

SPECIFICATIONS - STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 Scope

Specifications apply to the supply only of steel frame products including frames, transom frames, glazed or panelled, sidelite and window assemblies, fire labelled and non-labelled and steel doors, swing type, flush, glazed or louvered, fire labelled, with or without temperature rise ratings, and non-labelled as manufactured by Nadcor.

1.2 Requirements of Regulatory Agencies

Install fire labelled steel doors and frame products in accordance with NFPA-80, current edition, except where specified otherwise.

1.3 Opening Sizes

Method of measuring width of openings shall be measured from inside to inside of frame jamb rabbets. Height of openings shall be measured from the finished floor, exclusive of floor coverings, to the head rabbet of the frame. Doors shall be sized as to fit the above openings and allow a 1/8" (3mm) maximum clearance at jambs and head of frame. A clearance of 3/4" (19mm) maximum shall be allowed between the bottom of the door and the finished floor, exclusive of floor coverings. These are considered to be nominal clearances, subject to ordinary commercial variations.

1.4 Standard Opening Sizes

Widths: Single doors 1'-0" (300mm) up to 4'-0" (1220mm) in 2" (50mm) increments
 Pair of doors 4'-0" (1220mm) up to 8'-0" (2440mm) in 4" (100mm) increments

Heights: 6'-8" (2032mm) to 10'-0" (3050mm) in 2" (50mm) increments

Door Thickness: 1 3/4" (45mm)

1.5 Shop Drawings

Submit shop drawings indicating each type of door, frame, steel, core and material thickness, mortises, reinforcements, anchorages, locations of exposed fasteners, openings (glazed, panelled or louvered) and arrangement of standard hardware. Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule of architect.

1.6 Warranty

Materials and workmanship shall be warranted by manufacturer for a period of one year. The warranty is based upon the product being used with the hardware for which it was prepared, the assumption that normal industry and installation and usage recommendations were employed, that the product was properly painted and maintained, and was subject to normal use. The warranty is limited to the replacement or repair of said door or frame.

PART 2 - PRODUCTS

2.1 Materials

2.1.1 Steel

Commercial quality steel Zinc-Iron Alloy-Coated by hot-dip process designation to ASTM A653/A653M-95 ZF100 (A40) ASTM A755/A755M-95, ASTM A924/A924M - 95 known commercially as Galvannealed.

2.1.2 Door Core Materials

Honeycomb: Structural small cell 1" (25mm) max kraft paper honeycomb. Weight; 80 lb (36 kg) per ream min., density; 1.03 pcf (16.5 kg/m³) min. sanded to required thickness

Fibreglass: Loose batt type, density; 1.5 pcf (24 kg/m³) min.

Polystyrene: Rigid extruded fire retardant, closed cell board. Density; 1 to 2 pcf (16 to 32 kg/m³), thermal values; R6.0 (RSI 1.05) min.

Polyurethane: Rigid, modified polyisocyanurate, closed cell board. Density; 2.0 pcf (32 kg/m³) min., thermal values; R11.0 (RSI 1.93) min.

Temperature Rise Rated (TRR): Core composition to limit temperature rise on the unexposed side of door to 450 °F (250 °C) at 30 or 60 minutes, as determined by governing building code requirements. Core to be tested as part of a complete door assembly, in accordance with ASTM E-152 or NFPA 252, covering the Standard Method of Tests of Door Assemblies and shall be listed by a nationally recognized testing agency having a factory inspection servc.

2.1.3 Adhesives

Cores and Steel Components: Heat resistant, structural reinforced epoxy, resin based adhesive.

Lock Seam: Reinforced epoxy resin, high viscosity, thicksotropic sealant.

2.1.4 Primers

Rust inhibitive touch-up only.

2.1.5 Miscellaneous

Door Silencers: Single stud rubber/neoprene

Exterior Top Cards: Rigid polyvinylchloride extrusion

Frame Thermal Breaks: Rigid polyvinylchloride extrusion.

2.2 Fabrication - Frame Products

2.2.1 General

Exterior frames shall be [12] [14] [16] [18] gauge [welded] [knocked-down] type construction [thermally broken]. Interior frames shall be [16] [18] [20] [22] gauge [welded] [knocked-down] [slip-on] type construction. Frames shall be blanked, reinforced, drilled and tapped for mortised, templated hardware.

Mortised cutouts shall be protected with steel guard boxes (may be omitted on drywall applications). Frames shall be reinforced, where required, for surface mounted hardware. Drilling and tapping for surface mounted hardware is by others, on site, at time of installation. Provide for appropriate anchorage to floor and wall 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 60" (1524mm) provide two (2) anchors, and an additional anchor for each additional 30" (762mm) 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 6" (150mm) from the top and bottom of each jamb, and intermediate anchors at 26" (660mm) on centre maximum. Fasteners for such anchors shall be provided by others. Each door opening shall be prepared for single stud rubber door silencers, three (3) for single door openings, two (2) for double door openings. Provide factory applied touch up primer at areas where zinc coating has been removed during fabrication. Fire labelled frame products shall be provided for those openings requiring fire protection ratings, as determined and scheduled by the architect. Such products shall be tested in strict conformance with CAN4-S104, ASTM E-152 or NFPA 252 and listed by a nationally recognized agency having a factory inspection service and shall be constructed as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by the listing agency to individual manufacturers.

2.2.2 Welded Type

Frame product shall be either accurately mitred or mechanically jointed, securely welded on the inside of the profile. Butt joints of mullions, transom bars, centre rails and sills shall be coped accurately and securely welded. Welding shall conform to CSA W59-1984. Welded joints shall be ground to a smooth, uniform finish. Floor anchors shall be securely attached to the inside of each jamb profile. Weld in two (2) temporary jamb spreaders per frame to maintain proper alignment during shipment. Glazing stops shall be formed channel, minimum 5/8" (16mm) height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws. When required due to site access, as specified on architect drawings or due to shipping limitations, frame product for large openings shall be fabricated in sections, with splice joints for field assembly by others.

2.2.3 Knocked-Down Type

Knocked-down type frames shall be shipped unassembled. Frames shall have mechanical joints which inter-lock securely and provide functionally satisfactory performance when assembled and installed in accordance with ANSI/NFPA-80 Standards and the manufacturers' Installation Manual. Floor anchors shall be securely attached to the inside of each jamb profile.

2.2.4 Slip-On Type

{Slip-on type frames shall be shipped unassembled. Frames shall have mechanical joints which inter-lock securely and provide functionally satisfactory performance when installed in accordance with ANSI/NFPA-80 Standards and the manufacturers' Installation Manual. Slip-on frames shall be provided with manufactures' proprietary design of wall anchorage comprising single, adjustable tension type per jamb and provision for secure attachment of each jamb base to stud runners.

2.3 Fabrication - Doors

2.3.1 General

Doors shall be swing type, flush, with provision for glass and/or louvre openings as indicated on schedules. Exterior doors shall be [hollow metal] [steel stiffened] construction. Interior doors shall be [hollow metal] [steel stiffened] construction. Longitudinal edges shall be [mechanically inter-locked] [mechanically inter-locked, adhesive assisted] [welded]. Seams shall be [visible] [welded, filled and sanded flush]. Doors shall be blanked, reinforced, drilled and tapped for mortised, templated hardware. Holes 1/2" (13mm) 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 1/2" (13mm) 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 over-lap function holes. Doors shall be reinforced, where required, for surface mounted hardware. Drilling and tapping for surface mounted hardware is by others, on site, at time of installation. Top and bottom of doors shall be provided with inverted, recessed, spot welded channels. Exterior doors shall be provided with flush [PVC] [steel] top caps. Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication. Fire labelled doors shall be provided for those openings requiring fire protection ratings, as determined and scheduled by the architect. Such products shall be tested in strict conformance with CAN4-S104, ASTM E-152 or NFPA 252 and listed by a nationally recognized agency having a factory inspection service and shall be constructed as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by the listing agency to individual manufacturers.

2.3.2 Hollow Metal Construction

Each face sheet for exterior doors shall be formed from a sheet of [14] [16] [18] [20] gauge steel with [honeycomb] [polystyrene] [polyurethane] core laminated under pressure to face sheets. Each face sheet for interior doors shall be formed from a sheet of [16] [18] [20] gauge steel with honeycomb core (or temperature rise rated where specified) laminated under pressure to face sheets.

2.3.3 Steel Stiffened Construction

Each face sheet for exterior doors shall be formed from a sheet of [14] [16] [18] [20] gauge steel. Each face sheet for interior doors shall be formed from a sheet of [14] [16] [18] [20] gauge steel. Doors shall be reinforced with vertical stiffeners, securely laminated to each face sheet. For exterior doors, all voids between stiffeners shall be filled with [fibreglass] [honeycomb] [polystyrene] [polyurethane] core. For interior doors, all voids between stiffeners shall be filled with [fibreglass] [honeycomb] [temperature rise rated] core.

PART 3 - EXECUTION

3.1 Site Storage and Protection of Materials

All materials shall be thoroughly inspected upon receipt and all discrepancies, deficiencies and/or damages shall be immediately reported, in writing, to the supplier. All damages incurred during shipment shall be noted on the carriers' Bill of Lading and immediately reported, in writing, to the supplier. All materials shall be properly stored on planks or dunnage, out of water and covered to protect from damage from any cause. Doors shall be removed from their wrappings or coverings upon receipt on site, shall be stored in a vertical position, spaced with blocking to permit air circulation between them.

3.2 Installation

Set frames plumb, square, level and at correct elevation. Fire labelled frames shall be installed in accordance with ANSI/NFPA-80, most current edition. Secure anchorages and connections to adjacent construction. Brace frames rigidly in position while building-in. Remove temporary steel shipping jamb spreaders. Install wood spreaders at third points of frame rebate height to maintain frame width. Provide vertical support at centre of head for openings exceeding 48" (1220mm) in width. Remove wood spreaders after frames have been built-in. Make allowance for deflection to ensure structural loads are not transmitted to frame product. Install doors and hardware in accordance with hardware templates and manufacturers' instruction. Adjust operable parts for correct clearances and function. Install louvres, glazing and door silencers.

NOTE: Nadcor reserves the right to make any changes in construction, design or specifications, and to make improvements to its products without prior notice and without incurring any obligation to incorporate such changes in products previously manufactured.