SPECIFICATIONS: DIVISION 08:
HOLLOW METAL DOORS & FRAMES

1.0 PART 1– GENERAL

1.1 Scope
Specifications apply to the supply only of steel door & frame products including: frames, transom frames, glazed or paneled, sidelight & window assemblies, fire labeled: 20, 45, 60, 90, & 180 minutes approved steel doors & frames, non-labeled steel doors & frames, STC Rated (Sound Transmission Class), bullet resistant, swing type, flush, glazed or louvered, fire labeled, with/without temperature rise ratings & non-labeled as manufactured/distributed by Metropolitan Door Industries, Garden City Park, New York 11040, or approved equal – see section 1.3 for acceptable manufacturers.

1.2 Manufacturer’s Qualifications
1. Manufacturer shall provide evidence of having personnel and plant equipment capable of fabricating hollow metal door and frame assemblies of the type specified herein.
2. Manufacturer shall provide evidence that it is an active manufacturer member of at least one of the following associations: DHI (Door & Hardware Institute); NAAAM/HMMA (National Association of Architectural Metal Manufacturers and it’s division, Hollow Metal Manufacturers Association); or the SDI (Steel Door Institute).
3. Manufacturer must have at least ten (10) years experience in the manufacture and distribution of commercial hollow metal doors and frames.

1.3 Acceptable Manufacturers are Limited to the Following (No Exceptions will be accepted)
• Metropolitan Door Industries, Garden City Park, NY. Tel: 516.294.1801.
• Amweld Building Products, Garrettsville, OH. Tel: 330.527.4385.
• Mesker Door, Huntsville, AL. Tel: 256.851.6670.
• North American Door, Plattsburg, NY. 518.566.0161.
• Benchmark HMF (commercial division), Fredericksburg, VA 540.898.5700.

1.4 Quality Criteria
1. All door and frame assemblies shall meet the standards of minimum A40 galvanized steel. Cold rolled steel is not acceptable.
2. Fire labeled doors and frames shall be provided for those openings requiring fire protection ratings as determined and scheduled by the Architect. Such doors and frames shall be constructed as tested in accordance with UL-10b (ASTM E152) and approved by Warnock Hersey or Underwriters Laboratories having a factory inspection service.
3. If any door or frame specified to be fire rated cannot qualify for appropriate labeling because of its design, hardware or any other reason, the Door/Frame schedule as supplied by the door manufacturer must reflect the correct labeling allowed or notation stating the reason for the change. This way the Architect will be so advised before approval and he/she has the opportunity to change before they “approve” the drawings for work to commence.

1.5 Requirements of Regulatory Agencies
• Install fire labeled steel doors and frame products in accordance with the following;
  o NFPA-80, current edition, except where specified otherwise.
  o WHI Warnock Hersey International (Intertek Testing Services, NA)
    8431 Murphy Drive
    Middleton, WI 53562
  o ANSI American National Standards Institute, Inc.
    1430 Broadway
    New York, NY 10018
1.6 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 so 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.

1.7 Opening Sizes
- **Widths**: Single doors 2'-0" (300mm) up to 4'-0" (1220mm) in 2" increments (restrictions apply). Pair of doors 4'-0" (1220mm) up to 8'-0" (2440mm) in 4" (10mm) increments (restrictions apply).
- **Heights**: 6'-8" (2032mm) to 10'-0" (3050mm) in 2" (50mm) increments (restrictions apply).
- **Door Thickness**: 1-3/4" (45mm). Special thickness is available when upon request.

*Special/custom sizes are available.*

1.8 Submittals
Door/frame schedule (Shop drawings) to indicate each: type of door, frame, gauge, material, core, jamb depth, trim (face), door thickness, anchors and openings (glazed, paneled or louvered). Included with the schedule should be identifying each unit, with door marks or numbers relating to numbering on drawings and door schedule of architect. Metropolitan Door Industries will produce computerized shop drawings & schedules and will include hardware catalog cuts, as required.

1.9 Limited Warranty
Materials and workmanship shall be free from defects and warranted by Metropolitan Door (or approved manufacturer) for a period of one year from the date of shipment of material. This warranty is valid for product(s) provided by Metropolitan Door (or approved manufacturer). The Limited Warranty is based upon the product being used with the hardware for which it was prepared; the assumption that normal industry installation and usage recommendations were employed; that the product was properly painted; maintained; and was subject to normal use. This or any warranty provided by Metropolitan Door ((or approved manufacturer)) is expressly limited to the value of repair or replacement of any defective materials at the discretion of Metropolitan Door (or approved manufacturer), to the exclusion of job site labor, consequential and/or incidental damages, directly or indirectly sustained, such as improper job site handling, storage or installation.

2.0 PART 2 – PRODUCTS
2.1 Materials
Samples available upon request in writing to Metropolitan Door Industries. Each request must state the project name, address, contractor name, contractor address, architect and the estimated number of openings involved.

2.2 Steel
- **A40 Steel**: Commercial quality steel Zinc-Iron Alloy-Coated by hot-dip process designation to A40, known commercially as standard Galvanized metal or Galvannealed (.40 oz/sq. ft. of zinc coating). This is standard for hollow doors and frames by Metropolitan Door Industries.
- **G90 Steel**: Hot-dipped galvanized steel (1.25 oz/sq. ft. of zinc coating) is available upon request. G90 steel is a spangled metal that is produced by hot-dipped process. G90 steel is a cost-effective alternative to stainless steel. G90 material supplied as specified by the architect. Complies with ASTM A525.
2.3 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.

- **Polystyrene:**
  Rigid extruded, fire retardant, closed cell board. Density: 1 to 2 pcf (16 to 32 kg/m3), thermal values: R–factor = 7.0 (RSI 1.05) min.

- **Polyurethane:**
  Rigid, modified polyisocyanurate, closed cell board. Density: 2.0 pcf (32 kg/m3) min., thermal values: R–factor = 12.25 (RSI 1.93) min.

- **Mineral Rockwool:**
  Loose batt-type, density: 1.5 pcf (24 kg/m3) min. This type of core only used with “Steel Stiffened” construction and used when specified.

- **Fiberglass:**
  Loose batt type, density: 1.5 pcf (24 kg/m3) min. This type of core only used with “Steel Stiffened” construction and used when specified.

- **Temperature Rise:**
  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 service.

- **Steel Stiffened (Standard):**
  Doors shall be reinforced with internal vertical steel stiffeners at 6” o.c. (on-center) and the voids between each stiffener shall be filled with any of the above cores (except Temperature Rise. See section 4.2 for more information).

- **Security Steel Stiffened (AW700):**
  The AW700 Series door is manufactured with "hat-shaped" vertical steel stiffeners, spaced 6” on-center and spot-welded 4” on-center (with loose-batt type insulation in the voids). The edges of the door are fully welded seamless and the door is prime painted with a commercial quality rust inhibitive primer. The steel used on this door meets A60 classification. This door is available as fire rated: UL labeled x Class A (3 hours) or UL labeled Class B (1 1/2 hours) fire rated. This door also has an additional NYC MEA label which meets Class A or Class B fire rating. The AW700 Series security door Meets NAAMM - HMMA 861 specifications.
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2.4 Adhesives
- Cores and Steel Components: Heat resistant, structural reinforced epoxy, resin-based adhesive.

2.5 Primers
- Rust inhibitive touch-up only. Finish painting by others.
- Fully prime-painted is available upon request. Finish painting by others.

2.6 Miscellaneous
- Door Silencers: Single stud rubber/neoprene.
- Frame Thermal Breaks: Rigid polyvinylchloride (PVC) extrusion.

2.7 Capping Channels
- Top & Bottom Caps: Steel cap flush (water-tight).
- Rigid polyvinylchloride (PVC) extrusion (snap-in).

Both types of capping channels are available upon request. Otherwise inverted channel is standard.

3.0 PART 3: FABRICATION – FRAME PRODUCTS

General
Interior or Exterior frames shall be manufactured of 12, 14, 16, 18, or 22 gauge steel (as specified by the architect, welded or knocked-down type construction (Thermally broken and Slip-on type or Rough Buck construction are available). Frames shall be blanked, reinforced, drilled and tapped for mortised, template 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 center 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 labeled 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 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. (See Sections 1.4 and 1.5).

3.1 Welded Type
Frame product shall be either accurately mitered or mechanically jointed, securely welded on the inside of the profile. Butt joints of mullions, transom bars, center rails and sills shall be coped accurately and securely welded. Welding shall conform to ANSI/AWS-101-94. Welded joints shall be ground to a smooth, uniform finish. Floor anchors shall be securely attached to the inside of each jamb profile. Metropolitan Door industries supplied its welded frames with in two (2) welded-in temporary jamb spreaders per frame to maintain proper alignment during shipping and handling only. Spreaders are not to be used for installation purposes. 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.

3.2 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.
3.3 Slip-On Type (Rough Buck)
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’ proprietary design of wall anchorage comprising single, adjustable pressure type per jamb and provision for secure attachment of each jamb base to stud runners.

4.0 PART 4: FABRICATION – DOOR PRODUCTS
General
Doors shall be swing type, flush, with provision for glass and/or louver openings as indicated on schedules. Interior/Exterior doors shall be hollow metal construction (steel stiffened when specified). Longitudinal edges shall be mechanically inter-locked (visible seam-on-edge) or welded seamless (no seams on the faces or edges of the door). “Seam-on-edge” construction shall have a visible hairline seam on the edges of the door. For “Seamless” construction the “hairline” seam-on-edge shall be welded, grinded, filled and sanded flush (primed when specified). Doors shall be blanked, reinforced, drilled and tapped for mortised, template 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, and thumb or turn pieces) or when these holes overlap the 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. Doors shall be provided with flush PVC or steel top and/or bottom caps, where specified. Metropolitan Door to provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication process. Fire labeled 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 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. (See Sections 1.4 and 1.5).

4.1 Hollow Metal Construction
Each face sheet for exterior or interior doors shall be formed from a sheet of (14) (16) (18) or (20) gauge steel (as specified by the architect) with honeycomb, polystyrene, polyurethane, or temperature rise cores (as specified by the architect), laminated under pressure to face sheets. Any gauge listed is available with any core listed, for interior or exterior.

4.2 Steel Stiffened Construction (Standard)
- Each face sheet for exterior or interior doors shall be formed from a sheet of (14) (16) (18) or (20) gauge steel (as specified by the architect). Doors shall be securely reinforced with 20 gauge vertical steel stiffeners @ 6” on-center (oc) to each face sheet (as specified by the architect). On all doors with steel stiffened construction the voids between stiffeners shall be filled with one of the following cores: honeycomb; polystyrene; polyurethane; loose batt insulation, as specified by architect. (See Section 2.3 for Security Steel Stiffened (AW700) construction).

5.0 PART 5: STC (Sound Transmission Class) - Sound Retardant Steel Door & Frame Assemblies
General
The door assemblies for an STC rated unit are tested as a complete unit; similar to that of Bullet Resistant Assemblies (contact Metropolitan Door for details). Sound Transmission Class assemblies are available with an STC Rating 35 – 51. Please contact Metropolitan Door Industries at 516.294.1801 or e-mail us at: info@metropolitandoor.com for full STC specifications or for more information.

6.0 PART 6 – BULLET RESISTANT DOOR ASSEMBLIES
General
Metropolitan™ bullet resistant steel doors and frames are secure from ballistic attack yet has the appearance of standard hollow metal products. Our complete range of bullet resistant products is readily available and can be furnished with factory installed bullet resistant glazing.

The door assemblies were tested by UL using their standard UL752 “Standard for Bullet Resisting Equipment.” This test is the only one of which we are aware that is accepted nationally. It’s a relatively simple test. A series of guns are fired at the test unit at an approximate 15-foot range. If the bullet is stopped by the door, frame and hardware; the unit passes. If the bullet passes through the assembly and it strikes the wall immediately behind the test specimen, the unit fails. Specific target areas include...
the middle of the door, the frame face, the clearance between the door and frame, and the center of the lock cylinder. A chart from UL752 is available upon request. It provides you with a more complete description of the weapons employed.

6.1 Features of Bullet Resistant Door Assemblies

Features

- **UL Level One** standard to protect against medium power small arms (Super 38 Automatic).
- **UL Level Two** standard to protect against high power small arms (.357 Magnum Revolver).
- **UL Level Three** standard to protect against super power small arms (.44 Magnum Revolver).
- **UL Level Four** standard to protect against high power rifle attack (30-06 Rifle) where anticipated threat levels are extremely high.
- **UL Levels Five through Eight** to protect against military assault weapons using Armour piercing ballistics.

Metropolitan™ bullet resistant doors and frames are ready for shipment in approximately two weeks for Levels 1-8 with and without bullet resistant glass. Some restrictions do apply. Custom engineered bullet resistant doors and frames are available.

6.2 Bullet Resistant Door Assemblies Material

- **Steel:**
  - Commercial grade, zinc-coated steel to meet ASTM A653.
  - Door Core Materials - Core materials shall be the manufacturer's proprietary bullet resistant standard tested in accordance with UL 752 most current edition. Core shall provide level of protection as specified by the architect.
  - Primers: Rust inhibitive touch-up only.

Please contact Metropolitan Door Industries at 516.294.1801 or e-mail us at: info@metropolitandoor.com for full bullet resistant assemblies specifications, availability or for more information.

7.0 PART 7 – BLAST RESISTANT DOOR ASSEMBLIES

General

Metropolitan™ blast resistant steel doors and frames combine blast and air pressure resistance and yet function similarly to standard hollow metal products. Our entire range of blast resistant products are readily available complete with builders hardware that provides an easy-to-operate door system.

7.1 Features

Products are available in:

- **Low-Range units:** 15 PSF to 2 PSI.
- **Mid-Range units:** 3 PSI to 8 PSI.
- **High-Range units:** 9 PSI to 35 PSI.

Full engineering capability to design and manufacture blast products to meet the safety requirements of the end user.

Testing of units by independent laboratories complies with the most up to date test standards on the continent. Blast resistant door/frame assemblies have been tested in accordance with ASTM-E330 most current edition.

Fire labeled products have been tested in accordance with NFPA-80 and are certified by Underwriters Laboratories and Warnock Hersey International.

Doors are available with glazing that is factory pre-installed.

7.2 Blast Resistant Material

- **Steel:**
  - Commercial grade, zinc-coated steel to ASTM A653.
  - Structural Steel Channel to conform to ASTM A36.
  - Structural Steel Plate to conform to ASTM A569.

- **Door Core Materials - Blast Resistant:**
  Core materials shall be manufacturer's proprietary standard.
Primers: Rust inhibitive touch-up only.

Please contact Metropolitan Door Industries at 516.294.1801 or e-mail us at: info@metropolitandoor.com for full blast resistant assemblies specifications or for more information.

8.0  PART 7 – EXECUTION
8.1  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 and the carrier. All materials shall be properly stored on planks or dunnage, out of (and away from) water and moisture; and covered to protect material 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.

8.2  Installation
Set frames plumb, square, and level at correct elevation. Fire labeled frames shall be installed in accordance with ANSI/NFPA-80, most current edition. Secure anchorage 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 center 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 louvers, glazing and door silencers.

The foregoing list is illustrative of items that may be included into a project’s specifications. Items may be deleted or added. However, the specifier should list only those items required on the project and not included non-pertinent information.

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

For more information please contact a Metropolitan Door Industries representative at 516.294.1801 or e-mail customer service at: info@metropolitandoor.com.

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