, including door, frame, gasketing and hardware in accordance with ASTM E 330-97e1.
- .5 Blank, reinforce, drill doors and tap for mortised and templated hardware.
- .6 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .7 Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
- .8 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .9 Manufacturer's nameplates on doors are not permitted.

#### 2.10 HOLLOW STEEL CONSTRUCTION

- .1 Form each face sheet for exterior doors from 1.6 mm sheet steel.
- .2 Form each face sheet for interior doors from 1.2 sheet steel.
- .3 Reinforce doors with vertical stiffeners, securely welded to each face sheet at 150 mm on centre maximum.
- .4 Fill voids between stiffeners of exterior doors with polystyrene core.

#### 2.11 THERMALLY BROKEN DOORS AND FRAMES

- .1 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.
- .2 Thermal break: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.
- .3 Fabricate thermally broken frames separating exterior parts from interior parts with continuous interlocking thermal break.
- .4 Apply insulation.

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**STEEL DOORS AND FRAMES**

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**3. EXECUTION**

**3.1 INSTALLATION GENERAL**

- .1 Install labelled steel fire rated doors and frames to ANSI/NFPA 80-1998 except where specified otherwise.
- .2 Install doors and frames to CSDFMA 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.
- .6 Maintain continuity of air barrier.

**3.3 DOOR INSTALLATION**

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08710 – 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 and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.



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## **STEEL DOORS AND FRAMES**

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### **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.

**END OF SECTION**

## DOOR HARDWARE

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### 1. GENERAL

#### 1.1 Related Work

- .1 Section 08111 – Steel Doors and Frames.

#### 1.2 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 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-69.17-[M86], Bored and Preassembled Locks and Latches.
  - .2 CAN/CGSB-69.18-[M90] / ANSI/BHMA A156.1-2000, Butts and Hinges.
  - .3 CAN/CGSB-69.20-[M90] / ANSI/BHMA A156.4-2000, Door Controls (Closers).
  - .4 CAN/CGSB-69.29-[93] / ANSI/BHMA A156.13-1994, Mortise Locks and Latches.
  - .5 CAN/CGSB-69.33-[M90] / ANSI/BHMA A156.17-1999, Self-closing Hinges and Pivots.
  - .6 CAN/CGSB-69.36-[M90] / ANSI/BHMA A156.20-1989 R1996, Strap and Tee Hinges and Hasps.

#### 1.3 Hardware List

- .1 Submit contract hardware list in accordance with Section 01300 - Submittals.
- .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

#### 1.4 Closeout Submittals

- .1 Provide operation and maintenance data for door closers, locksets, door holders and fire exit hardware for incorporation into manual specified in Section 01300.
- .2 brief maintenance staff regarding proper care, cleaning, and general maintenance.

#### 1.5 Delivery, Storage, Handling

- .1 Deliver, store, handle and protect materials in accordance with Division 1 Requirements.
- .2 Store finishing hardware in locked, clean and dry area.

## DOOR HARDWARE

- .3 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

## 2. PRODUCTS

### 2.1 Hardware Items

- .1 Only door locksets and latchsets listed on CGSB Qualified Products List are acceptable for use on this project.
- .2 Use one manufacturer's products only for all similar items.
- .3 Locks and latches:
  - .1 Bored and preassembled locks and latches: to CAN/CGSB-69.17-M86.
  - .2 Interconnected locks and latches: to CAN/CGSB-69.28-M90.
  - .3 Mortise locks and latches: to CAN/CGSB-69.29-9.
  - .4 Lever handles: plain design.
  - .5 Escutcheons: round.
  - .6 Normal strikes: box type, lip projection not beyond jamb.
  - .7 Cylinders: key into keying system designated for City of Iqaluit.
- .4 Butts and hinges:
  - .1 Butts and hinges: to CAN/CGSB-69.18-M90, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.
  - .2 Self-closing hinges and pivots: to CAN/CGSB-69.33-M90, designated by letter K and numeral identifiers listed in Hardware Schedule.
  - .3 Strap and tee hinges and hasps: to CAN/CGSB-69.36-M90, designated by letter A and numeral identifiers listed in Hardware Schedule, size in accordance with CAN/CGSB-69.36-M90, table I, finished to 602 cadmium plated.
- .5 Door closers: to CAN/CGSB-69.20-M90, designated by letter C and numeral identifiers listed in Hardware Schedule, size in accordance with CAN/CGSB-69.20-M90, table A1.
- .6 Door bottom seal: door seal of extruded aluminum frame and solid closed cell neoprene seal, recessed in door bottom, closed ends, adjustable, clear anodized finish.
- .7 Thresholds: full width of door opening, extruded aluminum, mill finish, serrated surface, with thermal break of rigid PVC.

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.8 Weatherstripping:

.1 Head and jamb seal:

- 1 Extruded aluminum frame and hollow closed cell neoprene insert, clear anodized finish.

.2 Adhesive backed neoprene foam material.

- .1 Door bottom seal.
- .2 Extruded aluminum frame and closed cell neoprene, clear anodized finish.

.9 Astragal: adjustable, extruded aluminum frame with vinyl insert, finished to match doors.

### 2.2 Fastenings

- .1 Supply screws, bolts, expansion shields and other fastening devices required for
- .2 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.

### 2.3 Keying

- .1 Prepare detailed keying schedule in conjunction with Engineer.
- .2 Provide keys in duplicate for every lock in this Contract.
- .3 Provide construction cores.
- .4 Provide all permanent cores and keys to Engineer at turnover.

### 2.4 Door Hardware

.1 Acceptable manufacturers:

- .1 Hinges – Hager
- .2 Locksets – Yale
- .3 Cylinders – Schlage
- .4 Closers – Norton
- .5 Flatware – Gallery
- .6 Weatherstrip – Draftseal.

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**DOOR HARDWARE**

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**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.
- .2 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.
- .3 Adjust for proper function.

**END OF SECTION**