

This section includes AMBICO acoustic steel doors and frames, fire rated and non-rated and relies on industry standards for steel doors. 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 [Non-fire rated] [Fire rated] acoustic pressed steel frames.
- .2 [Non-fire rated] [Fire rated] acoustic hollow metal doors [and panels].
- .3 Acoustic steel frames [and side/transom lites] [and side/transom panels].
- .4 [Acoustic glass and glazing.]
- .5 Perimeter and bottom acoustic seals, threshold [and astragal].
- .6 Factory finishing.

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 00 - 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 A653/A653M-15e1 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 ASTM E90-09(2016) - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- .3 ASTM E413-16 - Classification for Rating Sound Insulation.
- .4 AWS D1.1/D1.1M:2015, Structural Welding Code - Steel.

- .5 CSA G40.20-13/G40.21-13 - General requirements for rolled or welded structural quality steel / Structural quality steel.
- .6 ASTM C1172 - 14 Standard Specification for Laminated Architectural Flat Glass
- .7 ASTM C1036 - 16 Standard Specification for Flat Glass
- .8 CSDMA, Selection and Usage Guide for Steel Doors and Frames, 2009.
- .9 HMMA 802-07 - Manufacturing of Hollow Metal Doors and Frames.
- .10 HMMA 840-16 - Installation and Storage of Hollow Metal Doors and Frames.
- .11 HMMA 865-13 - Guide Specifications for Swinging Sound Control Hollow Metal Doors and Frames.
- .12 ICC/ANSI A117.1-2003- Accessible and Usable Buildings and Facilities.
- .13 NFPA 80-16 - Standard for Fire Doors and Other Opening Protectives.
- .14 UL 10C-16 - Standard for Positive Pressure Fire Tests of Door Assemblies.
- .15 USGBC – LEED v4.

1.4 REGULATORY REQUIREMENTS

Include the following paragraph only if fire rated doors are specified. AMBICO can supply steel doors and frame assemblies with 45 minute, 90 minute or 3 hour fire rating labels. Maximum size of AMBICO fire rated steel doors openings vary based on acoustic rating, single or paired configurations. Consult AMBICO for specifics.

- .1 Installed Door and Frame Assembly: Conform to [NFPA 80] [UL 10C] [_____] for fire rated class [as scheduled] [as indicated].

Include the following paragraph requiring national handicap codes when doors are supplied with heavy weight butt hinges. AMBICO steel door and frame assemblies with sound ratings up to STC 52 and heavy weight butt hinges can qualify for this standard.

- .2 Conform to ICC/ANSI A117.1.

1.5 SUBMITTALS

Include this article to identify particular submission items.

- .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 spacing, closure methods, [finishes] location of cut-outs for hardware [and cut outs for glazing].
- .4 Samples: Submit manufacturer's door finish samples, frame corners, and perimeter acoustic gaskets.

- .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.
 - .3 Installation Instructions: Submit manufacturer's installation instructions.

Include the following ONLY if specifying for a LEED project. Specify only the technical requirements necessary to achieve the credits desired for this project. The Type 3 EPD is normally required for LEED v4 certification. AMBICO STC products offer significant advantages to firms interested in supporting LEED certification. In particular, AMBICO products comply with both LEED for Schools as well as LEED for Healthcare.

- .6 Sustainable Design:
- .1 Section 01 35 18: LEED documentation procedures.
 - .2 Provide required LEED documentation for product.
 - .3 Submit Type 3 Environmental Product Declaration (EPD) for products of this Section.
 - .4 Manufacturer's Certificate: Certify that products meet or exceed [specified requirements].

1.6 QUALITY ASSURANCE

Include this article to identify a quality reference source affecting the work of this section; only one reference should be selected to avoid potential conflicts.

- .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 sound control door assemblies.
- .3 Pre-installation Meeting: Convene a pre-installation meeting [2] [] weeks before installation of acoustic door and frame assemblies. Require attendance from relevant subcontractors, consultants, 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, and manufacturer's written instructions.
- .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. Leave doors covered for protection until hung. Store in vertical position, spaced with blocking to permit air circulation between components. Stand doors on top end, to avoid damage to bottom end.
- .5 Store materials out of water and covered to protect from damage.

- .6 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 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 STC steel door and frame assemblies provide a range of sound control steel doors and frames with acoustic ratings from STC 33 to STC 59.

- .1 Acoustic Performance: Minimum Sound Transmission Class (STC) [33] [59] [___] tested to ASTM E90.

2.3 MATERIALS

Include this article to identify the base materials comprising this section.

- .1 Sheet Steel:
 - .1 Galvanized steel ASTM A653/A653M, ZF75 (A25), minimum 1.5 mm thick.
 - .2 Recycled Content: Minimum [___] %.
- .2 Reinforcement: Same material as sheet steel.
- .3 Glass: Type as tested to achieve STC and fire ratings [factory installed].

2.4 FABRICATION

If more than one type of acoustic door rating is required, include the STC in a door schedule and delete the paragraph below. Consider maximum sizes when selecting STC requirements for doors.

- .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; they may vary in order to meet the STC and fire ratings available. Higher STC ratings may require thicker doors, and fire ratings may limit door sizes and the STC rating. AMBICO doors are typically lighter in weight than other manufacturers' door panels 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 the door construction. Where door panels are larger than 4' wide or 10' high, specify the following construction details in consultation with AMBICO.

- .2 Acoustic core construction, longitudinal edges [mechanically inter-locked with visible edge seams] [tacked and filled seamless] [fully welded].
 .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.

Concealed vertical rod/cable devices must be specified as top latch only / less bottom rod. Where concealed vertical rod exit devices are required, the door thickness will be 2-1/4" to accommodate the acoustic structure necessary for reinforcement of the door hardware.

- .6 Exit Device Vertical Rods: Surface mounted [with concealed top rod]; coordinate with exit hardware devices specified in Section 08 71 10.
 .7 Astragals: Metal acoustic astragals with integral acoustic seals for double doors. [Standard overlapping active/inactive.] [Meeting stile both active for vertical rod devices.]
 .8 [Factory installed glazing.]

- .3 Steel Frames:

- .1 Sheet steel, metal thickness as required to maintain door STC rating [and fire ratings], mitred corners, fully welded seams.
 .2 Factory assemble and fully weld frames.

Removable mullions are not recommended over STC45.

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

Acoustic glazing in frames is recommended to be supplied as an integral part of the door and frame assembly. Glazing must be factory installed to ensure conformance with manufacturers tested assembly.

- .4 Supply glazing loose, ready for field assembly.
 .4 Affix permanent nameplates to door and frame, indicating manufacturer's name, and STC rating.

2.5 ACCESSORIES

AMBICO acoustic assemblies rely on a range of hinges; coordinate hinge types identified here with Section 08 71 10. Specify heavy weight butt hinges for assemblies up to and including STC 52, and cam lift hinges for STC 53 – 59.

- .1 Hinges: [Cam lift type, by door manufacturer] [Heavy duty butt type, to Section 08 71 10].
- .2 Glazing Stops: Formed galvanized steel channel, [butted] [mitred] corners; prepared for countersink style [tamperproof] screws.
- .3 Primer: Rust inhibitive zinc phosphate [VOC compliant with local indoor air quality regulations].
- .4 Threshold: Smooth and flush, to provide a seal for door in closed position.
- .5 Steel Astragal: Overlapping or meeting stile, supplied loose for field installation. Overlapping astragal to be a minimum 2 mm (14 ga) thick.
- .6 Acoustic seals: Provide perimeter and bottom seals, tested as part of the ASTM E90 assembly to meet the specified STC rating.

2.6 FINISHES

- .1 Factory Door Finish: Factory applied zinc phosphate primer [to be applied to all exposed surfaces] [touch-up only, where product has been welded and ground smooth].

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 Install factory supplied glazing to frames.
- .4 Utilize welders certified by [Canadian Welding Bureau (CWB)] [American Welding Society (AWS)] for field welding.
- .5 Coordinate with [masonry] [gypsum board] [concrete] [_____] wall construction for anchor placement.
- .6 Set frames plumb, square, level at correct elevation in accordance with Section 05 50 00.
- .7 Allow for deflection to ensure that structural loads are not transmitted to frame.
- .8 Adjust operable parts for correct clearances and function.
- .9 Install and adjust perimeter and bottom acoustic seals.
- .10 Finish paint in accordance with Section 09 91 00.

- .11 Touch up painted finishes where damaged.

3.2 ERECTION TOLERANCES

Do not assume that there are industry standards for tolerances. Specify tolerances below as appropriate to the nature or character of the project. Verify that such tolerances are realistic and realizable.

- .1 Section 01 73 00: Tolerances.
- .2 Maximum deviation from square, alignment, twist and plumb: +/- 0.75 mm (1/32").

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 five (5) cycles of operation. Correct any deficient doors.

END OF SECTION