
York University Building Standards

Note to the Designer/Architect/Engineer: These standards are basic minimum criteria to be met in preparing the final project specifications for this section, which is the responsibility of the Designer

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1.0 GENERAL

1.1 Conditions

- 1.1.1 .1 This section defines relevant York University standards related to
- 1.1.2 .2 steel doors with glazing and side screen
- 1.1.3 .3 pressed steel frames

1.2 Sustainable Design Requirements

- 1.2.1 .1 LEED MRc4: Recycled Content

1.3 Scope of Work

This document defined minimum standards for standard and fire rated type pressed steel hollow doors and panels with flush faces. Standard and fire rated steel hollow metal doors and borrowed light frames

1.4 Related York University Standards

- 1.4.1 Door Finishing Hardware Section 08 71 00
- 1.4.2 Proximity Card Access Section 08 74 00
- 1.4.3 Glazing for Interior Space Section 8 81 00
- 1.4.4 Wood Doors and Frames Section 8 14 00
- 1.4.5 Metal Supports for Gypsum and Cement Board Section 09 21 00

1.5 References

- 1.5.1 Comply with all applicable municipal, provincial, federal and trade standards in this specification, unless more stringent requirements are given herein.
- 1.5.2 CAN/CGSB-69.34/ ANSI/BHMA A156.18 - Materials and Finishes
- 1.5.3 CAN4-S104-M - Standard Method for Fire Tests of Door Assemblies
- 1.5.4 CAN4-S105-M - Standard Specification for Fire Door Frames Meeting
- 1.5.5 CAN/CSA-A440.4-07 Window, Door, and Skylight installation
- 1.5.6 CAN/CSA-G40.20/G40.21 (r 2009) General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steel

- 1.5.7 CAN/ULC-S705.1 -01 (2004) Standard for Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density – Material Specification
- 1.5.8 CAN/ULC-S701 Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering
- 1.5.9 CSA W59 -03 (R2008) Welded Steel Construction (Metal Arc Welding)
- 1.5.10 CSA Canadian Standards Association
- 1.5.11 NFPA National Fire Protection Association
- 1.5.12 NFPA 80 Standard for Fire Doors and Fire Windows
- 1.5.13 UL Underwriters' Laboratories Inc.,
- 1.5.14 ULC Underwriters' Laboratories of Canada
- 1.5.15 Canadian Steel Door and Frame Manufacturers Association
2006 Steel Doors and Frames

1.6 Submittals

- 1.6.1 Shop Drawings and Technical data (T.D):
- 1.6.2 Submit to the York University project representative complete manufacturer's technical data sheet for each type of steel door used.
- 1.6.3 Indicate general construction, configurations, jointing methods, reinforcements, anchorage methods, hardware locations and locations of cutouts for glass and louvers.

1.7 Product samples (P.S.)

Product samples for steel doors and steel door frames are not generally required, however see Guiding principles

1.8 Guiding principles

Sample submission is project specific. In the case of new buildings, or major building renovations, samples for steel doors (and other items) shall be submitted for evaluation and comparison against installations. However, on small renovation projects the effort to obtain door samples is out of proportion to the project size. Nevertheless, there may be specific instances or items that may need to have sample submissions made. For instance, on a relatively small renovation project, the University may not ask for paint draw downs, flooring samples for standard products, or hardware samples for almost anything but, the University may require samples of the door veneer, if this feature was a significant design element of that project. Additionally, the University may request a mock up or sample if the millwork has some material and finish that was important to the overall design of the project.

1.9 Templates

Provide templates, template information, installation instructions and details necessary for preparation and installation of door hardware

1.10 Installation instructions and templates

1.10.1 .1 Supply all required instructions and templates

1.10.2 .2 Supply manufacturer's instructions for proper installation

1.11 Maintenance instructions

1.11.1 .1 Provide maintenance instructions, parts list, and manufacturer's instructions for each type of steel door

1.11.2 .2 Brief York University maintenance staff regarding proper care, cleaning, and general maintenance of steel door

1.12 Delivery and Storage

1.12.1 Deliver hollow metal doors in cartons or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory finished doors.

1.12.2 .2 Inspect hollow metal steel doors work upon delivery for damage. Minor damages may be repaired provided finish items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.

1.12.3 .3 Store steel doors and frames at building site under cover. Place units in wood sills at least 4" high, or otherwise store on floors in a manner that will prevent rust and damage. Avoid use of non-ventilated plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on doors becomes wet, remove carton immediately. Provide ¼" spaces between stacked doors to promote air circulation

1.13 Standard Warranties and Extended Warranties

1.13.1 Warrant in writing steel doors and frames form a period of three (3) years from date of installation.

1.13.2 Include coverage of repair or replacement of components or entire assemblies which fail in materials and workmanship. Failures include but are not limited to, faulty operation, deterioration of metals and protective coatings beyond normal use.

2.0 PRODUCTS

2.1 Acceptable products:

What manufactures and specific models (if applicable) should be documented for hollow steel doors?

2.2 Coordination

- .1 Check air pressure differentials to ensure door closers are properly adjusted.

2.3 Hardware locations

Do we want to define where we expect certain hardware to be located on a door? i.e., Latches, deadlocks, panic hardware, door pulls, push-pull bars, arm pulls, push plates, roller latches

we could create a diagram identifying general location and latitude of options (if any)

2.4 Clearances:

- .1 Edge clearances as follows:
 - .1 Between doors and frames, at head and jambs: what is the clearance standard?
 - .2 At door sills: where no threshold is used:???? maximum
where threshold is used ???? maximum above finish floor.
 - .3 Between meeting edges of pairs of doors: what is the clearance?

2.5 Materials:

Steel doors and frame product manufactured in accordance with this Specification by CSDMA members, are eligible for use on this project.

- .1 Exterior frame product shall be [14] [16] gauge. Exterior frames shall be [welded] [knocked-down] type construction [, thermally broken]. Exterior transom frames, sidelight and window assemblies shall be welded type construction [, thermally broken]. Interior frame product shall be [16] [18] gauge. Interior frames and window assemblies shall be [welded] [knocked-down] [slip-on] type construction. Interior transom frames shall be [welded] [knocked-down] type construction. Interior sidelight assemblies shall be welded type construction.
- .2 Frame product shall be mortised, blanked, reinforced, drilled and tapped at the factory for templated hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier.
- .3 Mortised cutouts shall be protected with steel guard boxes (may be omitted on dry wall applications).
- .4 Frame product shall be reinforced only, where required, for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware. Drilling and tapping is by others, on site, at time of installation.
- .5 Provide anchorage appropriate to floor, wall and frame construction. Each wall anchor shall be located immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb. For rebate opening heights up to and including 1520 mm (60") provide two (2) anchors, and an additional anchor for each additional 760 mm (30") of height or fraction thereof, except as indicated below. Frames in previously placed concrete, masonry or structural steel shall be provided with anchors located not more than 150 mm (6") from the top and bottom of each jamb, and intermediate anchors at 660 mm (26") on centre maximum. Fasteners for such anchors shall be provided by others.
- .6 Minimum reinforcing, anchor and other component gauges shall be in accordance with Table 1 of the CSDMA, "Recommended Specifications for Commercial Steel Door and Frame Products". Each door opening shall be prepared for single stud rubber door silencers, three (3) for single door openings, two (2) for double door openings, except on gasketed frame product.
- .7 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

.8 Welded Type

- .1 Frame product shall be accurately mitered or mechanically jointed. *SPEC NOTE: Refer to Appendix 2 of the CSDMA, "Recommended Specifications for Commercial Steel Door and Frame Products", for illustrations of the weld types defined below. Edit 2.2.2.2 to include only those constructions referenced in 2.2.1.1.*
- .2 As defined in Appendix 2 of the CSDMA, "Recommended Specifications for Commercial Steel Door and Frame Products", frame product perimeter corner joints shall be:
 - .1 Profile welded; punch-mitered - continuously welded on the profile faces, rabbets, returns and soffit intersections, or saw-mitered - continuously welded on the profile faces, rabbets, returns, stops and soffit intersections. Punch or saw-mitered, at the manufacturer's discretion. All profile welded frame product exposed faces shall be filled and ground to a smooth, uniform, seamless surface.]
 - .3 Face welded; continuously welded on the profile faces, with exposed faces filled and ground to a smooth, uniform, seamless surface.]
 - .4 Tack welded; welded on the faces and returns, with exposed hairline joint intersections.]
- .5 Joints at mullions, sills and center rails shall:
- .6 Be coped accurately, butted and tightly fitted.
- .7 At intersecting flush profile faces, be securely welded, filled and ground to a smooth, uniform, seamless surface.
- .8 At intersecting recessed profile faces, be securely welded to concealed reinforcements, with exposed hairline face seams.
- .9 At all other intersecting profile elements, have exposed hairline face seams.
- .10 Welding shall conform to CSA W59.
- .11 Where frame product is to be installed prior to the adjacent partition, a floor anchor shall be securely attached to the inside of each jamb profile. Each floor anchor shall be provided with two (2) holes for securing to the floor. For conditions that do not permit the use of a floor anchor, an additional wall anchor, located within 150 mm (6") of the base of the jamb, shall be substituted.
- .12 Weld in two (2) temporary jamb spreaders per door opening to maintain proper alignment during shipment and handling, which shall not be used for installation.
- .13 Glazing stops shall be formed steel channel, minimum 16 mm (0.625") height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- .14 When required due to site access, when advised by the contractor responsible for coordination or installation, as specified on the Architect's drawings or due to shipping limitations, frame product for large openings shall be fabricated in sections as designated on the approved submittal drawings, with splice joints for field assembly and welding by others.

- .15 Prior to shipment, mark each frame product with an identification number as shown on the approved submittal drawings.
- .1 Type ST.PL/GV - Cold formed galvanized steel sheets and other elements: basic material for steel doors and frames
 - .2 Steel reinforcement and floor anchors: as per CAN/CSA-G40.20/G40.21, Grade 44W, with galvanized finishes similar to the frames.
 - .3 Stainless steel reinforcement and floor anchors: as per CAN/CSA-G40.20/G40.21, Grade 44W, with same finishes as the frames.
 - .4 Bolts and anchor bolts: as per ASTM A307. (ASTM A307 - 10 Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength) American Society for Testing and Materials
 - .5 High strength bolts: as per ASTM A325M and A325.
 - .6 Exposed fasteners: same material and finish as material through which they pass. Screws to be flat headed.
 - .7 Type ADH.30 – Epoxy adhesive for metal products: as recommended by the manufacturer.
 - .8 Door bumpers: grey closed cell neoprene.
 - .9 Glazing stops: commercial grade sheet steel, 0.91 mm (20 ga) minimum base thickness, screw fixed.
 - .10 All other door and frame elements as per CSDFMA requirements and the manufacturer's recommendations.

2.6 Finishes

- .1 Galvanization for steel doors and frames:
 - .1 Type GV.F.2 – Galvanized finish, Type 2: for exterior and interior humid area doors and frames.
 - .2 Type GV.F.4 – Galvanized finish, wiped or Type GV.F.5 – Galvanized finish, Galvanneal: for interior doors and frames.
 - .3 Type SS.F.1 – Stainless steel satin finish: for stainless steel doors and frames.
 - .4 Primers - Rust inhibitive touch-up only.

2.7 Interior Steel Frames

- .1 Type ST.PS – Pressed steel frames for interior doors and vision panels:
 - .1 1.6 mm (0.060" / 16 ga) min. base thickness for vision panel frames and for door openings with door leaves up to 1220 mm (4'-0") wide and up to 2440 mm (8'-0")

- high, or not larger than 915 mm (3'-0") and up to 3050 mm (10'-0") high, or as indicated.
- .2 1.9 mm (0.075" / 14 ga) min. base thickness for openings with door leaves more than 915 mm (3'- 0") and up to 1220 mm (4'-0") wide, and more than 2440 mm (8'-0") and up to 3050 mm (10'- 0") high, or as indicated.
 - .3 2.7 mm (0.106" / 12 ga) min. base thickness for openings with door leaves wider than 1220 mm (4'- 0"), or as indicated.
 - .4 Floor anchors, channel spreaders and wall anchors: minimum 1.6 mm (0.060" / 16 ga) base thickness
- .2 Type ST.PS/AC – Pressed steel frames for interior doors, acoustical:
- .1 Similar to Type ST.PS, with PVC thermal break, adequately reinforced against twisting, filled with Type INSUL.12/AC mineral fibre insulation, with STC 42 or better.
 - .2 Sheet steel, metal thickness and appropriate to maintain door STC and fire ratings, mitred corners, fully welded seams.
 - .3 Factory assemble and weld frames.
 - .4 Affix permanent metal nameplates frame, indicating STC rating.
- .3 Type ST.PS/FR – Pressed steel frames, for fire-rated interior doors:
- .1 Similar in construction to Type ST.PS, but labelled.
- .4 Type ST.PS/FR/AC – Pressed steel frames, for fire-rated interior doors, acoustical:
- .1 Similar in construction to Type ST.PS/AC, but labeled.

2.8 Exterior Steel Frames

- .1 Type ST.PS/IN – Pressed steel frames for exterior doors, insulated:
- .1 Similar to Type ST.PS, with PVC thermal break, adequately reinforced against twisting, filled with Type INSUL.12/AC mineral fibre insulation.
- .2 Type ST.PS/IN/FR – Pressed steel frames, insulated, for fire-rated exterior doors:

- .1 Similar to Type ST.PS, filled with Type INSUL.12/AC insulation, labeled.
 - .3 For both interior and exterior steel door frames:
 - .4 Anchor frames securely to the floor, use at a minimum three wall anchors on each jamb
 - .5 Reinforce steel door frames for all required hardware
 - .6 Grout: fill with mortar all metal door frames in masonry walls.
- 2.9 York University does not accept “knock down” steel frames (for both internal or external applications) except in temporary installations like hoarding or while waiting for the finished frames to get to

Acceptable products:

2.9 Interior Steel Doors

- .1 Type HM – Hollow metal interior doors:
 - .1 Overall thickness: 45 mm (13/4").
 - .2 Base metal thickness: 1.2 mm (18 ga), unless otherwise indicated, 1.5 mm (16 ga) for doors over 2400 mm (8'-0") high or as indicated.
 - .3 Hinge, strike, etc. reinforcing base thickness: minimum 3.8 mm (9 ga).
 - .4 Core: structural honeycomb consisting of kraft paper having 19 mm (3/4") cell size, as per thickness indicated, hot laminated under a hydraulic press with an epoxy type waterproof adhesive.
 - .5 Edges: mechanically interlocked vertical edges, standard "U" channels at top and bottom
See **Fabrication of Doors** below.
 - .6 Snap-in metal caps at the top and bottom edges.
- .2 Type HM/AC – Hollow metal interior doors, acoustical:
 - .1 Similar to Type HM, but with a special composition and a STC of 42 (per ASTM E90) or as indicated.
- .3 Type HM/FR – Hollow metal interior doors, fire-rated:
 - .1 Similar to Type HM, but labeled and core as indicated below.
 - .2 Core: laminated as per NFPA.
- .4 Type HM/FR/AC – Hollow metal interior doors, fire-rated, acoustical:

- .1 Similar to Type HM/AC, but labeled and core as indicated below.
- .2 Core: laminated as per NFPA.

2.10 Steel Doors interior and exterior:

- .1 Type HM/IN – Hollow metal exterior (or interior) doors, insulated:
 - .1 Similar to Type HM, but base metal thickness, core and edges as indicated herein. Base metal thickness: 1.52 mm (16 ga).
 - .2 Internally reinforced core with 20 gauge continuous interlocking steel stiffeners at 6" (150mm) on center, securely welded to each face sheet at 6" (150mm) on center maximum, with voids between stiffeners filled and sound deadened with 1.5 pcf (24kg/m³) loose batt type fiberglass material.
 - .3 Longitudinal edges shall be continuously welded the full height of the door, filled and ground smooth with no visible seams.
 - .4 Edges: top and bottom edges filled with insulation and covered with continuous metallic filler channel, welded to the metal sheets, filled with Type M.PUT metallic paste filler, ground and sanded to uniform smooth finish.

2.11 Steel Doors exterior:

- .1 Type HM/IN/FR – Hollow metal exterior doors, insulated, fire-rated:
 - .1 Similar to Type HM/IN, but labeled, and core as indicated below.
 - .2 Core: laminated as per NFPA with polystyrene insulation, as per CAN/ULC-S705.1 and CAN/ULC-S701 respectively, reinforced on the perimeter.
- .3 Clearances:

What are acceptable clearances between doors and frames at head of jamb?
(1/8" ... 3.18 mm)

What should be the clearance on a sill where no threshold is used, (1/2" ... 12.70 mm), what about where a threshold is used what should be the clearance between the threshold and the door (1/8" ... 3.18mm)
Bevel edge of single acting doors (1/8" in 2"???)

- .4 Coordinate door height with door covering thickness

2.12 Accessories

- .1 Type INSUL.12/AC – Mineral fibre acoustic batt insulation: friction fit type insulation, 40 kg/m³ (2.5 lb/in³) density as per CAN/ULC-S702, Type 2, class 4, to fill cavity of exterior door frames.
 - Acceptable product: "AFB Acoustical Fire Batts" by Roxul.
- .2 Type LOUV.TR – Transfer louvres: in aluminum extrusions alloy AA-6063-T5, with auxiliary frame, fixed blades.
 - Acceptable product: model "ATG 1BF" by Price.
- .3 Sealants:
 - .1 Exterior: Types CLKG.1, CLKG.7 and CLKG.11
 - .2 Interior: Types CLKG.2/BG, CLKG.2/MR and CLKG.5,

2.13 Fabrication – General

General

- .1 Exterior doors shall be [laminated core] [welded stiffener] construction.
- .2 Interior doors shall be [laminated core] [welded stiffener] construction.
- .3 Longitudinal edges shall be [[mechanically inter-locked] [mechanically inter-locked, adhesive assisted] [mechanically interlocked, tack welded at top and bottom of door, above and below each edge cutout and at 150 mm (6") on center] with visible edge seams]] [[tack welded at top and bottom of door, above and below each edge cutout and at 150 mm (6") on center, filled and sanded] [continuously welded, filled and sanded] with no visible edge seams]].
- .4 Doors shall be mortised, blanked, reinforced, drilled and tapped at the factory for templated hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier.
- .5 Holes 12.7 mm (0.5") diameter and larger shall be factory prepared, except mounting and through-bolt holes, which are by others, on site, at time of hardware installation. Holes less than 12.7 mm (0.5") diameter shall be factory prepared only when required for the function of the device (for knob, lever, cylinder, thumb or turn pieces) or when these holes overlap function holes.
- .6 Doors shall be reinforced only, where required, for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware. Drilling and tapping is by others, on site, at time of

- installation.
- .7 Top and bottom of doors shall be provided with inverted, recessed, welded steel channels. Exterior doors, and where otherwise scheduled by the Architect, shall be provided with flush [PVC] [steel] top caps.
 - .8 Minimum reinforcing and component gauges shall be in accordance with Table 1 of the CSDMA, "Recommended Specifications for Commercial Steel Door and Frame Products".
 - .9 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
 - .10 Fire-rated doors shall be provided for those openings requiring fire protection and temperature rise ratings, as determined and scheduled by the Architect. Such products shall be listed for conformance with CAN4-S104. All fire-rated doors shall bear the label of, and be listed by a nationally recognized testing agency having a factory inspection service. Labeling shall be in accordance with NFPA 80, the listing authority's policies and label materials, and shall identify the manufacturer. Fire-rated doors shall be constructed as listed for labeling in the Follow-Up Service Procedures/Factory Inspection Manuals issued by the listing agency to individual manufacturers.
 - .11 Prior to shipment, mark each door with an identification number as shown on the approved submittal drawings.

Laminated Core Construction

Refer to the CSDMA publication "Selection and Usage for Steel Doors and Frames"

- .1 Both face sheets for exterior doors shall be formed from a sheet of [14] [16] [18] gauge steel with [honeycomb] [polystyrene] [polyisocyanurate] [vertical steel stiffener] core, laminated under pressure to face sheets.
- .2 Both face sheets for interior doors shall be formed from a sheet of [14] [16] [18] [20] gauge steel with [honeycomb] [polystyrene] [vertical steel stiffener] core (or temperature rise rated core where specified), laminated under pressure to face sheets.
- .3 Vertical steel stiffeners shall be securely laminated to each face sheet at 150 mm (6") on center maximum.
- .4 Voids between vertical stiffeners shall be filled with fiberglass batt type insulation.

Welded Stiffener Construction

Welded

stiffener construction doors are not considered to be thermally insulated.

- .1 Both face sheets for exterior doors shall be formed from a sheet of [14] [16] [18] gauge steel.
- .2 Both face sheets for interior doors shall be formed from a sheet of [14] [16] [18] gauge steel.

- .3 Doors shall be reinforced with vertical stiffeners, securely welded to each face sheet at 150 mm (6") on center maximum.
- .4 Voids between vertical stiffeners shall be filled with fiberglass batt type insulation.
 - .1 Fabricate steel doors and frames as detailed, with Type ST.PL/GV galvanized steel in accordance with Canadian Steel Door and Frame Manufacturers Association, "Canadian Manufacturing Specifications for Steel Doors and Frames" 1987, for hollow steel and honeycomb core construction, except where specified otherwise.
 - .2 Check dimensions of all openings and ensure that the floor is flat and level under the doors before starting fabrication.
 - .3 Coordinate with suppliers of finish hardware (Door Finishing Hardware **Section 08 70 00**) and security systems hardware to obtain templates and related information to mortise, reinforce, drill and tap doors and frames to receive hardware.
 - .4 Where electrified hardware is specified on the approved hardware schedule, door and frame product shall be provided with ElectroLynx™ System consisting of CSA approved conduit, junction boxes and a twelve (12) wire frame harness complete with modular plugs for coordinated connection directly to electric hinge and electrified hardware.
 - .5 Shop prime structural steel and reinforcing members.
 - .6 Touch-ups to be done in shop wherever the zinc coating is damaged.
 - .7 All screw heads to be concealed with metal or stainless steel putty, according to the substrate, and ground smooth.
 - .8 Fabricate fire resisting doors and frames as per CAN4-S104 and CAN-S105 and label and list by an organization accredited by Standards Council of Canada; provide certification for oversized doors and frames, as mentioned in **Submittals** above.

2.14 Fabrication of Frames

- .1 Unless otherwise indicated, cut mitres and joints accurately and weld continuously on inside of frame profile.
- .2 Exposed welds shall be continuous for full length of each joint.
- .3 Grind welded corners, joints and all exposed welds to flat plane, fill with metallic paste filler and sand to uniform smooth finish.
- .4 Provide jamb anchors for fixing at floor and walls, 3 anchors

- for masonry walls and 4 anchors for gypsum walls for doors up to 2286 mm (90") high, 4 anchors and 5 anchors respectively for doors up to 2440 mm (96") high, and more as required for higher doors.
- .5 Install 3 bumpers on strike jamb for each single door and 2 bumpers per door at head for pairs of doors.
 - .6 Make provision for glazing as indicated and provide necessary glazing stops.
 - .7 Unless otherwise shown, weld an anchor at every 610 mm (2'-0") on the jambs.
 - .8 Reinforce head of frames wider than 1220 mm (4'-0").
 - .9 Arc weld to the frames all casings and reinforcing plates for hardware.
 - .10 Install temporary stiffeners during transport.

2.15 Fabrication of Doors

- .1 Mechanically interlock together the metal sheets and adhere the vertical edges with Type ADH.30 adhesive. Apply spot welding at the corners, above and below all hardware cut-outs and on complete height at not more than 300 mm (12") spacing. All spot welding on vertical edges to be ground and sanded to uniform smooth finish.
- .2 Both vertical edges of single or double doors, active and inactive leaves to be beveled.
- .3 Prepare the openings for glazing, as indicated, and provide glazing stops.
- .4 Transoms, where applicable, to be of the same composition as the doors to which they belong.

2.16 Shop Cleaning

- .1 Clean surfaces in accordance with SSPC-SP2 or a higher grade, as required.
- .2 Ensure no fabrication oil remains on galvanized surfaces.
- .3 Shop apply a coat of primer, in addition to the galvanization.
- .4 Apply the primer as prepared by the manufacturer, without any modification. Apply it on surfaces that are dry, without rust, oil or flakes. Do not apply at temperatures below 7oC

3.0 EXECUTION

3.1 General

- .1 Coordinate with the York University project representative and **Electrical** contractor and/or **York University Maintenance Department** to prepare doors and frames to receive the electronic

hardware.

- .2 Isolate steel from direct contact with dissimilar metals, concrete and masonry.

3.2 Installation of Frames

- .1 Set frames plumb, square, level and at correct elevation.
- .2 Secure anchorages and connections to adjacent construction.
- .3 Wherever required, provide adequate attachments to structural elements.
- .4 Brace frames and partitions 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 (4' - 0") wide. Remove temporary spreaders after frames are built-in.
- .5 Make allowance for deflection to ensure structural loads are not transmitted to frames.
- .6 Seal around frames
- .7 Fill with masonry grout Type MORT.5A door frames in masonry or concrete walls where indicated.
- .8 Connect exterior door frames to the air/vapour barrier system of the building with Type MEMB.11 or compatible membrane. Seal with Type CLKG.7 all edges of the membrane, if necessary.
- .9 Insert flexible batt insulation between the frame and the adjacent wall surfaces, and wherever indicated or required, fitting tightly, leaving no voids, ensuring continuity of thermal protection of the envelope.

3.3 Installation of Doors

- .1 Install the doors and hardware in accordance with the project's door schedule, hardware templates and manufacturer's instructions.
- .2 Provide even margins between doors and jambs, between leaves and between doors and finished floor and thresholds as follows:
 - .1 Sides, top and between leaves: 3.2 mm (0.125") \pm 1.6 mm (0.060").
 - .2 Bottom: 19 mm (0.75"), adjusted to threshold profiles, if necessary.
 - .3 Adjust operable parts for correct function.

3.4 Installation of Fire-Rated Frames and Doors

- .1 Install labeled fire-rated frames and doors according to NFPA 80, Chapter 2-14 requirements.

3.5 Installation of Glazing

- .1 Ensure humidity level is low before installation.
- .2 Ensure all finishes are fully dry before installing the glazing.
- .3 Ensure glass panels are clean and dry prior to installation.
- .4 Install glazing according to manufacturers' specifications.
- .5 Ensure space between double glazing is perfectly clean before installing the second panel.

3.6 Installation of Louvers

- .1 Install transfer louvers where shown.
- .2 Protect aluminum surfaces from scratches and other damages.

3.7 Insulation of Door Frames

- .1 Place Type INSUL.12/AC insulation into the void of the insulated door frame.
- .2 Ensure that the door frame is entirely filled with insulation without voids or empty spaces.
- .3 Insert flexible insulation or Type CLKG.11 sealant and fill completely the gap between the exterior door frames and adjacent surfaces, as indicated.

3.8 Repairs

- .1 Touch up with primer, galvanized finish that is damaged during transport and installation.
- .2 Grind and polish stainless steel surfaces damaged during transport or installation.

3.9 Finish

- .1 Paint all unpainted doors and frames, as indicated in the door and frame paint schedule
- .2 Paint all faces, edges, tops and bottoms of doors.

3.10 Adjustment

- .1 Re-adjust doors and hardware just prior to completion of work and after the final air balancing of the building to function freely and properly.

3.11 Coordination

- .1 Coordinate with York University project representative, **door and frame manufacturers**

End of Section