

*This section includes AMBICO RFI/EMI Steel Shielding Steel Door and Frame assemblies. This section relies on both the Canadian Steel Door Manufacturers Association (CSDMA.org) industry standard, as well as on the Hollow Metal Manufacturers Association (NAAMM.org) industry standard. This section includes proprietary, descriptive and performance type specification requirements. Edit to avoid conflicting requirements.*

## **Part 1            General**

### **1.1                SECTION INCLUDES**

*This article includes a summary of the content of this section which will not be included in other sections. This article is NOT intended to be used as a trade or other form of jurisdictional content.*

- .1        RFI Shielded [EMI shielded][acoustic] non-fire rated pressed steel frames.
- .2        RFI Shielded [EMI shielded] [acoustic] non-fire rated steel swing doors [and panels].
- .3        Perimeter and bottom RFI [EMI] [acoustic] seals, threshold, [and astragal].

### **1.2                RELATED SECTIONS**

*This article references other specification sections that inter-rely on this section. This listing should include those sections that describe subjects or products that affect this section directly.*

- .1        Section [\_\_\_\_\_ - \_\_\_\_\_]: Masonry mortar fill of metal frames.
- .2        Section 07 92 00 - Joint Sealing: Caulking between doors and adjacent construction.
- .3        Section 08 71 10 - Door Hardware - General.
- .4        Section 09 81 16 - Acoustic Blanket Insulation: Insulation inside door frames.
- .5        Section 09 91 15 - Painting: Field painting of [doors] [frames] [doors and frames].

### **1.3                REFERENCES**

*Edit this article after editing the rest of this section. List reference standards that are included within the text of this section when edited for a project specification. Delete references that do not apply to this project.*

- .1        ASTM A36/A36M-05 - Standard Specification for Carbon Structural Steel.
- .2        ASTM A653/A653M-06 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .3        ASTM A1011/A1011M-07 Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
- .4        ASTM A240/A240-07e1 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

- .5 ASTM E90-04 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- .6 ASTM E413-04 - Classification for Rating Sound Insulation.
- .7 Canadian Steel Door Manufacturers Association (CSDMA), Selection and Usage Guide for Steel Doors and Frames, 1990.
- .8 HMMA 802-92 - Manufacturing of Hollow Metal Doors and Frames.
- .9 HMMA 840-99 - Installation and Storage of Hollow Metal Doors and Frames.
- .10 HMMA 865-03 - Guide Specifications For Swinging Sound Control Hollow Metal Doors and Frames.
- .11 MIL-STD-285 – Method for Attenuation Measurement for Enclosures, Electromagnetic Shielding.

#### **1.4 PERFORMANCE REQUIREMENTS**

- .1 RFI\EMI Shielding Performance:
  - .1 Radio Frequency [Electromagnetic] attenuation: shall between [30 dB] and [111dB] over a frequency range of [10 MHz] to [1 GHz]. In accordance with MIL-STD-285
  - .2 Acoustic Performance: Minimum Sound Transmission Class (STC) [33] [59] [\_\_\_] tested to ASTM E90. Label indicating sound transmission class shall be applied to the door and door frame.

#### **1.5 SUBMITTALS**

- .1 Section [01 33 00]: Submission procedures.
- .2 Product Data: Provide product data on door construction and [\_\_\_\_\_].
- .3 Shop Drawings: Indicate door and frame elevations, internal reinforcement, anchor types, closure methods, [finishes] location of cut-outs for hardware, and cut-outs [for louvers].
- .4 Samples: Submit manufacturer's door finish sample, frame corner sample as well as perimeter acoustic gasket.
- .5 Test Data:
  - .1 Submit independent test data from a recognized licensed laboratory indicating compliance with the RFI Shielding requirements.
  - .2 Submit test data indicating compliance with the Sound Transmission Class (STC) requirements. Include laboratory name, test report number, and date of test.
  - .3 Submit certification from test laboratory qualified under the National Voluntary Accreditation Program (NVLAP) of the U.S. Bureau of Standards.

**1.6 QUALITY ASSURANCE**

- .1 Perform Work to requirements of [CSDMA (Canadian Steel Door Manufacturers Association)] [HMMA (Hollow Metal Manufacturers Association)] standards.
- .2 Manufacturer: Minimum 5 years documented experience manufacturing RFI [EMI] Shielding door and frame assemblies [as well as acoustic door and frame assemblies].
- .3 Pre-installation Meeting: Convene a pre-installation meeting [2] [ \_\_\_\_ ] weeks before start of installation of door and frame assemblies. Require attendance of parties directly affecting work of this section, including contractor, architect, installer, and manufacturer's representative. Review installation and coordination with other work.

**1.7 DELIVERY, STORAGE AND PROTECTION**

- .1 Section [01 61 00]: Transport, handle, store, and protect products.
- .2 Comply with HMMA 840.
- .3 Weld minimum two temporary jamb spreaders per frame prior to shipment.
- .4 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.
- .5 Store in vertical position, spaced with blocking to permit air circulation between components.
- .6 Store materials out of water and covered to protect from damage.
- .7 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc-rich primer.

**1.8 WARRANTY**

- .1 Manufacturer's Limited Warranty: Five (5) years from date of supply, covering material and workmanship.

**Part 2 Products****2.1 MANUFACTURERS**

*List the manufacturers acceptable for this project. Edit the subsequent descriptive specifications of Part 2, to identify project requirements and to eliminate any conflict with specified manufacturer's products.*

- .1 AMBICO Limited  
1120 Cummings Avenue  
Ottawa, Ontario, Canada K1J 7R8  
Toll Free Phone 888-423-2224  
Phone 613-746-4663  
Toll Free Fax 800-465-8561  
Fax 613-746-4721
- .2 Other Acceptable Manufacturers:

- .1 [\_\_\_\_\_].
- .2 [\_\_\_\_\_].
- .3 Substitutions: [Refer to Section 016000.] [Not permitted.]

## 2.2 MATERIALS

- .1 Sheet Steel: Galvanized steel to ASTM A653/A653M
  - .1 Galvanized coating designation [Z275] ([G90]) for exterior door assemblies.
  - .2 Galvanized coating designation [ZF001] ([A01]) for interior door assemblies.

[OR]

Stainless Steel: ASTM A240, type [304] [316]

- .2 Reinforcement [Channel]: Galvanized to CSA G40.20/G40.21, coating designation to ASTM A653/A653M, [ZF75] ([A25]) [stainless steel to ASTM A240/A240-07e1].

## 2.3 ACCESSORIES

*All hardware items with the exception of perimeter and thresholds may be supplied by Section # 08 71 10.*

- .1 Hinges: Heavy weight butt type to be [factory supplied] [and pre-installed] or [supplied and installed by others].
- .2 RFI paint to be provided by factory.
- .3 Threshold and perimeter seals to be supplied loose by the factory.
- .4 Door Hardware: [Mortise lock] [Exit device] to be [factory supplied] [and pre-installed] or [supplied and installed by others].

## 2.4 FABRICATION

- .1 [Stainless] Steel Doors, Swing Type:
 

Steel sheet steel faces, thickness, construction suitable to achieve specified RFI [EMI] Shielding performance in accordance with MIL-STD-285– Method for Attenuation Measurement for Enclosures, Electromagnetic Shielding.[and ASTM E90-04 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements].

  - .1 RFI [EMI] Shielding construction [as well as acoustic construction], longitudinal edges mechanically inter-locked [welded, filled and sanded] with [no] visible edge seams.
  - .2 Top and Bottom Channels: Inverted, recessed, welded steel channels.
  - .3 Weld hardware reinforcement plates in place.

**2.5****.1 [Stainless] Steel Frames: Swing Type**

*Frames at swing doors openings are provided as an integral part of the RFI [EMI] Shielding [acoustic] door and frame assembly. As the bond between door and door frame is essential to achieve specified RFI results special consideration is to be given to metallic paint on steel where shielding is below 75 hz or the use of stainless steel doors and frames where shielding exceeds 75 hz.*

- .1 Sheet steel thickness and interconnection to RFI Shielding in adjacent walls appropriate to achieve RFI Shielding performance requirements, mitred corners. Frame construction to interface with RFI/EMI shielding at wall.
  - .2 Factory assemble and weld frames.
  - .3 Fixed Mullions for Double Doors.
  - .4 Provide three single silencers for single doors [and mullions of double doors] on strike side, and two single silencers on frame head at double doors without mullions.
- .2 Install door silencers.
  - .3 Affix permanent metal nameplates to door and frame, indicating manufacturer's name, door tag, model number, and performance rating.

**2.6****FINISHES**

- .1 Factory Finish: Factory applied zinc chromate primer [to be applied to all exposed surfaces except where RFI [EMI] seals contact the face of the door] [touch-up only, where product has been welded and ground smooth except where RFI seals contact the face of the door].
- [OR]
- .2 Standard Stainless Steel Finish: [#2B Mill Finish] [#4 Satin] [#6 Matte] [#8 Mirror] [Colored] [Hairline].

**Part 3****Execution****3.1****INSTALLATION**

- .1 Install components including doors, frames, and hardware in accordance with manufacturer's written instructions.
- .2 Install doors and frames to [CSDMA] [HMMA 840] standards.
- .3 Coordinate with [masonry] [gypsum board] [concrete] [\_\_\_\_\_] wall construction for anchor placement.
- .4 Set frames plumb, square, level and at correct elevation.
- .5 Allow for deflection to ensure that structural loads are not transmitted to frame.
- .6 Frame and threshold shall be electrically grounded.
- .7 Adjust operable parts for correct clearances and function.

- .8 Finish paint in accordance with Section 09 91 15.

**3.2 ERECTION TOLERANCES**

- .1 Section 01 73 00: Tolerances.
- .2 Installation tolerances of installed frame for squareness, alignment, twist and plumbness are to be no more than ± 1/16in (1.5mm) in compliance with HMMA 841.

**3.3 FIELD QUALITY CONTROL**

- .1 Provide qualified manufacturer's representative to instruct installers on the proper installation and adjustment of door assemblies.
- .2 Provide manufacturer's representative to inspect door installation, and test minimum ten (10) cycles of operation. Correct any deficient doors.

**3.4 Schedule**

- .1 RFI\EMI Acoustic Steel Frame Assembly Schedule:

Tag	Room	Nominal Size	Thickness	Material	STC Rating	Fire Rating	RFI Rating	Comments
D-1	100	2/750mm x 3600mm	75mm	GS	55	NFR	80 dB @ 500MHz	
D-2	101	3'0" x 8'0"	1 ¾"	GS	45	NFR	100 dB @ 1GHz	
D-3	105	2/4'0"x8'0"	1 ¾"	SS	50	NFR	60 dB @ 100MHz	
<ul style="list-style-type: none"> <li>• Material types: GS = Galvanized Steel, SS = Stainless Steel</li> <li>• STC Ratings: Sound Transmission Class</li> <li>RFI Ratings: MHz = megahertz, GHz = gigahertz</li> </ul>								

**END OF SECTION**