

09 96 00
Guide Specification

HIGH-PERFORMANCE COATINGS

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SPEC NOTE: This guide specification is intended for use when specifying the Stayflex™ Corrosion Control and Thermal Insulation System for projects located in the United States.

SPEC NOTE: Make any required selections, such as insulation and thermal barrier coating thickness. Certain applications may warrant the use of a topcoat. Contact Preferred Solutions for more information.

DISCLAIMER: The manufacturer has reviewed the product information contained in this guide specification. The information is organized and presented to assist the specification writer working on a construction project to select the appropriate products and to save time in writing the project Section. The specification writer is responsible for product selection as well as the use and application of this information and should contact the manufacturer to ensure that all options are available and that the associated specification information is valid and correct.

SECTION 09 96 00

HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Stayflex™ Corrosion Control and Thermal Insulation System.

1.02 REFERENCES

- A. ASTM C 518-04 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter
- B. ASTM D 696-03 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C. and 30°C. With a Vitreous Silica Dilatometer
- C. ASTM D 1621-04a Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- D. ASTM D 1622-03 Standard Test Method for Apparent Density of Rigid Cellular Plastics
- E. ASTM D 1623-03 Standard Test Method for Tensile and Tensile Adhesion Properties for Rigid Cellular Plastics
- F. ASTM D 2126-04 Standard Test Method for Response for Rigid Cellular Plastics to Thermal and Humid Aging
- G. ASTM D 6226-05 Standard Test Method for Open Cell Content of Rigid Cellular Plastics
- H. ASTM E 84-08 Standard Test Method for Surface Burning Characteristics of Building Materials
- I. ASTM E96/E96M-05 Standard Test Methods for Water Vapor Transmission of Materials
- J. UL 1715 Fire Test of Interior Finish Material

1.03 SUBMITTALS

A. Informational Submittals

1. Manufacturer's published data sheets on all products.
2. Shop drawings on sheet metal, accessories, or other fabricated items, if required.
3. Two samples 4 inch by 4 inch of each product.
4. Applicator certification from Preferred Solutions, Inc.
5. Manufacturer's installation instructions.
6. Field quality control procedures to be utilized by Applicator to assure proper installation of the products.
7. Material Safety Data Sheets (MSDS).

B. Closeout Submittals

1. Maintenance and repair instructions.
2. Executed warranty documents.

1.04 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide specified products from a single manufacturer.

B. Authorized Applicator of Manufacturer: Contractor shall be a designated Authorized Applicator of Preferred Solutions, Inc., Cleveland, Ohio. Such designation certified in writing by Preferred Solutions, Inc. shall be submitted by the contractor.

1.05 MATERIALS DELIVERY AND STORAGE

A. Materials shall be delivered in the manufacturer's original, tightly sealed containers or unopened packages, all clearly labeled with the manufacturer's name, product identification, safety information, and batch or lot numbers where appropriate.

B. Containers shall be stored out of the weather, direct sun and in compliance with manufacturer's recommendations.

1.06 FIELD CONDITIONS

A. Ambient Conditions

1. Do not apply the products if the ambient air or substrate is below 35°F. or when substrate has surface moisture.

PART 2 PRODUCTS

2.01 MATERIALS

A. Polyurethane foam insulation having the following properties:

1. Insulation Value (ASTM C-518): R-6.5
2. Compressive Strength (ASTM D-1621): 25 psi

3. Density (ASTM D-1622): 2.0 pcf
4. Tensile Strength (ASTM D-1623): 50 psi
5. Dimensional Stability (ASTM D-2126): 7%
6. Percent Closed Cells (ASTM D-6226): 90%
7. Water Vapor Transmission (ASTM E-96): 1.5" - 1.269 perms
2.0" - 0.859 perms
8. Fire Ratings (ASTM E-84)
 - a. Flame spread: 20
 - b. Smoke development: 450
9. Product and Manufacturer: Staycell™ 245-2.0 polyurethane foam insulation by Preferred Solutions, Inc.

B. Vinyl-ester based thermal barrier coating having the following properties:

1. Coefficient of Linear Thermal Expansion (ASTM D-696): 3.6×10^{-5} in/in °C.
2. Density (ASTM D-1622): 105 pcf
3. Water Vapor Permeance @ .063" thickness (ASTM E 96): 0.09 grains/hour/square foot
4. Fire ratings
 - a. ASTM E-84
 - 1) Flame spread: 15
 - 2) Smoke development: 250
 - b. UL 1715
 - 1) Complies with test standard; no flame propagation
5. Product and Manufacturer: Stayflex™ 2505 thermal barrier coating by Preferred Solutions, Inc.

C. Curing agent for thermal barrier coating

1. Specific gravity: 1.007
2. Percent active oxygen: 9%

3. Product and Manufacturer: Hi-Point 90 MEK Peroxide Catalyst by Preferred Solutions, Inc.

Part 3 EXECUTION

3.01 EXAMINATION

- A. Inspect existing conditions to ensure they are suitable for work to begin. Do not proceed until unacceptable conditions are corrected.
- B. Ensure items such as hangars for piping and ductwork are installed before beginning work.

3.02 PREPARATION

- A. All substrates shall be free from surface moisture prior to the application of the foam insulation.
- B. Loose paint and other surface materials which are easily removable shall be removed by broom brushing, vacuuming, air blowing or similar procedures.

3.03 APPLICATION

- A. Polyurethane foam insulation:
 1. The foam components (A) and (B) shall be applied in accordance with the manufacturer's instructions.
 2. The foam shall be sprayed within the manufacturer's guidelines for temperature, humidity and other atmospheric conditions.
 3. The foam shall be sprayed at an average minimum one inch thickness. The full thickness of foam applied on any given surface should be completed in one day.
 4. Any damage or defects to the foam shall be repaired prior to applying the thermal barrier coating.
- B. Thermal barrier coating and curing agent:
 1. The thermal barrier coating and curing agent shall be applied in accordance with manufacturer's instructions.
 2. Inspection: Prior to the application of the thermal barrier coating, the foam shall be inspected to insure that damages or defects of the foam have been corrected.
 3. Application
 - a. The thermal barrier coating shall be applied over the foam within 72 hours.
 - b. The thermal barrier coating shall be applied at a rate to achieve an average minimum dry film thickness (DFT) of 1/16 inch (.063").
 - c. The thermal barrier coating shall be inspected for defects such as thinly coated or uncured areas. Defects shall be corrected.

3.04 QUALITY ASSURANCE

A. Daily records: The applicator shall keep daily records as to the square feet of surface sprayed each day, quantities of all materials used and thickness and cure tests performed. One thickness and cure test shall be conducted on every 500 square feet of covered surface.

B. Installed materials evaluation: In addition to verifying the thickness of all installed materials, such materials shall also provide the following characteristics:

1. Polyurethane foam insulation:

- a. The cellular structure shall be uniform and not be soft or spongy.
- b. The foam shall not have areas with hard or brittle sections or improperly proportioned materials.

2. Thermal barrier coating:

Proper cure of the coating shall be evaluated approximately 24 hours after spraying. Such evaluation shall be made using Barcol Hardness Tester GYZJ 935. Hardness ratings shall not be less than 40.

3.05 SAFETY REQUIREMENTS

A. Applicator shall comply with all provisions of MSDS Sheets for all materials utilized on the project.

B. Ventilation, if necessary, shall be provided to assure fresh air is brought into the area being sprayed. Such air shall be exhausted to the outside of the building by utilizing existing fans or by supplemental ventilation.

C. Proper disposal of waste materials and containers must be done in compliance with the manufacturer's guidelines and federal, state and local regulations.

3.06 CLEAN-UP

A. At the completion of the project, applicator shall clean up and remove from the site all material containers, waste materials and debris.

END OF SECTION