

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 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 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1113-04, Architectural Coatings.
 - .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- 1.2 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 Indicate each type frame material, core thickness, reinforcements, location of anchors and exposed fastenings and reinforcing finishes.

- .2 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
- .3 Submit test and engineering data, and installation instructions.
- .4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75 1.2, 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 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 to SCAQMD Rule 1113.

2.4 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: 1.2 mm welded type

construction.

- .4 Blank, reinforce, drill and tap frames for mortised, templated 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.
- .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.

2.5 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.

2.6 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 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

- .4 Securely attach floor anchors to inside of each jamb profile.
- .5 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 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.
- 3.3 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.

PART 1 GENERAL

1.1 RELATED REQUIREMENTS .1 08 80 50 - Glazing.

- 1.2 REFERENCES .1 American Architectural Manufacturers Association (AAMA)
- .1 AAMA 609/610-09, Cleaning and Maintenance Guide for Architecturally Finished Aluminum.
 - .2 ASTM International
 - .1 ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - .3 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.40-97, Anticorrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
 - .3 CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.
 - .4 CSA International
 - .1 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .5 Environmental Choice Program (ECP)
 - .1 CCD-045-95, Sealants and Caulking Compounds.
 - .6 Green Seal Environmental Standards (GS)
 - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
 - .7 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

- 1.3 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for doors and frames and include product characteristics, performance criteria, physical size, finish and limitations.
 - .3 Shop Drawings:
 - .1 Indicate materials and profiles and provide full-size, scaled details of components for each type of door and frame. Indicate:
 - .1 Interior trim and exterior junctions with adjacent construction.
 - .2 Junctions between combination units.
 - .3 Elevations of units.
 - .4 Core thicknesses of components.
 - .5 Type and location of exposed finishes, method of anchorage, number of anchors, supports, reinforcement, and accessories.
 - .6 Location of caulking.
 - .7 Each type of door system including location.
 - .8 Arrangement of reinforcing for hardware and joints.
 - .9 Arrangement of hardware and required clearances.
 - .4 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit one 300 x 300 mm corner sample of each type door and frame.
 - .4 Submit sample showing glazing detail, reinforcement, finish and location of manufacturer's nameplates.
 - .5 Frame sample to show glazing stop, door stop, jointing detail, finish, wall trim.
 - .5 Manufacturers Reports:

- .1 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in Part 3 - FIELD QUALITY CONTROL.
- 1.4 CLOSEOUT SUBMITTALS
- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Operation and Maintenance Data: submit operation and maintenance data for cleaning and maintenance of aluminum finishes for incorporation into manual.
- 1.5 QUALITY ASSURANCE
- .1 Certifications: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 1.6 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .1 Apply temporary protective coating to finished surfaces. Remove coating after erection. Use coatings that are easy to remove and residue free.
 - .2 Leave protective covering in place until final cleaning of building.
 - .3 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect aluminum doors and frames from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
 - .4 Develop Construction Waste Management Plan Waste Reduction Workplan related to Work of this Section.
 - .5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets,

crates, padding, and packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

2.1 DESIGN CRITERIA .1 Design frames and doors in exterior walls to:

- .1 Accommodate expansion and contraction within service temperature range of -35 to 35 degrees C.
- .2 Limit deflection of mullions to maximum 1/175th of clear span when tested to ASTM E330 under wind load of 1.2 kPa submit certificate of tests performed.
- .3 Movement within system.
- .4 Movement between system and perimeter framing components or substrate.

- .2 Size glass thickness and glass unit dimensions to limits in accordance with CAN/CGSB-12.20.

2.2 MATERIALS

- .1 Aluminum extrusions: to Aluminum Association alloy AA6063-T5 or T6 anodizing quality.
- .2 Sheet aluminum: to Aluminum Association alloy AA1100-H14 or AA5005-H32 or H34 anodizing quality - Dark Bronze.
- .3 Steel reinforcement: to CSA G40.20/G40.21, grade 300 W.
- .4 Fasteners: stainless steel, finished to match adjacent material.
- .5 Weatherstrip: replaceable mohair.
- .6 Door bumpers: black neoprene.
- .7 Isolation coating: bituminous paint.
- .8 Glass: translucent tempered glass to CAN/CGSB-12.1.
- .9 Glazing materials: 08 80 50 - Glazing.
- .10 Sealants: colour selected by Departmental Representative in accordance with Section

07 92 00 - Joint Sealants.

.1 Maximum VOC limit: 250 g/L 5% by weight to SCAQMD Rule 1168 CCD-045.

2.3 ALUMINUM DOORS

- .1 Construct doors of porthole extrusions with minimum wall thickness of 3 mm.
- .2 Door stiles nominal 100 mm wide plus or minus 6 mm.
- .3 Top rail nominal 100 mm wide plus or minus 6 mm.
- .4 Bottom rail nominal 100 mm wide plus or minus 6 mm.
- .5 Reinforce mechanically-joined corners of doors to produce sturdy door unit.
- .6 Glazing stops: interlocking snap-in type for dry glazing. Exterior stops: tamperproof type.
- .7 Hardware: 08 71 00 - Door Hardware.

2.4 ALUMINUM FRAMES

- .1 Construct door and glazed walls, frames of aluminum extrusions with minimum wall thickness of 3.0 mm. Closed back glass frames set in.
- .2 Frame members 150 x 45 mm minimum size, steel reinforced.
- .3 Frame reinforcement: Steel channel.

2.5 ALUMINUM FINISHES

- .1 Integral colour anodic finish: designation AA-A44 Dark Bronze colour to match existing adjacent construction.
- .2 Appearance and properties of anodized finishes designated by Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative.

2.6 STEEL FINISHES

- .1 Finish steel clips and reinforcing steel with steel primer to CGSB 1.40 zinc coating to CAN/CSA-G164.
 - .1 Primer VOC limit: to GS-11, 250 g/L maximum.

- 2.7 FABRICATION
- .1 Doors and framing to be by same manufacturer.
 - .2 Fabricate doors and frames to profiles and maximum face sizes as indicated.
 - .3 Provide structural steel reinforcement as required.
 - .4 Fit joints tightly and secure mechanically.
 - .5 Conceal fastenings.
 - .6 Mortise, reinforce, drill and tap doors, frames and reinforcements to receive hardware using templates provided under Section 08 71 00 - Door Hardware.
 - .7 Isolate aluminum from direct contact with dissimilar metals, concrete and masonry.

PART 3 EXECUTION

- 3.1 EXAMINATION
- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for aluminum doors and frames installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- 3.2 INSTALLATION
- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
 - .2 Set frames plumb, square, level at correct elevation in alignment with adjacent work.
 - .3 Anchor securely.
 - .4 Install doors and hardware in accordance with

hardware templates and manufacturer's instructions.

- .5 Adjust door components to ensure smooth operation.
- .6 Make allowances for deflection of structure to ensure that structural loads are not transmitted to frames.
- .7 Glaze aluminum doors and frames in accordance with Section 08 80 50 - Glazing.
- .8 Seal joints to provide weathertight seal at outside and air, vapour seal at inside.
- .9 Apply sealant in accordance with Section 07 92 00 - Joint Sealants. Conceal sealant within the aluminum work except where exposed use is permitted by Departmental Representative.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Perform cleaning of aluminum components in accordance with AAMA 609.1 - Voluntary Guide Specification for Cleaning and Maintenance of Architectural Anodized Aluminum.
 - .3 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
 - .4 Clean aluminum with damp rag and approved non-abrasive cleaner.
 - .5 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames.
 - .6 Clean glass and glazing materials with approved non-abrasive cleaner.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION .1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by aluminum door and frame installation.

PART 1 GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 01 33 00 - Submittal Procedures.
 - .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .3 Section 08 11 00 - Metal Doors and Frames.
 - .4 Section 08 71 00 - Door Hardware.
- 1.2 REFERENCES
- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
 - .1 Quality Standards for Architectural Woodwork 1998.
 - .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
 - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
 - .3 Canadian Standards Association (CSA International).
 - .1 CSA A440.2-98, Energy Performance of Windows and Other Fenestration Systems.
 - .2 CSA O115-M1982(R2001), Hardwood and Decorative Plywood.
 - .3 CAN/CSA O132.2 Series-90(R1998), Wood Flush Doors.
 - .4 CAN/CSA-O132.5-M1992(R1998), Stile and Rail Wood Doors.
 - .5 CSA Certification Program for Windows and Doors 00.
 - .4 Environmental Choice Program (ECP).
 - .1 CCD-045-92, Sealants and Caulking Compounds.
 - .2 CCD-046-92, Adhesives.
- 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 Section 01 33 00 -
Submittal Procedures. Indicate VOC's:

- .1 For caulking materials during application and curing.
- .2 For door materials and adhesives.

.2 Shop Drawings:

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

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, and faces.
- .4 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.5 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.

1.6 WASTE
MANAGEMENT AND
DISPOSAL

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

health or environmental hazard.

PART 2 PRODUCTS

- 2.1 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 7-ply construction.
- .2 Face Panels:
- .1 Hardwood; veneer grades: Grade I (Premium), birch species.
- .3 Adhesive: Type II (water resistant) for interior doors.
- 2.2 FABRICATION .1 Vertical edge strips to match face veneer.
- .2 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.
- .3 Radius vertical edges of double acting doors to 60 mm radius.
- .4 Provide waterproof non-staining membrane at cutouts on exterior doors to exclude moisture from core.

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-0132.2 Series, Appendix A.
- .2 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-0132.2 Series, Appendix A.
- .3 Adjust hardware for correct function.
- 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 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 GENERAL

- 1.1 RELATED REQUIREMENTS .1 06 10 00 - Rough Carpentry - Short Form.
.2 09 21 16 - Gypsum Board Assemblies.
- 1.2 REFERENCES .1 Green Seal Environmental Standards (GS)
.1 GS-11-2008, 2nd Edition, Paints and Coatings.
.2 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
.1 SCAQMD Rule 1113-A2007, Architectural Coatings.
- 1.3 ACTION AND INFORMATIONAL SUBMITTALS .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for access door components and include product characteristics, performance criteria, physical size, finish and limitations.
.3 Shop Drawings:
.1 Submit catalogue details for each type of door illustrating profiles, dimensions and methods of assembly.
.4 Samples:
.1 Submit for review and acceptance of each unit.
.2 Samples will be returned for inclusion into work.
.3 Submit 1 of each type of hand entry access door.
.4 Submit one 300 x 300 mm corner sample of each type of body entry door.
- 1.4 CLOSEOUT SUBMITTALS .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
.2 Operation and Maintenance Data: submit operation and maintenance data for cleaning and maintenance of stainless steel finishes

for incorporation into manual.

- 1.5 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .3 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect access doors from nicks, scratches, and blemishes.
 - .3 Apply temporary protective coating to finished surfaces. Remove coating after installation.
 - .1 Use coatings in accordance with manufacturer's written instructions that are easily removable.
 - .2 Leave protective coating in place until final cleaning of building.
 - .4 Replace defective or damaged materials with new.
 - .4 Develop Construction Waste Management Plan Waste Reduction Workplan related to Work of this Section.
 - .5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

- 2.1 ACCESS DOORS
- .1 Sizes: as follows unless indicated:
 - .1 For body entry: 600 x 600 mm minimum.
 - .2 For hand entry: 300 x 300 mm minimum.
 - .2 Construction: rounded safety corners,

concealed hinges, screwdriver latch, anchor straps, able to open 180 degrees.

.3 Materials:

.1 Tiled or marble surfaces and: stainless steel with brushed satin polished finish.

.2 Other areas: prime coated steel.

.1 Primer: VOC limit 50 100 250 g/L maximum to GS-11 SCAQMD Rule 1113.

2.2 EXCLUSIONS .1 Lay-in tile ceilings: use unobtrusive identification locators.

PART 3 EXECUTION

3.1 EXAMINATION .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for access door installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative DCC Representative Consultant.

.2 Inform Departmental Representative DCC Representative Consultant of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative DCC Representative Consultant.

3.2 INSTALLATION .1 Installation: locate access doors within view of equipment and ensure equipment is accessible for operating, inspecting, adjusting, servicing without using special tools.

.1 Tiled Marble surfaces: in accordance with Section 09 30 15 - Quarry and Paver Tiling.

.2 Install gypsum board surfaces: in accordance with Section 09 21 16 - Gypsum Board Assemblies.

- 3.3 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
 - .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- 3.4 PROTECTION
- .1 Protect installed products and components from damage during construction.
 - .2 Repair damage to adjacent materials caused by access door installation.

- .18 ANSI/BHMA A156.21-2006. Thresholds
- .19 ANSI/BHMA A156.22-2005 Door Gasketing Systems
- .20 ANSI/BHMA A156.25-2007 Electrified Locking Devices
- .21 ANSI/BHMA A156.26-2000 Continuous Hinges
- .22 ANSI/BHMA A156.28-2000 Keying Systems
- .23 ANSI/BHMA A156.30-2003 High Security Cylinders
- .24 ANSI/BHMA A156.31-2001 Electric Strikes
- .25 DHI/BHMA A156. A115-2006 Hardware Preparations in Steel Doors
- .26 DHI/BHMA A156. A115w-2006 Hardware Preparations in Wood Doors
- .27 ANSI/DHI A115.IG Installation Guide for Doors and Hardware.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA)
 - .1 CSDFMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.
 - .2 CSDFMA Canadian Metric Guide for Steel Doors and Frames Modular Construction: standard hardware location dimensions.
- .3 National Building Code Canada
 - .1 National Building Code Canada Latest Edition
 - .2 National Fire Code Canada Latest Edition
- 1.3 ACTION AND INFORMATIONAL SUBMITTALS

 - .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures .
 - .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.

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- .3 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
 - .4 After approval samples will be returned for incorporation in Work.
 - .4 Hardware List:
 - .1 Submit contract hardware list.
 - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
 - .5 Templates:
 - .1 Send templates, if required, to any manufacture requesting templates.
 - .6 Keying Schedule:
 - .1 Final keying requirements will be determined after award of contract. Arrange a meeting with Contractor and Owner to confirm keying details.
 - .2 Submit eight copies of keying schedule.
 - .7 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .8 Manufacturer's Instructions: submit manufacturer's installation instructions.
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- 1.4 CLOSEOUT SUBMITTALS
- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Operation and Maintenance Data: submit operation and maintenance data for door hardware for incorporation into manual.
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- 1.5 MAINTENANCE MATERIALS SUBMITTALS
- .1 Extra Stock Materials:
 - .1 Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Tools:
 - .1 Supply 2 sets of wrenches for door closers locksets and fire exit hardware.
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- 1.6 QUALITY ASSURANCE
- .1 Regulatory Requirements:
 - .1 Hardware for doors in fire separations

and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - .3 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .4 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - .5 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section.
- 1.7 DELIVERY,
STORAGE AND
HANDLING
-
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
 - .4 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect door hardware from nicks, scratches, and blemishes.
 - .3 Protect prefinished surfaces with wrapping strippable coating.
 - .4 Replace defective or damaged materials with new.
 - .5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as

specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

- 2.1 HARDWARE ITEMS .1 Use one manufacturer's products only for similar items.
- 2.2 DOOR HARDWARE .1 Locks and latches:
- .1 Mortise locks and latches: to ANSI/BHMA A156.13, series 1000 mortise lock, grade 1, designed for function as stated in Hardware Groups.
 - .2 Lever handles: plain design as stated in Hardware Groups.
 - .3 Roses: round design as stated in Hardware Groups.
 - .4 Normal strikes: box type, lip projection not beyond jamb.
 - .5 Cylinders: key into keying system as directed.
 - .6 Locks shall be non-handed, backset as noted in Hardware Groups, threaded roses, no exposed screws, anti-friction latch retractor and key removable Lever.
 - .7 All trim in compliance with Barrier Free Regulations.
 - .8 Lever trim shall be complete with thru-bolted mechanism.
 - .9 Cylinders shall be small format design with interchangeable core 7 pin, capable of providing different keying levels.
 - .10 Deadlocks with 25 mm throw bolt with concealed hardened steel rollers.
 - .11 Finished to as stated in Hardware Groups.
 - .12 Specified Acceptable Alternates
Dorma Sargent Schlage Best
BMHA/ANSI
ML9000 63-8200 L9000R 35H
156.13 1000 Grade 1
Barrier-Free Trim as noted in
Hardware Groups.

.2 Butts and hinges:

- .1 Butts and hinges: to ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Group
- .2 Hinges shall be of the size, type, material and finish as indicated in Hardware Groups 3.6.
- .3 Exterior butt of stainless steel with NRP security feature.
- .4 Interior hinges of steel, unless otherwise noted.
- .5 Continuous hinges shall be heavy duty as indicated. Hinges full height, complete with installation aids and fasteners to suit door and frame conditions. Hinge to have access to electrical items without removing hinge.
- .6 Quantity size and width of hinges in accordance with manufactures recommendations and BMHA/ANSI Standard 156.1.
- .7 Finished as stated in Hardware Groups 3.6.
- .8 Specified Acceptable Alternate:

Dorma	Hager	Stanley	McKinney	BMHA/ANSI
CB81	AB700	CB1900	TA714	A8112

.3 Door Closers and Accessories:

- .1 Door controls closers: to ANSI/BHMA A156.4, designated by letter C and numeral identifiers listed in Hardware Groups 3.6, size in accordance with ANSI/BHMA A156.4, table A1 finished to 689.
- .2 Closer/holder release devices: to ANSI/BHMA A156.15, designated by letter C and numeral identifiers listed in hardware schedule, finished as stated in Hardware Groups 3.6.
- .3 Closers of narrow slim line design complete with backcheck, rack and pinion hydraulic action.
- .4 Closers equipped with full cover, as noted in Hardware Groups 3.6., complete with secure and concealed mounting screws.
- .5 All manual closers with manufacturer's

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- twenty-five 25 year warranty.
- .6 Barrier free openings shall be equipped with closers that meet all requirements of the National and Provincial Codes.
 - .7 Closers shall include all necessary Arm Brackets, Cush arm supports and blade stop spacers to suit door swing, frame reveals or stop conditions.
 - .8 Size and hand closers prior to site delivery in accordance with the Manufactures recommendations.
 - .9 Closers capable of field adjustment of at least fifteen 15 percent.
 - .10 Degree of opening to be as shown on the plans and indicated on the reviewed hardware Group
 - .11 Finished as stated in Hardware Groups 3.6.
 - .12 Specified Acceptable Alternate:
 - Dorma LCN Sargent BMHA/ANSI
 - 8900 4010 281 BMHA/ANSI
 - 156.4 Grade 1 Type 1
- .4 Auxiliary locks and associated products:
- .1 Auxiliary locks and associated products: to ANSI/BHMA A156.5, designated by letter E and numeral identifiers listed in Hardware Groups 3.6.
 - .2 Key into keying system as directed.
 - .3 Cylinders: type mortise for installation in deadlocks provided with special doors as listed in Hardware Groups 3.6.
 - .4 Key into keying system as directed.
 - .5 Finished as stated in Hardware Groups 3.6.
- .5 Push and Guard Bars:
- .1 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule.
 - .2 Door Bars shall be of design and finish as noted in Hardware Groups.
 - .3 Push designs shall be complete with countersunk fasteners.
 - .4 Pull types shall be fastened with thru bolts or concealed type bolts.
 - .5 Where thru bolts cannot be concealed

they shall have a grommet washer finished to match other hardware.

.6	Specified	Acceptable Alternates
	CBH	Std. Metal CDH
	7040-1	6000-1 6000-2

.6 Door Pulls:

- .1 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule.
- .2 Pulls shall be of design and finish as noted in Hardware Groups.
- .3 Pulls shall be fastened with through bolts or concealed type bolts depending on application.
- .4 Where pull has back plate, fasteners will be countersunk and bevelled with no sharp edges.
- .5 Pulls shall be offset design when cylinder or other hardware requires a offset to operate.
- .6 Where bolts cannot be concealed under the push plate they shall have a grommet washer finished to match other hardware.
- .7 Specified Acceptable Alternates

CBH	Std. Metal CDH
7000-1	2000-2 5100-2
7008-1	3000-2 2600-2

.7 Door Protective Plates:

- .1 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule.
- .2 Plates shall be 1.27mm stainless steel complete with countersunk fasteners.
- .3 Plates shall be bevelled four sides with no sharp edges.
- .4 Height of protective plates as per Hardware Groups 3.6. On push side plate will be 38mm less than door width and on pull side 25mm less than door width.
- .5 Plates will be adjusted or cut-outs made as required to accommodate door elevation, door louvres, or any other item affecting this product.
- .6 Finished as stated in Hardware Groups

3.6.

.7	Specified	Acceptable	Alternate:	
	CBH	Std. Metal	CDH	
	903B4S	K10B4S	92	

.8 Door Stops.

.1	Stops of brass material complete with fasteners to suit wall or floor conditions.			
.2	All floor stops sized according to door clearance, thresholds or undercuts as noted in Door Schedule.			
.3	Specified	Acceptable Alternative		
	CBH	GJ	Std. Metal	CDH
	102/103	FB13	200	212B
	112/113	FB14	218	230B
	157	FB19X	S110	282

.9 Door Seal/Weatherstripping:

.1	Stripping as designated by numeral identifiers as listed in Hardware Groups.			
.2	Weatherstripping of extruded aluminum material with brush or silicone stripping unless noted otherwise.			
.3	Air seals shall meet UBC 7.2 Positive Pressure Test.			
.4	Fasteners of countersink type suitable to properly install to frame specified.			
.5	Finished as stated in Hardware Groups 3.6.			
.6	Specified	Acceptable Alternate:		
	Pemko	Nat. Guard	Crowder	
	319CS	134SA	W-14S	

2.3 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.

2.4 KEYING

- .1 Doors to be master keyed as directed. to match existing type, material and finish, and to be keyed into existing system.
- .2 This supplier to arrange a meeting with General Contractor and Owner to finalize keying or any special requirements.
- .3 Final keying requirements will be determined after award of contract.
- .4 Prepare detailed keying schedule in conjunction with Departmental Representative.
- .5 Provide 4 cut keys for every lock in this Contract.
- .6 Provide 6 master keys for each MK or GMK group.
- .7 Fifty 12 key blanks for each sub master group used.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 No operating hardware shall be installed at a height of more than 1200 mm above the finished floor NBCC 3.4.6.15.5
- .2 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .3 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .4 Supply manufacturers' instructions for proper installation of each hardware component.
- .5 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.

- .6 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .7 Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels.
 - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- .8 Closers shall be installed according to manufactures templates and installation instructions. Unless required otherwise installation shall be on pull side of door. Where closer or arm is installed on door machine screws and sex bolts, finished to match other hardware, will be used.
- .9 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. Plates drilled to accept through bolts will not be acceptable.
- .10 Seal all door seals/weather stripping with suitable caulking to ensure gaps are properly closed.

3.2 ADJUSTING

- .1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.
- .2 Lubricate hardware, operating equipment and other moving parts.
- .3 Adjust door hardware to provide tight fit at contact points with frames.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
 - .3 Remove protective material from hardware items where present.

.4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 DEMONSTRATION

.1 Maintenance Staff Briefing:

.1 Brief maintenance staff regarding:

.1 Proper care, cleaning, and general maintenance of projects complete hardware.

.2 Description, use, handling, and storage of keys.

.3 Use, application and storage of wrenches for door closers, locksets and exit hardware.

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

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by door hardware installation.

3.6 HARDWARE GROUPS

.1 Group H - 01

1. 3 Hinges	CB81 114 x 101	652
2. 1 Deadlock	MS1850ANSI FTMS	626
3. 1 Cylinder	90 MKD to Exist System	626
4. 1 Pull	7009 -1 457 mm CTC SB/MS	630
5. 1 Push Bar	CBH7040 SB/MS	630
6. 1 Closer	8914-HO SB/MS	689
7. 1 Stop	CBH157	626

.2 Group H - 02

1. 3 Hinges	CB81 114 x 101 A8112 NRP	652
2. 1 Privacy Lock	ML9040-LRA	626
3. 1 Closer	8616 DEL SB/MS	689

4.1 Pull	CBH 220 127mm Mount Pull	
	according to NBC 3 aii	630
5.1 Kickplate	903 355 x Dr. width CKS	630
6.1 Set Door Seal	312CS	628
7.1 Overhead Stop	4000S	630
8.1 Robe Hook	CBH 61	626

.3 Table:

- .1 Group H - 01 Opening 101
- .2 Group H - 02 Opening 102

PART 1 GENERAL

- 1.1 RELATED REQUIREMENTS
- .1 Section 08 11 00 - Metal Doors and Frames.
 - .2 Section 08 11 16 - Aluminum Doors and Frames.
- 1.2 REFERENCES
- .1 ASTM International
 - .1 ASTM C542-05, Standard Specification for Lock-Strip Gaskets.
 - .2 ASTM D790-07e1, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 - .3 ASTM D1003-07e1, Standard Test Method for Haze and Luminous Transmittance of Plastics.
 - .4 ASTM D1929-96(R2001)e1, Standard Test Method for Determining Ignition Temperature of Plastics.
 - .5 ASTM D2240-05, Standard Test Method for Rubber Property - Durometer Hardness.
 - .6 ASTM E84-10, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .7 ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - .8 ASTM F1233-08, Standard 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.
 - .3 Environmental Choice Program (ECP)
 - .1 CCD-045-95(R2005), Sealants and Caulking Compounds.
 - .4 Glass Association of North American (GANA)
 - .1 GANA Glazing Manual - 2008.
 - .2 GANA Laminated Glazing Reference Manual - 2009.
 - .5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1168-A2005, Adhesives and

Sealants Applications.

- 1.3 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.
 - .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit duplicate mm size samples of and sealant material.
 - .4 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - .5 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .1 Submit testing and analysis of glass under provisions of Section 01 45 00 - Quality Control.
 - .2 Submit shop inspection and testing for glass.
- 1.4 CLOSEOUT SUBMITTALS
- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Operation and Maintenance Data: submit operation and maintenance data for glazing for incorporation into manual.
- 1.5 QUALITY ASSURANCE
- .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 1.6 DELIVERY, STORAGE AND
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's

HANDLING

written instructions.

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect glazing and frames from nicks, scratches, and blemishes.
 - .3 Protect prefinished aluminum surfaces with wrapping strippable coating.
 - .4 Replace defective or damaged materials with new.
- .4 Develop Construction Waste Management Plan Waste Reduction Workplan related to Work of this Section.
- .5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.

1.7 AMBIENT
CONDITIONS

- .1 Ambient 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.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Design Criteria:
 - .1 Size glass to withstand dead loads and positive and negative live loads acting normal to plane of glass to design pressure of kPa to ASTM E330.
 - .2 Limit glass deflection to 1/200 flexural

other Sections or Contracts are acceptable for glazing installation in accordance with manufacturer's written instructions.

- .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 Visually inspect substrate.
- .4 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .5 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 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.

3.3 INSTALLATION:
INTERIOR WET/DRY
METHOD (TAPE AND
SEALANT)

- .1 Perform work in accordance with GANA Glazing Manual and GANA Laminated Glazing Reference Manual for glazing installation methods.
- .2 Cut glazing tape to length and install 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 to ensure full contact at perimeter of light or unit.
- .5 Install removable stops, with spacer shims inserted between glazing and applied stops at 600 mm intervals, 6 mm below sight line.
- .6 Fill gaps between light and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.
- .7 Trim protruding tape edge.

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- 3.4 CLEANING .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.
 - .1 Remove traces of primer, caulking.
 - .2 Remove glazing materials from finish surfaces.
 - .3 Remove labels.
 - .4 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacturer's instructions.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- 3.5 PROTECTION .1 Protect installed products and components from damage during construction.
- .2 After installation, mark each light with an "X" by using removable plastic tape or paste.
 - .1 Do not mark heat absorbing or reflective glass units.
 - .3 Repair damage to adjacent materials caused by glazing installation.
- 3.6 SCHEDULE .1 Aluminum doors and walls glazing translucent tempered safety glass. Thickness to NBCC for the span.