Reflectix, Inc.

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Reflectix® Insulation Specifications Guide for CDW1 Commercial Duct Insulation

PART 1. GENERAL

1.1 Scope: Specify to meet project requirements.

1.2 Qualifications: All materials unless otherwise indicated, should be manufactured by Reflectix, Inc. and should be installed in accordance with current printed instructions.

PART 2. REQUIREMENTS

2.1 Standard Product: The thermal insulation delivered under this specification shall be of the manufacturer's commercially current standard product, except for any change necessary to comply with specification requirements.

2.2 Material: All material shall be new and unused. All material shall be specified herein. Material not specified shall be of the same quality used for the intended purpose in commercial practice. Materials used shall be free from defects, which would adversely affect the performance or maintainability of individual component or the overall assembly.

2.3 Foil: Foil used in insulation shall be a minimum of .0030 inch thick on one side and 0.000285 inch thick on the other side, and contain not less than 99 percent aluminum.

2.4 Clear Film for Bubbles and Center Sheet: Clear blend of 80/20 LDLLD polyethylene film with 3.5 mil bubbles and 1.5 mil center sheet. The film shall be as transparent as current technology will provide to limit conductive transference of heat.

2.5 Material Softening Point: In direct contact with the heat source the material shall withstand 180° F and with a 1 inch airspace 240° F.

PART 3. PHYSICAL PROPERTIES

3.1 Tensile Strength: Tested to ASTM D751 is 483 N in machine direction and 481 N cross direction.

3.2 Bursting Strength: Tested to ASTM D774 is 965 kPa (140.0 psi).

3.3 Tear Strength (Trapezoid): Tested to ASTM D1117 is 64 N machine direction and 53 N cross direction.

3.4 Tear Strength (Tongue): Tested to ISO 4674, Method A2 is 34 N machine direction and 22 N cross direction.

3.5 Puncture Resistance: Tested to FIM 101C, Method 2031 is 272 N (61.1 lbf).

3.6 Cold Flexibility: Tested to ASTM D2136 at -40° C (-40° F) and show no sign of cracking.

3.7 Flammability: Tested to SAE J369 with a maximum of 100 mm/min (4 in/min).

PART 4. SIZE AND CHARACTERISTICS

4.1 Thickness: Insulation composed of bubble pack and foil laminated to both sides and shall have a nominal thickness of 0.312 inch.

4.2 Widths: Insulation shall be furnished in widths agreed to by the customer and Reflectix, Inc.

4.3 Emittance: The foil shall have emittance not to exceed .05 when delivered, as certified by the aluminum foil manufacturer or by an independent laboratory.

4.4 Water Vapor Permeability: When tested in accordance with 6.1 all classes of insulation shall have a permeability not in excess of 0.02 perms for vapor pressure differential 25 cm (1 inch) of mercury as per ASTM E96 or equivalent.

PART 5. QUALITY ASSURANCE PROVISIONS

5.1 Responsibility for Inspection: Unless otherwise specified by contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the contractor may use his own facilities or any acceptable NAVLAP commercial laboratory.

5.1.1 Inspection of Materials and Components: In accordance with 4.1, the Project Architect is responsible for insuring that materials and components used were manufactured, examined and tested to the extent specified, in accordance with the requirements of referenced specifications and standards.

5.2 Examination: Insulation shall be examined for defects listed in Table I. The Acceptable Quality Level (AQL) shall be 2.5 defects per 100 units (square feet) for major defects and 4.0 defects per 100 units for minor defects, in accordance with MIL-STD-105.

TABLE I: CLASSIFICATION OF DEFECTS

DEFECT:	MAJOR:	MINOR:
Class not as specified	X	
Foil thickness less than specified	X	
Insulation not of correct width	X	
Torn or punctured (not repairable with tape)	X	
Damage or defect not affecting function		X

5.3 Acceptance: The AQL for tests shall be 6.5 on the basis of defects per 100 units (square feet).

PART 6. TEST METHODS

6.1 Water Vapor Permeability: Each sample selected shall be tested in accordance with procedure A of ASTM E-96.

6.2 Thermal Resistance: The R-value of the insulating material shall be determined from the thermal conductance tests performed on specimens of production samples of the insulation, utilizing ASTM C1668 in accordance with Section 10.8.

PART 7. INSTALLATIONS

7.1 Performance of the reflective system depends upon the reflective insulation facing an air space. Any contact of the reflective insulation with other surfaces will negate a portion of the assigned value. For best thermal performance install horizontal low conductivity spacers along the edges of rectangular duct and at 90° for round duct.

7.2 When used as an exterior duct insulation the heavy foil side .003 goes on the outside.

7.3 The reflective system discourages condensation. Each layer of aluminum foil is essentially a vapor barrier and the temperature gradient is reduced across each successive air space, eliminating extreme temperature drops across any one space. This factor discourages condensation.

7.4 All joints shall be taped with a UL approved all weather aluminum tape and where called for aluminum strapping.

PART 8. DELIVERIES AND STORAGE OF MATERIALS

8.1 All materials shall be delivered in original unopened rolls and stored in air-enclosed shelter providing protection from damage and exposure to the elements.

PART 9. NOTES

9.1 Intended Use: Reflectix CDW1 is intended for external duct insulation where the insulation will be exposed to the elements and other OEM uses. It can be die cut and will hold a form. The intended use and limitations are to be determined by the customer and Reflectix Inc.

9.2 Insulation: Insulation should cover the required area, as specified. Length of a particular roll of the material is not a critical factor, since this type insulation is commonly packaged in continuous lengths.