SECTION 13085

SOUND ISOLATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resilient sound isolation clips installed with drywall furring channels for support of gypsum board for noise control (de-coupling) in walls and ceilings.

1.2 RELATED SECTIONS

A. Section 05400 - Cold-Formed Metal Framing.

B. Section 06110 - Wood Framing.

C. Section 07210 - Building Insulation.

D. Section 07920 - Joint Sealants.

E. Section 09110 - Non-Load-Bearing Wall Framing.

F. Section 09250 - Gypsum Board.

G. Section 09260 - Gypsum Board Assemblies.

H. Section 09820 - Acoustical Insulation and Sealants.

1.3 REFERENCES

A. AISI Specifications for Design of Cold-Formed Steel Structural Members.

B. ASTM B 633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.

C. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members.

D. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

E. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board.

F. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

G. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers -

Tension.

H. ASTM D 573 - Standard Test Method for Rubber-Deterioration in an Air Oven.

I. ASTM D 2000 - Standard Classification System for Rubber Products in Automotive Applications.

J. ASTM D 2240 - Standard Test Method for Rubber Property - Durometer Hardness.

K. UL Fire Resistance Directory. www.ul.com

1.4 DESIGN REQUIREMENTS

A. Dead or Shear Load: Maximum design load of 36 pounds per each resilient sound isolation clip.

B. Conform to UL Fire Resistance Directory design assemblies, where required.

1.5 SUBMITTALS

A. Comply with Section 01330 - Submittal Procedures.

B. Product Data: Submit manufacturer's product data and installation instructions.
1. Resilient sound isolation clips.
2. Drywall furring channels.

C. Samples: Submit manufacturer's samples.
1. Resilient sound isolation clips.
2. Drywall furring channels.

D. Warranty: Submit manufacturer's standard warranty for resilient sound isolation clips.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.

C. Handling: Protect materials during handling and installation to prevent damage.

PART 2 PRODUCTS

2.1 SOUND ISOLATION

A. Sound Isolation Clips: Resilient Sound Isolation Clip (RSIC-1).
1. Manufacturer: PAC International, LLC., Las Vegas, NV 89128. Toll Free (866) RSIC-100, (866) 774-2100. Phone (503) 649-7700. Fax (503) 649-2710. Web Site www.pac-

intl.com. E-Mail info@pac-intl.com.

2. Rubber Isolator:
   a. Man made or Natural organic rubber compounds.
   b. Molded to isolate ferrule from clip.
   c. Minimum of 12 micro-vibration controlling pedestals at point of contact with framing member.
   d. Manufactured to ASTM D 2000, M2 AA 510 A13, which includes:
      1) Hardness, ASTM D 2240, Shore A: 47.
      2) Modulus 300 Percent, ASTM D 412, Die C: 5.3 MPa.
      3) Tensile Strength, ASTM D 412, Die C: 11.2 MPa.
      4) Elongation at Break, ASTM D 573: 454 percent.
3. Clip: G90 Galvanized or aluminum-zinc coated steel, 18 gauge.
4. Ferrule: Zinc-electroplated steel.
5. Projection: 1-5/8 inches from supporting structure, when 7/8-inch drywall furring channels are used.

B. Drywall Furring Channels (Hat Track):
   1. Material: Cold-formed galvanized steel.
   2. Conformance:
      a. AISI Specifications for Design of Cold-Formed Steel Structural Members.
      b. ASTM C 645.
      c. ASTM C 754.
   3. Designation: Steel Stud Manufacturers Association (SSMA) Code 087F125-18 (25 gauge).
      a. Size: 0.0179 inch (0.53 mm) thick, 7/8 inch (22.2 mm) height, 2-11/16 inches (68 mm) width.
      b. Hemmed edge detail.

C. Mechanical Fasteners:
   1. Type: Self-drilling, self-tapping screws. Steel, ASTM C 1002. Galvanized coating, plated, or oil-phosphate coated, ASTM B 633, as needed for required corrosion resistance.
   2. Resilient Sound Isolation Clip Connections:
      a. To Wood Framing Members: Screws 2-1/2 inches (63 mm) minimum length, #8 minimum shank, Type W (course thread), bugle- or hex-head screws of equal or greater size.
         1) Minimum Pullout and Shear: 108 pounds.
      b. To Steel Framing Members (Less than 20 Gauge): Screws 1-1/2 inches (38 mm) minimum length; #8 minimum shank; Type S (fine thread); bugle-, wafer-, or hex-head screws of equal or greater size.
         1) Minimum Pullout and Shear: 108 pounds.
      c. To Steel Framing Members (20 Gauge through 12 Gauge): Screws 1-1/2 inches (38 mm) minimum length; #8 minimum shank; Type S (fine thread); self-drilling tip; bugle-, wafer-, or hex-head screws of equal or greater size.
         1) Minimum Pullout and Shear: 108 pounds.
      d. To Concrete: Anchors 1-3/4 inches (44 mm) minimum length, 3/16-inch to 1/4-inch diameter. Mushroom head or screw-in type anchor in accordance with fastener manufacturer's instructions. Powers Fasteners or approved equal.
         1) Minimum Pullout and Shear: 108 pounds.

e. To Concrete Masonry Units: Anchors 2-1/4 inches (57 mm) minimum length, 1/4-inch diameter. Designed for use in concrete masonry units in accordance with fastener manufacturer's instructions. Powers Fasteners or approved equal.
   1) Minimum Pullout and Shear: 108 pounds.

3. Drywall Furring Channel Lap Joint Connection, Steel to Steel: Framing screws, button head, 7/16 inch (11 mm) minimum length, #6 minimum shank, needle point, Phillips drive or greater, or double-wire tie with 18 gauge tie wire.

D. Tie Wire: 18 gauge, annealed, galvanized steel.

E. Acoustical Sealant: Flexible, non-hardening. As specified in Section 07920.

F. Fire/Smoke Sealant: Flexible, non-hardening. Classified as an acoustical sealant. As specified in Section 07920.

G. Putty Pad Sealant: Control noise transmission and fire resistance at electrical boxes and other penetrations. As specified in Section 07920.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive materials. Notify Architect if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

3.2 INSTALLATION - GENERAL

A. Install resilient sound isolation clips and drywall furring channels in accordance with manufacturer's instructions.

B. Mechanically fasten resilient sound isolation clips to structure with screws, bolts, or expansion anchors, dependent upon structure.

C. Fire-Resistive Design Assemblies:
1. Install as specified in UL Fire Resistance Directory, where required.
2. Do not arbitrarily add resilient sound isolation clips to fire-rated assemblies.

D. Space resilient sound isolation clips at maximum of 24 inches (600 mm) by 48 inches (1,200 mm) on center for walls and ceilings.

E. Do not exceed design load (pull and shear) of 36 pounds per isolation clip.

F. Stagger isolation clip installation, so dead load is supported by all support members.

G. Splicing Drywall Furring Channels:
1. Splice drywall furring channels with minimum of 6-inch (150-mm) laps.
2. Secure laps with 2 framing screws or 18 gauge tie wire double wrapped.

3. Locate splices between resilient sound isolation clips.
4. Do not locate splices on resilient sound isolation clips.

H. Install resilient sound isolation clips on 1 side of wall assembly, unless otherwise indicated on the drawings.

I. Flanking Noise:
1. Review installation details to prevent structure-borne flanking noise.
2. Do not allow drywall furring channels or gypsum board to contact foreign materials, including floors, ceilings, or wall framing members.

J. Ensure metal ferrule of resilient sound isolation clips is in firm contact with structural member.

K. Gypsum Board:
1. Install gypsum board in vertical or horizontal position with 1/8-inch (3-mm) to 1/4-inch (6-mm) gap around perimeter for acoustical sealant application.
2. Install gypsum board in accordance with ASTM C 840 as specified in Section 09250.

L. Acoustical Sealant:
1. Seal potential air leaks with acoustical sealant to achieve best Field Sound Transmission Class (FSTC).
2. Seal electrical outlets and penetrations with acoustical sealant.
3. Apply fire-rated acoustical sealant at locations where fire-rated assembly is required.

M. Putty Pad Sealant: Acoustically seal with putty pads, electrical boxes in walls and ceilings in which resilient sound isolation clips are used.

3.3 INSTALLATION - WALLS

A. Install drywall furring channels perpendicular to framing members.

B. Space drywall furring channels maximum of 24 inches (600 mm) on center.

C. Locate first drywall furring channel parallel to floor and maximum of 3 inches (75 mm) above floor and 1 drywall furring channel maximum of 6 inches (150 mm) from ceiling.

3.4 INSTALLATION - CEILINGS

A. Install drywall furring channels perpendicular, parallel, or angular to framing members.

B. Space Drywall Furring Channels:
1. Maximum of 24 inches (600 mm) on center with:
   a. Single layer of 5/8-inch (16-mm) gypsum board.
   b. Double layer of 5/8-inch (16-mm) gypsum board, weighing less than 2.25 pounds per square foot per layer.
   c. Single layer of 1/2-inch (12-mm) high-strength gypsum board.
   d. Double layer of 1/2-inch (12-mm) high-strength gypsum board.
2. Maximum of 16 inches (400 mm) on center with:

a. Double layer of 5/8-inch (16-mm) gypsum board.
b. Single layer of 1/2-inch (12-mm) regular-strength gypsum board.
c. Double layer of 1/2-inch (12-mm) regular-strength gypsum board.

3. Reduce spacing of drywall furring channels to prevent potential for sagging of gypsum board or when additional loads are supported by resilient sound isolation clips.

C. Locate resilient sound isolation clips maximum of 8 inches (200 mm) from ends of drywall furring channels.

D. Locate drywall furring channels maximum of 3 inches (75 mm) from parallel wall assemblies.

END OF SECTION