SECTION 083473.13 - METAL SOUND CONTROL DOOR ASSEMBLIES

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. SUMMARY
				1. Section includes metal sound control door assemblies.
				2. Related Requirements:

Refer to sections listed below for cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections. Sections listed below are for spec editor’s and design team coordination and are to remain as Editor’s Notes. Remove referenced specification sections within the body of the specification if not applicable to the project.

Section 083473.16 "Wood Sound Control Door Assemblies" for sound control assemblies with wood doors and steel frames.

* + - 1. COORDINATION
				1. Coordinate installation of anchorages for sound control door assemblies. Furnish setting drawings, templates, and directions for installing anchorages. Deliver sleeves, inserts, anchor bolts, and items with integral anchors to Project site in time for installation.
			2. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.

Retain subparagraphs below if additional requirements are necessary; include information about conference.

Review procedures for coordinating frame and anchor installation with wall construction.

Review required field quality-control procedures.

* + - 1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product. Include sound ratings, construction details, material descriptions, core descriptions, [**fire-resistance rating,**] [**temperature-rise ratings,**] and finishes.
				5. Shop Drawings: For sound control door assemblies.

Include elevations of each door design.

Include details of sound control seals, door bottoms, and thresholds.

Include details of doors, including vertical- and horizontal-edge details and metal thicknesses.

Include frame details for each frame type, including dimensioned profiles and metal thicknesses.

Include locations of reinforcements and preparations for hardware.

Include details of each different wall opening condition.

Include details of anchorages, joints, field splices, and connections.

Include details of accessories.

Include details of moldings, removable stops, and glazing.

Include details of conduits and preparations for power, signal, and control systems.

Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs below for two-stage Samples.

* + - * 1. Samples for Initial Selection: For units with factory-applied finishes.
				2. Samples for Verification: For each type of exposed finish not less than 3 by 5 inches.

Retain "Doors and Frames" subparagraph below if fabrication Sample is required.

Doors and Frames: Samples approximately 12 by 12 inches.

Doors: Include section of vertical-edge, top, and bottom construction; automatic door bottom or gasket; core construction; [**glazing;**]and hinge and other applied hardware reinforcement.

Frames: Include profile, corner joint, floor and wall anchors, and seals.

* + - * 1. Schedule: Provide a schedule of sound control door assemblies prepared using same reference numbers for details and openings as those on Drawings. Coordinate with the Door Hardware Schedule.

Coordinate "Qualification Data" paragraph below with qualification requirements in Section 014000 "Quality Requirements" and as may be supplemented in "Quality Assurance" Article.

* + - * 1. Qualification Data: For [**Installer**] [**manufacturer**] [**acoustical testing agency**].

Retain "Product Certificates" paragraph below to require submittal of product certificates from manufacturers.

* + - * 1. Product Certificates: For each type of sound control door assembly.
				2. Product Test Reports: For each sound control door assembly, for tests performed by [**manufacturer and witnessed by a qualified testing agency**] [**a qualified testing agency**].

Retain "Oversize Construction Certification" paragraph below for oversized fire-rated assemblies.

* + - * 1. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

Retain "Field quality-control reports" paragraph below if Contractor is responsible for field quality-control testing and inspecting.

* + - * 1. Field quality-control reports.
				2. Sample Warranty: For manufacturer's special warranties.
			1. CLOSEOUT SUBMITTALS
				1. Maintenance Data: For sound control door assemblies to include in maintenance manuals.
			2. QUALITY ASSURANCE
				1. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

Retain "Acoustical Testing Agency Qualifications" paragraph below if Contractor or manufacturer selects testing agency.

* + - * 1. Acoustical Testing Agency Qualifications: An independent agency accredited as an acoustical laboratory according to the National Voluntary Laboratory Accreditation Program of NIST.
			1. DELIVERY, STORAGE, AND HANDLING
				1. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Avoid the use of nonvented plastic.

Provide additional protection to prevent damage to factory-finished units.

Retain first paragraph below for welded frames. Temporary spreader bars are intended for shipping and handling purposes only.

* + - * 1. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
				2. Store doors and frames vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.
			1. WARRANTY

When warranties are required, verify with Director’s Representative that special warranties stated in this article are not less than remedies available to the Facility under prevailing local laws.

* + - * 1. Special Warranty: Manufacturer agrees to repair or replace components of sound control door assemblies that fail in materials or workmanship within specified warranty period.

Failures include, but are not limited to, the following:

Failure to meet sound rating requirements.

Faulty operation of sound seals.

Deterioration of metals, metal finishes, and other materials beyond normal use or weathering.

Verify available warranties and warranty periods for units and components.

Warranty Period: [**Five**] <**Insert number**> years from date of Substantial Completion.

1. PRODUCTS
	* + 1. PERFORMANCE REQUIREMENTS
				1. Sound Rating: Provide sound control door assemblies identical to those of assemblies tested as sound-retardant units by an acoustical testing agency, and have the following minimum rating:

See the Sound Control Door Assembly Table at the end of the Evaluations for a list of manufacturers and STC ratings. Higher ratings may require doors that are thicker than 1-3/4 inches. Verify with manufacturer.

STC Rating: [**As indicated on Drawings**] [**As indicated in the Door Schedule**] <**Insert STC rating**> as calculated by ASTM E413 when tested in an operable condition according to ASTM E90.

Revise "Fire-Rated Assemblies" paragraph below to allow neutral pressure testing if required and as acceptable to authorities having jurisdiction. Retain option if temperature-rise assemblies are required.

* + - * 1. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings[**and temperature-rise limits**] indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

Smoke- and Draft Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

* + - 1. STEEL SOUND CONTROL DOORS

Consult manufacturers for recommendations and availability. Local New York State and area manufacturers and distributers are preferred.

* + - * 1. Source Limitations: Obtain steel sound control door assemblies, including doors, frames, sound control seals, hinges, thresholds, and other items essential for sound control, from single source from single manufacturer.
				2. Doors: Flush-design sound control doors, [**1-3/4 inches thick**] [**2 inches thick**] [**2-1/4 inches thick**] [**thickness as required to provide STC rating**] <**Insert dimension**>, of seamless construction; with manufacturer's standard sound-retardant core as required to provide STC[**and fire**] rating indicated. Construct doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges. Fabricate according to NAAMM-HMMA 865.

Exterior Doors: Fabricate from metallic-coated steel sheet 0.052-inch nominal thickness or thicker as required to provide STC rating indicated.

Interior Doors: Fabricate from cold-rolled steel sheet unless otherwise indicated, 0.048-inch nominal thickness or thicker as required to achieve STC rating indicated.

Core: Manufacturer's standard sound control core.

Loose Stops for Glazed Lites in Doors: Same material as face sheets.

Top and Bottom Channels: Closed with continuous channels of same material as face sheets, spot welded to face sheets not more than 6 inches o.c.

Hardware Reinforcement: Same material as face sheets.

* + - * 1. Materials:

Cold-Rolled Steel Sheet: ASTM A1008, Commercial Steel (CS), Type B, suitable for exposed applications.

Hot-Rolled Steel Sheet: ASTM A1011, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

Metallic-Coated Steel Sheet: ASTM A653, Commercial Steel (CS), Type B, with G60 zinc (galvanized) or A40 zinc-iron-alloy (galvannealed) coating designation.

Glazing: As required by sound control door assembly manufacturer to comply with sound control[**and fire-rated-door labeling**] requirements.

* + - * 1. Finishes:

Retain "Prime Finish" or "Factory-Applied Paint Finish" subparagraph below.

Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

Factory-Applied Paint Finish: Manufacturer's standard primer and finish coats, complying with SDI A250.3 for performance and acceptance criteria.

Color and Gloss: [**As indicated by manufacturer's designations**] [**Match Sample**] [**As selected by Architect from manufacturer's full range**].

* + - 1. SOUND CONTROL FRAMES
				1. Frames: Fabricate sound control door frames with corners mitered, reinforced, and continuously welded the full depth and width of frame. Fabricate according to NAAMM-HMMA 865.

Weld frames according to NAAMM-HMMA 820.

Exterior Frames: Fabricate from metallic-coated steel sheet 0.079-inch nominal thickness or thicker as required to provide STC rating indicated.

Interior Frames: Fabricate from cold-rolled steel sheet unless otherwise indicated, 0.075-inch nominal thickness or thicker as required to provide STC rating indicated.

Hardware Reinforcement: Fabricate according to NAAMM-HMMA 865 of same material as face sheets.

Retain "Head Reinforcement" subparagraph below for grouted frames installed in masonry openings greater than 48 inches.

Head Reinforcement: Metallic-coated steel channel or angle stiffener, 0.108-inch nominal thickness.

Jamb Anchors:

Retain "Masonry Type," "Stud-Wall Type," or "Postinstalled Expansion Type for In-Place Concrete or Masonry" subparagraph below.

Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.064-inch nominal-thickness metallic-coated steel with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.156 inch thick.

Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.048-inch nominal-thickness uncoated steel unless otherwise indicated.

Postinstalled 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 plate, welded to frame at each anchor location.

Floor Anchors: Not less than 0.079-inch nominal-thickness metallic-coated steel, and as follows:

Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

Ceiling Struts: Minimum 3/8-inch-thick by 2-inch- wide uncoated steel unless otherwise indicated.

Retain "Plaster Guards" subparagraph below for grouted frames.

Plaster Guards: Metallic-coated steel sheet, not less than 0.026 inch thick.

* + - * 1. Materials:

Cold-Rolled Steel Sheet: ASTM A1008, Commercial Steel (CS), Type B, suitable for exposed applications.

Hot-Rolled Steel Sheet: ASTM A1011, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

Metallic-Coated Steel Sheet: ASTM A653, Commercial Steel (CS), Type B, with G60 zinc (galvanized) or A40 zinc-iron-alloy (galvannealed) coating designation.

Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A153, Class B.

Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A153 or ASTM F2329.

Retain "Powder-Actuated Fasteners in Concrete" subparagraph below if powder-actuated fasteners are allowed.

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.

Mineral-Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers.

* + - * 1. Finishes:

Retain "Prime Finish" or "Factory-Applied Paint Finish" subparagraph below.

Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

Factory-Applied Paint Finish: Manufacturer's standard primer and finish coats, complying with SDI A250.3 for performance and acceptance criteria.

Color and Gloss: [**As indicated by manufacturer's designations**] [**Match Sample**] [**As selected by Architect from manufacturer's full range**].

* + - 1. HARDWARE

Cam-lift hinges in "Sound Control Door Hardware" paragraph below are optional features with some manufacturers. Delete if not required.

* + - * 1. Sound Control Door Hardware: Manufacturer's standard sound control system, including head and jamb seals, door bottoms, [**cam-lift hinges,**]and thresholds, as required by testing to achieve STC[**and fire**] rating indicated.

Head and Jamb Seals:[**One of the following:**]

Retain "Neoprene Compression Seals," "Silicone Compression Seals," or "Magnetic Seals" subparagraph below; or retain option in "Head and Jamb Seals" subparagraph above to allow Contractor to select seal type.

Neoprene Compression Seals: One-piece units consisting of closed-cell sponge neoprene seal held in place by metal retainer, with retainer cover of same material as door frame; attached to door frame with concealed screws.

Silicone Compression Seals: One-piece units consisting of silicone compression bulb and stabilizer flange; attached to door frame adhesively.

Magnetic Seals: One-piece units consisting of closed-cell sponge neoprene seal and resiliently mounted magnet held in place by metal retainer, with retainer cover of same material as door frame; attached to door frame with concealed screws.

Retain "Automatic Door Bottoms" or "Door Bottoms" subparagraph below.

Automatic Door Bottoms: Neoprene or silicone gasket, held in place by metal housing, that automatically drops to form seal when door is closed; mounted to bottom edge of door with screws.

Mounting: [**Mortised or semimortised into bottom of door**] [**or**] [**surface mounted on face of door**] as required by testing to achieve STC rating indicated.

Door Bottoms: Neoprene or silicone gasket held in place by metal housing; mortised into bottom edge of door.

Retain "Cam-Lift Hinges" subparagraph below if required to lift heavy sound control door assemblies for closing; verify requirements with manufacturer. Lighter sound control assemblies may incorporate standard hinges.

Cam-Lift Hinges: Full-mortise template type that raises door 1/2 inch when door is fully open; with hardened pin; fabricated from stainless steel.

Thresholds: Flat, smooth, unfluted type as recommended by manufacturer; fabricated from [**aluminum**] [**stainless steel**].

Finish: [**Clear**] [**Color**] anodic finish.

Retain "Color" subparagraph below for color-anodized aluminum thresholds.

Color: [**Light bronze**] [**Medium bronze**] [**Dark bronze**] [**Black**] [**Match Sample**] [**As selected by Architect from full range of industry colors and color densities**].

* + - * 1. Other Hardware: Comply with requirements in Section 087100 "Door Hardware."
			1. SOUND CONTROL ACCESSORIES
				1. Glazing: [**Manufacturers' standard factory-installed glazing.**] [**Comply with requirements in Section 088000 "Glazing."**]

Retain "Grout" paragraph below if grouting of frames is required. NAAMM-HMMA 865 recommends that maximum slump for grout is as indicated in paragraph because thinner grout will leak into grout-protected areas regardless of precautions.

* + - * 1. Grout: Comply with ASTM C476, with a slump of not more than 4 inches as measured according to ASTM C143.

Retain "Corrosion-Resistant Coating" paragraph below if required for grouted frames.

* + - * 1. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
			1. FABRICATION
				1. 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.

Retain first subparagraph below for fire-rated doors.

Comply with requirements in NFPA 80 for fire-rated and smoke control doors.

Seamless Edge Construction: Fabricate doors with faces joined at vertical edges by welding; welds shall be ground, filled, and dressed to make them invisible and to provide a smooth, flush surface.

Exterior Doors: Close top edges flush and seal joints against water penetration. Provide weep-hole openings in bottom of exterior doors to permit moisture to escape.

Delete "Glazed Lites" subparagraph below if lites are field installed or if no lites.

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.

Hardware Preparation: Factory prepare sound control doors to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping.

Reinforce doors to receive nontemplated mortised and surface-mounted door hardware.

Locate door hardware as indicated, or if not indicated, according to NAAMM-HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

Tolerances: Fabricate doors to tolerances indicated in NAAMM-HMMA 865.

* + - * 1. 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.

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.

Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.

Jamb Anchors: Provide number and spacing of anchors as follows:

Masonry 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:

Two anchors per jamb up to 60 inches in height.

Three anchors per jamb from 60 to 90 inches in height.

Four anchors per jamb from 90 to 96 inches in height.

Four anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm), or fraction thereof, more than 96 inches in height.

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:

Three anchors per jamb up to 60 inches in height.

Four anchors per jamb from 60 to 90 inches height.

Five anchors per jamb from 90 to 96 inches in height.

Five anchors per jamb plus one additional anchor per jamb for each 24 inches, or fraction thereof, more than 96 inches in height.

Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.

Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.

Retain "Head Reinforcement" subparagraph below for grouted frames. Reinforcement is not a lintel for masonry construction.

Head Reinforcement: For grouted frames more than 48 inches wide, weld continuous head reinforcement to back of frame at head full width of opening.

Hardware Preparation: Factory prepare sound control frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping.

Reinforce frames to receive nontemplated mortised and surface-mounted door hardware.

Locate hardware as indicated, or if not indicated, according to NAAMM-HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

Retain "Plaster Guards" subparagraph below for grouted frames.

Plaster Guards: Weld guards to frame at back of hardware cutouts and glazing-stop screw and sound control seal preparations to close off interior of openings in frames to be grouted.

Tolerances: Fabricate frames to tolerances indicated in NAAMM-HMMA 865.

1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

Retain first paragraph below if required.

* + - * 1. Examine roughing-in for embedded and built-in anchors to verify actual locations of sound control door frame connections before frame installation.
				2. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. PREPARATION

Retain first two paragraphs below for welded frames. Shipping spreaders in first paragraph are factory installed for temporary protection during shipping.

* + - * 1. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
				2. Prior to installation, adjust and securely brace sound control door frames to the following tolerances:

Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

* + - * 1. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.
			1. INSTALLATION
				1. General: Install sound control door assemblies plumb, rigid, properly aligned, and securely fastened in place; comply with manufacturer's written instructions.
				2. Frames: Install sound control door frames in sizes and profiles indicated.

Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

Retain any of first seven subparagraphs below applicable to Project.

At fire-rated openings, install frames according to NFPA 80.

At openings requiring smoke and draft control, install frames according to NFPA 105.

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.

Install sound control frames with removable glazing stops located on secure side of opening.

Remove temporary braces only after frames or bucks have been properly set and secured.

Check squareness, twist, and plumbness of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

Apply corrosion-resistant coating to backs of frames to be filled with mortar, grout, and plaster containing antifreezing agents.

Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

Retain first subparagraph below if power-actuated fasteners are permitted.

Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

Metal-Stud Partitions: Fully fill frames with mineral-fiber insulation.

In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.

In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.

Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.

Retain "Grouted Frames" subparagraph below if grouted frames are required. See Evaluations.

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.

Installation Tolerances: Adjust sound control door frames for squareness, alignment, twist, and plumbness to the following tolerances:

Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

* + - * 1. Doors: Fit sound control doors accurately in frames, within clearances indicated below. Shim as necessary.

Non-Fire-Rated Doors: Fit non-fire-rated doors accurately in frames with the following clearances:

Revise clearances in first five subparagraphs below to suit doors installed.

Jambs: 1/8 inch.

Head with Butt Hinges: 1/8 inch.

Head with Cam-Lift Hinges: As required by manufacturer, but not more than 3/8 inch.

Sill: Manufacturer's standard.

Between Edges of Pairs of Doors: 1/8 inch.

Retain "Fire-Rated Doors" subparagraph below for fire-rated doors.

Fire-Rated Doors: Install fire-rated doors with clearances according to NFPA 80.

* + - * 1. Sound Control Seals: Where seals have been factory prefit and preinstalled and subsequently removed for shipping, reinstall seals and adjust according to manufacturer's written instructions.
				2. Cam-Lift Hinges: Install hinges according to manufacturer's written instructions.
				3. Thresholds: Set thresholds in full bed of sealant complying with requirements in Section 079200 "Joint Sealants."
				4. Glazing: Comply with installation requirements in Section 088000 "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.

* + - 1. FIELD QUALITY CONTROL

Retain "Testing Agency" paragraph below to identify who shall perform tests and inspections. Retain "Field quality-control reports" paragraph in "Informational Submittals" Article.

* + - * 1. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
				2. Testing Services: Perform testing for verification that assembly complies with STC rating requirements.

Retain first subparagraph below for projects with multiple sound control doors.

Acoustical testing and inspecting agency shall select [**one**] <**Insert number**> sound control door(s) at random from sound control door assemblies that are completely installed for testing.

Field tests shall be conducted according to ASTM E336, with results calculated according to ASTM E413. Acceptable field NIC values shall be within 5 dB of laboratory STC values.

Inspection Report: Acoustical testing agency shall submit report in writing to Architect and Contractor within 24 hours after testing.

If tested door fails, replace or rework all sound control door assemblies to bring them into compliance at Contractor's expense.

Additional testing and inspecting at Contractor's expense will be performed to determine if replaced or additional work complies with specified requirements.

* + - * 1. Prepare test and inspection reports.
			1. ADJUSTING AND CLEANING
				1. Final Adjustments: Check and adjust seals, door bottoms, and other sound control hardware items right before final inspection. Leave work in complete and proper operating condition.
				2. 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.

Retain "Grouted Frames" paragraph below for grouted frames.

* + - * 1. Grouted Frames: Clean grout off sound control door frames immediately after installation.

Retain "Prime-Coat Touchup" or "Metallic-Coated Surfaces" paragraph below for steel doors and frames.

* + - * 1. 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.
				2. Metallic-Coated Surfaces: Clean abraded areas of doors and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 083473.13