

SECTION 15920 - SOUND ATTENUATORS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

- A. Sound attenuators required by this section are indicated on drawings and schedules, and are not necessarily limited to this section.
- B. Refer to other Division-15 sections for ductwork; external insulation of sound attenuators; not work of this section.

1.2 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacturer of sound attenuators with characteristics, sizes, and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
 - 1. NFPA Compliance: Construct sound attenuators using acoustical fill complying with NFPA 90A, "Air Conditioning and Ventilating Systems."
 - 2. ASTM Compliances: Comply with applicable requirements of ASTM E90 and E477.
 - 3. AMCA 1011 CRP Compliance

1.3 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical product data, including performance data for each size and type of sound attenuator furnished; schedule showing drawing designation, room location, number furnished, model number, size, and accessories furnished; and installation and start-up instructions.
- B. Shop Drawings: Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loadings, required clearances, and methods of assembly of components.
- C. Record Drawings: At project closeout, submit record drawings of installed systems products, in accordance with requirements of Division 15.
- D. Maintenance Data: Submit maintenance data and parts list for each type of sound attenuator; including "trouble- shooting" maintenance guide. Include this data, product data, and shop drawings in maintenance manual; in accordance with requirements of Division 15.

1.4 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver sound attenuators with identification on outside of casings indicating type of sound attenuator and location to be installed. Avoid crushing or bending, and prevent dirt and debris from entering and settling in sound attenuators.
- B. Store sound attenuators so as to protect from weather and construction work traffic. Where possible, store indoors; when necessary to store outdoors, store above grade and enclose with waterproof wrapping.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cross Talk Silencers
 - a. Aeroacoustic Corporation.
 - b. Gale Noise Control; Div of Norwood Manufacturing Corp.
 - c. Tempmaster Corp; Subs. of Temperature Industries Inc.
 - d. Titus Products; Div of Philips Industries Inc.
 - e. International Acoustics Company
 - f. Rink
2. Duct Silencers
 - a. Aeroacoustic Corporation.
 - b. Gale Noise Control; Div of Norwood Manufacturing Corp.
 - c. Titus Products; Div of Philips Industries Inc.
 - d. International Acoustics Company
 - e. Semco
 - f. United Sheet Metal
 - g. Rink

2.2 DUCT SILENCERS:

Select special materials for certain applications.
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- A. General: Provide factory-fabricated and tested duct silencers as indicated, select with performance characteristics which match, or exceed those indicated on schedule.
- B. Casings: Construct of galvanized sheet metal/stainless steel with gauge and seam construction equal or greater than that recommended by SMACNA Duct Construction Standards for ductwork of same size and pressure class; but not less than 22-gauge for outer casing and 22-gauge for inner casing. All seams shall be lock formed and mastic filled.
- C. Acoustic Fill: Provide inorganic mineral or glass fiber filler material, inert, vermin and moisture proof, of sufficient density to obtain specified acoustic performance. Pack under not less than 5% compression to eliminate voids due to vibration and settling.
- D. Acoustic Performance: Provide silencer ratings that have been determined in duct at reverberative room test facility. Test silencer with air flow in both directions through silencer, in accordance with the latest version of ASTM E477, "Methods of Testing Duct Liner Materials and Prefabricated Silencers for Acoustical and Airflow Performance."
- E. For acoustic ratings, include Dynamic Insertion Loss and Self-generated Noise Power Levels for both forward flow (air and noise in same direction) and reverse flow (air and noise in opposite directions) with airflow at the design FPM face velocity.
- F. Aerodynamic Performance: Provide silencers with static pressure loss equal to or less than that scheduled.

- G. Certification: Provide certified test data on Dynamic Insertion Loss, Self-Noise Power Levels, and Aerodynamic Performance. Conduct all rating tests at same facility. Open testing facility for inspection by Architect/Engineer if requested.
- H. For systems serving "clean" air flow (operating rooms or intensive care units or electronics manufacturing facilities), provide duct silencer rated for "clean flow" which is constructed non-erosive to eliminate carryover of organic particulate matter from the silencer, as well as non-generable to prevent adsorption of gases and particles into the fill. Acoustic infill shall be encapsulated with a polymer sheet material. The entire silencer shall meet NFPA 90 and 25/50 flame/smoke rating. Provide removable side to permit cleaning of concealed surface and replacement of fill.

2.3 CROSS TALK SILENCERS:

- A. General: Provide factory-fabricated and tested cross talk silencers as indicated, selected with performance characteristics which match or exceed those indicated on schedule.
- B. Construction: Construct outer casing of 22-gauge and interior baffles of 22-gauge galvanized steel. Lock form seams in outer casing. Provide glass fiber acoustical filler material, packed under compression. Construct so entire silencer is incombustible, moisture resistant, and imparts no odors to the ambient air.
- C. Pressure Drop: Provide units that have equal or less pressure drop than that scheduled, and certify that static pressure has been measured by independent laboratory in accordance with AMCA 210, "Laboratory Methods of Testing Fans for Rating Purposes".
- D. Acoustical Characteristics: Provide units that have equal or greater noise reduction characteristics than those scheduled, and certify that noise reduction data has been measured by independent laboratory in accordance with ASTM E90, "Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions."

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Examine areas and conditions under which sound attenuators are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION OF SOUND ATTENUATORS:

- A. General: Install sound attenuators as indicated, and in accordance with manufacturer's installation instructions.
- B. Location: Install each unit level and accurately in position indicated in relation to other work; and maintain sufficient clearance for normal service and maintenance, but in no case less than that recommended by manufacturer.
- C. Duct Connections: Connect ductwork to sound attenuators in accordance with Division-15 ductwork sections.

3.3 FIELD QUALITY CONTROL:

- A. Upon completion of installation and prior to initial operation, test and demonstrate that sound attenuators, and duct connections to sound attenuators, are leak tight.

- B. Repair or replace sound attenuators and duct connections as required to eliminate leaks, and retest to demonstrate compliance.

3.4 CLEANING:

- A. Clean exposed factory finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

END OF SECTION 15920