

**233113 - ROUND SPIRAL DUCT LINER INSULATION
ACOUSTICAL/THERMAL LINING INSULATION DUCT SYSTEMS**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: The work covered by this specification consists of furnishing all labor, equipment, materials and accessories, and performing all operations required for the correct installation of commercial air distribution spiral sheet metal ductwork lined with the Spiracoustic Plus System, in accordance with applicable project drawings and specifications, subject to the terms and conditions of the contract.

1. All round air distribution ductwork not exceeding rated air velocities of 6000 FPM and internal air temperature not exceeding 250°F (121°C).
2. The liner manufacturer's product identification shall appear on the aluminum facing oriented toward the metal duct for round liner board, or on the shipping containers of preformed round liner.
3. Duct liner adhesives shall conform to the requirements of ASTM C916.
4. Air Stream surface coatings and mastic adhesive shall be formulated with an EPA registered anti-microbial agent.
5. UL 181 Joint closure materials shall meet the requirements of Sections 5.2.2 and 5.2.4 of the Spiracoustic Plus installation Guide.
6. The liner shall meet the requirements of NFPA 90A and 90B for FHC 25/50 and limited combustibility.
7. Liner material must conform to ASHRAE 62-2013.

B. Dimensions shown on the plans are inside dimensions.

C. Fabrication and installation shall conform to manufacturer's recommendations.

1.02 REFERENCES

- A. ASTM C 916 – Specification for Adhesives for Duct Insulation
- B. ASTM 1071 – Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material)
- C. ASTM C 411 – Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation
- D. ASTM C 1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- E. ASTM G 21 – Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
- F. ASTM C 423 – Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- G. ASTM E 84 – Test Method for Surface Burning Characteristics of Building Materials
- H. NFPA 90A – Standard for the Installation of Air Conditioning and Ventilating Systems
- I. NFPA 90B – Standards for the Insulation of Warm Air

Heating and Air Conditioning Systems

J. NFPA 255 – Method of Test of Surface Burning Characteristics of Building Materials

K. NFPA 259 – Standard Test Method for Potential Heat of Building Materials

L. ASHRAE 62 - 2013 – Energy Efficient Design of New Buildings

M. ASHRAE 90.1 – 2013 - Energy Efficient Design of New Buildings

N. UL 181A – Closure Systems for Use With Rigid Air Ducts and Air Connectors

O. UL 723 – Test for Surface Burning Characteristics of Building Materials

P. Canada: CAN/ULC – S102 M88 – Test for Surface Burning Characteristics of Building Materials

Q. MEA 237-86-M – Materials and Equipment Acceptance (New York City)

R. GREENGUARD - UL 2818 “GREENGUARD Certification Program For Chemical Emissions for Building Materials, Finishes and Furnishings”

1.03 QUALITY ASSURANCE

A. Insulation materials shall be manufactured at facilities certified and registered with an approved registrar to conform to the ISO 9001:2015 Quality Standard.

B. Insulation materials that have become wet or soiled shall not be installed unless restored to original condition.

C. Installed duct will have openings closed or otherwise protected to prevent entry of dirt or water.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials, and/or fabricated insulated duct and fittings to the job site and store in a clean, dry place.

B. Protect materials from dust, dirt, moisture, and physical damage before and during installation.

PART 2 – PRODUCTS

2.01. MANUFACTURERS

A. Johns Manville or approved equivalent.

2.02. MATERIALS

A. All supply ducts, return ducts, and fittings shall be insulated with Spiracoustic Plus System round duct liners, meeting the following requirements:

1. Minimum thermal conductance of 0.23 at 75°F based on 1" material thickness.
2. Noise reduction coefficient of 0.75 for 1" board, 0.85 for 1.5" board, and 0.95 for 2" board when tested in accordance with ASTM C423 when using a type "A" mounting.
3. Maximum rated velocity of 6000 FPM when tested in accordance with UL 181.

SPIRACOUSTIC PLUS® SYSTEM**FIBERGLASS SPIRAL DUCT LINER****3-PART SPECIFICATION FOR ROUND DUCT LINING**

4. Fiber shed shall not be detectable as determined by electron microscopy analysis of isokinetic sampling at maximum rated velocity.
 5. Duct liner shall have a FHC rating of 25/50 and be classified as meeting the requirements of limited combustibility.
 6. The air stream surface shall have a 100% coverage coating of acrylic polymer formulated with an immobilized EPA registered anti-microbial agent proven resistant to microbial growth as determined by ASTM G21.
 7. Material shall be certified by GreenGuard.
 8. Shall not contain asbestos, lead, mercury, or mercury compounds.
- B. Accessories
1. Joint closure tape meeting the requirements of UL 181A, as identified by imprinting on the tape foil surface.
 2. SuperSeal® coating products for coating exposed edges, connections or minor surface damage not requiring replacement of insulation.
 3. Duct liner adhesive, when required, meeting the requirements of ASTM C916.
 4. Duct liner pins, when required, meeting the requirements of Johns Manville Spiracoustic Plus Installation Guide, Sections 5 and 6.

PART 3 – EXECUTION**3.01 INSPECTION**

- A. Verify that the Spiracoustic Plus duct liner may be installed in accordance with project drawings, specifications, and manufacturers recommendations.

3.02 INSULATION OF STRAIGHT DUCT AND FITTINGS

- A. All portions of round duct and/or flat oval designated to receive liner shall be completely lined with 1"[or 1 1/2" or 2"] of Spiracoustic Plus. All factory molded male/female joints shall be properly overlapped so that there are no interruptions or gaps. All straight-edged joints shall be firmly butted together so that there are no interruptions or gaps. Spiracoustic Plus products shall be installed with the black coated surface to the air stream.
- B. Installation of Spiracoustic Plus shall be done in accordance with the Johns Manville Application Standards Manual.
- C. Attachment of Spiracoustic Plus preformed round insulation to the metal duct, where required shall be with 4" wide bands of duct liner adhesive, one at each end of the finished straight sections.
- D. Installation of Spiracoustic Plus round liner board into the metal duct shall be made using an interference fit with

the outer circumference of the insulation approximately sized to the interior circumference of the metal duct. Pins and adhesives are required only for fittings, flat oval configurations, or other applications specifically described in the Johns Manville Application Standards Manual.

- E. SuperSeal products will be used to coat all circumferential joints, exposed edges, and minor surface damage after the liner is in place.
- F. SuperSeal® HV will be used to fill minor gaps and indentations.
- G. For systems under negative pressure any leading edge of insulation exposed to air flow by normal or emergency system operation must have metal nosing as specified by the current SMACNA HVAC Duct Construction Standard.
- H. Major physical damage to the airstream surface or reduction in the insulation thickness by more than 1/8" will require patching or section replacement.
- I. Branch connections require coating of exposed edges with SuperSeal / SuperSeal HV.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of Spiracoustic Plus products verify that the liner has been correctly installed.
- B. Confirm that any damage to the airstream surface has been properly repaired and that the duct is free from obstructions or debris.
- C. After the system is completely installed and ready for service, conduct an inspection of the entire system. This inspection should include, as a minimum, the following steps:
 1. Check all registers, grilles, and diffusers to ensure they are clean and free from construction debris.
 2. Check all filters in accordance with manufacturer's instructions. Use specified grade of filters at all times system is operating.
 3. Cover supply openings with filter media prior to system start-up to catch any loose material that may remain inside the ductwork.
 4. Turn on the HVAC system and allow it to run until steady state operation is reached.
 5. Remove the temporary filter media from supply openings and along with it any loose material trapped by the media.
 6. Check to ensure that air delivery performance meets all requirements.

3.04 CLEANING

- A. Cleaning of lined duct, if required, shall be done in accordance with NAIMA, "Cleaning Fibrous Glass Insulated Air Duct Systems", Publication AH-122.

SPIRACOUSTIC PLUS® SYSTEM

FIBERGLASS SPIRAL DUCT LINER

3-PART SPECIFICATION FOR ROUND DUCT LINING

END OF SECTION



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Technical specifications as shown in this literature are intended to be used as general guidelines only. Please refer to the Safety Data Sheet and product label prior to using this product. The physical and chemical properties of the 800 Series Spiracoustic Plus® System listed herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Any references to numerical flame spread or smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with the Regional Sales Office nearest you for current information.

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