MoDOT

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Missouri Department of Transportation
Patrick K. McKenna, Director

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ADDENDUM 002
Request for Bid
Festus Maintenance Building
RFB 9-160623KH

Bidders should acknowledge receipt of Addendum 002 (TWO) by signing and including it with the original bid. The due date for receipt of bids **has not** changed by this Addendum; the due date is **June 23, 2016 2:00 PM Central Time**. Accordingly, the following clarifications, and or additional information, are believed to be of general interest to all potential bidders. All other terms and conditions remain unchanged and in full force.

Name and Title of Signer (Print or type)	Name and Title of Department Authority Kristi Hixson General Services Senior Specialist
Contractor/Offeror Signature _____ (Signature of person authorized to sign)	Department of Transportation *Kristi Hixson* _____ (Authorizing Signature)
Date Signed:	Date Signed:6/17/2016

Replace Specification **15700 Thermal Insulation for Mechanical Systems** with the attached.

15700

THERMAL INSULATION FOR MECHANICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Work included:
   1. The work covered by this section of the specifications consists of furnishing all labor, materials, equipment and accessories necessary for the insulation for piping and air duct system. Insulation on new system connected to or modified are included. All insulation work is to be in strict accordance with this specification, applicable drawings and subject to the terms and conditions of the contract. Finishes of new insulation on existing systems shall match the adjacent finish.
   2. Domestic water piping.

1.2 RELATED DOCUMENT

A. Drawings and general provisions of contract, including general and special conditions, apply to work specified in this section.

1.3 SUBMITTAL DATA

A. Submittal data for insulating work shall contain a comprehensive summary or listing of all surfaces and systems to be insulated with each item defining type of surface covering vapor barriers, joining methods, fitting insulation, finishes, clips and pipe protection devices. Also included with submittal shall be manufacturers' complete engineering data on each item or material to be used with recommended installation method for each.

1.4 FIRE SAFETY STANDARDS

A. All insulation shall have composite (insulation, jacket or facing, and adhesive used to adhere the facing or jacket to the insulation) fire and smoke hazard ratings as tested by procedure ASTM E-84, NFPA 255 and UL 723 not exceeding:
   1. Flame Spread 25
   2. Smoke Developed 50

B. Accessories, such as adhesives, mastics, cements, tapes and cloths for fittings shall have the same component ratings as listed above. All products or their shipping cartons shall bear a label indicating that flame and smoke ratings do not exceed above requirements. Any treatment of jackets or facings to impart flame and smoke safety shall be permanent. The use of water-soluble treatment is prohibited. The insulation contractor shall certify that all products used have met the above criteria.

1.5 THERMAL CONDUCTIVITY

A. Indicated insulation thickness is based on an average thermal conductivity not to exceed .28 BTU per inch thickness per square foot, per degree F. per hour at a mean temperature of 75 degrees.

1.6 FITTINGS, VAPOR SEALS AND ACCESSORIES

A. Insulation on all cold surfaces where vapor barrier jackets are used, shall be applied with a continuous unbroken vapor seal. Hangers, supports, anchors, etc., that are secured directly to cold surfaces must be adequately insulated and vapor sealed to prevent condensation. Vapor barrier shall be sealed at ends of insulation and cutoff seals shall be provided at approximately 20 feet intervals in the piping.

B. At all hanger support locations in piping system, install pipe protection thermal hanger shields of waterproofed calcium silicate insulation, the same thickness as the adjacent pipe insulation, cased 360 degrees by galvanized steel. Shields shall be a standard product of the manufacturer and shall be as manufactured by Pipe Shield, Inc. or equal.

C. A general purpose vapor barrier jacket shall be used on all piping. Jacket shall consist of glass fiber reinforced heavy Kraft paper laminated to aluminum foil.

D. All fittings shall be insulated with fiberglass and vinyl fitting covers. The insulation shall be to a thickness equal to the adjacent pipe insulation on exposed piping. Fitting insulation shall be vapor proofed on chilled piping.

E. Adhesives, mastics and coating shall be Benjamin Foster of products of equal quality and performance as made by Chicago Mastic Company.

PART 2 PRODUCTS

2.1 INSULATION

A. Domestic Water Piping (Hot and Cold):
1. Hot and cold domestic water piping shall be insulated with 1" thick (for hot water) and 1/2" thick (for cold water) fiberglass similar to Owner Corning type 25 SFG with vapor barrier jacket where exposed and in plenum.

B. Refrigerant Insulation:
1. The 2012 International Energy Conservation Code (IECC) requires any piping associated with heating or cooling that carries fluids with an operating temperature of 55 °F and lower or 105 °F and higher to be insulated to a minimum of R-3.
2. Supplied from factories that manufacture under certified management systems: they should have an ISO 9001 registered Quality Management System and ISO 14001:2004 Environmental Management System.
3. Shown to have low chemical emissions of both Total Volatile Organic Compounds (TVOCs) and Formaldehyde. Preferably, materials should Greenguard Indoor quality (IAQ) Certification.
4. Manufactured without the use of CFC’s HFC’s or HCFC’s. They should be fiber-free and dust free and resist mold and mildew.
5. Made of closed-cell structure to prevent moisture from wicking, since moisture accumulation will reduce insulation performance.
6. Protected when installed outside and exposed to weather, with either suitable weather resistant finish or metal cladding material.
7. Install without a reflective foil covering. If reflective foil is supplied on the insulation surfave, and the insulation is fitted to ductwork sullpying cooling air, then the insulation thickness must be increased to avoid condensation that can occur due to the surface’s low emission coefficient.
8. Installed according to the manufacture’s recommendations.

2.2 ACCEPTABLE MANUFACTURERS

A. Insulation products meeting requirements described, as manufactured by Johns-Manville, Owens-Corning, CSG, Armstrong, BEH, Knauf or Pittsburgh will be acceptable.

PART 3 EXECUTION

3.1 INSTALLATION

A. Pipe Application

1. All insulation shall be installed in a workmanlike manner by skilled workmen regularly engaged in this type of work. The insulation shall be applied over clean dry pipe with all joints butted firmly together.
2. All insulation shall be continuous through wall and ceiling openings and sleeves.
3. Insulation shall not be installed on any pipe surfaces until those surfaces have been inspected and released for insulation application.

END OF SECTION