Suggested Specifications

Price Air Transfer Silencers

Division 23 – Heating, Ventilating, and Air Conditioning

Section 23 33 19 – Duct Silencers

The following specification is for a defined application. Price would be pleased to assist in developing a specification for your specific need.

PART 1 – GENERAL

1.01 Section Includes

A. Air transfer silencers.

1.02 Related Sections

A. Section 01 30 00 - Administrative Requirements.
B. Section 01 40 00 - Quality Requirements
C. Section 01 7419 - Construction Waste Management and Disposal
D. Section 01 78 00 - Closeout Submittals.
E. Section 01 79 00 - Demonstration and Training
F. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment.
G. Section 23 31 00 - HVAC Ducts and Casings: Connections to silencers.
H. Section 23 33 00 - Air Duct Accessories: Flexible duct connections.

1.03 Reference Standards

A. ANSI/AMCA 500 – Standard Laboratory Methods of Testing Louvers for Rating; 2015
B. AMCA 511 – Certified Ratings Program Product Rating Manual for Air Control Devices
C. ASHRAE Applications Handbook, Chapter 48 “Noise and Vibration Control”; 2015
D. ASHRAE 62.1 – Ventilation For Acceptable Indoor Air Quality; 2013
E. ASTM A653/A653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-dip Process; 2015
F. ASTM C1071 – Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2016
G. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials; 2016
H. ASTM E90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009
I. ASTM E413 – Classification for Rating Sound Insulation; 2016
J. NFPA 90A – Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015
K. NFPA 90B – Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2015
L. NFPA 255 – Standard Method of Test of Surface Burning Characteristics of Building Materials; 2006
M. SMACNA 006-2006 – HVAC Duct Construction Standards – Metal and Flexible; 2006
N. UL 181 – Standard for Factory-Made Air Ducts and Air Connectors; 2013
O. UL 723 – Standard for Test for Surface Burning Characteristics of Building Materials; 2008

1.04 Submittals

A. See Section 01 30 00 – Administrative Requirements for submittal procedures.
B. Product Data:
   1. Air transfer silencer manufacturer to provide submittal drawings detailing all duct air transfer silencer data specified in the mechanical drawing or schedule.
   2. Air transfer silencer manufacturer shall submit certified laboratory performance obtained in accordance with ASTM E477, including dynamic insertion loss and pressure drop.
   3. Data for each air transfer silencer shall be provided with the size, configuration, and air volume as it appears on the drawing or schedule.

1.05 Quality Assurance

A. Air transfer silencers shall be installed in accordance with NFPA 90A and with NFPA 90B.
B. Air transfer silencer performance must have been substantiated in a NVLAP test facility in accordance with ASTM E477.
C. Test facilities and reports shall be open to inspection from project engineer.
D. Air transfer silencer manufacturer shall have a minimum ten (10) years of industry experience.
E. Air transfer silencer manufacturer shall provide a copy of their laboratory NVLAP accreditation certificate for the ASTM E477 test standard with the submittals. Data from non-NVLAP accredited test facilities is not acceptable.
F. The air transfer silencer manufacturer shall test air transfer silencer(s) as indicated in the air transfer silencer schedule if required and at owner’s expense. Project engineer shall be notified of the test date in advance and tests shall comply with the project criteria.

1.06 Warranty

A. Provide 12 month manufacturer warranty from date of shipment for duct air transfer silencers.
B. See Section 01 78 00 – Closeout Submittals for additional warranty requirements.

PART 2 – PRODUCTS

2.01 Air transfer silencers

A. Basis of Design: Price Industries
   1. Return Air Silencer: Model RAS, RAS-LP, RAS-LP-T
   2. Cross Talk Silencer: Model XTL, XTZ, XTU
   3. Return Air Canopy: Model RAC

B. Alternate Manufacturers:
   1. Alternate manufacturers must obtain written approval by the project engineer to bid.
   2. As a condition of pre-approval, alternate manufacturers must submit to the project engineer HVAC air transfer silencer test reports for an air transfer silencer tested in accordance with ASTM E477-13 in a NVLAP-accredited test facility.
   3. A copy of the laboratory's current NVLAP accreditation certificate must be included with submitted reports and any changes to the specifications must be submitted and approved in writing by the project engineer prior to the bid due-date.

C. Return Air Silencer [Price Models RAS, RAS-LP, RAS-LP-T]:
   1. General:
      a. Furnish and install Price Return Air Silencer air transfer silencers of the size, configuration, air volume, and air flow direction as described on the plans and schedules.
   2. Performance:
      a. Silencer performance characteristics, including insertion loss and pressure drop, shall be attained through testing in accordance with ASTM Standard E477.
      b. Laboratory performance verification in the manufacturer's test facility may be requested, in which case a comparative test report shall be made available to the engineer.
   3. Construction:
      a. Air transfer silencers shall be constructed in accordance with ASHRAE and SMACNA Standards for the pressure and velocity classification specified for the air distribution system in which it is installed.
      b. Air transfer silencers shall be constructed of:
         1. 24 gauge solid galvanized steel casing
         2. 24 gauge perforated galvanized steel liner
         3. Absorptive acoustic fiberglass.
      c. Acoustic media:
         1. Acoustic media shall be shot-free inorganic glass fiber with long, resilient fibers, bonded with thermosetting resin.
         2. Glass fiber shall be packed with a minimum of 10% compression to eliminate voids and settling.
         3. Acoustic media shall be lined with a layer of fiberglass cloth securely wrapped around the internal acoustic media to prevent contamination from moisture and airborne particulate that may be present in the airstream [**model RAS-LP only**].
         4. Acoustic media shall be lined with a layer of polymer film securely wrapped around the internal acoustic media to prevent contamination from moisture and airborne particulate that may be present in the airstream [**model RAS-LP-T only**].
      d. Fire-Performance Characteristics:
         1. Air transfer silencer assemblies, including acoustic media fill, sealants, and acoustical spacers shall have combustion rating equal to or less than shown below when tested according to ASTM E84, NFPA 255 or UL 723:
            a. Flame-spread index not exceeding 25
            b. Smoke-developed index not exceeding 50

D. Cross Talk Silencer [Price Models XTL, XTZ, XTU]:
   1. General:
      a. Furnish and install Price Cross Talk air transfer silencers of the size, configuration, and acoustic performance as described on the plans and schedules.
   2. Performance:
      a. Cross Talk Silencer performance characteristics, including insertion loss and pressure drop, shall be attained through testing in accordance with ASTM Standard E477.
      b. Laboratory performance verification in the manufacturer's test facility may be requested, in which case a comparative test report shall be made available to the engineer.
   3. Construction:
      a. Cross Talk silencers shall be constructed in accordance with ASHRAE and SMACNA Standards for the pressure and velocity classification specified for the air distribution system in which it is installed.
      b. Cross Talk silencers shall be constructed of:
         1. 22 gauge solid steel casing
         2. 26 gauge solid steel internal noses at inlet and outlet
         3. ¾ inch dual density absorptive fiberglass media.
      c. Cross Talk silencers shall be fastened with the use of button lock, Pittsburgh lock, and welds. Screws and other types of mechanical fasteners shall not be acceptable.
      d. Acoustic media:
         1. Acoustic media shall be shot-free inorganic glass fiber with long, resilient fibers, bonded with thermosetting resin.
         2. Glass fiber shall be in accordance with erosion requirements of UL 181, and shall conform to the physical properties and requirements of ASTM C1071.
      e. Fire-Performance Characteristics:
         1. Cross Talk silencer assemblies, including acoustic media fill, sealants, and acoustical spacers shall have combustion rating equal to or less than shown below when tested according to ASTM E84, NFPA 255 or UL 723:

a. Flame-spread index not exceeding 25
b. Smoke-developed index not exceeding 50

E. Return Air Canopy [Price Model RAC]:
1. General:
a. Furnish and install Price Return Air Canopy air transfer silencers of the size, configuration, and acoustic performance as described on the plans and schedules.
2. Performance:
a. Return air canopy performance characteristics, including insertion loss and pressure drop, shall be attained through testing in accordance with ASTM Standard E477.
b. Laboratory performance verification in the manufacturer's test facility may be requested, in which case a comparative test report shall be made available to the engineer.
3. Construction:
a. Return air canopies shall be constructed in accordance with ASHRAE and SMACNA Standards for the pressure and velocity classification specified for the air distribution system in which it is installed.
b. Return air canopies shall be constructed of:
1. 24 gauge solid steel casing
2. Acoustic media (**select one**):
a. Absorptive acoustic fiberglass media.
b. Fiber free foam liner.
c. Acoustic media:
1. Fiberglass media:
a. Acoustic media shall be shot-free inorganic glass fiber with long, resilient fibers, bonded with thermosetting resin.
b. Glass fiber shall be in accordance with erosion requirements of UL 181, and shall conform to the physical properties and requirements of ASTM C1071.
2. Fiber free foam:
a. Fiber free foam shall be self-sealing engineered foam that will not expose fibers to the airstream.
b. Fiber free foam shall be in accordance with erosion requirements of UL 181, and shall conform to the physical properties and requirements of ASTM C1071.
c. Mold growth and humidity requirements shall be in accordance with ASHRAE Standard 62.1.
d. Fire-Performance Characteristics:
1. Air transfer silencer assemblies, including acoustic media fill, sealants, and acoustical spacers shall have combustion rating equal to or less than shown below when tested according to ASTM E84, NFPA 255 or UL 723:
a. Flame-spread index not exceeding 25
b. Smoke-developed index not exceeding 50

PART 3 – EXECUTION

3.01 Installation

A. Install air transfer silencers according to manufacturer's written installation instructions.
B. Support duct air transfer silencers independently from ductwork.
C. Ensure duct air transfer silencers are installed with airflow arrows in direction of airflow.

3.02 Field Quality Control

A. See Section 01 40 00 - Quality Requirements for additional requirements.

3.03 Cleaning

A. See Section 01 74 19 – Construction Waste Management and Disposal for additional requirements.

3.04 Closeout Activities

A. See Section 01 78 00 - Closeout Submittals for closeout submittals.
B. See Section 01 79 00 - Demonstration and Training for additional requirements.

END OF SECTION 23 33 19