

PART 1 GENERAL

1.01 SECTION INCLUDES

- .01 Supply and installation of Ceramic Insulation coating applied to structural steel where a reduction in thermal transmission is required.

1.02 CONTRACT DOCUMENTS

- .01 All Bid Documents (including Architect and Consultant drawings and specifications) form an integral part of this Section and are to be read as one. Any required Clarifications or Changes are to be issued to the Construction Manager by the Architect (Coordinating Registered Professional) via Addenda.

1.03 RELATED SECTIONS

- .01 Section 01 00 02 References Abbreviations
- .02 Section 01 11 00 Summary of the Work
- .03 Section 01 35 43 Environmental Protection
- .04 Section 01 41 00 Regulatory Requirements
- .05 Section 01 45 00 Quality Control
- .06 Section 01 60 00 Product Requirements
- .07 Section 01 71 00 Examination and Preparation
- .08 Section 01 73 03 Execution Requirements
- .09 Section 01 74 11 Cleaning
- .10 Section 01 74 19 Construction Waste Management and Disposal
- .11 Section 09 22 16 Non-Structural Metal Framing
- .12 Structural

1.04 REFERENCES, CODES & STANDARDS

- .01 B117 450 Hour Salt Spray (Fog)
- .02 C177 Thermal Conductivity
- .03 C236-89 (93) Thermal Transmittance \ Conductance
- .04 C411 High Temperature Surface
- .05 D412 Tensile Properties -.041 thickness = 13,248 psi
- .06 D522 Mandrel Bend on metal or rubber materials
 - 1" (25mm) bend
 - 1/4" (6mm) bend
- .07 D1653 Water Vapor Permeability
- .08 D3273-82T Fungal Resistance
- D3274
- .09 D4060 Abrasion Resistance
- .10 E108 Standard Test Method for Fire Tests of Roof Coverings
- .11 E84 Flame Spread \ Smoke Developed
 - Class "A" rating (or Class "I" or Class "1")

- .12 E84-89a Flame Spread \ Smoke Developed
-Flame Spread Index "0"
-Smoke Developed "0"
- .13 E96 Water Vapor Transmission
- .14 E903-96 Reflectance
- .15 E1269 Heat Capacity by Differential Scanning Calorimeter
- .16 E1461 (92) Thermal Diffusivity \ Conductivity by Flash Method
- Blocked 91% of Heat BTU Conduction
- .17 G53 1000 Hours UV Exposure

1.05 LEED REQUIREMENTS - This is NOT a LEED Certified Project

1.06 PROTECTION

- .01 Ventilate area to receive ceramic insulation coating by introducing fresh air and exhausting air continuously during and 24 hour after application to maintain non-toxic, unpolluted, safe working conditions.
- .02 Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.
- .03 Protect workers as recommended by insulation manufacturer.
- .04 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.

1.07 SUBMITTALS

- .01 Make submissions in accordance with Section 01 33 00 Submittal Procedures.
- .02 Submit manufacturer's printed product literature, specifications, installation instructions.
- .03 Submit Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS). Indicate VOC content of primers and bituminous products.

1.08 DELIVERY, STORAGE, HANDLING

- .01 Deliver, store and handle materials in accordance with Section 01 60 00 Product Requirements.
- .02 Deliver coating materials to place of application in original, unopened container, bearing name of manufacturer and product identification.
- .03 Store materials off ground, under cover and at a temperature above freezing.
- .04 Transport and handle any prior coated surfaces with due care to prevent damage.

1.09 QUALITY ASSURANCE

- .01 Applicator shall be certified by the coating manufacturer or distributor.
- .02 Finished system to conform to thermal ratings established by ASTM C236-89 (1993) e1 " *Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded HotBox* " or equivalent.
- .03 Submit manufacturer's certification that materials meet or exceed specified requirements.

1.10 WASTE MANAGEMENT

- .01 Separate and handle waste materials in accordance with Section 01 74 19 Construction Waste Management and Disposal.

1.11 CLOSEOUT SUBMITTALS

- .01 Make submissions in accordance with Section 01 78 00 Closeout Submittals.

PART 2 PRODUCTS

2.01 MATERIALS

- .01 SUPERTHERM ® Ceramic Insulation Coating manufactured by Superior Products International II, Inc. and distributed by Eagle Specialized Coatings And Protected Environments.

PART 3 EXECUTION

3.01 PREPARATION

- .01 Protect adjacent surfaces and equipment from damage by over-spray, fallout and dusting. Mask adjacent work as required.
- .02 Repair any damaged areas first by caulking, patching, sealing, grouting, welding, taping, priming, etc.
- .03 Clean substrate to remove dirt, dust, grease, oil, waxy substances, release agents, loose material such as flaking paint or rust or other matter which would affect bond of ceramic insulation coating. Surfaces must be clean, dry and sound before application. High-pressure water blasting with TSP is as effective as light sand blasting in removing loose or old flaking paints or corrosion. As a rule, "a coating is only as good as the surface it covers." Old paints can remain if bonded solidly to surfaces.

3.02 ENVIRONMENT

Application temperatures range from a minimum of 50°F \ 10°C to a maximum of 194°F \ 90°C but the optimum application temperature is 72°F \ 22°C.

Never apply if it's raining or there is a chance of rain the day of application. If applied when humidity is high or it rains constantly for 3-4 days after SUPERTHERM ® is applied you may notice some bubbling effects on the coating. DO NOT PUNCTURE these bubbles. This is normal as the formula is water based and is absorbing the moisture and, therefore forming bubbles. After the rain stops, the sun will dry out the coating and allow it to cure down naturally. As the sun draws out the moisture, the bubbles will settle down and allow the coating to adhere in its normal dry down without problem.

3.03 APPLICATION

- .01 SUPERTHERM ® can bond to metal, wood, masonry and other porous surface substrates, and can be best applied by airless or air pot sprayer, roller and by brush.
- .02 If rolling, it may take two coats to apply required mils. A 3/4-inch nap roller is best.
- .03 Spraying requires a .028 - .032 steel carbon tip. Remove all filters from spray equipment before using.

- .04 Do not apply very thick on a single coat. If thickness is desired, apply in multiple coats. A thick coat will allow the top-coating surface to dry before the bottom thus creating cracks in the coating.

3.04 COVERAGE

- .01 SUPERTHERM® is applied at a rate of 100 square feet per gallon. This gives a mil thickness of 16 mils WFT that equals 9 mils DFT being 65% solids by volume.
- .02 On a horizontal substrate this is easily achieved in one coat using the cross hatch method of up and down and side to side.
- .03 On vertical substrates it is possible to apply 16 mils WFT in one coat but it's easier and better to apply it in 2 coats of 8 mils WFT each. This prevents any possible sag by going a little too thick and allows you to cross hatch (side to side then up and down) to achieve a perfect seal.

3.05 DRYING / CURING TIME AND RECOAT

- .01 SUPERTHERM® is a waterborne coating which contains no co-solvents and dries by evaporation.
- .02 Drying time is generally 1 hour to touch and 2 hours to recoat but these times will vary depending on relative humidity and ambient temperature. More dry time is required in a very cool or damp climate.
- .03 SUPERTHERM® completely cures is 14 – 21 days again depending on relative humidity and ambient temperature.
- .04 SUPERTHERM® contains 8% water. Water is a thermal conductor as opposed to a thermal resistor consequently the performance increases over time until all the water has evaporated out of the coating.

3.02 CLEANING

- .01 Clean up after work of this section in accordance with Section 01 74 11 Cleaning.

END OF SECTION