

SECTION 08 34 73  
SOUND CONTROL DOOR ASSEMBLIES

**NOTE\*\* Specialty Products also manufacturers bullet-resistant, blast-resistant, radio frequency shielding, thermal shielding and stainless steel doors, frames and windows.**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Steel acoustical door assemblies.

1.2 RELATED SECTIONS

**NOTE \*\* Delete any sections below not relevant to this project; add others as required.**

- A. Section 08 71 00 - Door Hardware.
- B. Section 08 80 00 - Glazing.
- C. Section 09 90 00 - Paints and Coatings.

1.3 REFERENCES

**NOTE \*\* Delete references from the list below that are not actually required by the text of the edited section.**

- A. ASTM A 1008 - Standard Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
- B. ASTM A 569 - Standard Specification for Steel, Carbon, (0.15 Maximum Percent), Hot-Rolled Sheet and Strip, Commercial Quality.
- C. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.
- D. ASTM B 117 - Standard Method of Salt Spray (Fog) Testing.
- E. ASTM D 1735 - Standard Practice for Testing Water Resistance of Coating Using Water Fog Apparatus.
- F. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions.
- G. ASTM E 336 - Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.
- H. ASTM E 413 - Classification for Determination of Sound Transmission Class.

- I. HMMA 840 - Installation and Storage of Hollow Metal Doors and Frames; Hollow Metal Manufacturers Association.

#### 1.4 SYSTEM DESCRIPTION

- A. Design requirements: Acoustical door assemblies to include doors, frames, and door hardware to include gasketing systems, retainers and retainer covers, automatic or fixed door bottoms, cam-lift hinges, thresholds, and sills, required to achieve specified performance requirements.

**NOTE \*\* Insert Sound Transmission Class (STC) requirements (value 33-55) in the following paragraph.**

- B. Performance requirements: Sound Transmission Coefficient rating of STC\_\_\_\_ for installed assembly, when tested as operable door assembly in accordance with ASTM E 90 and ASTM E 413.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product data: Indicate door materials and construction.
- C. Shop drawings: Indicate door opening criteria, elevations, sizes, types, swings; identify and detail cutouts.
- D. Quality assurance submittals:
  - 1. Test Reports:
    - a. Certified laboratory reports, performed in accordance with ASTM E90 and ASTM E 413, from independent testing laboratory qualified under the National Voluntary Laboratory Accreditation Program (NVLAP) supporting compliance of assemblies to specified requirements.
    - b. Minimum five (5) field tests, performed in accordance with ASTM E 336 and ASTM E 413 by five separate independent testing agencies, substantiating acoustical performance when installed at no less than four (5) FSTC ratings below the specified STC rating.
  - 2. Certificates:
    - a. Contractor's certification that:
      - 1) Products of this section, as provided, meet or exceed specified requirements.
      - 2) Manufacturer of products of this section meet specified qualifications.
  - 3. Manufacturer's instructions: Printed installation instructions for each component.
- E. Closeout submittals:
  - 1. Warranty documents, executed by manufacturer in Owner's name.
  - 2. Operation and maintenance data for assembly components.
  - 3. Certified statement of manufacturer's authorized representative, as specified in FIELD QUALITY CONTROL Article of PART 3 of this section.
  - 4. Certified test reports of independent testing agency, as specified in FIELD QUALITY CONTROL Article of PART 3 of this section.

## 1.6 QUALITY ASSURANCE

- A. Qualifications:
  - 1. Manufacturer: Minimum five (5) years documented experience producing systems specified in this section.
  - 2. Installer: Minimum five (5) years documented experience installing systems specified in this section, and approved by manufacturer.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store frames in accordance with requirements of HMMA 840.
- B. Store steel doors in accordance with requirements of HMMA 840.
- C. Remove wraps or covers from doors and frames upon delivery at the building site; clean and touch-up scratches or disfigurement caused by shipping or handling promptly with rust inhibitive primer.
- D. Store units on planks or dunnage in a dry location; store doors in a vertical position spaced by blocking.
- E. Store units covered to protect them from damage, but permitting air circulation.

## 1.8 SCHEDULING

- A. Furnish manufacturer's mounting templates for door hardware specified in Section 08710 to manufacturer of products of this section in time for factory preparation for door hardware.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable manufacturer: All Noise Control Specialty Products, 4880 Gregg Road, Pico Rivera CA 90660; Telephone 562-695-0645, FAX 562-692-0146.
- B. Substitutions: Not permitted.
- C. Unless otherwise specified for an individual product or material, supply all products specified in this section from the same manufacturer.

### 2.2 MATERIALS

- A. Steel sheet: One of the following:
  - 1. Cold-rolled steel sheet conforming to ASTM A 1008, commercial quality.
  - 2. Hot-rolled steel sheet conforming to ASTM A 569, pickled and oiled, commercial quality.
- B. Galvanized steel sheet: ASTM A 653/A 653M, commercial quality, minimum G60 zinc coating.

- C. Acoustical material: Manufacturer's standard for required STC rating.
- D. Primer: Meeting ASTM B 117 salt spray for 150 hours, and ASTM D 1735 water fog test for organic coatings for 200 hours.
- E. Glazing: Specified in Section 08 80 00.

## 2.3 COMPONENTS

- A. Steel doors: Fabricate in accordance with Architect-approved shop drawings, 1-3/4 inches minimum thickness, and as follows:

**NOTE\*\*Edit the following paragraphs for project requirements.**

1. Face sheets:
  - a. Doors for interior use: Steel sheet, minimum 16 gage sheet thickness.
  - b. Doors for exterior use: Galvanized steel sheet, minimum 16 gage sheet thickness.
  - c. Visible seams on face sheets not permitted.
2. Core:
  - a. Stiffen face sheets with continuous vertical steel sections.
  - b. Fill spaces between stiffeners with acoustical material.
3. Vertical edges:
  - a. Join face sheets at vertical edges by continuous welding:
    - 1) Join door faces by continuous weld on each edge, extending full door height.
    - 2) Grind, fill, and dress welds to provide smooth flush surface.
  - b. Form edge profiles both vertical edges of doors with 1/8 inch in 2 inches bevel.
  - c. Visible seams on vertical edges not permitted.
4. Horizontal edges:
  - a. Close top and bottom edges of doors with continuous steel channels, 16 gage minimum; spot-weld channels to both door faces.
  - b. Provide openings in bottom closure of exterior doors to permit escape of entrapped moisture.
  - c. Provide additional flush closing channel at top edge of doors; spot-weld channel to both door faces.
5. Hardware preparation:
  - a. Mortise, reinforce, drill, and tap doors at factory for fully templated mortised hardware only, in accordance with approved hardware schedule and supplied templates.
  - b. Provide reinforcing plates at surface-mounted or non-templated hardware locations. Surface applied hardware are drilled on site by others.

**NOTE:\*\*Delete the following paragraph if no acoustical panels required.**

- B. Acoustical Panels: Same materials, construction, and finish as doors; sizes as indicated on Architect-approved shop drawings.

- C. Frames: Fabricate in accordance with Architect-approved shop drawings, and as follows:
1. Frames for interior use: Fabricate from steel sheet, minimum 14-gage thickness.
  2. Frames for exterior use: Fabricate from galvanized steel sheet, minimum 14-gage thickness.
  3. Form frame members straight, and of uniform profile through lengths, as welded units with integral trim, of sizes and profiles indicated.
    - c. Weld contact edges of joints closed tight.
    - d. Miter perimeter trim faces and weld continuously.
  4. When shipping limitations so dictate, fabricate frames for large openings in sections designed for assembly in the field; install alignment plates or angles, of same material and gage as frame, at each joint.
  5. Hardware preparation:
    - a. Mortise, reinforce, drill, and tap frames at factory for fully templated mortised hardware only, in accordance with Architect-approved shop drawings and supplied templates.
    - b. Provide reinforcing plates at surface-mounted or non-templated hardware locations.
  6. Floor anchors:
    - a. Fabricate of same material as frame material; minimum 14 gage.
    - b. Weld anchors inside each jamb for floor anchorage.
  7. Jamb anchors:
    - a. Fabricate of same material as frame material; weld anchors inside each jamb for wall anchorage.
    - b. Provide anchor types for indicated adjacent wall construction:
      - 1) Frames for installation in masonry walls: Adjustable jamb anchors, 16 gage, T-shape type.
      - 2) Frames for installation in stud partitions: Continuous 16 gage steel channel to surround stud, welded inside each jamb.
  8. Plaster guards: Fabricate from minimum 22 gage steel; weld in place at hardware mortises on frames to be set in plaster, masonry, or concrete openings.
  9. Provide welded frames with temporary steel spreader welded to jamb feet for bracing during shipping and handling.

**NOTE\*\*Delete the following two paragraphs if vision lites not required.**

- D. Vision lites:
1. Factory-assemble lites in doors indicated to have lites, using glazing materials and assembly methods indicated on approved shop drawings for required STC rating; field assembly not permitted.
  2. Fabricate dual-glazed lites permitting individual removal of each glazing pane.
- E. Loose stops:
1. Fabricate of minimum 12 gage steel, with factory-drilled and countersunk holes for fasteners.
  2. Form stops for mitered corner joints.
  3. Supply cadmium-coated or zinc-coated fasteners, size and quantity required for fastener holes.
- F. Door hardware:

1. Supply gasketing systems, retainers, retainer covers, automatic door bottoms, fixed door bottoms, cam-lift hinges, thresholds, and sills as indicated on Architect-approved shop drawings, or specified in manufacturer's product data for project conditions, to achieve specified performance requirements.
2. All other door hardware is specified in Section 08710.

## 2.4 SILL CONDITION

Where indicated on the drawings, furnish a smooth flush stainless steel or aluminum threshold for the door bottom to seal against when the door is in the closed position. The minimum width of the threshold shall be door thickness plus 4" to allow the threshold to extend a minimum of 1 ½" beyond the face of the door on both sides of the opening. For openings where carpet extends through the opening, the threshold height shall be 1/8" greater in height than the carpet thickness.

**NOTE \*\* Finished floor is defined as the top surface of the floor, except when resilient tile or carpet is used, when it is the top of the concrete slab.**

## 2.5 FINISH

Finish: All tool marks and surface imperfections shall be removed and exposed faces of all welded joints shall be dressed smooth. Assemblies shall be treated and shall be coated on all accessible surfaces with a rust-inhibitive primer which meets ASTM B117 salt spray for 150 hours, and ASTM D1735 water fog test for organic coatings for 200 hours, and which is fully cured prior to shipment.

## 2.6 SOURCE QUALITY CONTROL

- A. Hardware location on doors and frames:
  1. Hinges:
    - a. Top: 5 inches from head of frame to top of hinge.
    - b. Bottom: 10 inches from finished floor to bottom of hinge.
  2. Unit and integral type locks and latches: 38 inches from finished floor to centerline of knob.
  3. Deadlocks: 48 inches from finished floor to centerline of strike.
  4. Panic hardware: 38 inches from finished floor to centerline of cross bar, or as indicated on hardware template.

## PART 3 EXECUTION

### 3.1 EXAMINATION

Note to Architect: Proper installation is essential to the proper performance of acoustical door and frame assemblies.

It shall be the responsibility of the General Contractor to perform the following:

- A. Verification of conditions:
  1. Prior to installation, check and correct frames for size, swing, squareness, alignment, twist and plumb.
  2. Verify openings are in accordance with approved shop drawings.

- B. Installer's examination:
  - 1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
  - 2. Transmit two copies of installer's report to Architect within 24 hours of receipt.
  - 3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
  - 4. Beginning construction activities of this section indicates installer's acceptance of conditions.
- C. Solidly grout fill frames where so indicated on the drawings or the approved submittals, eliminating all voids. The flanking path normally found behind the frame must be packed with either 6-12 lb rock wool insulation or grout filled to assure minimum sound transmission.

### 3.2 PREPARATION

- A. Remove steel spreaders from welded frames prior to installation; use of spreaders for installation purposes not permitted.

### 3.3 INSTALLATION

- A. Install units in accordance with approved shop drawings and manufacturer's printed installation instructions; in addition, install steel components in accordance with HMMA 840.

**NOTE \*\* Delete the following paragraph if no oversize assemblies.**

- B. Oversize assemblies:
  - 1. Weld field joints in accordance with AWS D1.1 and approved shop drawings.
  - 2. Finish exposed field welds smooth; touch-up with rust inhibitive primer.
  - 3. Ship Knock down to the jobsite prepared for field attachment by others.
- C. Fill voids between concealed side of frame and adjacent wall construction with lightweight gypsum plaster in accordance with approved shop drawings or manufacturer's printed installation instructions.
- D. Finish surfaces having abrasion damage smooth; touch-up with rust inhibitive primer.
- E. Install gasketing systems, retainers, retainer covers, automatic door bottoms, fixed door bottoms, cam-lift hinges, thresholds, and sills in accordance with manufacturer's printed instructions.

**NOTE \*\* Verify section references in the following two paragraphs.**

- F. Installation of all other door hardware is specified in Section 08 71 00.
- G. Field painting is specified in Section 09 90 00.
- H. Site tolerances: Do not exceed the following installation tolerances:

1. Squareness: Plus or minus 1/16 inch measured on a line, 90 degrees from one jamb, at the upper corner of the frame at the other jamb.
2. Alignment: Plus or minus 1/16 inch measured on jambs on a horizontal line parallel to the plane of the wall.
3. Twist: Plus or minus 1/16 inch measured at face corners of jambs on parallel lines perpendicular to the plane of the wall.
4. Plumb: Plus or minus 1/16 inch measured on the jamb at the floor.

**NOTE \*\* The above tolerances provide a reasonable guideline for proper installation of hollow metal frames. However, it should be noted that the cumulative effect of the tolerances at their maximum levels will result in sufficient misalignment to prevent the door from functioning properly. Care should be taken to keep each of these tolerances as close to zero as possible.**

### 3.4 FIELD QUALITY CONTROL

- A. Engage and pay for the field services of manufacturer's authorized representative to:
  1. Inspect completed installation of door and frame assemblies.
  2. Test all components through a minimum of ten complete cycles of operation.
  3. Verify each component is correctly installed.
  4. Direct installer in adjusting components for correct operation.
  5. Issue certified statement of compliance of installed door and frame assemblies to Architect-approved shop drawings.
  6. Instruct Owner's maintenance personnel in correct operation and maintenance procedures for components of door and frame assemblies.
- B. Engage and pay for the services of independent testing agency to:
  1. Test door and frame assemblies selected by Owner or Architect in accordance with ASTM E 336.
  2. Issue certified report documenting compliance of installed door and frame assemblies to specified acoustical performance requirements.
- C. Notify Architect a minimum of seven (7) calendar days prior to scheduled testing dates.

### 3.5 MAINTENANCE

- A. Instruct the Owner's Maintenance Personnel regarding the proper operation and maintenance of these doors.

END OF SECTION