



DIVISION 8, METAL SOUND CONTROL DOOR ASSEMBLIES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the contract, including general and supplementary conditions and other Division 1 Specification sections, apply to this section.

1.2 SUMMARY

- A. This Section includes Metal Sound Control Door Assemblies.
 - 1. Provide complete assemblies, including door, frame and seals.
 - 2. Provide instructions from door manufacturer for adjusting acoustical seals
 - 3. Where scheduled, provide sound control doors labeled and listed to meet the fire ratings indicated.

- B. Related Sections;
 - 1. Division 1: Sustainable Design Requirements
 - 2. Division 4: Concrete Unit Masonry for building anchors into and grouting sound-control frames in masonry construction
 - 3. Division 8: Hollow Metal Doors and Frames
 - 4. Division 8: Door Hardware
 - 5. Division 9: Painting, for field painting sound control doors and frames.
 - 6. Division 26: Electrical sections for electrical connections including conduit and wiring for door controls and operators installed on frames with factory installed electrical knock-out boxes.
 - 7. Division 28: Electronic Safety and Security Sections for access control devices installed at door openings and provided as part of a security access system.

- C. Referenced Standards
 - 1. American National Standards Institute (ANSI)
 - 2. American Society for Testing and Materials (ASTM)
 - 3. National Fire Protection Association (NFPA)
 - 4. National Association of Architectural Metal Manufacturers (NAAMM)
 - 5. Steel Door Institute (SDI)

1.3 SUBMITTALS

- A. Product Data: Provide product data for each type of product including sound ratings, construction details, material descriptions, fire-resistance ratings, and finishes, as well as manufacturer's written instructions for adjusting acoustical seals.
- B. Shop Drawings: For sound control door assemblies.
 - 1. Include elevations of each door design.
 - 2. Include details of sound control seals, door bottoms, and thresholds.
 - 3. Include details of doors, including vertical and horizontal edge details and metal thicknesses.
 - 4. Include frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - 5. Include locations of reinforcements and preparations for hardware.
 - 6. Include details of anchorages, joints, field splices, and connections.
- C. Schedule: Provide a schedule of sound control door assemblies prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on drawings. Coordinate with the Door Hardware Schedule.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are approved by the manufacturer.
- B. Acoustical Testing Agency Qualifications: An independent agency accredited as an acoustical laboratory according to the National Voluntary Laboratory Accreditation Program of NIST.
- C. Fire-Rated Door Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

1.5 WARRANTY

All material furnished under this section shall be guaranteed free from defects in workmanship and material for a period of one year from the date of final acceptance.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sound control hollow metal doors and frames palletized, to provide protection during transit and project-site storage.
- B. Deliver welded frames with two removable spreader bars across the bottom of frames, tack welded to jambs and mullions.

- C. Store sound control hollow metal work under cover at project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity. Provide minimum ¼-inch space between each stacked door to permit air circulation. Doors and frames to be stacked in a vertical upright position.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Sound Rating: Provide sound control door assemblies equal to those of assemblies tested as sound retardant units by an acoustical testing agency, and have the minimum rating as indicated in the Door Schedule as calculated by ASTM E90 and ASTM E2235.

2.2 STEEL SOUND CONTROL DOORS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide products by Door Components Inc. or comparable product by one of the following:
 - 1. Steelcraft
 - 2. Pioneer Industries
 - 3. Overly Door Company
- B. Source Limitations: Obtain steel sound control door assemblies, including doors, frames, sound control seals, thresholds and other items essential for sound control, from single source.
- C. Doors: Sound Control Doors, 1-3/4 inches thick. Construct doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges. Fabricate according to NAAMM-HMMA 865.
 - 1. Interior Doors: Fabricate from A60 Galvannealed steel sheets unless otherwise indicated.
 - 2. Core: Manufacturer's sound control core as tested for specified STC rating.
 - 3. Loose Stops for Glazed Lites in Doors: Same material as face sheets.
 - 4. Top and Bottom Channels: Closed with continuous channels of same material as face sheets.
 - 5. Hardware Reinforcement: 7-Gauge hinge reinforcing, 11-Gauge scalp plate and strike reinforcing, 14-Gauge reinforcing for closers and surface mounted hardware.
- D. Materials
 - 1. A60 Galvannealed face sheets, suitable for exposed applications
 - 2. Glazing channel and applied glazing stop: As required by sound control door assembly manufacturer to comply with sound control requirements.

E. Finishes

Prime finish: Apply manufacturer's standard primer immediately after cleaning and pretreating. Manufacturer's standard primer to be fast-curing, lead and chromate free primer complying with ANSI A250.10

2.3 SOUND CONTROL FRAMES

A. Frames: Fabricate sound control frames with corners mitered and continuously welded the full depth and width of frame. Fabricate according to NAAMM-HMMA 865.

1. Weld frames according to NAAMM-HMMA 820.
2. Interior Frames: Fabricate from A60 Galvannealed steel sheet unless otherwise indicated, 16-Gauge nominal thickness or thicker as required to provide STC rating indicated.
3. Hardware Reinforcement: Fabricate according to NAAMM-HMMA 865 of same material as face sheets. 7-Gauge hinge reinforcing, 11-Gauge stike reinforcing, 14-Gauge reinforcing for closers and surface mounted hardware.
4. Factory applied backer in all raised stops and adjacent to surface applied acoustical seals
5. Jamb Anchors:
 - a. Stud-wall type: Designed to engage stud, welded to back of frames; not less than 18-Gauge, A60 Galvannealed unless otherwise indicated.
 - b. Post-installed Expansion Type for in-place concrete or masonry: Minimum 3/8-inch diameter, metallic coated steel bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement place, welded to frame at each anchor location.
6. Floor Anchor: 16-Gauge, A60 Galvannealed where required.
Clip-type anchors with two holes to receive fasteners, extended beyond throat to allow for full grout fill, or inverted with exposed fasteners to be concealed by threshold.
7. Plaster Guards: Metallic-coated steel sheet, not less than 22-Gauge.

B. Materials:

1. A60 Galvannealed, suitable for exposed applications.
2. Powder actuated fasteners in concrete: Fastener system of type suitable for application indicated, fabricated from corrosion resistant materials, with clips or other accessory devices for attaching sound control door frames of type indicated.
3. Bituminous Coating: Factory applied coating on interior throat surface of sound control frames.
4. Concrete Grout Fill: Field applied concrete grout to fully fill the throat cavity of frame prior to installation.

C. Finishes:

Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating. Manufacturer's standard primer to be fast-curing, lead and chromate

free primer complying with ANSI A250.10. Apply at the factory with electrostatic spray application and head cure.

2.4 HARDWARE

- A. Sound Control Door Hardware: Manufacturer's standard sound control system, including head and jamb seals and thresholds, as required by testing to achieve STC rating indicated.
 - 1. Head and Jamb Seals: One of the following:
 - a. Neoprene Compression Seals: One-piece units consisting of closed cell sponge neoprene seal held in place by metal retainer; attached to door frame with flush or concealed screws.
 - b. Silicone Compression Seals: One-piece units consisting of silicone compression bulb and stabilizer flange; attached to door frame adhesively.
 - c. Bronze Seal: Spring tension seal applied with exposed metal screws.
 - 2. Thresholds with neoprene acoustical insert, as tested.
- B. Other Hardware: Comply with requirements in Division 8 'Door Hardware'.

2.5 FABRICATION

- A. Steel Sound Control Door Fabrication: Sound control doors to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal.
 - 1. Comply with requirements in NFPA 80 for fire-rated and smoke control doors.
 - 2. Seamless Edge Construction: Fabricate doors with faces joined at vertical edges by continuous weld. Weld shall be ground, filled and dressed to make them invisible and to provide a smooth, flush surface.
 - 3. Glazed Lites: Factory install glazed lites according to requirements of tested assembly to achieve STC rating indicated. Provide fixed stops and moldings welded on secure side of door.
 - 4. Hardware Preparation:
 - a. Factory prepare sound control doors to receive mortised hardware; include cutouts, reinforcement, mortising, drilling and tapping.
 - b. Reinforce doors to receive surface mounted door hardware.
 - c. Locate door hardware as indicated, or if not indicated, according to NAAMM-HMMA 831, 'Recommended Hardware Locations for Custom Hollow metal Doors and Frames.'
 - 5. Tolerances; Fabricate doors to tolerances indicated in NAAMM-HMMA 865.
- B. Sound Control Frame Fabrication: Fabricate sound control frames to be rigid and free of defects, warp or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in

manufacturer's plant. To ensure proper assembly at project site, clearly identify work that cannot be permanently factory assembled before shipment.

1. Weld flush face joints continuously; grind, fill, dress, and make smooth, flush and invisible. Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated from same thickness metal as frames.
2. Floor Anchors: Weld anchors to bottom of jambs with at least four spot welds per anchor.
3. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Two anchors per jamb up to 60 inches in height.
 - 2) Three anchors per jamb from 60 to 90 inches in height.
 - 3) Four anchors per jamb from 90 to 120 inches in height.
 - 4) Four anchors per jamb plus one additional anchor per jamb for each 30 inches, or fraction thereof, more than 120 inches in height.
 - b. Post-installed Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
4. Hardware Preparation:
 - a. Factory prepare sound control frames to receive mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping.
 - b. Reinforce frames to receive surface mounted door hardware.
 - c. Locate hardware as indicated, or if not indicated, according to NAAMM-HMMA 831, 'Recommended Hardware Locations for Custom Hollow Metal Doors and Frames.'
5. Plaster guards: Weld guards to frame at back of hardware cutouts and glazing stop screws and sound control seal preparations to close off interior of openings in frames to be grouted.
6. Tolerances: Fabricate frames to tolerances indicated in NAAMM-HMMA 865

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas and conditions with installer present, for compliance with requirements and other conditions affecting performance of the work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations of sound control door frame connections before frame installation.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GENERAL

- A. Coordinate installation with work of other trades.
- B. Level subfloor and threshold so that they contact a straightedge for the length of the threshold.
- C. Doors and frames shall be installed in accordance with the manufacturer's written instructions. Frames shall be securely anchored to the floor and held plumb and square by the wall construction.

3.3 PREPARATION

- A. Remove welded-in shipping spreaders installed at the factory. Restore exposed finish by grinding, filling and dressing as required to make repaired area smooth, flush and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace sound control door frames to the following tolerances:
 - 1. Square: Plus or minus 1/16 inch measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch measured at opposite face corners of jambs on parallel lines and perpendicular to plane of wall.
 - 4. Plumb: Plus or minus 1/16 inch measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive non-templated mortised and surface mounted door hardware.

3.4 INSTALLATION

- A. General: Install sound control door assemblies plumb, rigid, properly aligned and securely fastened in place; comply with manufacturer's written instructions.
- B. Frames: Install sound control door frames in sizes and profiles indicated.
 - 1. Set frames accurately in position; plumb, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint

- continuously; grind, fill and dress; make splice smooth, flush and invisible on exposed faces.
 - b. Remove temporary braces only after frames or bucks have been properly set and secured.
 - c. Check square, twist, and plumb of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors. Floor anchors may be set with powder-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.
 3. Grouted Frames: Solidly fill space between frames and substrate with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.
- C. Doors: Fit sound control doors accurately in frames, within clearances indicated below. Shim as necessary.
1. Non-Fire rated doors: Fit non-fire rated doors accurately in frames with the following clearances:
 - a. Jambs: 1/8 inch
 - b. Head with Butt hinges: 1/8 inch
 - c. Sill: Manufacturer's standard
 - d. Between edges of pairs of doors: 1/8 inch
 2. Fire-Rated Doors: Install fire-rated doors with clearances according to NFPA 80
- D. Sound Control Seals: Where seals have been factory pre-fit and preinstalled and subsequently removed for shipping, reinstall seals and adjust according to manufacturer's written instructions.
- E. Thresholds: Set thresholds in full bed of sealant complying with requirements in Division 7, 'Joint Sealants'.
- F. Glazing: Comply with installation requirements in Division 8, 'Glass and Glazing', and with sound control door assembly manufacturer's written instructions. Secure stops with countersunk flat or oval head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.5 FIELD QUALITY CONTROL

Verify proper installation and adjustment of door assemblies, check tolerances, check full cycle of operation, and correct any deficient door and frame assemblies.

3.6 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and adjust seals and other sound control hardware items before final inspection. Leave work in complete and proper operating condition.

- B. Remove and replace defective work, including defective or damaged sound seals and doors and frames that are warped, bowed, or otherwise unacceptable. Adjust gaskets, gasket retainers, and retainer covers to provide contact required to achieve STC rating.
- C. Grouted Frames: Clean grout off sound control door frames immediately after installation.
- D. Prime Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible rust-inhibitive air drying primer.

-END OF SECTION -