Part 1 GENERAL

1.1 GENERAL REQUIREMENTS

1. Conform to Sections of Division 1 as applicable.

1.2 RELATED WORK

1. Installation of steel door frames in masonry: Setting in place by Section 06 10 00, Carpentry, building in by Section 04 04 25, Unit Masonry.

2. Caulking of door frames: Section 07 90 00, Sealants.

3. Hardware supplied by Section 08 71 00, Finishing Hardware, installed by Section 06 41 00, Carpentry.

4. Glazing: Section 08 81 00, Glass and Glazing.

5. Installation of frames in gypsum board partition: Section 09 29 00, Gypsum Board Systems.

6. Finish painting: Section 09 91 00, Painting and Finishing.

7. Metal grilles supplied by Section 23, Heating, Ventilation and Air Conditioning, installed by Section 06 41 00, Carpentry.

8. Wiring and conduit for electronic hardware in frame product: Section 26 - 28, Electrical.

1.3 REFERENCES

ASTM A 653/A653M-96- Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
ASTM A568M-92 - Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold Rolled, General Requirements for
CGSB 41-GP-19Ma - Rigid Vinyl Extrusions for Windows and Doors
CAN/CGSB-82.5-M88 - Insulated Steel Doors
CSA A101-M83- Thermal Insulation, Mineral Fibre, for Buildings
CSA W59-M89 - Welded Steel Construction (Metal Arc Welding)
CAN4-S104-M8- Fire Tests of Door Assemblies
CAN4-S105-M85 - Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104
NFPA 80-90 - Fire Doors and Windows

1.4 SUBMITTALS

1. Submit shop drawings in accordance with G.C. 5 of General Conditions of the Contract. Show each type of frame, door, core, metal thicknesses and finishes, openings (glazed), (louvred), (fire ratings), location of exposed fasteners, hardware blanking, reinforcing, tapping and drilling arrangements. Show large

scale frame sections and anchoring details. Submit door and frame schedule identifying each unit. Ensure each unit bears legible identifying mark corresponding to that listed in door and frame schedule.

2. Submit for the Consultant's approval, sample of frame corner showing construction, workmanship and finish.

3. Submit test report upon the Consultant's request, from accredited testing laboratory certifying that thermally broken frames meet or exceed CAN/CGSB-82.5-M.

4. Submit in addition to fire label, certificate to substantiate design and construction of fire-rated screen assemblies, if required by the Consultant or authorities having jurisdiction.

1.5 DELIVERY, STORAGE AND HANDLING

1. Protect doors and frames during shipping and storage.

2. Note damage incurred during shipping.

3. Make good immediately any damage done. Clean scratches and touch up with rust-inhibitive primer. Replace damaged work that cannot be repaired, restored or cleaned.

4. Store materials on wood sleepers in dry area and cover to protect from damage. Coordinate this requirement with Section 06 41 00, Carpentry and Millwork installing doors.

5. Remove wrappings or coverings from doors upon delivery at Site. Store doors in vertical position, spaced by blocking to permit air circulation between them.

Part 2 PRODUCTS

2.1 MATERIALS

1. Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:

- Ambico Ltd.
- Artek Door Limited
- Baron Metal Industries
- Daybar Industries Ltd.
- Macotta Company of Canada Ltd.
- Metal Door Hardware Ltd.
- S.W. Fleming Ltd.
- Stanley-Bumeda Ltd.

2. Sheet Steel: Commercial grade steel to ASTM A568M, Class 1, hot-dip galvanized to ASTM A 653/A653M-96-Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process, ZF 75 (A25),

known commercially as "Colourbond", "Satincoat", or "Galvanneal".

2.2 STEEL CORE THICKNESS (MINIMUM)

		Metric Thickness	**Gauge**
1.	Door Frames and Transom Frames:	1.519 mm	16
1.	**Doors:**		
	1. Hollow Steel Construction		
	- Face Sheets	1.214 mm	18
	- Vertical Stiffeners	0.912 mm	20
	2. Honeycomb Core Construction		
	- Face sheet	1.214 mm	18
2.	**Accessories (Doors and Frames):**		
	1. Reinforcements		
	- Lock and Strike Reinforcements	1.519 mm	16
	- Hinge Reinforcements	3.416 mm	10
	- Flush Bolt Reinforcement	1.519 mm	16
	- Reinforcement for Surface Applied	1.214 mm	18
	2. Hardware		
	- Concealed Door Closer or Holder Reinforcements	2.657 mm	12
	- Top and Bottom End Channels	1.214 mm	18
3.	**Floor Anchors:**	1.519 mm	16
4.	**Jamb Spreaders:**	0.912 mm	20
5.	**Wall Anchors:**		
	- Existing Masonry/Concrete Wall Type	0.912 mm	20
	- Steel/Wood Stud Type	0.912 mm	20
	- Steel/Wood Stud Tension and Associated Wall Type	0.912 mm	20

6. Door Cores

Honeycomb for Hollow Core Doors: Structural small cell 24.5 mm (1") maximum, kraft paper 'honeycomb'; weight: 36.3 kg (80 lb) per ream (min), density: 16.5 kg/m (1.03 pcf) (min) sanded to required thickness.

7. **Primer:** Rust inhibitive touch-up only.

8. **Fire Rated Door and Frame Assemblies:** Conform to CAN4-S104-M, CAN4-S105-M and NFPA 80.

9. **Adhesives**

1. Honeycomb Cores and Steel Components: Heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

2. Polystyrene and Polyurethane Cores: Heat resistant, epoxy resin based, low viscosity, contact cement.

10. **Door Silencers:** Single stud rubber/neoprene type, three (3) installed at jambs.

11. **Fasteners for Stops:** Cadmium plated steel, counter sunk flat or oval head sheet metal Phillips screws.

2.3 FABRICATION

1. **Welding: CSA W59-M.**

1. Grind exposed welds smooth and flush. Fill open joints, seams and depressions with filler or by continuous brazing or welding. Grind smooth to true sharp arrises and profiles, and sand down to smooth, true, uniform finish.

2. **Hardware Requirements:** Blank, mortise, reinforce, drill and tap doors and frames to receive mortised templated hardware. Check hardware list for requirements.

3 **Frames-General**

1. Fabricate frames for doors, screens and borrowed lights to profiles indicated.

2. Interior frames shall be 1.519 mm (16 ga) welded type construction. Knock down type construction at existing openings only.

3. Reinforce frame as required for surface mounted hardware. For door frames wider than 1.5 m (5'), reinforce door frame head and jamb and mullions at junction of head.

4. Where frames occur in masonry provide strip strap, T-strap or wire type anchors. Where frames occur in gypsum board provide stud type anchors.

5. Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb. Provide 2 anchors for rebate opening heights up to and including 1.5 m

(5') and 1 additional anchor for each additional 760 mm (30") of height or fraction thereof, except as indicated below. For frames in previously placed concrete, masonry or structural steel provide anchors located not more than 150 mm (6") from top and bottom of each jamb and intermediate anchors at 660 mm (26") on centre maximum.

6. Where floor finishes allow, fabricate frames to extend 38 mm (1-1/2") below finished floor level. Where frames are to terminate at finished floor level, provide plates for anchorage to slabs.

7. Prepare each door opening for single stud door silencers: 3 for single door openings placed opposite hinges: 2 for double door openings approximately 150 mm (6") each side of centreline of head stop.

8. Supply removable portion of stop and frame where required for overhead concealed door closers and properly connect to frame and prepare for attachment to closer prior to shipment.

9. Factory apply touch-up primer to areas where zinc coating has been removed during fabrication.

10. Construct door frames of labelled fire doors as detailed in Follow-up Service Procedures/Factory Inspection Manuals issued by nationally recognized listing agency to individual manufacturers and tested in conformance with CAN4-S104-M. Ensure ratings for frames match doors as minimum requirement. Locate label on frame jamb on hinge side, so it is concealed when door is closed.

4. Welded Type Frames

1. Mitre corners of frames. Cut frame mitres accurately and weld continuously on inside of frame.

2. Protect mortise cut outs with mortar guard boxes. Omit for gypsum board applications.

3. When required due to large size of frame product, fabricate and ship to Site in sections. Indicate joints for field assembly on shop drawings.

4. Cope and weld butt joints of mullions, transom bars, centre rails and sills. Grind welded joints to smooth uniform finish.

5. Attach floor anchors to inside of each jamb profile.

6. Weld in 2 temporary jamb spreaders at each frame to maintain alignment during shipment.

7. Form glazing stops into channels, minimum 16 mm (5/8") height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

5. Knockdown Type Frames

1. Ship knockdown type frames unassembled.

2. Supply knocked down type of frames with joints that interlock rigidly and are aligned when locked in place.

3. Attach floor anchors to inside of each jamb profile.

6. Doors-General

1. Fabricate doors to be swing type flush with 1 continuous face free from joints, tool markings and abrasions and with provisions for glass and/or louvre openings as indicated on Door Schedule and Drawings.

2. Coordinate louvre openings with Division 15, Mechanical.

3. Fabricate interior doors to be honeycomb construction.

4. For honeycomb doors longitudinal edges shall have mechanically interlocked, adhesive assisted seams, filled and sanded flush. Fabricate doors with top and bottom inverted recessed spot welded channels.

5. Reinforce, blank, drill and tap doors for mortised, templated hardware.

6. Reinforce doors for surface mounted hardware.

7. Factory prepare holes 13 mm (1/2") diameter and larger. Factory prepare holes less than 13 mm (1/2") when required for function of device for knob, lever, cylinder, turnpieces or when these holes overlap function holes.

8. Fabricate fire rated door assemblies as detailed in Follow-up Service Procedures/Factory Inspection Manuals issued by nationally recognized listing agency to individual manufacturer and tested in conformance with CAN4-S104-M. Provide labels for fire rated doors.

9. Fabricate fire rated doors where indicated in Door Schedule or Drawings, to meet required maximum temperature rise on unexposed side of door in accordance with OBC and ULC requirements.

7. Doors: Honeycomb Core Construction

1. Fabricate each face sheet for interior door from 1.214 mm (18 ga) sheet steel and laminate under pressure to honeycomb core.

2. Reinforce, stiffen and sound deaden doors with core laminated to inside faces of panels. Core shall completely fill inside hollow of door.

8. Prime Painting: Apply factory touch up primer at areas where zinc coating has been damaged during fabrication.

Part 3 EXECUTION

3.1 INSTALLATION

1. Supply steel doors and frames to Section 06 41 00, Carpentry and Millwork for installation.

End of Section 08 11 00