

SECTION 15083

HVAC DUCT PROTECTION OVER INSULATION – FlexClad™

This section is based on the products of MFM Building Products Corp., which is located at:

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MFM Building Products was founded in 1961 and has been a leader in manufacturing waterproofing barriers and sealing systems for the construction industry. MFM offers customers a complete “envelope” of waterproofing solutions from the rooftop to the foundation.

MFM product advantages include: self-adhering or “self-stick” properties; self-sealing around fasteners; unique adhesive systems that will not crack or dry out; membranes that are compatible with most building materials; fast and easy installation to save time and money; competitively priced; rugged and reliable performance; and all products are made in the USA.

Whether your project is new construction, an addition or repair, you can rely on MFM Building Products for the best waterproofing and sealing solutions available. Contact 800-882-7663 or email customerservice@mfmhcp.com for more information or pricing.

PART 1 GENERAL

1.1 SECTION INCLUDES

**** NOTE TO SPECIFIER **** Delete items below not required for project.

- A. HVAC self-adhering sheet-type membrane.

1.2 RELATED SECTIONS

**** NOTE TO SPECIFIER **** Delete any sections below not relevant to this project; add others as required.

- A. Section 15080 - Mechanical Insulation.
- B. Section 15810 - Ducts.

1.3 REFERENCES

**** NOTE TO SPECIFIER **** Delete references from the list below that are not actually required by the text of the edited section.

- A. ASTM International:
 - 1. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
 - 2. ASTM D 794 - Practice for Determining Permanent Effect of Heat on Plastics.
 - 3. ASTM D 1424 - Standard Test Method for Tearing Strength of Fabrics by Falling-Pendulum Type (Elmendorf) Apparatus.

4. ASTM D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
5. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
6. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.

B. South Florida Building Code (SFBC) TAS-110-95 - Wind Driven Rain.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings: Submit shop drawings including details of construction and relationship with adjacent construction.

D. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.

E. Warranty: Submit manufacturer's standard warranty.

F. Verification Samples: For each finish product specified, two samples, minimum size 3 inches (75 mm) x 4 inches (100 mm), representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Experienced in installation of specified material type with working knowledge of specified products and Project specific application requirements.

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:

1. Store materials in clean, dry, heated area indoors in accordance with manufacturer's instructions.
2. Store cartons on end and protect from moisture and damage.
3. Protect from temperatures above 100 degrees F (38 degrees C).
4. Do not remove rolls from cartons until application.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 WARRANTY

- A. Limited Warranty:
 - 1. Manufacturer warrants materials to be free from leaks caused by defects in material or manufacturing for a period of ten years from the date of purchase when applied according to published directions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: MFM Building Products Corp.; 525 Orange St., Coshocton, OH 43812. ASD. Toll Free Tel: (800) 882-7663. Tel: (740) 622-2645. Fax: (740) 622-6161. Email: customerservice@mfbp.com. Web: <http://www.mfbp.com>.

**** NOTE TO SPECIFIER **** Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 HVAC SELF-ADHERING SHEET-TYPE MEMBRANE

FlexClad-250™ is a 25 mil waterproofing membrane designed specifically to protect ductwork, piping systems and for use in sub-grade applications. FlexClad-250 can be applied over rigid board insulation, cold pipes, plenums, storage tanks, iron, copper, steel, PVC, CPVC and concrete. FlexClad-250 can be used for piping systems, pipelines and other below grade structures. It is ideal for application to the bottom side of duct systems. The product weatherproofs, resists water leaks and vapor transmission, preserves the efficiency of thermal insulation and reflects sunlight to reduce interior temperatures. FlexClad-250 is designed for exterior, interior or sub-grade use and it may be used in direct burial applications.

**** NOTE TO SPECIFIER**** Delete if not required.

- A. Product: **FlexClad-250™** as manufactured by MFM Building Products Corp.

**** NOTE TO SPECIFIER **** Delete products not required.

- 1. Product Model Numbers: Aluminum 36 inches (914 mm) wide, MFM 52036.
- 2. Product Model Numbers: White 36 inches (914 mm) wide, MFM 52836.
- 3. Product Model Numbers: Aluminum 6 inches (152 mm) wide, MFM 52006.
- 4. Product Model Numbers: White 6 inches (152 mm) wide, MFM 52806.
- 5. Roll Length: 50 ft
- 6. Description: Patented, pre-fabricated self-adhering, sheet-type protective membrane. The outer layer is an embossed, UV-resistant aluminum weathering surface. Under the aluminum are multiple layers of tough, high-density cross-linked polymer film. Under the polymer film is a uniform layer of aggressive rubberized asphalt adhesive which sticks directly to metal, insulation facers and most other clean, dry surfaces.
- 7. Release Liners: Self-adhesive surface is protected by a disposable release liner.
- 8. Technical Properties:
 - a. Material Thickness (ASTM D 1970): 25 Mils (0.64 mm) Nominal.
 - b. Flexibility at -20 degrees F (-29 degrees C) (ASTM D 1970): Pass.
 - c. Vapor Permeance (ASTM E 96): .01 perms.
 - d. Nail Sealability (ASTM D 1970): Pass.
 - e. Heat Aging (ASTM D 794): Pass.
 - f. Elongation (ASTM D 412): 450 percent.

- g. Tear Resistance (ASTM D 1424): 660 grams.
- h. Exceeds 25/50 Flame/Smoke Rating (ASTM E 84).
- i. Maximum Temperature: 175 degrees F (79 degrees C).
- j. Installation Temperature Range: Greater than 40 degrees F (4.5 degrees C).

FlexClad-400™ is a 45 mil waterproofing membrane designed specifically to protect ductwork, piping systems and for use in sub-grade applications. FlexClad-400 can be applied over rigid board insulation, cold pipes, plenums, storage tanks, iron, copper, steel, PVC, CPVC and concrete. FlexClad-400 can be used for piping systems, pipelines and other below grade structures. The product weatherproofs, resists water leaks and vapor transmission, preserves the efficiency of thermal insulation and reflects sunlight to reduce interior temperatures. FlexClad-400 is designed for exterior, interior or sub-grade use and it may be used in direct burial applications.

**** NOTE TO SPECIFIER ** Delete if not required.**

- B. Product: **FlexClad-400™** as manufactured by MFM Building Products Corp.

**** NOTE TO SPECIFIER ** Delete products not required.**

- 1. Product Model Numbers: Aluminum 36 inches (914 mm) wide, MFM 52FC36.
- 2. Product Model Numbers: White 36 inches (914 mm) wide, MFM 52FW36.
- 3. Product Model Numbers: Almond 36 inches (914 mm) wide, MFM 52FA36.
- 4. Product Model Numbers: Aluminum 6 inches (152 mm) wide, MFM 52FC06I.
- 5. Product Model Numbers: White 6 inches (152 mm) wide, MFM 52FW06.
- 6. Product Model Numbers: Almond 6 inches (152 mm) wide, MFM 52FA06.
- 7. Product Model Numbers: Aluminum 4 inches (102 mm) wide, MFM 52FC04.
- 8. Product Model Numbers: White 4 inches (102 mm) wide, MFM 52FW04.
- 9. Product Model Numbers: Almond 4 inches (102 mm) wide, MFM 52FA04.
- 10. Description: FlexClad-400 is a pre-fabricated self-adhering, sheet-type protective membrane. The outer layer is an embossed, UV-resistant aluminum weathering surface. Under the aluminum are multiple layers of tough, high-density cross-linked polymer film. Under the polymer film is a uniform layer of aggressive rubberized asphalt adhesive which sticks directly to metal, insulation facers and most other clean, dry surfaces.
- 11. Release Liners: The self-adhesive surface is protected by a disposable release liner.
- 12. Technical Properties:
 - a. Material Thickness (ASTM D 1970): 45 Mils (1.0 mm) Nominal.
 - b. Flexibility at -20 degrees F (-29 degrees C) (ASTM D 1970): Pass.
 - c. Vapor Permeance (ASTM E 96): .01 perms.
 - d. Nail Sealability (ASTM D 1970): Pass.
 - e. Heat Aging (ASTM D 794): Pass.
 - f. Elongation (ASTM D 412): 450 percent.
 - g. Tear Resistance (ASTM D 1424): 660 grams.
 - h. Exceeds 25/50 Flame/Smoke Rating (ASTM E 84).
 - i. Maximum Temperature: 175 degrees F (79 degrees C).
 - j. Installation Temperature Range: Greater than 40 degrees F (4.5 degrees C).

2.3 ACCESSORIES

- A. Adhesive: MFM Spray Adhesive™ as manufactured by MFM Building Products Corp.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Inspect and prepare substrates using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions.
- B. Clean surfaces thoroughly prior to installation. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.
 - 1. Prepare surfaces in accordance with manufacturer's instructions.
 - 2. Ensure tops of ducts have sufficient slope to eliminate ponding water.
 - 3. Ensure bottoms of ducts have foil-faced rigid insulation boards installed.
 - 4. Ensure surfaces are clean and dry.
 - 5. Remove dirt, dust, oil, grease, hand oils, processing lubricants, moisture, frost, and other contaminants that could adversely affect adhesion of waterproofing membrane.
 - 6. Prime metal, concrete, and masonry surfaces with primers approved by waterproofing membrane manufacturer.
- C. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.2 APPLICATION

- A. Apply waterproofing membrane in accordance with manufacturer's instructions at locations indicated on the drawings. Do not use FlexClad as a substitute for banding, pinning or other means of securely attaching insulation and underlying materials.
- B. Apply membrane to clean, dry, primed metal ductwork and foil-faced rigid insulation boards. Do not apply over wet or non-rigid insulation. Ducts must be sealed in accordance with SMACNA HVAC Duct Standards Metal and Flexible, Second Edition (1995) Seal Class A (or newest revision) prior to the installation of FlexClad. Leaking ducts negatively affect the performance characteristics of FlexClad.
- C. Apply membrane in accordance with manufacturer's air, material, and surface temperature requirements. Minimum application temperature is >40° F (4.5 degrees Celsius).
- D. Apply firm, uniform pressure with hand roller to entire membrane to ensure proper adhesion. Concentrate pressure at seams and on underside of ductwork.
- E. Apply membrane to ducts in accordance with manufacturer's instructions. Ductwork must be pitched to shed water to prevent ponding water. FlexClad is not designed for permanent emersion in water.
- F. Apply membrane shingle fashion to shed water over, not against laps.
- G. Do not terminate membrane on bottom of duct.
- H. Apply minimum 3-inches (76 mm) side laps and minimum 6-inches (152 mm) end laps for ductwork applications.

- I. Embed membrane to bottom of ducts over 24 inches (610 mm) wide in light continuous layer of adhesive applied to insulation facer.
- J. Apply membrane to bottom of insulated ducts over 24 inches (610 mm) wide using mechanical attachment, in addition to adhesive, in accordance with manufacturer's instructions. Install pins on 12-inches (305 mm) centers with rows staggered.
- K. Apply adhesive to areas where special adhesion requirements exist, including duct bottoms, flashings, transitions, joints, elbows, valves, tees, and other fittings.

3.3 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION