This section includes AMBICO Acoustic Steel Doors and Frames as well as perimeter and bottom acoustic seals, and glazing if required all of which can be fire rated or non-rated. The aforementioned items are an integral part of a laboratory tested assembly that must be supplied by a single manufacturer. 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 for steel doors. This section includes proprietary, descriptive and performance type specifications. 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 [Non-rated] [fire rated] acoustic pressed steel frames.

.2 [Non-rated] [fire rated] acoustic hollow metal doors [and panels].

.3 [Glazed lite acoustic steel frames.]

.4 [Glass and glazing.]

.5 Perimeter and bottom 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 09 81 16 - Acoustic Blanket Insulation: Insulation inside door frames.

.3 Section 07 92 00 - Joint Sealing: Caulking between doors and adjacent construction.

.4 Section 08 71 10 - Door Hardware - General.

.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. Only list reference standards below 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 A480/A480M-06b - General Requirements for Flat-Rolled Stainless Heat-Resisting Steel Plate, Sheet, and Strip.

.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 E90-04 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

.4 ASTM E413-04 - Classification for Rating Sound Insulation.

.5 AWS D1.1/D1.1M:2006, Structural Welding Code - Steel.

.6 CSDMA Selection and Usage Guide for Steel Doors and Frames, 1990.

.7 HMMA 802-92 - Manufacturing of Hollow Metal Doors and Frames.

.8 HMMA 840-99 - Installation and Storage of Hollow Metal Doors and Frames.

.9 HMMA 865-03 - Guide Specifications For Swinging Sound Control Hollow Metal Doors and Frames.

.10 NFPA 80-07 - Standard for Fire Doors and Other Opening Protectives.

.11 UL 10C-98 - Standard for Positive Pressure Fire Tests of Door Assemblies.

.12 ANSI/ICC A117.1-2003 - Standard for Accessible and Usable Buildings and Facilities

1.4 PERFORMANCE REQUIREMENTS

Include this article if all doors should meet the same STC requirement; otherwise, specify individual STC for door types in Part 2 or in a schedule. AMBICO steel doors and frame assemblies can provide minimum Sound Transmission Class (STC) 33 and maximum STC 59.

.1 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 REGULATORY REQUIREMENTS

Include the following article only if fire rated assemblies are specified. AMBICO can supply steel doors and frames with 45, 90 or 180 minute fire rating labels.

.1 Installed Door and Frame Assembly: Conform to [NFPA 80] [UL 10C] [_____] for fire rated class [as scheduled.] [as indicated.]. Label indicating fire resistance shall be applied to the door and door frame.

AMBICO Acoustic Steel Door and Frame Assemblies conform to national handicap codes when supplied with heavy weight butt hinges. Door and frame assemblies up to STC 52 are designed in conformance with national handicap codes. These assemblies are to be prepared for heavy weight hinges.

.2 Installed Door and Frame Assembly: Conform to [ANSI/ICC A117.1]

1.6 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, anchor types and closure methods, [finishes] location of cut-outs for hardware [, and cut outs for glazing].

.4 Samples: Submit manufacturer's door finish sample, frame corner sample, as well as perimeter acoustic gasket.

.5 Test Data:

.1 Submit test data indicating compliance with the Sound Transmission Class (STC) requirements. Include laboratory name, test report number, and date of test.

.2 Submit certification from test laboratory qualified under the National Voluntary Accreditation Program (NVLAP) of the U.S. Bureau of Standards.

.6 Installation Instructions: Submit manufacturer's installation instructions.

1.7 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 acoustic steel door and frame assemblies.

.3 Pre-installation Meeting: Convene a pre-installation meeting [2] [____] weeks before start of installation of acoustic 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.

1.8 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.

1.9 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 01 60 00.] [Not permitted.]

2.2 MATERIALS

.1 Sheet Steel:

.1 Galvanized steel to ASTM A653/A653M, ZF180 (A60).

[OR]

.2 Stainless steel to ASTM A480, Type [304] [316].

.2 Reinforcement [Channel]: To CSA G40.20/G40.21, coating designation to ASTM A653/A653M, [ZF75] ([A25]).

2.3 ACCESSORIES

AMBICO acoustic steel door and frame assemblies are prepared for hinges supplied by Section 08 71 10. All other accessories specified in this section are to be supplied by door and frame manufacturer in order to assure the acoustic integrity of the assembly Ambico strongly recommends the use of heavy weight butt type hinges for assemblies up to and including STC 52. Cam lift hinges shall be used for STC53 –STC 59

.1 Hinges: [Cam lift] [Heavy weight butt] type by section # 08 71 10

.2 Glazing Stops: Formed [galvanized] [stainless] steel channel, [butted] [mitred] corners; prepared for countersink [tamperproof] screws.

.3 Glass: Type as tested to achieve STC and fire ratings. Glass to be factory supplied and pre-installed.

.4 Primer: Rust inhibitive zinc chromate.

.5 Threshold: Smooth and flush, to provide a seal for door in closed position.

.6 Astragal: To be supplied loose ready for field assembly by others

.7 Perimeter and bottom acoustic seals: To provide a seal for door in closed position.

.8 [Removable] Mullion: To be provided at [paired] [multiple leaf] openings, where occasional access is required. Mullions with perimeter seals to be supplied by door and frame manufacturer.

2.4 FABRICATION

.1 Manufacture doors and frames to STC rating of [33] [59] [__], measured in accordance with ASTM E90.

Specify door thickness and other values with caution as they may vary in order to meet the STC and fire ratings required. Higher STC ratings may require thicker doors, and fire ratings may limit door sizes. AMBICO doors are typically lighter in weight than other manufacturers' doors for the same STC rating; ensure that door hardware considers this impact.

.2 Steel Doors:

.1 Sheet steel faces, thickness, design, and core suitable to achieve specified STC performance.

Note that STC or fire ratings may dictate the details of oversize acoustic door or frame construction. Where door panels are larger than 4'0" in width, or 10'0" in height, specify the following construction details in consultation with the door manufacturer.

.2 Acoustic core construction, longitudinal edges, mechanically inter-locked with visible edge seams.

.3 Reinforce doors where surface-mounted hardware is required.

.4 Drill and tap for mortised, templated hardware.

.5 Top and Bottom Channels: Inverted, recessed, welded steel channels.

.6 Astragals: Metal acoustic astragals with integral acoustic seals for double doors.

Note that where concealed vertical rod exit devices are required, the door thickness will be 2 1/8" (53mm) to accommodate the acoustic structure necessary for reinforcement of the door hardware.

.7 Exit Device Vertical Rods: [Surface] [Concealed] mounted; co-ordinate with exit hardware devices specified in Section 08 71 10.

.3 Steel Frames:

.1 Sheet steel, metal thickness and appropriate to maintain door STC and fire ratings, mitred corners, fully welded seams.

.2 Factory assemble and weld frames.

.3 Mullions for Double Doors: [Fixed] [Removable] type.

Acoustic Door and Frame Assemblies are to be provided with a factory glazed material in conformance with manufacturers tested assembly.

.4 Factory install glazing.

.5 Affix permanent metal nameplates to door and frame, indicating manufacturer's name, door tag, and STC rating where it shall be clearly visible.

2.5 FINISHES

.1 Factory Door Finish: [Factory applied zinc chromate primer to be applied to all exposed surfaces] [Factory applied zinc chromate primer touch-up only, where product has been welded and ground smooth]. [Stainless steel [2B] [4] [8] finish.] [As scheduled.]

Part 3 Execution

3.1 INSTALLATION

.1 Install components to manufacturer’s written instructions.

.2 Install steel doors and frames to [CSDMA] [HMMA 840] standards and in accordance with [NFPA 80] [UL 10C], and local authority having jurisdiction.

.3 Utilize welders certified by [Canadian Welding Bureau (CWB)] [American Welding Society (AWS)] for field welding.

.4 Coordinate with [masonry] [gypsum board] [concrete] [_____] wall construction for anchor placement.

.5 Set frames plumb, square, level and at correct elevation.

.6 Allow for deflection to ensure that structural loads are not transmitted to frame.

.7 Adjust operable parts for correct clearances and function.

.8 Install and adjust perimeter and bottom acoustic seals.

.9 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 then ± 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

Include this article to identify variations of products or installation requirements specified. If door and/or frame schedules are listed on drawings or on separate schedule sheets, do not repeat statements in this article.

.1 Acoustic Steel Door and Frame Assembly Schedule:

Tag	Room	Nominal Size	Thickness	Material	Glazing	Fire Rating	STC Rating	Comments
D-1	100	750mm x 2100mm	44mm	SS	B	NFR	33	
D-2	101	2/ 750mm x 2100mm	55mm	GS	D	NFR	59	
D-3	102	3'0" x 7'0"	1 ¾"	GS	C	FR	51	

- Material types: GS = Galvanized Steel, SS = Stainless Steel
- Glazing types: A = Halflite, B = Fulllite, C = Narrowlite D = Flush
- Fire Label types: FR= Fire rated to 90 minutes, NFR= Non-fire rated

END OF SECTION