

**MAINTENANCE, REPAIR & OPERATIONS (MRO)****Asbestos Abatement Services****ITB#: 07118200257****LOCATION SPECIFICATION SHEET (LSS)**

Consideration for award will be based on Work Plan/Price Quotation in accordance with the specifications, terms and conditions as stated within this solicitation.

**SECTION I – PLACE OF SERVICES REQUESTED****LOCATION:**

<b>CONTRACT INFORMATION</b>			
<b>ESTIMATED CONTRACT START DATE:</b>	11/1/08	<b>CONTRACT END DATE:</b>	11/1/2011
<b>CONTRACT INFORMATION:</b>	ASBESTOS ABATEMENT		
<b>PREVIOUS BPO #:</b>			
<b>NUMBER OF YEARS / EXTENSION OPTIONS:</b>	THREE YEAR CONTRACT WITH TWO ONE YEAR EXTENSION OPTIONS		
<b>CONTRACTING AGENCY NAME:</b>	Michigan School for the Deaf		
<b>BUILDING NAME AND NUMBER:</b>	Service Building		
<b>BUILDING ADDRESS:</b>	1667 MILLER RD, FLINT, MI 48503		
<b>REGION / COUNTY:</b>	GENESEE COUNTY		
<b>PROCUREMENT CONTACT INFORMATION</b>			
<b>PROCUREMENT OFFICE NAME:</b>	Michigan School for the Deaf		
<b>PROCUREMENT OFFICE CONTACT NAME:</b>	Cathy St.James	<b>CONTACT PHONE #:</b>	810-257-1427
<b>PROCUREMENT OFFICE CONTACT E-MAIL:</b>	stjamesc@michigan.gov	<b>CONTACT FAX #:</b>	810-257-1490
<b>CONTRACT COMPLIANCE INSPECTOR (CCI) / FACILITY MANAGER (FM) NAME:</b>	FM: Byron Jolly	<b>CONTACT PHONE #:</b>	810-257-1441
<b>CCI / FM CONTACT E-MAIL:</b>	jollyb@michigan.gov	<b>CONTACT FAX #:</b>	810-257-1490
<b>LOCATION INFORMATION</b>			
<b>OFFICIAL WORKING DAYS OF BUILDING OCCUPANTS:</b>	M-F	<b>OFFICIAL WORKING HOURS OF BUILDING OCCUPANTS:</b>	7a-5p
<b>ESTIMATE OF AREA TO BE SERVICED: (IF APPLICABLE)</b>	N/A	<b>(FILL IN IF NEEDED)</b>	
<b>IDENTIFY DAYS OF SERVICE:</b>	N/A	<b>IDENTIFY HOURS OF SERVICE: [EXAMPLE: 5:30 A.M. TO 5:30 P.M.]</b>	N/A



## SECTION II –SPECIFIC REQUIREMENTS/SPECIFICATIONS

### Asbestos Abatement for DMB Facilities Administration, Design and Construction Division

#### **DMB SPECIFIC REQUIREMENTS**

The Department of Management and Budget (DMB) seeks to establish a blanket (open-order) contract for asbestos removal for DMB-managed facilities statewide as identified by the DMB Facilities Administration, Design and Construction Division. Work will include labor and materials for removal of limited quantities of asbestos containing material (ACM), re-insulate with asbestos free products, and re-install labeling as identified by State of Michigan construction standards. Scope of work will range from incidental glovebag removal to large-scale abatement: generally less than \$25,000 per project. Work will be on an as needed basis and contractor will be expected to respond within 24 hours. The contractor will be expected to work under the direction of a State of Michigan Contract Compliance Inspector (CCI) and a DMB-Facilities Administration contract industrial hygiene consulting firm. Coordination and oversight of asbestos removal activities, including air and bulk sampling as necessary, will be conducted under a separate contract with a professional industrial hygiene firm. The contractor will submit Standard Operating Procedures for all asbestos activities and quality assurance processes.

The DMB Facilities Administration, Design and Construction Division's contract Industrial Hygiene Consultant will provide cassette analysis for contractor Permissible Exposure Limit (PEL) and Short Term Exposure Limit (STEL) air monitoring for Facilities Administration, Design and Construction asbestos abatement projects.

Payment for services rendered will be made when work is completed and final documentation of the disposal manifest has been received by DMB Facilities Administration, Design and Construction Division. Payment will be made according to the attached Pricing Bid sheet in Section III. Invoices must contain the contract number, location of service, dates of service, description of service and quantities.

#### **Division 22 and 23 - MECHANICAL IDENTIFICATION**

##### **PART 1 - GENERAL**

###### 1.1 SUMMARY

1. Provide all labor, materials, and equipment as necessary to complete all work as specified herein.
2. Section Includes: Mechanical identification devices.

###### 1.2 REFERENCES

1. ANSI/ASME A13.1 - Scheme for the Identification of Piping Systems
2. OSHA 29 CFR Part 1910 - Occupational Exposures to Hazardous Chemicals in Laboratories
3. Construction Specifications Institute (CSI), MasterFormat, CSINET.ORG

###### 1.3 QUALITY ASSURANCE

1. Identification devices shall conform to applicable Codes and Standards except as otherwise modified and supplemented herein.
2. ANSI/ASME A13.1
3. OSHA 29 CFR Part 1910



## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

1. Acceptable Manufacturers: Seton Name Plate Co., Emed, Marking Services Inc., or approved equal.

### 2.2 PIPE MARKERS

1. Indoor pipe size 6" and smaller shall be labeled using Setmart Snap-Around Markers , or approved equal. Indoor pipe over 6" in size shall be labeled using Setmart Strap-Around Markers , or approved equal.
2. Outdoor pipe over 6" in size shall be labeled using Setmart Ultra-mart , or approved equal.
3. Legends shall be as follows:
  1. General Services
    1. Compressed Air - Control
    2. Compressed Air - Laboratory
    3. Distilled Water
    4. Domestic Cold Water Domestic Hot Water Supply
    5. Domestic Hot Water Return
    6. Fire Protection Water
    7. Natural Gas
    8. Sanitary Waste
    9. Storm Waste
    10. Vacuum - cleaning
    11. Vacuum - laboratory
    12. Vent
  2. Heating and Air Conditioning
    1. Chilled Water Supply
    2. Chilled Water Return
    3. Condenser Water Supply
    4. Condenser Water Return
    5. Energy Recovery
    6. High Pressure Condensate
    7. Medium Pressure Condensate
    8. Low Pressure Condensate
    9. Pumped Condensate Return
    10. High Pressure Steam (80 PSI and above)
    11. Medium Pressure Steam (16 PSI to 80 PSI)
    12. Low Pressure Steam (15 PSI and below)
    13. Refrigeration - Hot Gas
    14. Refrigeration - Liquid
    15. Refrigeration - Suction
    16. Heating Water Supply
    17. Heating Water Return
    18. Process Water
  3. Special Services: Special piping systems such as oxygen, nitrogen, nitrous oxide, etc. shall have markers with appropriate wording for the type of service.



## 2.3 IDENTIFICATION OF VALVES

1. Valve tags shall be 19 gauge brass, 1-1/2" diameter round with 3/16" top hole. Each tag shall be stamped and black filled with 1/4" service indicator on the top line and 1/2" numbers below. No painted tags will be accepted.
2. Top line legends shall be as follows:
  1. Chilled Water Supply
  2. Chilled Water Return
  3. Condenser Water Supply
  4. Condenser Water Return
  5. Low Pressure Steam
  6. Medium Pressure Steam
  7. High Pressure Steam
  8. Condensate
  9. Pumped Condensate
  10. Hot Water Heating Supply
  11. Hot Water Heating Return
  12. Fire Protection
  13. Domestic Cold Water
  14. Domestic Hot Water
  15. Domestic Hot Water Return
  16. Compressed Air
  17. Natural Gas
  18. Pure Water
3. Number sequences shall be from 1 thru 999 for all legends.
4. Tags shall be fastened to valves with #16 solid brass jack chain.

## 2.4 IDENTIFICATION OF EQUIPMENT

1. Equipment nameplates shall be engraved laminated plastic, large enough to be easily read, and in general attached by two (2) screws.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

1. Pipe and Duct Labeling
  1. All pipe lines and ductwork in accessible locations such as tunnels, equipment rooms, equipment crawl spaces, air plenums, etc., and in all exposed areas at each riser, shall be marked with appropriate markers and flow arrows.
  2. Markers shall be applied adjacent to all valves, branch connections, where pipes pass through walls and floors, at all major changes in direction, and every 50' in a straight run.
  3. All ductwork zones and equipment shall also be marked.
  4. Pipe or insulation surface shall be clean and dust free before the label is applied.
2. Valve Labeling
  1. All valves and regulators (except those directly serving equipment) shall be provided with a brass tag securely wired in place on the valve stem below the packing gland nut. Tags shall clearly indicate the part of system, or room name and/or number controlled by the valve.
  2. Furnish four (4) hot-press laminated typewritten copies of valve schedule, giving valve number controlled by the valve and location of valve. One copy will be mounted on a directory board in the main mechanical room, and one copy will be placed in each of the three mechanical brochures.



3. Prepare separate directories and drawings for the plumbing, heating, and air conditioning systems showing system layout as installed, and giving the number, location, and purpose of each component. The Contractor shall contact the Architect/Engineer before starting the directory to insure proper tagging and listing. Contract Compliance Inspector will provide Architect/Engineer contact information as needed.
  4. Where it is necessary to operate more than one valve to control a section of piping, this fact and the numbers of the secondary valves shall be noted on the directory.
3. Equipment Labeling
1. Name plates shall give name and number of unit, and be provided on all major equipment, including the following:
    1. Motor Driven Equipment
    2. Starters and Disconnect Switches
    3. Booster Coils
    4. Terminal Boxes
    5. Control Devices
  2. Label exhaust fans with fan number and room number or numbers served.
  3. Location signs shall be provided for safety showers, eyewash stations, and emergency gas shutoff.

## **DIVISION 22 and 23 - MECHANICAL INSULATION**

### **PART 1 - GENERAL**

#### 1.1 SUMMARY

1. Provide all labor, materials, and equipment as necessary to complete all work as specified herein.
2. Section Includes: Insulation of pipes, ductwork, and mechanical equipment.
3. Unless otherwise indicated, do not apply insulation to the following equipment and piping:
  1. Hot water-heating piping inside radiation, convector, or cabinet heater enclosures
  2. Steam traps
  3. Control valves
  4. Condensate receivers
  5. Condenser water piping
  6. Cooling tower water piping
  7. Factory-insulated flexible ducts
  8. Factory-insulated plenums, casings, and terminal boxes
  9. Access panels and doors
  10. Fire protection piping
  11. Exhaust ductwork

#### 1.2 REFERENCES

1. MICA, National Commercial & Industrial Insulation Standards
2. ASHRAE/IES 90.1-1989, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings
3. ASTM E84, Surface Burning Characteristics of Building Materials

#### 1.3 SUBMITTALS

1. Shop Drawings: Submit product data for each type of insulation identifying k value, thickness, and



accessories.

#### 1.4 QUALITY ASSURANCE

1. Insulation shall have a flame-spread rating of 25 or less and smoke-developed rating of 50 or less as tested by ASTM E84.

#### 1.5 SEQUENCING AND SCHEDULING

1. No insulation shall be applied before all required tests have been run. Schedule insulation application after system testing.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

1. Acceptable Manufacturers: Owens-Corning, Schulle, Knauf, Armstrong, IMCOA, Pittsburgh Corning, or approved equal.

#### **2.2 FIBER GLASS PIPE INSULATION**

1. Fiber glass pipe insulation shall have a thermal conductivity k of 0.23 Btu-in/hr-sqft-degree F or less at 75 degree F mean temperature, a reinforced vapor retarder jacket, and a factory-applied longitudinal adhesive closure system. Section joints shall be sealed with butt strips. Maximum jacket permeance shall be 0.02 perm.
2. Equal to Owens-Corning "Fiberglas SSL II" or Schuller "Micro-Lok AP-T Plus".

#### **2.3 CALCIUM SILICATE PIPE AND BLOCK INSULATION**

1. Calcium silicate pipe and block insulation shall be asbestos-free, molded, high temperature insulation composed of hydrous calcium silicate with a density of 15 lb/cu ft, and thermal conductivity k of 0.37 Btu-in/hr-sqft-F or less at 200 degree F mean temperature.
2. Equal to Schuller "Thermal-12 Gold".

#### **2.4 ELASTOMERIC FOAM INSULATION**

1. Elastomeric foam pipe and sheet insulation shall be of a flexible closed cell structure with a thermal conductivity of not more than 0.27 Btu-in/hr-sqft-degree F at 75 degree F mean temperature, and a water vapor permeability of 0.1 perm-in. or less.
2. Equal to Armstrong "Armaflex AP".

#### **2.5 POLYOLEFIN FOAM INSULATION**

1. Polyolefin foam pipe and sheet insulation shall be of a flexible closed cell structure with a thermal conductivity of not more than 0.24 Btu-in/hr-sqft-degree F at 75 degree F mean temperature, and a water vapor permeability of 0.01 perm-in. or less.
2. Equal to IMCOA "ImcoLock/ImcoShield".

#### **2.6 CELLULAR GLASS INSULATION**

1. Cellular glass insulation shall be of a rigid, close cell structure with a average density of 8 lb/cu.ft., average compressive strength of 100 psi, thermal conductivity of not more than 0.33 Btu-in/hr-sqft-degree F at 75 degree F mean temperature, and a water vapor permeability of 0.00 perm-in.



2. Equal to Pittsburgh Corning "Foamglas".

## 2.7 DUCT WRAP INSULATION

1. Duct wrap insulation shall consist of a blanket of glass fibers factory-laminated to a reinforced foil/kraft (FRK) vapor barrier facing. A 2" stapling and taping flange shall be provided on one edge. Insulation shall have thermal conductivity k of 0.27 Btu-in/hr-sqft-degree F or less at 75 degree F mean temperature, minimum density of 1.0 lb per cu.ft., and maximum vapor permeability of 0.02 perm-in.
2. Equal to Owens-Corning "All-Service Faced Duct Wrap Insulation" or Schuller "Microlite".

## 2.8 EXTERIOR BOARD DUCT INSULATION

1. Exterior board duct insulation shall be made of glass fibers with a thermosetting resin binder and formed into semi-rigid boards with factory-applied vapor retarders FRK-25 foil-reinforced kraft facing. Insulation shall have a minimum density of 3 lbs/cu.ft., thermal conductivity k of 0.23 Btu-in/hr-sqft-degree F or less at 75 degree F mean temperature, and maximum jacket permeance of 0.02 perm.
2. Joint sealing tape shall be dead soft aluminum foil with a pressure sensitive adhesive, not reinforced, and guaranteed not to peel.
3. Equal to Owens-Corning Type 703 or Schuller Type 814.

## 2.9 INSULATED FITTING COVERS

1. Insulated fitting covers shall be manufactured from high-impact, gloss white, UV-resistant polyvinyl, and applied with fiberglass insulation inserts from the factory. Minimum jacketing thickness shall be 20 mil for indoor applications, and 30 mil for outdoor applications. Insulation thickness shall not be less than the thickness specified for piping.
2. Equal to Schuller "Zeston 2000 PVC".

## 2.10 REMOVABLE INSULATION COVERS

1. Furnish where specified, removable insulation covers for insulating valves, fittings, manway covers, and centrifugal pumps. Removable insulation covers shall be "Heat Holder" insulation covers as manufactured by Insulation Technology Inc., or approved equal.

## 2.11 JACKETS

1. Canvas jackets shall be UL listed fabric, 6 oz/sq yd, and plain weave cotton treated with dilute fire retardant lagging adhesive.
2. PVC jackets shall be manufactured from high-impact, gloss white, UV-resistant polyvinyl. Minimum jacketing thickness shall be 20 mil for indoor applications, and 30 mil for outdoor applications. PVC jackets shall be Schuller "Zeston 2000 PVC", or approved equal.
3. Aluminum jackets shall be field or factory applied, sealed, and made of 0.016 inch thick sheet, smooth finish, with longitudinal slip joints and 2" laps, die shaped fitting covers with factory attached protective liner.
4. Stainless steel jackets shall be field or factory applied, sealed, and made of type 304, 0.010 inch thick sheet with bands, snap-straps and fittings.

## 2.12 INSULATION INSERTS

1. Insulation inserts shall be made of calcium silicate or cellular glass on hot applications; and calcium silicate treated with water repellent or cellular glass or high density foam insulation on cold applications.



2. Inserts shall be preformed for the pipe size, same thickness as adjoining pipe insulation, same length as shield, and 90 degree-minimum segments on pipe 4" in size and smaller and 180 degree-minimum segments on pipe 5" in size and larger. PVC tape shall be used to secure the insulation shield to the insulation. Vapor barrier shall be provided on cold applications.
  
3. Insulation inserts shall not be less than the following lengths:
 

2-1/2" pipe size and less	10" long
3" to 6" pipe size	12" long
8" to 10" pipe size	16" long
12" pipe size and larger	22" long

2.13 PIPING INSULATION SCHEDULE

MINIMUM INSULATION THICKNESS							
SERVICE TYPE	INSULATION MATERIAL	VAPOR BARRIER REQ'D	NOMINAL PIPE DIAMETER in inch				
			1 & less	1-1/4 to 2	2-1/2 to 4	5 & 6	8 & up
Domestic Cold Water	Fiber glass	Yes	1	1	1	1	1
	Elas./Polyo.	No	0.5	0.5	0.5	0.5	0.75
Domestic Hot Water	Fiber glass	No	1	1	1.5	1.5	1.5
Soil, Drain & Acid Waste	Fiber glass	Yes	1	1	1	1	1
	Elas./Polyo.	No	0.5	0.5	0.5	0.5	0.75
Chilled Water	Fiber glass	Yes	1	1	1.5	1.5	1.5
	Elas./Polyo.	No	0.5	1	1.5	1.5	1.5
Hot Water Heating	Fiber glass	No	1.5	1.5	2	2	3.5
LP Steam (15# & less)	Fiber glass	No	2	2.5	2.5	3.5	3.5
HP Steam (above 15#)	Fiber glass	No	2.5	2.5	3	3.5	3.5
	Calc. Silicate	No	3.5	3.5	4	5	5
Steam Condensate	Fiber glass	No	2	2	2.5	2.5	3.5
	Cal. Silicate	No	2.5	2.5	3	4	5
Refrigerant Hot Gas	Fiber glass	No	1	1	1	1	1
Refrigeration Suction (40 degree F & above)	Fiber glass	Yes	1	1	1	1	1
	Elas./Polyo.	No	0.5	0.75	1	1	1
Refrigeration Suction (below 40 degree F)	Fiber glass	Yes	1	1.5	1.5	1.5	1.5
	Polyolefin	No	1	1.5	1.5	1.5	1.5
Engine Exhaust	Calc. Silicate	No	4	4	4	4	4



## 2.14 DUCTWORK INSULATION SCHEDULE

DUCT TYPE & LOCATION	INSULATION MATERIAL	MIN. THICKNESS in inch	VAPOR BARRIER REQ'D	TYPE OF JACKET
Supply - Concealed from view	Duct wrap	1.5	Yes	No
Return - Concealed from view	Duct wrap	1.5	No	No
Supply - Exposed to view	Duct wrap or exterior board	1.5	Yes	No
Return - Exposed to view in unconditioned spaces	Duct wrap or exterior board	1.5	No	No
Supply - Exposed to view in equipment room	Exterior board	1.5	Yes	PVC
Return - Exposed to view in equipment room	Exterior board	1.5	No	PVC
Supply - Exposed to weather	Exterior board	2	Yes	Al or SS
Return - Exposed to weather	Exterior board	2	No	Al or SS
Outside air	Exterior board	1.5	Yes	PVC

## 2.15 EQUIPMENT INSULATION SCHEDULE

1. Hot Water Converters: Insulate with 1-1/2 inch thick calcium-silicate block insulation.
2. Steam Humidifiers: Insulate with 1-1/2 inch thick calcium-silicate block insulation.
3. Absorption Machines: Insulate generator section including heads with 1-1/2 inch thick calcium-silicate block insulation. Insulate evaporator and condenser sections with foam insulation not less than 3/4 inch thick. Refer to manufacturer's recommendations.
4. Chilled Water Expansion Tanks and Air Separator Tanks: Insulate with 3/4-inch thick foam insulation.
5. Pressure-Powered Pumps: Insulate with removable insulation covers. The cover shall enclose pump surfaces and flanges, and shall be fabricated with galvanized box frame and 1-1/2" thick calcium silicate.
6. Chilled Water Pumps: Insulate with removable insulation covers. The cover shall enclose pump surfaces and flanges, and shall be fabricated with galvanized box frame and 1" thick foam insulation.
7. Hot Water Pumps: Insulate with removable insulation covers. The cover shall enclose pump surfaces and flanges, and shall be fabricated with galvanized box frame and 1-1/2" thick calcium silicate.
8. Steam Pressure Reducing Station: Insulate for a distance of minimum 5 pipe diameters upstream and downstream of the steam pressure reducing station with calcium silicate insulation. Insulation thickness shall be not less than 4 inches.



## PART 3 - EXECUTION

### 3.1 INSTALLATION

#### 1. General

1. Install materials in accordance with manufacturer's recommendations, building codes and industry standards except as modified or specified in these specifications.
2. Verify that all surfaces are clean, dry and free of foreign materials.
3. Continue insulation vapor barrier through penetrations except where prohibited by code. It is essential that the integrity of the vapor barrier be maintained. Fasteners or other securing devices that may unintentionally penetrate or otherwise damage the vapor barrier are prohibited. Where fasteners must penetrate the vapor barrier, the vapor barrier shall be repaired with a patch or tape of the same materials.

#### 2. Piping Insulation

1. Verify that piping has been tested before applying insulation materials.
2. All sectional pipe covering shall be neatly and tightly applied with unbroken lengths and with the ends of the sections firmly butted together. Longitudinal joints shall be on the least conspicuous side of the pipe and slightly staggered. Fiberglass cloth or other coating shall be lapped over all joints and well pasted or cemented down in a neat and inconspicuous manner.
3. The insulation on piping shall be extended through all sleeves in order to produce a continuous application, and it shall be installed to conform to a uniform diameter.
4. All valve bodies, fittings, flanges, drip pockets, end caps, etc. on all lines, except where otherwise noted, and shall be covered with insulated fitting covers. Thickness of insulation, vapor barriers, jackets and finishes shall also match adjacent piping.
5. Provide insulated cold pipes conveying fluids below ambient temperature with vapor retardant jackets with self-sealing laps.
  1. Domestic Cold Water
  2. Insulated Soil, Drain, and Acid Waste
  3. Chilled Water
  4. Condensate Drain
  5. Refrigerant Suction
6. Insulate horizontal sections of the sanitary drainage and acid waste piping. Vertical sections of these piping are not required to be insulated.
7. Outdoor piping shall be insulated same as indoor piping except with additional half-inch thickness and covered with a sealed aluminum jacket. Jacket seams shall be located on bottom side of horizontal piping. Cellular glass insulation may be used in lieu of fiberglass or foam insulation.
8. PVC jackets shall be installed on insulated piping in conjunction with fitting covers to provide a total sealed system as required by USDA and FDA for applications in food and pharmaceutical facilities.
9. For piping exposed to physical abuse in mechanical equipment rooms or in finished spaces below 10' above finished floor, finish with PVC or aluminum jacket.
10. Secure calcium silicate pipe insulation with stainless steel bands.
11. Insulation for piping shall be continuous through hangers and supports.
12. Provide insulation inserts and insulation protection shields at hanger or support locations.
13. Where a vapor barrier is not required on insulated piping in size less than 4" inch, hangers and supports may be attached directly to piping with insulation completely covering hanger or support and jacket sealed at support rod penetration. Do not use ring hangers on cold piping.
14. Where riser clamps are required to be attached directly to piping requiring vapor barrier, extend insulation and vapor barrier jacketing/coating around riser clamps.

#### 3. Ductwork Insulation

1. Verify that ductwork has been tested for leakage before applying insulation materials.
2. Provide insulated ductwork conveying air below ambient temperature with vapor retardant jacket. Seal all vapor retardant jacket seams and penetrations with UL listed tapes or vapor retardant adhesive.



3. Continue insulation through walls, sleeves, hangers, and other duct penetrations except where prohibited by code.
4. Equipment Insulation
  1. Verify that equipment has been tested before applying insulation materials.
  2. Do not insulate over equipment nameplates and ASTM stamps. Bevel and seal insulation at these locations.
  3. Provide insulated equipment containing fluids below ambient temperature with vapor retarding jackets.
  4. Provide insulated equipment containing fluids above ambient temperature with jackets.
  5. When equipment with insulation requires periodic opening for maintenance, repair, or cleaning, install insulation in such a manner that it can be easily removed and replaced without damage.
  6. Block type insulation shall be applied and edges tightly butted, joints staggered, and neatly and securely fastened in place with No. 14 gauge galvanized annealed steel wire. Over insulation, 2-inch hexagonal galvanized wire mesh shall be tightly stretched in place and secured. Coat the wire with a 1/2-inch layer of the same composition or equal in plastic cement, troweled to a smooth finish. Over this, adhere a pre-sized non-combustible glass cloth jacket.



**SECTION III – PRICING SHEET SUMMARY**

**Asbestos Abatement for State of Michigan Agencies**

Waste disposal costs will be included in the unit cost bid submitted by the Contractor. A separate charge will be allowed for a project mobilization fee. Separate charges will not be permitted for air monitoring, equipment decontamination, overhead or other costs inherent to asbestos abatement. Unit cost bids shall be provided in dollars per square foot (\$/SF) and dollars per linear foot (\$/LF) as indicated.

**Standard Time** = Monday – Friday 8:00 AM to 5:00 PM

Material Type	Abatement (Bidder complete)		Reinstall & Label (Bidder complete)
	\$ / LF	\$ / SF	\$ / LF
Floor tile		\$	
Floor tile; NPE		\$	
Floor tile; Heat (infrared) removal		\$	
Floor tile; Negative Exposure Assessment (NEA)		\$	
Roof felt/flashing, Negative Exposure Assessment (NEA)		\$	
Mastic		\$	
Pipe insulation (1-4" pipe diameter)	1" diameter \$ 2" diameter \$ 3" diameter \$ 4" diameter \$		1" diameter \$ 2" diameter \$ 3" diameter \$ 4" diameter \$
9,030 LF			
Pipe insulation (5-8" pipe diameter)	5" diameter \$ 6" diameter \$ 7" diameter \$ 8" diameter \$		5" diameter \$ 6" diameter \$ 7" diameter \$ 8" diameter \$
382 LF			
Pipe insulation (9-12" pipe diameter)	9" diameter \$ 10" diameter \$ 11" diameter \$ 12" diameter \$		9" diameter \$ 10" diameter \$ 11" diameter \$ 12" diameter \$
12 LF			
Pipe fitting insulation (1-4" pipe diameter)	1" diameter \$ 2" diameter \$ 3" diameter \$ 4" diameter \$		1" diameter \$ 2" diameter \$ 3" diameter \$ 4" diameter \$
Pipe fitting insulation (5-8" pipe diameter)	5" diameter \$ 6" diameter \$ 7" diameter \$ 8" diameter \$		5" diameter \$ 6" diameter \$ 7" diameter \$ 8" diameter \$
Pipe fitting insulation (9-12" pipe diameter)	9" diameter \$ 10" diameter \$ 11" diameter \$ 12" diameter \$		9" diameter \$ 10" diameter \$ 11" diameter \$ 12" diameter \$
Lagging/repairing TSI		\$	
TSI on ducts, vessels, etc.		\$	\$
Acoustical surface material		\$	
Fire proofing		\$	\$
Suspended ceiling tile 8,904 sq ft		\$	
Cleaning floors and surfaces with ACM debris		\$	



**SECTION III – PRICING SHEET SUMMARY - *continued***

**Asbestos Abatement for State of Michigan Agencies**

Actual work hours to be determined for each project. **Mark-up rates, in percent**, should be provided for State of Michigan holiday, weekday premium, and weekend work.

Weekday Premium = Sunday – Friday 5:00 PM to 8:00 AM % \_\_\_\_\_

Weekend = 5:00 PM Friday – 5:00 PM Sunday % \_\_\_\_\_

Holiday = State recognized Holidays % \_\_\_\_\_

Complete below or attach a list (TYPED OR PRINTED) of all days that are considered "**Holiday**" and will require compensation at the holiday rate shown above.

**New Years Day - January 1<sup>st</sup>, Memorial Day, Independence Day - July 4<sup>th</sup>  
Labor Day, Veteran's Day, Thanksgiving Day, Day after Thanksgiving, Christmas Eve  
Christmas Day**

Mobilization/ De-Mobilization fee (Lansing area projects): \$ \_\_\_\_\_ per project

Mobilization/ De-Mobilization fee (Out state facilities): \$ \_\_\_\_\_ per project

**Emergency/Miscellaneous Activities not included above:**

Standard: \$ \_\_\_\_\_ per hour; Weekday Premium: \$ \_\_\_\_\_ per hour

Weekend: \$ \_\_\_\_\_ per hour; Holiday: \$ \_\_\_\_\_ per hour

**All invoices must contain the contract number, location of service, dates of service, description of service and quantities.**

**(Other information of importance that the Agency may want the Bidder to know)**