

## STATEMENT OF WORK

DATE: 03/29/2016

### CERAMIC ALLOY SURFACE REPAIR AND EPOXY PROTECTIVE COATING

#### CHILLER # 1 VAPHS

VAPHS VA Hospital-University Drive Campus  
University Drive  
Pittsburgh, PA 15219

**Narrative:** Service required: To prepare and install epoxy protective coating to #1 Chiller tube sheets, water boxes and end caps. To surface repair damaged and corroded tube sheet, prepare surfaces to receive protective epoxy coatings as per specifications. This repair and protective epoxy coating will extend the overall operational service life of the chiller and to prevent premature tube sheet failure.

#### Scope:

Contractor is required to perform site visit to assess requirements and customer specifications to provide the services and materials for the tube sheet repair and preservation. All Material Specifications Types and Specific Application procedures must be reviewed and approved by the COR and Project Technical Review Panel prior to award of contract.

Contractor will provide all materials and all necessary labor, materials and equipment to properly install Product Specified or Equivalent accepted under review. Ceramic Alloy Surface Repair Cladding Systems and Epoxy Coating as per the following procedure and specifications:

- Install dust collection and containment and ensure safety requirements are established around all equipment.
- Protective rubber blasting plugs will be inserted into each tube end to protect them during abrasive blasting.
- Abrasive blast all surfaces being treated to obtain a suitable anchor profile to accept the high performance polymer systems being used.
- All rubber plugs will be removed and new coating plugs will be inserted into each tube end.
- The tube sheets, water boxes and cover plates will be coated with Ceramic Alloy and Epoxy to "wet out" all surfaces, being careful to wet out the areas around the plugged tubes.
- Ceramic Alloy and Epoxy will be applied to all of the interior weld seams of the water boxes.
- Ceramic Alloy and Epoxy will be spatula applied to the tube sheets, building up the Alloy over the plugs.

#### Ceramic Alloy and Epoxy Specifications:

A two-component, 100% solids, paste-type polymer with extensive global use for repairing, resurfacing and coating damaged HVAC components.

#### Typical Values Test Method:

Compressive Strength 1,3500psi 945kg/cm<sup>2</sup> ASTM D-695

Flexural Strength 8,500psi 595 kg/cm<sup>2</sup> ASTM D-790

Izod impact Strength 1.3 ft lbs/in 0.69 j/cm ASTM D-256

Hardness – Shore D 86

Tensile Shear Adhesion

Steel 4000psi 280kg/cm2 ASTM D-1002

Aluminum 2800psi 196kg/cm2 ASTM D-1002

Copper 2500psi 175kg/cm2 ASTM D-1002

Stainless Steel 4100psi 287kg/cm2 ASTM D-1002

- When the Ceramic Alloy is set up, the Alloy will be ground back to expose the plugs, which will then be removed.
- Ceramic Alloy Epoxy Coating will then be applied over all previously coated surfaces of tube sheets, water boxes and cover plates.

#### Epoxy Coating Specifications:

A two-component, 100% solids, viscous liquid polymer with extensive global use for repairing, resurfacing and coating damaged HVAC components.

Typical Values Test Method:

Compressive Strength 1,3500psi 945kg/cm2 ASTM D-695

Flexural Strength 8,000psi 595 kg/cm2 ASTM D-790

Izod impact Strength 1.3 ft lbs/in 0.69 j/cm ASTM D-256

Hardness – Shore D 85

Tensile Shear Adhesion

Steel 4000psi 280kg/cm2 ASTM D-1002

Aluminum 2500psi 196kg/cm2 ASTM D-1002

Copper 3000psi 175kg/cm2 ASTM D-1002

Stainless Steel 4100psi 287kg/cm2 ASTM D-1002

- Final treatment of Epoxy Coating will then be applied over all previously coated surfaces of tube sheets, water boxes and cover plates.
- QA & Demobilization

#### Contract Duration:

Contractor has forty (40) days from the contract award date to complete services.

#### Exclusions Provided By VAPHS

1. All tubes, tube sheets and water boxes are to be dry upon arrival of contractor personnel.
2. Customer will provide Contractor, access to appropriate 110v electrical and water if necessary for the length of the project.
3. Facility will permit staging and operation of the gas/diesel compressor outside, near the building and adjacent to the work site.
4. Customer will provide a trash receptacle to dispose of project debris.
5. Debris disposal responsibility of Customer.
6. Building owner will provide for ground parking of equipment in close proximity to work.
7. Customer will allow proper cure time prior to return to service.
8. VAPHS Utilities Department Personnel will remove and reinstall water boxes and end bells.