

## SECTION 07210 - ACOUSTICAL INSULATIONS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Formaldehyde-free fiberglass Sound control insulation and related products.
- B. Related Sections:
  - 1. Section 07270: Firestopping
  - 2. Section: 09260: Gypsum Board Systems.
  - 3. Section 13100: Acoustical Isolation
  - 4. Section 13300: Wood Floating Floor System

#### 1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
  - 2. ASTM C1320 Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
  - 3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 4. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
  - 5. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.

#### 1.3 SYSTEM DESCRIPTION

- A. Design Requirements: Provide Products and Systems that have been manufactured, fabricated and installed to the following criteria:
  - 1. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test methods indicated below or other testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
    - a. Surface Burning Characteristics ASTM E84.
    - b. Assembly Fire Resistance Rating ASTM E119.
    - c. Combustion Characteristics ASTM E136.
  - 2. Assembly Sound Transmission Rating ASTM E90
  - 3. Sound Absorption ASTM C423

- B. Performance Requirements: Provide Products/Systems that have been manufactured, fabricated and installed to the following criteria:
  - 1. Surface Burning Characteristics, Unfaced ASTM E84: Flamespread index 25, smoke developed 50.
  - 2. Recycled Glass Content: 25%.
  - 3. Combustibility, ASTM E136: Noncombustible.
  - 4. Formaldehyde Content: Free of formaldehyde.

#### **1.4 SUBMITTALS**

- A. General: Submit listed submittals in accordance with provisions of Section 01001 Basic Requirements.
- B. Product Data: Submit manufacturer's product data and installation instructions, including manufacturer's SPEC-DATA« sheets.
- C. Samples: Submit manufacturer's standard selection and verification samples.
- D. Quality Assurance/Control Submittals: Submit the following:
  - 1. Test Reports: Upon request, submit Fire and Sound test reports from recognized test laboratories.
  - 2. Certificates: Submit manufacturer's certificate that products meet or exceed specified requirements.

#### **1.5 QUALITY ASSURANCE**

- A. Obtain each type of building insulation through a single source.
- B. Installer Qualifications: Utilize an installer having demonstrated experience on projects of similar size and complexity.
- C. Regulatory Requirements and Approvals: New York City Building Code.
- D. Pre-installation Meetings: Conduct a pre-installation meeting with the Architect and Acoustical Consultant prior to commencing the work of this section.

#### **1.6 DELIVERY, STORAGE & HANDLING**

- A. General: Comply with Division 1 Product Requirement Section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

## PART 2 PRODUCTS

### 2.1 TYPE 1 - ACOUSTICAL INSULATION

#### FIRE-SAFING INSULATION

- A. Safing Insulation should be 4-5 lb. / cubic. ft. density un-faced semi-rigid fiberglass or mineral wool material. Thicknesses as called out on the drawings or as required to fully-pack voids. Safing insulation should be dimensionally stable and should not slump within cavity. Safing insulation should be inorganic, rot, mildew and vermin proof, and should not corrode steel, copper, aluminum or galvanized materials. Flame and smoke developed ratings shall not exceed 25 and 50 respectively, per ASTM E-84.
- B. Acceptable Products & Manufacturers
  - 1. Safing Insulation or Mineral Wool from Owens Corning Fiberglas Corporation, Toledo, OH Tel. (419) 248-8000
  - 2. Pyro Fiber Safing from Johns Manville Mechanical Insulation Division, Denver, CO Tel. (800) 654-3103

### 2.2 TYPE 2 - ACOUSTICAL INSULATION

#### SOUND ABSORPTIVE MATERIAL FOR ACOUSTICAL CEILINGS, FLOATING FLOORS AND PENETRATIONS

- A. Materials: Sound absorptive material for above acoustical ceilings, under floating floors and for around penetrations in walls, floor/ceiling assemblies shall be fiberglass or mineral wool with a density of 1 ½ lb. / cubic foot. Thicknesses shall be as called for on the detailed drawings. It shall be un-faced and supplied in semi-rigid board form. Flame and smoke developed ratings shall not exceed 25 and 50 respectively, per ASTM E-84. Material shall be non-combustible per ASTM E136. Where large penetrations occur in fire-rated constructions, the use of semi-rigid fire-rated mineral wool safing may be required. Refer to the Architect for a ruling prior to installation.
- B. Material shall be laid directly on the upper side of the sound control ceiling, or between vibration isolation supports in floating floor constructions. For use in sealing penetrations of acoustically-rated partitions, pack material completely in space between penetrating object and partition, leaving no voids or empty spaces.
- C. Acceptable Products & Manufacturers
  - 1. Insul-Shield 150 from Johns Manville Denver, CO Tel. (800) 654-3103
  - 2. Industrial Insulation Type 701 unfaced, from Owens Corning Fiberglass Corporation, Toledo OH Tel. (800) 438-7465
  - 3. Insulation Board from Knaupf. Fiber Glass GmbH, Shelbyville, IN Tel. (317) 398-4434
  - 4. Equal and Approved by the Architect and the Acoustical Consultant.

## 2.3 TYPE 3 - ACOUSTICAL INSULATION

### CAVITY INSULATION FOR SOUND-RATED PARTITIONS

- A. Cavity insulation for sound-rated partitions shall be fiberglass or mineral wool with a density of 0.7 lbs. / cubic foot. Thicknesses shall be as indicated on the drawings. Insulations shall be un-faced and supplied in batts. Flame and smoke developed ratings shall not exceed 25 and 50 respectively, per ASTM E-84. Material shall be non-combustible per ASTM E136.
- B. Material shall be placed tightly in all cavities, friction fit snug against the wallboard with no gaps between batts. Butt ends of batts together. Install behind all electrical outlets, around structural obstructions, jambs, sills, etc.
- C. Acceptable Products & Manufacturers
  - 1. Thermal Shield from Johns Manville, Denver, CO Tel. (800) 654-3103
  - 2. Sound-Attenuation Batt Insulation from Owens Corning Fiberglass Corporation, Toledo OH Tel. (800) 438-7465
  - 3. Noise Reducer Batts from CertainTeed, Valley Forge, PA Tel. (215) 341-7000
  - 4. Equal and Approved by the Architect and the Acoustical Consultant.

## PART 3 EXECUTION

### 3.1 MANUFACTURERS INSTRUCTIONS

- A. Comply with the instructions and recommendations of the building insulation manufacturer.

### 3.2 EXAMINATION

- A. Site Verification of Conditions:
  - 1. Verify that site conditions are acceptable for installation of building insulation.
  - 2. Verify that all pipe, duct, structural and other penetrations have been fully sealed with insulation and/or acoustical sealants as required by these Specifications or by the detailed drawings.
  - 3. Do not proceed with installation of building insulation until unacceptable conditions are corrected.

### 3.3 PREPARATION

- A. Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

### 3.4 INSTALLATION

- A. General: Comply with insulation manufacturer's written instructions applicable to products and application indicated.
  - 1. Install insulation that is undamaged, dry and unsoiled and that has not been left exposed at any time to ice and snow.

2. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
3. Apply single layer of insulation to produce thickness indicated.
4. Install glass-fiber blankets in cavities formed by framing members according to the following requirements:
  - a. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
  - b. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - c. For metal-framed wall cavities where cavity heights exceed 96 inches (2438 mm), support unfaced blankets mechanically and support faced blankets by taping stapling flanges to flanges of metal studs.
5. Acoustical Insulation Installation: Install insulation where indicated in sound rated assemblies. Maintain acoustical rating of assembly.

### **3.5 PROTECTION**

- A. Protect installed work from damage due to subsequent construction activity on the site. Repair damage to installed products prior to installation of finish materials.

**END OF SECTION**

**SECTION 09710 - ACOUSTIC WALL PANELS**  
**Armstrong 'Soundsoak 85 Panels**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Acoustical wall panels and installation components.
- B. Related Sections:
  - 1. Section 09200 – Plaster and Gypsum Board

**1.2 REFERENCES**

- A. Test Methods:
  - 1. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
  - 2. ASTM E 84/CAN/ULC S102 Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 3. CAN/ULC S102 Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 4. NFPA 265 (UBC 8-2) Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Coverings on Full Height Panels and Walls

**1.3 SUBMITTALS**

- A. Product Data: Submit manufacturer's technical data for each type of acoustical wall panel required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical wall panel; minimum 4 inch long samples of attachment method including trim and decorative accents.
- C. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry Factory Mutual Laboratory classification of NRC.
- D. Shop Drawings: Submit shop drawings showing how panels are to be laid out on the walls, details of trim members and width of panels. Width of panels and location of vertical seams are critical.

**1.4 QUALITY ASSURANCE**

- A. Single-Source Responsibility: Provide acoustical panel units and installation components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical wall components with appropriate markings of applicable testing and inspecting organization.
  - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84,
    - a. Flame Spread: 25 or less
    - b. Smoke Developed: 200 or less
  - 2. Room/Corner Wall Test: Fabric-covered material shall meet the acceptance criteria of the NFPA 265 (UBC 8-2) Corner Test.

- C. Coordination of Work: Coordinate acoustical wall work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers. Report any conflicts to Architect for a ruling, prior to installing the work.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver acoustical wall panels to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical wall panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical wall panels carefully to avoid chipping edges or damaged units in any way.

#### **1.6 PROJECT CONDITIONS**

- A. Space Enclosure:
  - 1. Armstrong Soundsoak 85 Fiberglass Panels: All wet work must be complete and dry prior to installation. Installation shall be carried out where the temperature is between 40 degrees F and 120 degrees F. These temperature conditions must be maintained throughout the life of the warranty.

#### **1.7 WARRANTY**

- A. Acoustical Wall Panel: Submit written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within warranty period. Failures include, but are not limited to:
  - 1. Acoustical Wall Panels: Manufacturer's defects.
- B. Warranty Period:
  - 1. Acoustical wall panels: One (1) year from date of Substantial Completion.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Acoustical Wall Panels:
  - 1. Armstrong World Industries, Inc.

#### **2.2 ACOUSTICAL WALL PANELS**

- A. Acoustical Wall Panels: Type AWP-1:
  - 1. Surface Texture: fabric
  - 2. Composition: fiberglass
  - 3. Finish: Soundsoak 85
  - 4. Color: As selected by architect from manufacturer's standard color offering.

5. Thickness: Fiberglass - 1 inch.
6. Width: 24 inches (standard)
7. Installed Panel Heights: 42" (job-requirement)  
*Contractor note: Standard panel heights are 6, 8, 9 or 10 feet. Contractor may order standard panels and field cut them to the required height. Top edges will be concealed within the system-standard J-molding. - Alternatively, contractor may order custom panel heights directly from the manufacturer.*
8. Edge Profile: K2C2 both vertical edges for interface with plastic "H" spline for installation.
9. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with FM label on product carton, A Mounting - 0.80
10. Flame Spread: ASTM E84; composite rating 25 or less flame spread/200 or less smoke developed.
11. Room/Corner Wall Test: NFPA 265: Pass.
12. Dimensional Stability: Standard – space must be enclosed with HVAC systems operating at all times.
13. Acceptable Product: Soundsoak 85, as manufactured by Armstrong World Industries.

B. Acoustical Wall Panel Accessories:

1. Internal spline                    "H" Spline: Item #428
2. J molding:                        heavy-duty plastic J molding
  - a. Item #4062:                    1 inch x 10 feet
  - c. Color:                            to be selected by Architect from Manufacturer's standard color range.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Do not proceed with installation until all wet work such as concrete, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

#### 3.2 PREPARATION

- A. Verify intended placement including heights above floors, and offset from corners with the architect. Coordinate panel layout with mechanical and electrical fixtures.
- B. Notify Architect of any dimensional conflicts or other coordination issues prior to installing panels.

#### 3.3 INSTALLATION

- A. Install wall panels by attaching the panels to an existing wall per the manufacturer's instructions, and in accordance with the authorities having jurisdiction.
- B. Attachment of panels to the wall will include the use of internal splines (included) and J molding as required for top and bottom edges.

#### 3.4 ADJUSTING AND CLEANING

- A. Replace damaged and broken panels.
- B. Routine maintenance of Soundsoak wall panels should consist of frequent vacuuming to minimize dirt accumulation. A dry or wet shampoo can be used on Soundsoak fabric. Work in with a damp sponge and vacuum to remove residue.

### 3.5 SCHEDULE OF PANELS REQUIRED

#### FACULTY SUITE: 2<sup>nd</sup> Floor

Room No.	Room Name	Location and General Configuration	Panels Required
FS-03	Office	North Wall: 10' x 42" high* West Wall: 6' x 42" high*	5 Panels @ 24" wide x 42" high* 3 Panels @ 24" wide x 42" high*
FS-04	Office	North Wall: 10' x 42" high* West Wall: 6' x 42" high*	5 Panels @ 24" wide x 42" high* 3 Panels @ 24" wide x 42" high*
FS-05	Office	North Wall: 10' x 42" high* West Wall: 6' x 42" high*	5 Panels @ 24" wide x 42" high* 3 Panels @ 24" wide x 42" high*
FS-06	Office	South Wall: 6' x 42" high* West Wall: 8' x 42" high*	3 Panels @ 24" wide x 42" high* 4 Panels @ 24" wide x 42" high*
FS-12	Office	North Wall: 6' x 42" high* East Wall: 8' x 42" high*	3 Panels @ 24" wide x 42" high* 4 Panels @ 24" wide x 42" high*
FS-13	Office	North Wall: 6' x 42" high* West Wall: 8' x 42" high*	3 Panels @ 24" wide x 42" high* 4 Panels @ 24" wide x 42" high*
FS-14	Office	North Wall: 8' x 42" high* West Wall: 8' x 42" high*	4 Panels @ 24" wide x 42" high* 4 Panels @ 24" wide x 42" high*
FS-16	Office	East Wall: 6' x 42" high* South Wall: 8' x 42" high*	3 Panels @ 24" wide x 42" high* 4 Panels @ 24" wide x 42" high*
FS-17	Office	East Wall: 6' x 42" high* South Wall: 10' x 42" high*	3 Panels @ 24" wide x 42" high* 5 Panels @ 24" wide x 42" high*

#### NEW CLASSROOMS: 2<sup>nd</sup> Floor

Room No.	Room Name	Panels Required
CR-02	Classroom	East Wall: 12' x 42" high* South Wall: 18' x 42" high* 6 Panels @ 24" wide x 42" high* 9 Panels @ 24" wide x 42" high*
CR-03	Classroom	East Wall: 20' x 42" high* North Wall: 12' x 42" high* 10 Panels @ 24" wide x 42" high* 6 Panels @ 24" wide x 42" high*

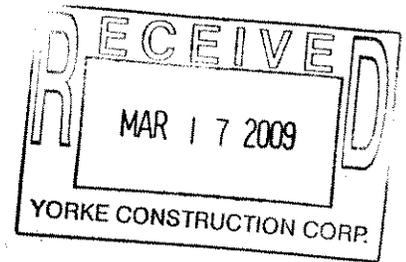
**Notes:** Soundsoak 85 standard panel width is 24"

\*Soundsoak 85 standard panel heights are 6', 8', 9' and 10'.

Contractor choice to (a) order custom height panels, or (ii) use longer standard panels and field cut lengths to suit. Perform any cutting as recommended by the manufacturer.

END OF SECTION

**SECTION 13080 - SOUND CONTROL ACCESS SYSTEMS**  
**SOUND-RATED, STC 43, 'Noise-Lock' doors**



**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Provide sound control door and frame assemblies where shown on the Drawings, as specified herein, and listed on the Door Schedule. The work includes door and frame assemblies complete with acoustical seals, gaskets, cam-lift hinges, and all finish hardware factory supplied and installed. Door leaf and frame is factory assembled and shipped complete as one unit.
- B. Door installation shall be by manufacturer only. Purchase Door and Installation as a single package from the fabricator / vendor.
  - 1. Where scheduled, provide sound control doors labeled and listed to meet the fire ratings indicated.
- C. Related Sections:
  - 1. Section 04300: Unit Masonry System.
  - 2. Section 08705: Door Hardware.
  - 3. Section 08800: Glazing
  - 4. Section 09260: Gypsum Wallboard System.
  - 5. Section 09900: Painting.

**1.2 SYSTEM PERFORMANCE REQUIREMENTS**

- A. Sound Rating: Provide door and frame assemblies that have been fabricated as sound-retardant units, tested according to ASTM E 90 and have the following certified Sound Transmission Class (STC) rating as determined according to ASTM E 413.
  - 1. STC Rating 43

**1.3 SUBMITTALS**

- A. Comply with pertinent provisions of the Contract and Division 1.
- B. Product Data: Within 10 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Material lists of items provided under this Section.
  - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
  - 3. Shop Drawings showing details of each frame type, elevations of door designs, details of openings, and details of construction, installation and anchorage.
  - 4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.
  - 5. Test Reports from a qualified independent testing agency indicating and interpreting test results from

Part 3 of this Section relative to compliance of sound ratings with the indicated requirements.

6. Material certificates in lieu of laboratory test reports when permitted by Architect signed by the manufacturer certifying that each sound control door complies with the project requirements.
7. Field test reports from qualified independent testing agency indicating and interpreting test results relative to compliance with performance requirements of installed sound control doors.

#### **1.4 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Acoustical Performance
  1. The acoustical door manufacturer will be required to submit acoustical performance data in the form of up-to-date test reports from an independent testing laboratory indicating the doors to be provided will have the required Sound Transmission Class Rating (ASTM E-90-90).
  2. For the required STC rating, refer to door schedule drawing.
  3. Owner may at his option order performance tests of installed door assemblies by an independent consultant to verify compliance with the specifications. Any discrepancies shall be repaired or replaced by the Contractor without cost to the Owner.
- C. Single-Source Responsibility: Provide sound control doors and frames, including gaskets, hinges and other hardware items essential for sound control as an assembly and by a single firm specializing in producing this type of work for a minimum of ten (10) years.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- A. Use all means necessary to protect the materials of this section before, during and after installation and to protect the installed work and materials of all other trades.

#### **1.6 WARRANTY**

- A. Acoustic door materials and hardware shall be guaranteed against defective workmanship for one (1) year from date of shipment.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Provide single leaf, "Noise Lock" acoustic door(s) and frame(s) with cam lift hinges and split frames as manufactured by **Industrial Acoustics Co, Inc (IAC)**, 1160 Commerce Avenue, Bronx, New York 10462 (718) 931-8000. Equivalent products will be considered, when submitted for approval prior to the bid opening, and meet or exceed the requirements of this specification.

#### **2.2 MANUFACTURED ASSEMBLIES (NOISE LOCK DOORS)**

- A. Door leaf(s) minimum thickness:  
STC 43 Rating, 1 3/4"

Door leaf(s) and door stiffeners are to be fabricated from 14 gauge (2 mm) cold rolled, galvanized steel with an A60 coating weight, and filled with 6 lb density, sound absorbing, and damping elements.

- B. Frame(s) shall be fabricated from 14 gauge cold rolled, galvanized steel with an A60 coating weight and furnished "split" in two (2) pieces, inside and outside, that are mitered and welded together allowing for easy installation into either existing or new construction openings.
- C. Acoustic seals: Doorjamb, meeting stiles of double doors and at the head of the door and frame shall receive self-aligning magnetic, fire resistant (if UL rated), compression seals. Door(s) to be held in closed position by magnetic force of perimeter seals.

Acoustic labyrinth shall be created when door is in closed position. Bottom of door leaf shall contain continuous, adjustable, gravity-activated seal that shall compress against the floor as the door is closed. Raised sills and threshold drop seals will not be acceptable.

Acoustic Seal assemblies as follows: STC 43, Single magnetic type

- D. Jamb anchors: Provide jamb anchors as determined by wall construction. Anchors are to be spaced at 12" (305 mm) on center (max) and are to be of a corrosion resistant material.

E. Hardware

Hinges: IAC, cam-lift, butt-type, hinges, US26D finish (Hinge manufacturer to furnish laboratory test data certifying that hinges of identical design have been cycled a minimum of 125,000 times while supporting a door leaf weighing a minimum of 350 lbs.)

Quantities of hinges as follows:

For door leaf thickness less than or equal to 2 1/2" (64mm):

Two (2) hinges required per leaf for openings up to and including 96" (2438 mm) high

Closers: "LCN" or "Norton", factory installed.

Latchsets/Locksets: Provided and installed by door manufacturer. Refer to finish hardware section for manufacturer, type and details.

F. Hardware Reinforcement

1. Hinges: Minimum of 1/4" thick x 2" wide x 7 1/2" long
2. Frames: Minimum of 3/16" thick for strikes and #11 gauge for closers.
3. Doors: Minimum of #11 gauge for lock boxes and closers.

- G. Fire Rating: Those openings scheduled, as fire rated, shall have been tested by and bear the labels of Underwriters Laboratories marked for:

1. 1 hour, "C" label (45 min. rated door for installation in a one-hour-rated wall)

H. Glazing

Non-Fire Rated: Provide factory-installed, aluminum extruded stops and moldings with true mitered corners for double, glazed assemblies. Size of vision lite is to be determined from the door schedule. Safety glass or fire-resistive glazing product meeting doors' sound control and labeling requirements is acceptable.

Fire Rated: Provide factory-installed, formed steel stops and moldings with true mitered corners for double, glazed assemblies. Size of vision lite is to be determined from the door schedule in

conjunction with any UL requirements. Wire mesh, glass clad laminate or fire-resistive glazing product meeting doors' sound control and labeling requirements is acceptable.

### **2.3 PRE-HUNG**

- A. Assembly and adjustment of door leaf, frame, acoustic seals, hinges and associated finish hardware shall take place at the factory to insure ease of installation, reliable operation and acoustic performance. The entire manufactured assembly shall be shipped to the job site ready to install and operate.

### **2.4 FABRICATION**

- A. General: Fabricate units to be rigid, neat in appearance and free from defects, warp or buckle. Accurately form metal to required sizes and profiles. Wherever practical, fit and assemble units in the manufacturer's plant. Identify work that is not permanently factory-assembled before shipment to ensure proper assembly at the Project site. Weld exposed joints continuously: grind, fill dress and make smooth flush and invisible.

### **2.5 FINISHES (FACTORY)**

- A. Doors and frames shall receive a shop coat of a rust-inhibitive primer. The primer shall be applied over properly prepared metal, in accordance with the manufacturer's standard shop prime coat procedure and oven-baked dry.
- B. Others, as required, will perform finish painting, staining and/or varnish, under the painting section 0990 of this Specification.

## **PART 3 - EXECUTION**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions.

### **3.2 PREPARATION**

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
- B. Adjacent Construction: Coordinate door assembly details with details of adjacent work to ensure proper attachments and clean junctions.

### **3.3 INSTALLATION**

- A. Install work in accordance with reviewed shop drawings and these specifications using only factory-trained personnel as required by the Manufacturer and approved by the Architect.
  - 1. Hang doors and adjust for free swinging operation without binding, sticking, sagging or excessive clearances.
  - 2. During installation, solidly pack acoustic insulation around frames that are installed in stud and gypsum-wallboard partitions.
  - 3. Caulk exterior joint prior to painting.

4. Install sound control door assemblies during finish phase of construction to protect units from damage.
5. When installation is otherwise complete, adjust operating hardware for proper operation and function.

#### **3.4 FIELD QUALITY CONTROL**

- A. Upon completion of this portion of work, and prior to its acceptance by the Owner, secure a visit to the job site by a qualified representative of the manufacturer of the acoustical door system(s) to confirm that installation is in conformance with the manufacturer's recommendations.

#### **3.5 FIELD TESTING**

- A. Testing Agency: Owner will employ and pay an independent testing agency to perform sound control field-testing on a door or door(s) to be randomly selected by the Owner or Architect.
- B. Contractor shall be required to repair, replace or otherwise remedy components of sound control doors where test results indicate STC rating does not meet the specified requirements.

#### **3.6 DEMONSTRATION**

- A. Instruct the Owner's maintenance personnel regarding operation and maintenance of all acoustic doors.

**END OF SECTION**

## **SECTION 13100 - ACOUSTICAL ISOLATION CONSTRUCTION**

### **PART 1 GENERAL**

#### **1.1 GENERAL REQUIREMENTS**

- A. Resilient devices for use between structural walls, and ceilings and interior floating walls and sound control ceilings.
- B. Acoustic Insulation.

#### **1.2 RELATED SECTIONS**

- A. Section 07210 - Acoustic Insulation
- B. Section 09260 - Gypsum Board Systems
- C. Section 04300 - Unit Masonry Systems

#### **1.3 QUALITY ASSURANCE**

- A. Use adequate numbers of workmen skilled in the subject work types. Tradesmen should be thoroughly trained and experienced in the use and assembly of the subject components. Tradesmen should be completely familiar with the specified systems and the intended performance requirements of the work, as well as with the methods needed for proper functional performance of the work of this Section.

#### **1.4 SUBMITTALS**

- A. Product Data - Submit:
  - 1. Materials list of all items proposed to be provided under this Section.
  - 2. Manufacturer's Specifications and other product data needed to prove compliance with the specified requirements.
  - 3. Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent or following trades.
  - 4. Manufacturer's recommended procedures which apply to the subject work.

#### **1.5 PRODUCT HANDLING**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation, and to protect the installed work and materials of other trades.
- B. Replacements: In the event of damage, malfunction or discovered defect, immediately make all repairs or replace the defective component with new.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

#### A. **Combination neoprene element and spring hangers.**

The following manufacturers and products are acceptable:

1. Type W30N from Masonn Industries, Hauppauge, NY Tel. (631) 348-0282
2. Type SRH from Kinetics Noise Control, Dublin OH Tel. (614) 889-0480
3. Type RSH-30A from Vibration Mountings & Controls Tel. (201) 838-1780

#### C. **Low Profile Sway Braces**

The following manufacturers and products are acceptable:

1. Type WIC from Mason Industries, Hauppauge, NY Tel. (631) 348-0282
2. Alternate: Subject to Shop Drawing approval by the Acoustical Consultant.  
Type Iso-Max from Kinetics Noise Control, Dublin OH Tel. (614) 889-0480

### 2.2 MATERIALS

#### A. **Combination neoprene element and spring hangers.**

1. Combination Neoprene element and spring hanger shall consist of a steel frame containing a Neoprene isolation element at the top and a coil steel spring seated in a Neoprene cup at the bottom. Both the element and the cup shall be molded with a Neoprene bushing that passes through the steel frame. The Neoprene element shall be capable of an average deflection of 0.35". The steel spring shall be capable of a minimum static deflection of 0.75" with a minimum additional travel to solid of 1/2". Spring diameter and hanger box lower hole size shall be large enough to permit the hanger rod to swing through an arc of 30 degrees before contacting the box and short-circuiting the spring. Hanger shall be factory pre-compressed 70% of the total deflection determined by the assigned load per hanger. Hanger shall be manufactured with provision for bolting or attaching to ceiling flat iron straps, rods or steel runners.

#### B. **Low Profile Sway Braces**

1. Low profile brace requires a maximum 1.5" between structural wall and isolated stud. Brace shall incorporate two interlocking "J" brackets with Neoprene pad insert. Brackets made from formed 16 ga. galvanized steel punched for screw or bolt attachment.

### 2.3 PERIMETER ACOUSTIC ISOLATION BOARD

- A. Perimeter Isolation Board shall be 1/2" or 3/4" thick (as indicated on drawings or in these specifications), rigid glass fiber (10 lb / cubic ft/ maximum density), or Neoprene rubber sponge (conforming to ASTM-D01056, Grade SCE 41), inserted as indicated on the detailed drawings. No rigid materials shall be allowed to pass across the isolation layer, thereby short-circuiting the isolation. For floating wood floor constructions (Refer to Specifications Section 13300), the vertical height of the isolation board shall be that distance measured from the concrete slab to the height of the finished floor, plus approx. 1" - 2", unless shown otherwise on the details.

B. Subject to the foregoing, the following Products and Manufacturers are acceptable:

1. Type AFG-10 from Mason Industries, Hauupage, NY Tel. (631) 348-0282
2. Type PIB from Kinetics Noise Control. Dublin, OH Tel, (614) 889-0480
3. Neoprene Sponge Rubber from Metropolitan Rubber Co Tel. (201) 489-0909
4. Equal and Approved by the Architect and the Acoustical Consultant.

### **PART 3 EXECUTION**

#### **3.1 INSPECTION**

- A. Examine the areas and conditions where acoustical isolation materials or systems are to be installed. Correct ant deficiencies or conditions which would adversely affect the proper installation of the work. Do not proceed with installation until conditions are satisfactory.
- B. Commencement of work shall be deemed to infer that contractor has made the conditions acceptable for installation.

#### **3.2 INSTALLATION**

- A. Coordinate with other trades as required.
- B. Install the work and components of this section in accordance with the approved design, Shop Drawings and manufacturer's recommended installation procedures for the specific conditions.

**END OF SECTION**

## SECTION 13300 - WOOD FLOATING FLOOR CONSTRUCTION

### PART 1 GENERAL

#### 1.1. GENERAL

- A. System describes an acoustically-isolated, raised wood, 'floating' floor system intended to minimize noise transmission to other spaces or to other building elements.

#### 1.2. RELATED SECTIONS

1. Section 06100 Rough Carpentry
2. Section 07210 Acoustical Insulations
3. Section 13100 Acoustical Isolation (incl. Neoprene Mounts & Perimeter Isolation Board)
4. Section 13300 Acoustical Insulation

#### 1.3 SUBMITTALS

1. Before delivery of the gaskets, Contractor shall submit for the approval of the Architect and Acoustical Consultant the following documents:
  1. Shop drawings showing the components and assemblies for the raised floor system.

#### 1.4 MANUFACTURERS

- A. Subject to the foregoing, the following are acceptable:
1. Mason Industries
  2. Kinetics.

#### 1.5 MOCK-UP

- A. Prior to proceeding with the installation of any acoustically isolated assemblies, provide a full scale mock-up of a corner condition, measuring not less than 5' x 5' in plan, including, but not limited to the following components:
1. Acoustically isolated drywall partition with sway braces, isolators and related assemblies, per Specifications Section 09260, and the relevant wall details.
  2. Minimum 5' x 5' representative portion of the acoustically-isolated, suspended gypsumboard ceiling, per Specifications Section 09260, and the relevant ceiling details.
  3. Minimum 5' x 5' representative portion of the acoustically-isolated, floating wood floor assembly, as documented in Specification Section 13300.
- B. Proceed with construction only after Architect and Acoustic Consultant have reviewed and approved the mock-up. An accepted mock-up may be incorporated as part of the finished work.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. See Related Sections
- B. Lumber and Plywood used must be fire-retardant treated as follows:
  - 1. Fire retardant: AWPA Treatment C20, Interior Type, chemically treated and pressure impregnated; capable of providing a maximum flame spread/smoke development rating not exceeding the limitations prescribed in the New York City Building Code. manufactured by Louisiana Pacific or equal and approved by Architect.

## PART 3 EXECUTION

### 3.1 INSTALLATION: GENERAL REQUIREMENTS

- A. Counter bore holes on 24" centers in underside of 2" x 4" sleepers so that depth allows for an unloaded clearance of 1/8" between the underside of the sleeper and the structural floor slab below.
- B. Holes in wood sleepers shall be large enough to allow 1/4" all around the diameter of the isolators. Isolators shall be neoprene Mounts. Bolt the isolators to the 2" x 4" sleeper with flat head screws in countersunk holes.
- C. The 2" x 4" sleepers, with the mounts, shall be placed so that they are 16" apart on center. The Neoprene mounts should not be mechanically secured or fastened to the structural floor. Adhesive securing is acceptable.
- D. Place 2 1/2" thick, Acoustical Ceiling / Floor / Penetration Insulation between the sleepers, laid directly on the floor.
- E. The entire perimeter of the floating floor shall be held back 1/2" from the walls and any other obstructions such as columns. This shall prevent movement of the floor into solid contact with the wall. Place a 1/2" thick Perimeter Isolation Board around the entire perimeter of the floor, including any penetrations at the perimeter (and in the field of the floor), such as columns, pipes, conduits, etc. The height of the pad shall be the full depth of the finished floor. Thus, when the sleepers and flooring are in place, the vertical perimeter isolation shall fill the gap between the wall and floor (or column), entirely.
- F. Lay the first layer of 3/4", fire-retardant-treated plywood sheets on top of the sleepers and secure with nails. - Ensure screws do not penetrate through to or come into physical contact with slab below. - Allow approximately 1/4" expansion void between sheets at sides and ends. Ensure that voids occur over sleepers or blocking.
- G. Apply a layer of 30 lb. construction felt over the layer of plywood described above.
- H. Lay a second layer of fire-retardant-treated plywood sheets at right angles (i.e. perpendicularly) to the first layer described above. Stagger the joints by 16" in both directions, and allow 1/8" expansion voids such that no joints align with those on the layer below. Secure with screws. - Ensure screws do not penetrate through to or come into physical contact with slab below.
- I. Adhere finish flooring (carpet, VCT, per the Finish Schedule), to the plywood using adhesives and methods approved by the finish manufacturer.

- J. Apply continuous beads of Acoustical Sealant over the top of the 3/4" thick perimeter isolation pad. Place resilient or wood base (per Finish Schedule), around the perimeter of the room and at any obstructions.
- K. Wood base, if used, shall be held 1/4" clear of the floor vertically, to allow continued resiliency of the floors.

**3.2 SCHEDULE OF AREAS**

- 1. Raised acoustical wood flooring in selected portions of the Faculty Suite (Refer to the Drawings).
- 2. Raised acoustical wood flooring in selected, 2 new Classrooms, as indicated on the drawings.

**END OF SECTION**