

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

OFFICE OF DESIGN & CONSTRUCTION SERVICES and PHYSICAL FACILITIES

CONTRACTING SERVICES  
Building 439  
Santa Barbara, California 93106-1030  
Telephone (805) 893-3356  
Fax (805) 893-8592

**SENT VIA:**  FAX ON THIS DATE  
 HAND DELIVERY ON THIS DATE  
 FEDERAL EXPRESS ON THIS DATE  
 UNITED PARCEL SERVICE ON THIS DATE

HOLDERS OF PLANS AND SPECIFICATIONS:

Ortega and Santa Catalina Dinning Commons  
Boiler Replacement, Bldgs. 542 & 860  
Project No. FM120316S/137-53/139-52  
**Addendum No. 2**

April 24, 2012

Enclosed is **ADDENDUM NO. 2** to the Construction Documents on the above-captioned project.

Bid Date: Thursday, May 10, 2012 at 2:30 PM to be held at:

CONTRACTING SERVICES  
Facilities Management, Bldg. 439  
Door #E, Reception Counter  
University of California, Santa Barbara  
Santa Barbara, CA 93106-1030

Late arrivals shall be disqualified. Please allow time for unforeseen traffic delays, securing a parking permit and potential parking problems.

**Please Note:** A REVISED Bid Form has been included herein and any Bids not submitted on the required "Bid Form (Rev. 1)" may be rejected by the University as non-responsive.

  
\_\_\_\_\_  
Greg Moore  
Associate Director, Contracting Services

ADDENDUM NO. 2

to the

CONSTRUCTION DOCUMENTS

APRIL 24, 2012

**GENERAL**

The following changes, additions or deletions shall be made to the following document(s) as Indicated; all other conditions shall remain the same.

I. **BID FORM**

Item No.

- 1-1. Bid Form. **REPLACE** the original Bid Form in its entirety with Bid Form (Rev. 1) - see attached, 7 pages. Please be advised that any Bids not submitted on the required "Bid Form (Rev. 1)" may be rejected by the University as non-responsive.

II. **SPECIFICATIONS**

Item No.

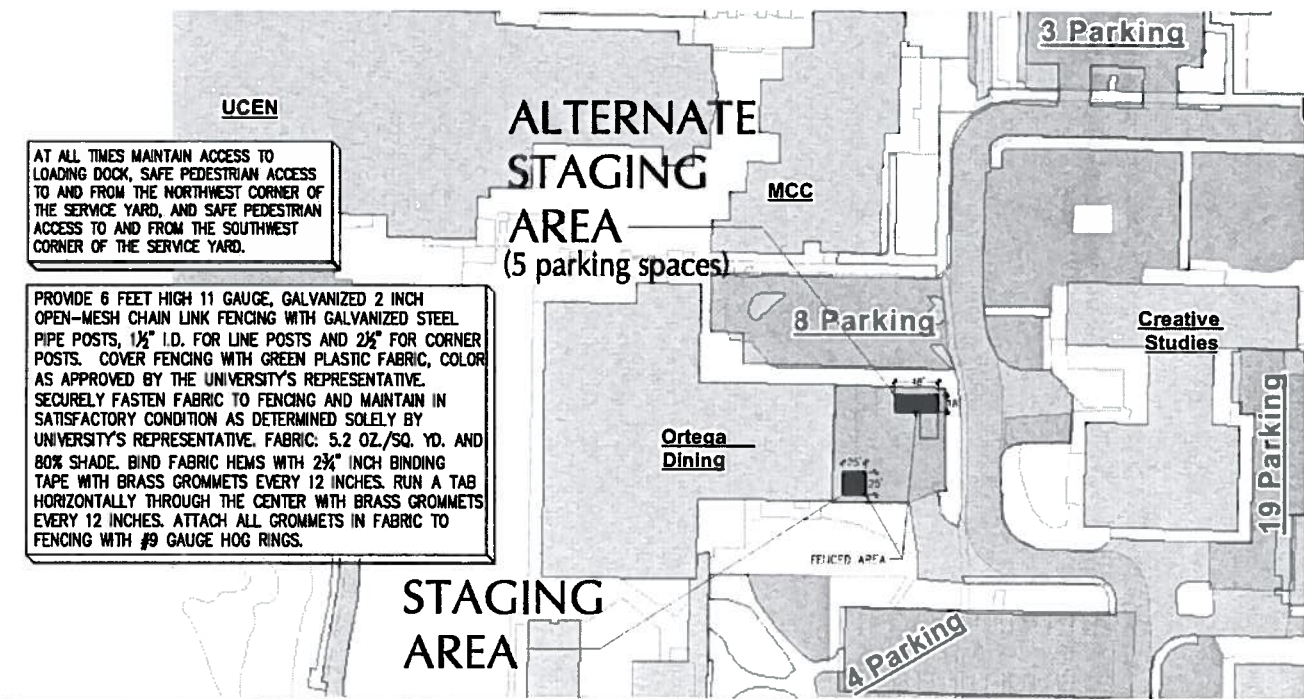
- 2-1. Section 01010 - "Summary of Work" - 1.02C: Change end date for shut down from September 7, 2012 to August 31, 2012. Change substantial completion date from September 7, 2012 to August 31, 2012.
- 2-2. Section 01010 - "Summary of Work" - 1.02D: Delete section D entirely – Replace as follow: Santa Catalina Hall will be operational during construction period. Dates of construction: 07/02/12 – 09/14/12
- 2-3. Section 01310 - "Contract Schedules" - 1.01B;3,a),1): Change end date of shut down period from September 7, 2012 to August 31, 2012.
- 2-4. Section 01310 - "Contract Schedules" - 1.01B;3,a),11): Change substantial completion from September 7, 2012 to August 31, 2012.
- 2-5. Section 01640 - "Product Options and Substitutions" - 1.02A: Change submittal requirements from 30 days to 10 days (three places).
- 2-6. Section 01640 - "Product Options and Substitutions" - 1.03D: Change submittal evaluation period to 10 days from 15 days (two places).

- 2-7. Section 01640 - "Product Options and Substitutions" - 1.03K: Change 15 day and 30 day to 10-day and 10 day.
- 2-8. Section 02080 - "Asbestos-Related Demolition Work" – Add in its entirety. (attached 20 pages).
- 2-9. Section 02081 - "Lead-Related Demolition Work" – Add in its entirety. (attached 8 pages).
- 2-10. Section 07840 - "Firestopping" – Add in its entirety. (attached 5 pages).
- 2-11. Section 15900 – "Building Automation System: 1.01B. Add the following sentence at the end of the paragraph, "Siemens Talon to match existing".

### III. DRAWINGS - ORTEGA DINING COMMONS

#### Ortega Item No.

- 3-1. Drawing No. T-001: Add partial vicinity map below for staging area and notes.



- 3-2. Drawing No. M-100: Add the following Fire Protection Notes:
  1. Fire rated assemblies shall be maintained. If penetrating fire rated construction, protect with UL approved assembly.
  2. All fire stop installations shall be in accordance to UCSB Fire Stop Standard 07840. Request inspection from a DCFM upon completion of installing fire stop material.

3. During the course of construction protect all fire alarm and fire protection equipment. If damage to the fire protection occurs during the course of construction contractor is responsible for repairing and/or replacing damaged equipment.

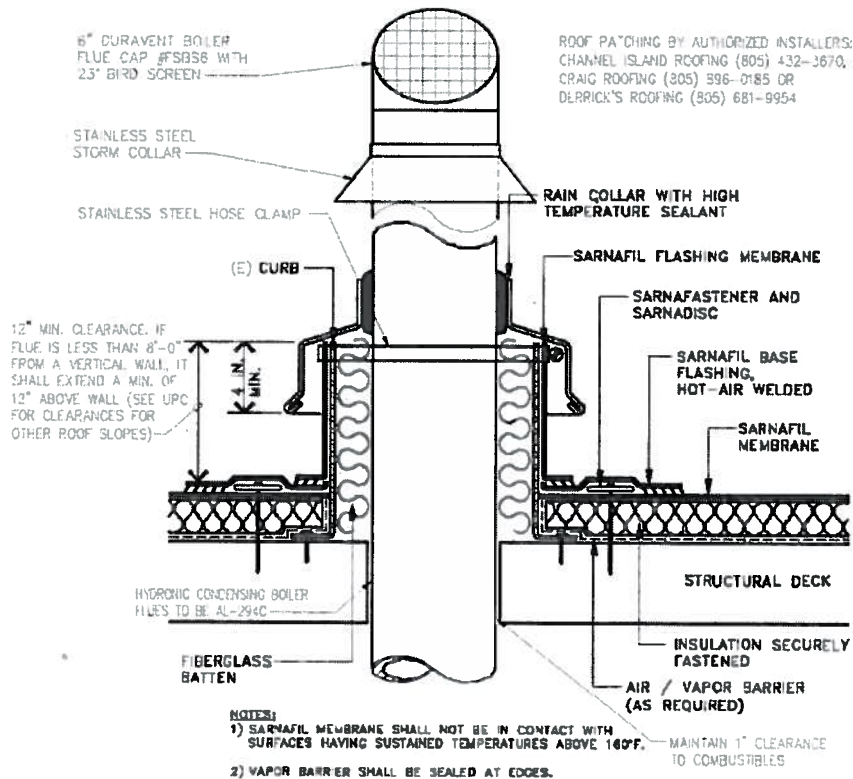
**3-3.** Drawing No. M-100: Steam Boiler Schedule - change steam output from 883 LB/HR @ 15PSI to 794 LB/HR @ 15PSI.

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3-4. Drawing No. M-101: Replace detail #9/M-101 with detail #9/M-101 shown below.

**Brummel  
 Mechanical  
 Engineering, LLP**

444 Higuera Street | Suite 201  
 San Luis Obispo | CA 93401  
 kelli@bmehvac.com | bren@bmehvac.com  
 (805) 543-6636



**9 FLUE CAP - B-1 & B-2**

**DETAIL NO. 9/M-101**

**ORTEGA DINING COMMONS BOILER ROOM EQUIPMENT REPLACEMENT  
 ADDENDUM NO. 2  
 4-25-12**

**3-5.**

Drawing No. M-201: Add the following Waste and Recycling Notes:

1. Waste material (recycled or land filled) from the project must be accounted for by weight. Each project should report tonnage (weight ticket) of recycled material and land filled material to the university rep.
2. The following construction and demolition (C & D) material can be co-mingle recycled and picked up by the local waste hauler and they can provide weight tickets. Other haulers must recycle these materials as well, if the local hauler is not used.
  - a. All metal (aluminum, copper, tin, steel, brass, etc), all paper (copier, newspaper, magazines), cardboard, all hard plastic, wood, drywall, carpet, glass, concrete, asphalt, appliances (stoves/refrigerators).

**3-6.**

Drawing No. M-201: SB-1 change heating input from 1,075,000 BTUH to 995,000 BTUH. SB-2 change heating input from 860,000 BTUH to 995,000 BTUH.

(Intentionally Left Blank)



- 3-7. Drawing No. M-202: Delete Boiler, Process Heater, Steam Generator, or Water Heater note and delete Design Standard note. Replace with Design Standards and Contractor Requirements for New Boilers and Generators below.

## DESIGN STANDARDS AND CONTRACTOR REQUIREMENTS FOR NEW BOILERS AND GENERATORS

### Ortega Boiler Equipment Replacement

#### Boiler, Process Heater, Steam Generator, or Water Heater

This applies to all new boilers, process heaters, steam generators, or water heaters (boiler) with rated heat capacities greater than or equal to 75,000 British thermal unit per hour (Btu/hr).

#### Design Standard

The University shall not procure a new boiler with a rated heat capacity greater than or equal to 75,000 Btu/hr unless it meets current Santa Barbara County Air Pollution Control District (APCD) requirements including, but not limited to, Best Available Control Technology (BACT). BACT is the most effective emission control device, emission limit, or technique which has been achieved in practice for the type of equipment comprising such stationary source.

Ortega domestic and hydronic process combined heating input equals 2,600,000 Btu/hr.

#### Rule 361

The following requirements apply to a new boiler with a rated heat capacity of greater than 2 million Btu/hr and less than 5 million Btu/hr.

#### Before the Boiler is Procured

The Contractor shall provide all necessary information to the University Representative to complete the Santa Barbara County Air Pollution Control District Form 61 for New Boilers/Process Heaters Rated Less than 5.0 MMBtu/hr.

#### After the Boiler is Procured

The new boiler is allowed to operate temporarily during a 120-day Source Compliance Demonstration Period (SCDP). Initial operations (start of SCDP) of the permitted equipment is defined as the first introduction of fuel gas to the new boiler.

Within 14 calendar days of initial operations, the Contractor shall notify the University Representative of the SCDP start date (the date of the first introduction of fuel gas to the new boiler).

The Contractor shall record all maintenance performed on the new boiler, fuel flow meter, and low NOx burner until the project is deemed complete by the University. The Contractor shall submit two copies of all records to the University Representative once the project is deemed complete by the University.

The Contractor shall notify the University Representative and APCD to arrange for an inspection not more than 30 calendar days (or other mutually agreed to time period) after the SCDP begins. A minimum of 3 calendar days advance notice shall be given to the University Representative and APCD. This inspection is required to verify that the equipment and its operation are in compliance with APCD Rules and Permit Conditions.

The Contractor shall notify the University Representative and APCD to coordinate the first tune-up not more than 30 calendar days (or other mutually agreed to time period) after the SCDP begins.

The Contractor shall comply with all applicable requirements in APCD's Rule 361, the South Coast Air Quality Management District's Combustion Gas Periodic Monitoring Protocol, and all applicable requirements stated in the permit for that specific boiler.

The Contractor shall submit completed tune-up reports to APCD and the University Representative within 10 calendar days after test completion. Contractor is required to submit an electronic copy of all reports to the University Representative. The required tune-up reports include:

- SBC APCD Rule 361 Tune-Up Report Form ENF-102.
- Boiler Tuning Results.
- SCAQMD Form 1: Linearity and Interference Tests Recordkeeping Form for Portable Analyzers.
- SCAQMD Form 2: Calibration Recordkeeping for Portable Analyzers.
- SCAQMD Form 3: Periodic Monitoring Recordkeeping Form for Portable Analyzers.
- SCAQMD Form 4: Stability Check Recordkeeping Form for Portable Analyzers.
- Current Certificate of Completion for SCAQMD Certification Portable Analyzer Training.

#### Timeline

- Before the boiler is procured, a permit from APCD must be obtained.
- The University Representative will obtain the permit using the information provided by the Contractor.
- The Contractor notifies the University Representative 14 calendar days prior to the initial equipment operation date.
- The University Representative notifies APCD of the initial equipment operation date.
- Rule 361 Boilers are required to have a R361 tune-up.
- All boilers will be inspected by APCD.
- The Contractor records the maintenance and natural gas usage throughout the life of the project.
- The University Representative files for the Final Permit.
- The University Representative posts the permit.
- When the Project is complete the Contractor submits the monitoring records to the University Representative.
- The University Representative is given a key to access the boiler.

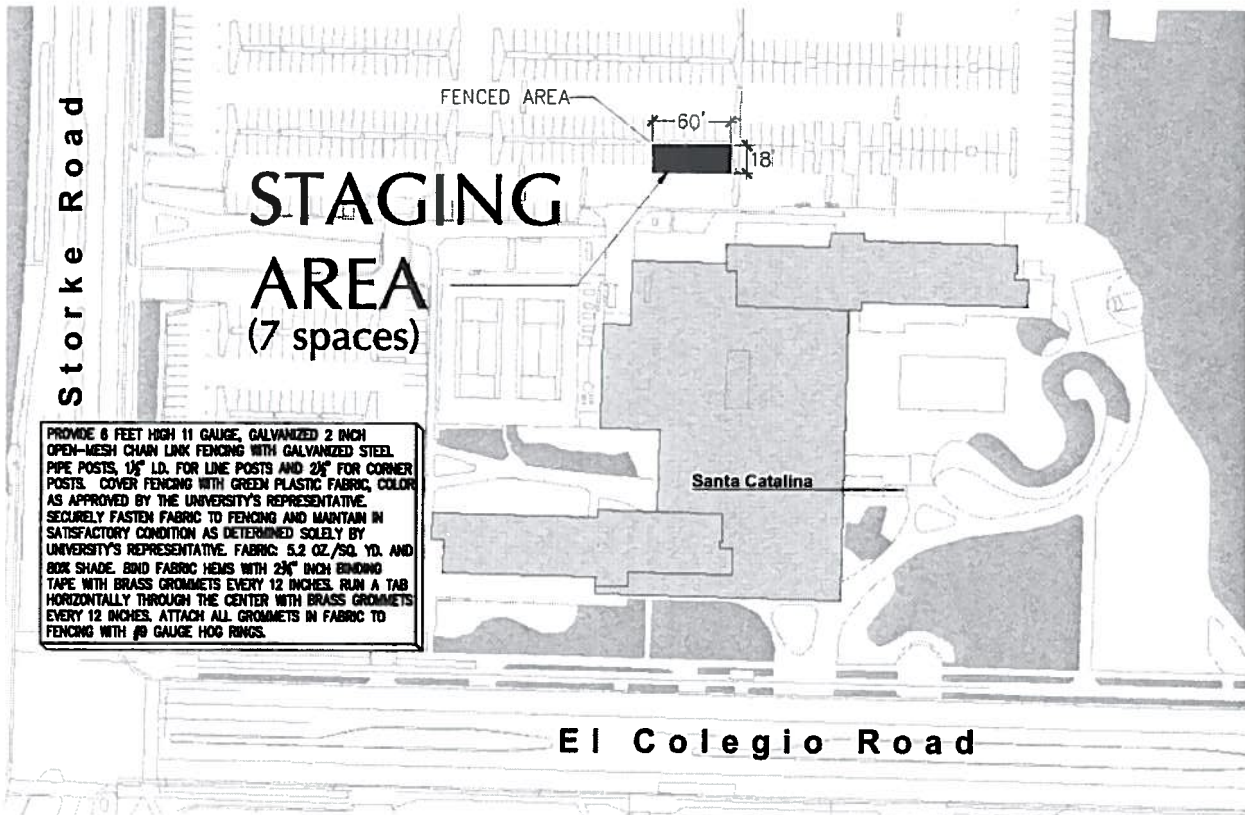
- 3-8. Drawing No. E-001: Add CP-2 to the mechanical equipment schedule. CP-2 is a 1/12 HP pump. Similar size as with CP-1
- 3-9. Drawing No. E-002: Contractor shall add a 120 volt ½”C: 3-#12 branch circuit to the project for the DDC control panel. Provide a 20 ampere circuit breaker at PP-BR-27.

**IV. DRAWINGS – SANTA CATALINA DINING COMMONS**

Santa Catalina

Item No.

- 4-1. Drawing No. T-001: Add partial vicinity map below for staging area and notes.



- 4-2. Drawing No. M-100: Add the following Fire Protection Notes:
  1. Fire rated assemblies shall be maintained. If penetrating fire rated construction, protect with UL approved assembly.
  2. All fire stop installations shall be in accordance to UCSB Fire Stop Standard 07840. Request inspection from a DCFM upon completion of installing fire stop material.
  3. During the course of construction protect all fire alarm and fire protection equipment. If damage to the fire protection occurs during the course of construction contractor is responsible for repairing and/or replacing damaged equipment.



- 4-3. Drawing No. M-201: Add the following Demolition Sequencing Notes:
1. Phase One: Demolition of all equipment, piping, accessories in mechanical room. Exterior boilers will provide domestic hot water to building.
  2. Phase Two: When domestic hot water system is being supplied by new boilers, exterior equipment (boilers, pumps, piping, etc.) can be removed.
- 4-4. Drawing No. M-201: Add the following Waste and Recycling Notes:
3. Waste material (recycled or land filled) from the project must be accounted for by weight. Each project should report tonnage (weight ticket) of recycled material and land filled material to the university rep.
  4. The following construction and demolition (C & D) material can be co-mingle recycled and picked up by the local waste hauler and they can provide weight tickets. Other haulers must recycle these materials as well, if the local hauler is not used.
    - a. All metal (aluminum, copper, tin, steel, brass, etc), all paper (copier, newspaper, magazines), cardboard, all hard plastic, wood, drywall, carpet, glass, concrete, asphalt, appliances (stoves/refrigerators).

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**4-5. Drawing No. M-202: Add Design Standards and Contractor Requirements for New Boilers and Generators below.**

**DESIGN STANDARDS AND CONTRACTOR REQUIREMENTS FOR NEW BOILERS AND GENERATORS**

**Santa Catalina Boiler Equipment Replacement**

**Boiler, Process Heater, Steam Generator, or Water Heater**

This applies to all new boilers, process heaters, steam generators, or water heaters (boiler) with rated heat capacities greater than or equal to 75,000 British thermal unit per hour (Btu/hr).

**Design Standard**

The University shall not procure a new boiler with a rated heat capacity greater than or equal to 75,000 Btu/hr unless it meets current Santa Barbara County Air Pollution Control District (APCD) requirements including, but not limited to, Best Available Control Technology (BACT). BACT is the most effective emission control device, emission limit, or technique which has been achieved in practice for the type of equipment comprising such stationary source.

Santa Catalina domestic and hydronic process combined heating input equals 4,500,000 Btu/hr.

**Rule 361**

The following requirements apply to a new boiler with a rated heat capacity of greater than 2 million Btu/hr and less than 5 million Btu/hr.

*Before the Boiler is Procured*

The Contractor shall provide all necessary information to the University Representative to complete the Santa Barbara County Air Pollution Control District Form 61 for New Boilers/Process Heaters Rated Less than 5.0 MMBtu/hr.

*After the Boiler is Procured*

The new boiler is allowed to operate temporarily during a 120-day Source Compliance Demonstration Period (SCDP). Initial operations (start of SCDP) of the permitted equipment is defined as the first introduction of fuel gas to the new boiler.

Within 14 calendar days of initial operations, the Contractor shall notify the University Representative of the SCDP start date (the date of the first introduction of fuel gas to the new boiler).

The Contractor shall record all maintenance performed on the new boiler, fuel flow meter, and low NOx burner until the project is deemed complete by the University. The Contractor shall submit two copies of all records to the University Representative once the project is deemed complete by the University.

The Contractor shall notify the University Representative and APCD to arrange for an inspection not more than 30 calendar days (or other mutually agreed to time period) after the SCDP begins. A minimum of 3 calendar days advance notice shall be given to the University Representative and APCD. This inspection is required to verify that the equipment and its operation are in compliance with APCD Rules and Permit Conditions.

The Contractor shall notify the University Representative and APCD to coordinate the first tune-up not more than 30 calendar days (or other mutually agreed to time period) after the SCDP begins.

The Contractor shall comply with all applicable requirements in APCD's Rule 361, the South Coast Air Quality Management District's Combustion Gas Periodic Monitoring Protocol, and all applicable requirements stated in the permit for that specific boiler.

The Contractor shall submit completed tune-up reports to APCD and the University Representative within 10 calendar days after test completion. Contractor is required to submit an electronic copy of all reports to the University Representative. The required tune-up reports include:

- SBC APCD Rule 361 Tune-Up Report Form ENF-102.
- Boiler Tuning Results.
- SCAQMD Form 1: Linearity and Interference Tests Recordkeeping Form for Portable Analyzers.
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- SCAQMD Form 4: Stability Check Recordkeeping Form for Portable Analyzers.
- Current Certificate of Completion for SCAQMD Certification Portable Analyzer Training.

**Timeline**

- Before the boiler is procured, a permit from APCD must be obtained.
- The University Representative will obtain the permit using the information provided by the Contractor.
- The Contractor notifies the University Representative 14 calendar days prior to the initial equipment operation date.
- The University Representative notifies APCD of the initial equipment operation date.
- Rule 361 Boilers are required to have a R361 tune-up.
- All boilers will be inspected by APCD.
- The Contractor records the maintenance and natural gas usage throughout the life of the project.
- The University Representative files for the Final Permit.
- The University Representative posts the permit.
- When the Project is complete the Contractor submits the monitoring records to the University Representative.
- The University Representative is given a key to access the boiler.

- 4-6.** Drawing No. E-001: Change the two circuit breakers serving P-1 and P-2, from 70 ampere to new 80 ampere 3 pole breakers.
- 4-7.** Drawing No. E-002: Contractor shall add a 120 volt ½”C: 3-#12 branch circuit to the project for the DDC control panel. Provide a 20 ampere circuit breaker at panel A.
- 4-8.** Drawing No. E-002: The feeder from panel DP to the new transformer and the feeder from the transfer to new panel A are new and are a part of the this project. Provide for new grounding as depicted on the single-line diagram.

END OF ADDENDUM NO. 2

BID FORM (Rev.1)

FOR: Ortega and Santa Catalina Dining Commons Boiler Replacement

FM120316S/137-53/139-52

UNIVERSITY OF CALIFORNIA  
SANTA BARBARA  
SANTA BARBARA, CALIFORNIA

BID TO: University of California, Santa Barbara  
Facilities Management, Building 439  
Door E, Reception Counter  
Santa Barbara, CA 93106  
(805)893-3298

BID FROM:

\_\_\_\_\_  
(Name of Bidder)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(City) (State) (Zip)

\_\_\_\_\_  
(Telephone Number)

\_\_\_\_\_  
(Fax Number)

\_\_\_\_\_  
(Email Address)

DATE BID SUBMITTED

\_\_\_\_\_  
(Date)

**Note: All portions of this Bid Form must be completed and the Bid Form must be signed before the Bid is submitted. Failure to do so may result in the BID being rejected as non-responsive.**

**1.0 BIDDER'S REPRESENTATIONS**

Bidder, represents that a) Bidder and all Subcontractors, regardless of tier, has the appropriate current and active Contractor's licenses required by the State of California and the Bidding Documents; b) it has carefully read and examined the Bidding Documents for the proposed Work on this Project; c) it has examined the site of the proposed Work and all Information Available to Bidders; d) it has become familiar with all the conditions related to the proposed Work, including the availability of labor, materials, and equipment. Bidder hereby offers to furnish all labor, materials, equipment, tools, transportation, and services necessary to complete the proposed Work on this Project in accordance with the Contract Documents for the sums quoted. Bidder further agrees that it will not withdraw its Bid within 60 days after the Bid Deadline, and that, if it is selected as the apparent lowest responsive and responsible Bidder, that it will, within 10 days after receipt of notice of selection, sign and deliver to University the Agreement in triplicate and furnish to University all items required by the Bidding Documents. If awarded the Contract, Bidder agrees to complete the proposed Work within One Hundred (100) calendar days after the date of commencement specified in the Notice to Proceed.

**2.0 ADDENDA**

Bidder acknowledges that it is Bidder's responsibility to ascertain whether any Addenda have been issued and if so, to obtain copies of such Addenda from University's facility at the appropriate address stated on Page 1 of this Bid Form. Bidder therefore agrees to be bound by all Addenda that has been issued for this Bid.

**3.0 NOT USED**

**4.0 LUMP SUM BASE BID**

\$   ,    ,    .    
(Place Figures in appropriate boxes)

**5.0 SELECTION OF APPARENT LOW BIDDER**

Refer to the Instructions to Bidders for selection of apparent low bidder.

**6.0 NOT USED**

**7.0 DAILY RATE OF COMPENSATION FOR COMPENSABLE DELAYS (Used As Basis**

**For Award)**

Bidder shall determine and provide below the daily rate of compensation for any Compensable Delay caused by University at any time during the performance of the Work:

\$  ,  .  x 10 **MULTIPLIER**  
(Place Amount in Figures in appropriate boxes)

University will perform the extension of the daily rate times the multiplier.

The daily rate shown above will be the total amount of Contractor entitlement for each day of Compensable Delay caused by University at any time during the performance of the Work and shall constitute payment in full for all delay costs, direct or indirect (including, without limitation, compensation for all extended home office overhead and extended general conditions), of the Contractor and all subcontractors, suppliers, persons, and entities under or claiming through Contractor on the Project. The number of days of Compensable Delay shown as a "multiplier" above is not intended as an estimate of the number of days of Compensable Delay anticipated by the University. The University will pay the daily rate of compensation only for the actual number of days of Compensable Delay, as defined in the General Conditions; the actual number of days of Compensable Delay may be greater or lesser than the "multiplier" shown above.

**8.0 NOT USED**

(Intentionally Left Blank)





**10.0 NOT USED**

**11.0 BIDDER INFORMATION**

TYPE OF ORGANIZATION:

\_\_\_\_\_  
(Corporation, Partnership, Individual, Joint Venture, etc.)

- IF A CORPORATION, THE CORPORATION IS ORGANIZED UNDER THE LAWS OF THE STATE OF \_\_\_\_\_

\_\_\_\_\_.

NAME OF PRESIDENT OF THE CORPORATION:

\_\_\_\_\_  
(Insert Name)

NAME OF SECRETARY OF THE CORPORATION:

\_\_\_\_\_  
(Insert Name)

- IF A PARTNERSHIP, NAMES OF ALL GENERAL PARTNERS:

\_\_\_\_\_  
(Insert Names)

\_\_\_\_\_

CALIFORNIA CONTRACTORS LICENSE(S):

_____	_____	_____
(Classification)	(License Number)	(Expiration Date)

(For Joint Venture, list Joint Venture's license and licenses for all Joint Venture partners.)

EMPLOYER IDENTIFICATION NUMBER (EIN):

\_\_\_\_\_

**12.0 REQUIRED COMPLETED ATTACHMENTS**

The following documents are submitted with and made a condition of this Bid:

1. Bid Security in the form of \_\_\_\_\_  
(Bid Bond or Certified Check)

**13.0 DECLARATION**

I, \_\_\_\_\_, hereby declare that I am  
(Printed Name)

the \_\_\_\_\_ of \_\_\_\_\_  
(Title) (Name of Bidder)

submitting this Bid Form; that I am duly authorized to execute this Bid Form on behalf of Bidder; and that all information set forth in this Bid Form and all attachments hereto are, to the best of my knowledge, true, accurate, and complete as of its submission date.

I further declare that this bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

I declare, under penalty of perjury, that the foregoing is true and correct and that this declaration was

executed at: \_\_\_\_\_  
(Name of City if within a City, otherwise Name of County)

in the State of \_\_\_\_\_,

on \_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Signature)

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we, \_\_\_\_\_,  
as Principal, and \_\_\_\_\_, as Surety, are held and firmly bound unto THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, hereinafter called THE REGENTS, in the sum of ten percent (10%) of the Lump Sum Base Bid amount for payment of which in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT, WHEREAS, Principal has submitted a Bid for the work described as follows:

Ortega and Santa Catalina Dinning Commons Boiler Replacement

FM120316S/137-53/139-52

NOW, THEREFORE, if Principal shall not withdraw said Bid within the time period specified after the Bid Deadline, as defined in the Bidding Documents, or within sixty (60) days after the Bid Deadline if no time period be specified, and, if selected as the apparent lowest responsible Bidder, Principal shall, within the time period specified in the Bidding Documents, do the following:

- (1) Enter into a written agreement, in the prescribed form, in accordance with the Bid.
- (2) File two bonds with THE REGENTS, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by the Bidding Documents.
- (3) Furnish certificates of insurance and all other items as required by the Bidding Documents.

In the event of the withdrawal of said Bid within the time period specified, or within sixty (60) days if no time period be specified, or the disqualification of said Bid due to failure of Principal to enter into such agreement and furnish such bonds, certificates of insurance, and all other items as required by the Bidding Documents, if Principal shall pay to THE REGENTS an amount equal to the difference, not to exceed the amount hereof, between the amount specified in said Bid and such larger amount for which THE REGENTS procure the required work covered by said Bid, if the latter be in excess of the former, then this obligation shall be null and void, otherwise to remain in full force and effect.

In the event suit is brought upon this bond by THE REGENTS, Surety shall pay reasonable attorneys' fees and costs incurred by THE REGENTS in such suit.

IN WITNESS WHEREOF, we have hereunto set our hands this \_\_\_\_ day of \_\_\_\_\_, 20

Principal

Surety

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Address for Notices:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTE: Notary acknowledgement for Surety and Surety's Power of Attorney must be attached.

## SECTION 02080

### ASBESTOS-RELATED DEMOLITION WORK

#### PART 1 GENERAL

##### 1.01 DESCRIPTION

- A. This section consists of furnishing work necessary to perform general demolition, asbestos-related demolition of asbestos-containing and/or contaminated materials located within the limits of the project site. All work shall be performed in accordance with federal, state, and local requirements and statutes. The work specified herein shall be the Class I (as defined by CCR Title 8, Section 1529) removal of asbestos-containing and contaminated materials by persons knowledgeable, qualified, trained, and experienced in the removal, treatment, handling, transportation, and disposal of asbestos-containing material, and the subsequent cleaning of the affected environment. The work specified herein shall also include performing demolition of non-hazardous materials. These persons shall comply with federal, state, and local regulations and mandated work practices, and shall be capable of performing the work in the Contract. In the event that any requirement in this section differs from any applicable regulations, the contractor shall report the difference to the University's representative and shall comply with the applicable requirement.

##### 1.02 DEFINITIONS

- A. Asbestos-Containing Material (ACM): Any material containing greater than one percent asbestos as defined in 8 CCR 1529.
- B. Asbestos-Containing Construction Material (ACCM): Any material containing less than one percent but greater than one tenth of one percent asbestos as defined in 8 CCR 1529.

##### 1.03 SCOPE OF WORK

- A. General Requirements: Work of this section includes but is not limited to the following:
1. Developing a detailed asbestos-related demolition work plan, including work sequence, work area isolation, HVAC, plumbing, electrical, and fire/life/safety isolation, fall protection plan, decommissioning, asbestos removal methods, and transport/disposal procedures.
  2. Removing and legally disposing of ACM and ACCM located within the project site.
  3. Performing demolition of non-hazardous (Non-ACM, Non-ACCM) materials as necessary to access asbestos materials for removal.
  4. Thoroughly cleaning the area of work and obtaining final visual inspection approval and air clearance from the University's Representative. Unless otherwise noted, air clearance shall be aggressive air monitoring performed by phase contrast microscopy (PCM).
  5. Performing employee exposure monitoring as required by Cal-OSHA during the project.

6. Coordinating with the University's Representative, the isolation and shutdown of water sources (domestic and utility) supplying the work area. Contractor shall provide and install temporary caps and drain/sewer plugs in each location where domestic/utility water piping and drain/sewer lines have been disconnected or cut to accomplish the work. The Contractor shall provide a trained, certified plumber to perform plumbing shut down and disconnection of fixtures.
  7. Providing and installing temporary water supply to each work area as necessary to accomplish the work. One water supply pipe will remain active in each building and will be available for a connection. The Contractor's plumber shall provide all equipment, materials, and labor required for connection to the water pipe and providing water throughout the project.
  8. Coordinating with the University's Representative, the isolation, shutdown, and lockout of all electric circuitry servicing or traversing the work area. Contractor is responsible for testing electric circuitry to ensure proper disconnect and for compliance with Cal-OSHA requirements. Electric circuitry that cannot be isolated and/or shutdown shall be clearly identified with red marking paint "Danger Electrocutation Hazard. A trained, certified, and licensed electrician shall perform all electrical work.
  9. Providing and installing temporary power and lighting to each work area. Contractor to provide temporary power and lighting with the distribution panel located outside of the hazardous materials removal area. Contractor to ensure safe installation (including ground fault protection) of temporary power sources, lighting, and equipment and ensure compliance with applicable code requirements and Cal-OSHA requirements for temporary electrical systems. The Contractor's electrician shall provide all equipment, materials, and labor required for connection to the electrical source and providing temporary power and lighting throughout the project.
- B. Project Specific Requirements: The Contractor shall remove, transport, and properly dispose of the following materials.
1. Contractor shall remove the following asbestos-containing materials. Abatement actions shall be according to procedures set forth in Part 3 of this specification section:
    - a. All existing gaskets located within the project site shall be treated as asbestos containing and removed and disposed of as Class II asbestos work as defined by CCR, Title 8, Section 1529. This includes but is not limited to the gaskets associated with the removal and replacement of:
      - i. Existing boilers and all associated piping to points of disconnect and capping of piping as required.

Waste shall be disposed as friable, hazardous asbestos waste by contractor. Final air clearance will be achieved by aggressive phase contrast microscopy (PCM).

2. Patching of damaged asbestos containing insulation located with in the project site.
3. Detail final clean of:
  - a. Ortega and Santa Catalina boiler rooms complete
  - b. Existing equipment



- c. Existing piping and insulation
- d. Existing furnishings

Cleaning will be the removal of fugitive dust and will be done after demolition and asbestos abatement. Cleaning shall be done in accordance with 3.B.2 of this specification section.

- C. **Recyclable Materials:** It is the intent of the University to recycle, to the extent possible, as much waste as possible. The Contractor shall provide trip tickets and receipts for materials recycled to the University's Representative. The following materials shall be recycled, where possible:
  - 1. Non-asbestos contaminated metals

#### 1.04 RELATED WORK

- A. SECTION 02110 – DEMOLITION
- B. SECTION 01300 – SUBMITTALS
- C. SECTION 02081 – LEAD-RELATED DEMOLITION WORK

#### 1.05 REQUIRED LICENSURE

- A. Contractor performing work associated with this section shall itself be, or have a subcontractor that is, licensed by the State of California, Contractors State License Board and be registered to perform asbestos related work with the Division of Occupational Safety and Health, Department of Industrial Relations. At a minimum, Contractor shall hold the following license classifications:
  - 1. ASB - Asbestos Certification Supplement
  - 2. DOSH – DOSH Certification
- B. **Transportation of Friable and Non-Friable Asbestos-Containing Materials:** Contractor shall itself be, or have a subcontractor that is, a registered hazardous waste transporter with the State of California, Department of Toxic Substances Control.

#### 1.06 APPLICABLE DOCUMENTS AND REGULATIONS

- 1. It is the responsibility of the Contractor to know the current regulations controlling work and to perform related work in accordance with such regulations that provide for worker and public safety against asbestos exposure.
- 2. The publications listed below form a part of this specification to the extent referenced. The current issue of each document shall govern. Where conflict among requirements or with these Specifications exists, the more stringent requirements shall apply.

##### CODE OF FEDERAL REGULATIONS (CFR)

- 29 CFR Part 1910 Occupational Safety and Health Standards for General Industry
- 29 CFR 1910.1200 Hazard Communication
- 29 CFR 1910.134 Respiratory Protection
- 29 CFR 1910.145 Specifications for Accident Prevention Signs and Tags
- 29 CFR 1910.1020 Access to Employee Medical Records

29 CFR Part 1926 Occupational Safety and Health Regulations for Construction  
29 CFR 1926.1101 Construction Standard for Asbestos, Tremolite,  
Anthophyllite and Actinolite

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

40 CFR 61 Sub A & B General Provisions  
40 CFR 61 Sub M National Emissions Standard for Hazardous Air Pollutants (NESHAP)  
40 CFR 260 Hazardous Waste Management Systems: General  
40 CFR 261 Identification and Listing of Hazardous Waste  
40 CFR 262 Standards Applicable to Generators of Hazardous Waste  
40 CFR 263 Standards Applicable to Transporters of Hazardous Waste  
40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage,  
and Disposal Facilities  
40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste  
Treatment, Storage, and Disposal Facilities  
40 CFR 268 Land Disposal Restrictions  
40 CFR 763 Sub G Worker Protection Rule  
40 CFR 763 Asbestos Hazard Emergency Response Act (AHERA)

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

49 CFR 171 & 172 Transportation of Hazardous Waste

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701 (1989) Methods of Fire Test for Flame Resistant Textiles and Films

UNDERWRITERS LABORATORIES (UL)

UL 586 (1990) High-Efficiency Particulate Air Filter Units

CALIFORNIA CODE OF REGULATIONS (CCR)

Title 8 5208 General Industry Safety Orders - Asbestos  
Title 8 Article 2.5 Registration - Asbestos Related Work  
Title 8 5194 Hazard Communication  
Title 8 1529 Construction Industry Safety Orders - Asbestos  
Title 22 Div. 4 Cpt. 30 Hazardous Waste Handling

SANTA BARBARA AIR POLLUTION CONTROL DISTRICT (APCD)  
Rule 1001 National Emission Standards for Hazardous Air Pollutants (NESHAPS)

1.07 NOTIFICATIONS AND PERMITS

- A. Contractor shall make required written notifications or applications to regulatory agencies including the following if applicable:
  - 1. California Division of Occupational Safety and Health Notification shall be in accordance with Section 341.9 of Title 8 of the California Code of Regulations

1.08 SUPERVISOR/COMPETENT PERSON, FOREPERSON, AND WORKERS

- A. The Contractor shall have an Asbestos-Related Demolition Supervisor/Competent Persons present at all times while asbestos-related work on this Contract is in progress.
- B. The Asbestos Related Demolition Supervisor/Competent Person shall have successfully completed a five (5) day EPA-approved Asbestos Abatement Contractor/Supervisor training course, and be thoroughly familiar and experienced with asbestos removal and related work, and shall be familiar with and enforce the use of all safety procedures and equipment. He/she shall be knowledgeable of all EPA, OSHA, and NIOSH requirements and guidelines.
- C. In addition to the Asbestos-Related Supervisor/Competent Person, the Contractor shall furnish one (1) foreperson for each area where work is being performed who has successfully completed a five (5) day EPA-approved Asbestos Abatement Contractor/Supervisor training course, and who is familiar and experienced with asbestos abatement and its related work, safety procedures, and equipment.
- D. It shall be a requirement of this Contract that the Contractor's Asbestos-Related Demolition Supervisor/Competent Person and each of the foremen be onsite at all times while work is in progress. A foreman will be required to conduct inspections of the work practices, and enclosure condition inside the work area at least three (3) times during each work shift.
- E. All workers shall, at a minimum, have successfully completed a four (4) day EPA approved Asbestos Abatement Worker training course.

1.09 SUBMITTALS

- A. Submit the following to the University's Representative for approval within ten days of receiving the Notice to Proceed. These submittals are in addition to those required in Section 01300. These submittals shall be conforming to the requirements of Section 01300. In addition to the copies required by 01300, the Contractor shall submit the listed submittals here as electronic PDF files. Scanned documents shall be scanned at a minimum resolution of 300dpi.
  - 1. Copies of the written notification to the following regulatory agencies:
    - a. California Division of Occupational Safety and Health
  - 3. Copies of waste haulers Hazardous Waste Transporter Registration and Environmental Protection Agency Acknowledgment of Notification of Hazardous Waste Activity.
  - 4. Identification of the landfill to be used for the disposal of the asbestos-containing waste generated at the project site and the landfill disposal and packaging requirements.

5. A written asbestos waste stream management plan listing the types of asbestos containing waste expected to be generated by the project, packaging and labeling requirements, manifesting requirements, and landfill/disposal requirements.
  6. A written asbestos abatement work plan identifying work sequence, abatement duration, asbestos containing waste handling, storage, and disposal procedures,
  7. Identification of the project's Asbestos Related Demolition Supervisor/Competent Person who meets the requirements of 29 CFR Part 1926.1101 and 8 CCR Part 1529 and is experienced in administration and supervision of asbestos abatement projects, including work practices, protective measures for building and personnel, disposal procedures, etc.
  8. A listing of the employees on the work site with the expiration dates for their training, fit testing, and medical monitoring. This listing shall be provided in the initial submittal and shall also be provided electronically in Microsoft Excel and updated weekly throughout the project.
  9. Documentation that the Contractor's employees performing asbestos removal, disposal, and air sampling operations have received training which meets the criteria of the Federal EPA Model Accreditation Plan (40 CFR Part 763, Subpart E, Appendix C).
    - a. Training certification shall be provided prior to the start of work involving asbestos abatement, for all of the Contractor's workers, forepersons, and Asbestos-Related Demolition Supervisors/Competent Persons. Training shall meet the requirements of 29 CFR Part 1926.1101 and 8 CCR Part 1529 and the criteria of the Federal EPA Model Accreditation Plan (40 CFR Part 763, Subpart E, Appendix C). Training shall be provided prior to the time of job assignment and, at least, annually.
  10. Documentation from a physician that employees or agents who may be exposed to airborne asbestos fibers in excess of the Permissible Exposure Limit have received medical monitoring to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. Contractor shall be aware of and provide information to the examining physician about unusual conditions in the workplace environment (e.g. high temperatures, humidity, and chemical contaminants) that may impact on the employee's ability to perform work activities. Medical monitoring shall be performed in accordance with the requirements of 29 CFR Part 1926.1101 and 8 CCR Part 1529.
  11. Documentation of respirator fit-testing for Contractor employees and agents who must enter the work area. This fit-testing shall be in accordance with qualitative procedures as required by OSHA regulations or be quantitative in nature.
  12. Documented NIOSH approvals for respiratory protective devices utilized on site, including manufacturer's certification of HEPA filtration capabilities for cartridges and filters.
  13. Material Safety Data Sheets (MSDS) for solvents, encapsulants, wetting agents, replacement materials, biocides, and other materials and chemicals, expected to be used on the project site.
- B. During asbestos abatement activities, submit to the University's Representative on a weekly basis, documentation that includes, without limitation, the following:

1. An updated listing of the employees on the work site with the expiration dates for their training, fit testing, and medical monitoring. This listing shall be provided electronically in Microsoft Excel.
2. OSHA required personal air monitoring results.
3. Accident/incident reports where injury or damage has occurred on or to the University's property.
4. Hazardous waste manifests, non-hazardous waste data forms, trip tickets and disposal receipts for asbestos waste materials removed from the work area shall be provided within 24 hours of the transport. Send to:

University of California, Santa Barbara  
Environmental Health & Safety, Bldg. 565  
Santa Barbara, California 93106  
Attention: Bruce Carter

5. The exposure assessment report shall be provided 48 hours following completion of the exposure monitoring. The exposure assessment shall include the results of the personal monitoring, a narrative describing the work procedures used during the monitoring and respirator and personal protective equipment requirements for performing the work described in Article 1.03 of this section.
- C. Upon completion of all asbestos-related demolition activities, submit to the University's Representative, documentation that includes, without limitation, the following:
1. Work area entry/exit logbook. The logbook must record the name, affiliation, time in, and time out for each entry into each of the work areas.
  2. Material Safety Data Sheets (MSDS) for solvents, encapsulants, wetting agents and replacement materials, as necessary.
  3. OSHA required personal air monitoring results.
  4. Accident/incident reports where injury or damage has occurred on or to the University's property.
  5. Supervisor/foreman logs describing the work performed each day during the project.
  6. A listing of all employees who worked on the project site and training certificates, medical monitoring records, and fit test records for these employees.
  7. Copies of hazardous waste manifests, non-hazardous waste data forms, trip tickets and disposal receipts for asbestos waste materials removed from the project site for the duration of the project. Manifests, non-hazardous waste data forms, trip tickets, and disposal receipts shall be provided in chronological order.

#### 1.10 NOTICES AND POSTINGS

- A. Post in the decontamination unit, a list containing the names, addresses, and telephone numbers of the Contractor, University's Representative, Asbestos and Lead Coordinator, emergency contact numbers and the following additional postings:

Additional postings shall include:

1. Visitor entry and exit log.



2. Employee daily sign in/out log.
  3. Work area entry and exit procedures.
  4. Emergency procedures.
  5. One copy of the Cal-OSHA regulations.
  6. Copy of Santa Barbara APCD notification for renovation and demolition.
- B. Posted Warnings and Notices: The following regulations, warnings, and notices shall be posted at the work site in accordance with 29 CFR Part 1926.1101 and 8 CCR Part 1529.
1. Warning Signs and Labels: Warning signs shall be provided at building entrances and approaches to asbestos abatement areas. Signs shall be located at a sufficient distance from the asbestos control areas that will allow personnel to read the sign and take the necessary protective actions required before entering the asbestos control area.
  2. Post at least two (2) safety warning signs, in English and Spanish, which follow the "Sample Format Warning Sign" shown below:

Sample Format Warning Sign  
Minimum Size - 24" x 36"  
Material - Aluminum or Fiberglass  
Script:

PART 2. DANGER

ASBESTOS

PART 3. CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY  
RESPIRATORS AND PROTECTIVE

PART 4. CLOTHING ARE REQUIRED

PART 5. IN THIS AREA

Color - Black Letters on Red Background

#### 1.11 WORK AREA SECURITY

- A. The asbestos work control area shall be restricted only to authorized personnel, including Contractor, Contractor's employees, University's Representative(s), and state, and local inspectors.
- B. Entry into the asbestos work control area by unauthorized individuals shall be reported immediately to the University's Representative.
- C. Contractor shall be responsible for Project site security during asbestos-related demolition operations in order to protect work efforts and equipment.

#### 1.12 WORK SEQUENCE



A. Work Sequence: The following is the work sequence for each phase of the project.

1. Construction of negative pressure enclosure prior to the demo of the boiler and surrounding pipes, flues, etc.

### 1.13 PERSONAL PROTECTION AND SAFETY

A. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his/her appliances, methods, and for any damages which may result from his/her operations, improper construction practices, or maintenance. He shall erect and properly maintain at all times as required by the conditions and progress of the work, proper safeguards for the protection of workmen and the public and shall post warning signs around the job site.

B. Respiratory protection requirements:

1. All respiratory protection programs shall be established in accordance with the respiratory protection requirements of 29 CFR Part 1910.134, 8 CCR Part 5144, 29 CFR Part 1910.1001, 8 CCR 1529 and 29 CFR Part 1926.1101. Copies of these regulations are included herein by reference and shall be considered as a requirement of these Specifications.
2. All respirators used shall be selected from those approved by NIOSH for use in atmospheres containing asbestos fibers.
3. Respirators shall be qualitatively fit-tested a minimum of every 12 months in accordance with Title 8 CCR 1529.

C. Provide workers and authorized visitors with sufficient sets of protective full body impervious protective clothing. Such clothing shall consist of full body coveralls and headgear. Provide eye protection and hard hats as required by applicable safety regulations. Reusable type protective clothing and footwear shall be left in the equipment room until the end of the asbestos abatement work, at which time such items shall be disposed of as asbestos waste. Disposable type protective clothing, headgear, and footwear may be provided.

D. Worker Protection Procedures:

1. Each worker and authorized visitor shall, upon entering the job site remove street clothes in the clean room and put on a respirator and clean protective clothing before entering the equipment room or the work area.
2. All workers and authorized visitors shall, each time they leave the work area shall; remove gross contamination from clothing before leaving the work area; proceed to the equipment room and remove all clothing except respirators; still wearing the respirator proceed to the showers, clean the outside of the respirator with soap and water while showering; remove the respirator; thoroughly shampoo and wash themselves.
3. Following showering and drying off, each worker and authorized visitor shall proceed directly to the clean room and dress in clean clothes at the end of each day's work, or before eating, smoking, or drinking. Before reentering the work area from the clean room each worker and authorized visitor shall put on a clean respirator and shall dress in clean protective clothing.
4. Contaminated work footwear shall be stored in the equipment room when not in use in the work area. Upon completion of asbestos abatement, the footwear will either be disposed of as contaminated waste, or will be bagged and sealed for use at another abatement project.

5. Workers removing waste containers from the equipment decontamination enclosure shall enter the holding area from outside wearing a respirator and dressed in clean disposable coveralls. No worker shall use this system as a means to leave or enter the washroom or the work area.
  6. Workers shall not eat, drink, smoke, or chew gum or tobacco while in the work area.
  7. Workers shall be fully protected with respirators and protective clothing from the time of first disturbance of asbestos-containing or contaminated materials prior to commencing actual asbestos abatement and until final cleanup is completed.
- E. If evacuation of the work area is required by contaminated personnel due to an emergency, all work efforts shall stop, and all forces shall be directed at minimizing the area contamination, cleanup operations, and first-aid procedures. These activities shall be noted in the daily logbook.
- F. During work activities requiring decontamination procedures, the Contractor shall provide a means of communication for the workers inside the work area without requiring personnel to enter or leave the work area. The method of communication shall be a two-way radio, localized wire-connected telephone, or similar system. This communication system shall remain intact until the final isolation plastic is removed. Then all equipment shall be wiped down; HEPA vacuumed or disposed of as asbestos-contaminated material.
- G. An employee leaving the work area shall follow all decontamination procedures necessary or as described herein.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. Handling and Storage:
1. Deliver materials to the project in the original package(s), container(s), or bundle(s) bearing the name of the manufacturer, brand name and the model number.
  2. Store materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.
  3. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be disposed of in accordance with the applicable regulations.
- B. Plastic (Polyethylene) Sheeting: Provide 6-mil thickness or greater polyethylene sheeting as specified in sizes to minimize the frequency of joints. Fire retardant polyethylene sheeting is required.
- D. Tape: Provide two inch or wider duct tape capable of sealing joints of adjacent sheets of polyethylene and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials. Duct tape shall be capable of adhering under both dry and wet conditions, including use of amended water.
- E. Spray Cement: Provide aerosol based spray cement specifically formulated to stick tenaciously to sheet polyethylene.

- F. Surfactant: Provide a 50 percent polyoxyethylene ether and 50 percent polyoxyethylene ester, or equivalent and mix with water to provide a concentration of one ounce surfactant to 5 gallons of water.
- G. Impermeable Containers: Provide impermeable containers suitable to receive and retain any asbestos-containing or contaminated materials until disposal at Disposal Site labeled in accordance with OSHA Regulation 29 CFR 1910.1101, DOT 49 CFR 171-177, Title 8 CCR and ACPD. Containers must be both air and watertight and must be resistant to damage and rupture. Plastic bags shall be a minimum of 6-mil thick.
- H. Warning Labels and Signs: Provide warning labels and signs as required by OSHA Regulation 29 CFR Part 1910.1101, 8 CCR Part 1529 and SBAPCD Rule 1001.
- I. Other Materials: Provide all other materials, such as lumber, nails and hardware, which may be required to construct and dismantle the decontamination area and the barriers that isolate the work area.

## 2.02 TOOLS AND EQUIPMENT

- A. Provide tools and equipment necessary to perform the required asbestos removal/abatement.
- B. Air Filtration Equipment: High Efficiency Particulate Air (HEPA) filtration systems shall be equipped with filtration equipment in compliance with ANSI Z9-2-79, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air outside the work area. A pressure differential system shall be established in the work area continuously (24 hours per day) from the start of the work in the area until the area has been decontaminated and certified as such by the required testing. The system shall produce a minimum of four filtered air changes per hour in the work area and maintain a negative pressure differential of at least 0.025-inches water gauge between the inside and outside of the work area. All filtered, exhausted air shall be discharged outside the building away from any building air-intake devices (unless stated otherwise).
- C. Manometer: A continuous recording monitor shall measure, record and provide a circular printed record of the difference in air pressure between that inside the work area from that outside the work area. The recording system shall be accurate to the nearest 0.001 inches of water pressure differential and be equipped with an alarm that sounds if the difference becomes less than 0.025-inches water gauge.

## PART 3 EXECUTION

### 3.01 ASBESTOS REMOVAL PREPARATION PROCEDURES

- A. General Work Area Preparation: Contractor shall perform the following general work area preparation procedures prior to commencement of any abatement activities:
  - 1. Danger signs meeting the specifications of 29 CFR Part 1926.1101 and 8 CCR 1529 shall be posted at any location and approaches to locations where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to reduce or avoid exposure. Additional signs may need to be posted following construction of workplace enclosure barriers. The signs shall be in accordance with Article 1.10.B.2 of this section.

2. Asbestos handlers shall don personnel protective equipment as required in Article 1.13 of this section.
  3. Contractor, in conjunction with the University, shall shut down and lock out electric power to work areas, where necessary, to provide a safe work environment. Contractor shall provide temporary power source and equipment, including ground faulting, in compliance with all applicable electrical code requirements and Cal-OSHA requirements for temporary electrical systems. The Contractor shall utilize a licensed electrician to perform all electrical power shut down and temporary power installation. All electrical equipment used during the removal of asbestos-containing materials shall be connected to a Ground Fault Interrupted (GFI) circuit.
  4. Contractor, in conjunction with the University, shall shut down and lock out heating, ventilating, and air-conditioning (HVAC) system components that supply, return, or pass through the work area.
  5. Contractor to coordinate with the University's Representative the isolation and shutdown of all water sources (domestic and utility) supplying the work area. Contractor shall provide and install temporary caps and drain/sewer plugs in each location where domestic/utility water piping and drain/sewer lines have been disconnected or cut to accomplish the work.
  6. The Contractor shall isolate the asbestos removal work areas from other occupied areas of the building. Windows, doorways, corridor entrances, drains, ducts, grilles, grates, diffusers, floor/deck penetrations, and any other opening between the work area and areas outside of the work area (including the outside of the building) shall be critically sealed with two layers of 6-mil polyethylene sheeting and duct tape.
  7. Emergency and fire exits from the work areas shall be maintained and adequately marked. Alternative exits shall be established that are satisfactory to the University and local fire regulations.
  8. Contractor shall construct and maintain, in place and operative, at least one decontamination unit. This decontamination unit shall be constructed in accordance with the requirements set forth in Article 3.02 of this Section.
- B. Negative Pressure Enclosure: All asbestos-related work shall be performed in a negative pressure enclosure. In addition to the requirements of Article 3.01.A above, the following preparation procedures shall be used.
1. Install worker decontamination unit described in Article 3.02 or as agreed upon with the University's Representative.
  2. A pressure differential system shall be established that produces a minimum of four filtered air changes per hour in the work area and maintains a negative pressure differential of 0.025-inch water gauge between the inside and outside of the work area as measured by manometer. The pressure differential system shall be exhausted outside the building. Place negative air machines strategically throughout the floor to allow for the maximum airflow and to minimize "dead air" spaces.
  3. Each Negative Pressure Enclosure shall have sufficient number of view ports to observe work area. View ports shall be clear hard plastic at least 6 inches by 6 inches.

### 3.02 WORKER DECONTAMINATION ENCLOSURE SYSTEMS

- A. Decontamination enclosure system: At least one decontamination enclosure system shall be provided.
1. Worker decontamination enclosure systems constructed at the worksite shall utilize 6-mil opaque black or white polyethylene sheeting or other acceptable materials for privacy.
  2. The worker decontamination enclosure system shall consist of at least a clean room and an equipment room, each separated from the other by curtained doorways.
  3. Entry to and exit from all decontamination enclosure system chambers shall be through curtained doorways consisting of two sheets of overlapping polyethylene sheeting. One sheet shall be secured at the top and left side, the other sheet at the top and right side. Both sheets shall have weights attached to the bottom to ensure that they hang straight and maintain a seal over the doorway when not in use. Alternate doorway designs, providing equivalent protection and acceptable to the University's Representative, may be utilized.
  4. Pathways into (from clean to contaminated) and out of (contaminated to clean) the work area shall be clearly designated.
  5. The clean room shall be sized to adequately accommodate the work crew. The clean room shall also provide space for storing respirators and a location for posting notices.
  6. The equipment room shall be used to disrobe for washing at the wash station. A drum lined with a labeled 6-mil polyethylene bag for collection of disposable clothing shall be located in this room.

### 3.03 EMERGENCY EXITS

- A. Emergency exits shall be established and clearly marked with duct tape arrows or other effective designations to permit easy identification and location by the workers from anywhere within the work area. Emergency exits shall be secured to prevent access from uncontaminated areas and still permit emergency exiting. Emergency exits shall be properly sealed with 6-mil polyethylene sheeting that can be cut to permit egress, if needed. These exits may be the worker decontamination enclosure, the waste pass-out airlock, and/or other alternative exits satisfactory and in compliance with local fire regulations. Where emergency exits are sealed, an instrument capable of cutting the polyethylene barrier shall be installed on both sides of the barrier, to allow for immediate exit from the work area in the event of an emergency.

### 3.04 MAINTENANCE OF WORKPLACE BARRIERS

- A. Following completion of the construction of polyethylene barriers and decontamination system enclosures, at least twelve hours settling time shall be required to ensure that barriers will remain intact and secured to walls and fixtures before beginning actual abatement activities.
- B. Workplace barriers shall be visually inspected at the beginning of each work period or shift by the Supervisor/Competent Person.
- C. Damage and defects in the enclosure system shall be repaired immediately upon discovery. This information shall also be noted in the Contractor's daily log.
- D. At any time during the abatement activities after barriers have been erected, if visible material is observed outside of the work area or if damage occurs to barriers, work shall immediately



stop, repairs made to barriers, and debris/residue cleaned up using appropriate HEPA-vacuuuming and wet-mopping procedures. This information shall also be noted in the Contractor's daily log.

### 3.05 COMMENCEMENT OF WORK SHALL NOT OCCUR UNTIL

- A. Enclosure systems have been constructed and tested.
- B. Pressure differential systems are functioning adequately.
- C. Pre-abatement submissions, notifications, and permits have been provided and are satisfactory to the University's Representative.
- D. Equipment for abatement, cleanup, and disposal are available.
- E. Worker training, medical examination, and respirator fit testing (and certification) is completed or applicable, current documentation of this information is provided. This information shall also be provided for new workers on the first day they arrive at the work site.
- F. Glove bags have been smoke tested.
- G. Contractor receives permission from the University to commence asbestos-related demolition work. University requires three working days notice prior to pre-abatement inspection. Pre-abatement inspections are required for each asbestos removal area.

### 3.06 WORKPLACE ENTRY AND EXIT PROCEDURES

- A. General: The following procedures shall be followed prior to entrance into any regulated asbestos work area:
  - 1. Personnel who enter the work area shall sign the entry log upon entry and exit.
  - 2. Personnel, before entering the work area, shall read and be familiar with posted regulations, personal protection requirements (including workplace entry and exit procedures), and emergency procedures.
  - 3. Personnel shall wear appropriate respiratory protection and disposable coveralls, head covering, and foot covering. Hardhats, eye protection, and gloves shall also be utilized, as required. Clean respirator filter cartridges and protective clothing shall be provided and utilized by each person for each separate entry into the work area.
  - 4. Personnel wearing designated personal protective equipment shall proceed to the work area.
  - 5. To exit the work area, personnel shall proceed to the equipment room where they shall remove protective equipment, except respirators, and deposit disposable clothing into appropriately labeled containers for disposal.
  - 6. Clothing or footwear worn into a regulated work area will not be permitted out of the regulated work area.
  - 7. Reusable, contaminated footwear shall be stored in the equipment room when not in use in the work area. Upon completion of abatement, it shall be disposed of as asbestos-contaminated waste. (Rubber boots may be decontaminated at the completion of the abatement for reuse).
- B. Negative Pressure Enclosure/Full Containment Removal Work Area Entry and Exit Procedures:



1. Asbestos handlers working in negative pressure enclosures/full containments shall wear disposable coveralls, including hood and footwear, and full face air-purifying respirators. Hard hats, eye protection, and gloves shall also be utilized as required. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the work area.
  2. Upon exiting the work area and entering the change room, the worker shall remove the disposable suit and dispose of it as asbestos-contaminated waste.
- C. Glove Bag Asbestos-Containing Pipe Insulation Removal Work Area Entry and Exit Procedures:
1. Asbestos handlers involved in glove bag removal procedures shall wear disposable coveralls, including hood and footwear, and half-face air purifying respirators. Hard hats, eye protection, and gloves shall also be utilized as required. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the work area.
  2. Upon exiting the work area and entering the change room, the worker shall remove the disposable suit and dispose of it as asbestos-contaminated waste. Still wearing respiratory protection, the workers shall proceed to the shower. When finished showering, the workers shall proceed to the clean room where they shall dry off and don street clothes.
- C. Disposal of Asbestos-Containing Materials and Asbestos Contaminated Waste:
1. The Contractor is responsible for properly bagging and then transporting all asbestos-containing and contaminated waste to a waste bin at a designated location on site. The waste bin is to be locked at all times when it is not attended. Contractor will provide the University with a suitable lock and key. The Contractor shall line bottom and sides of the waste bin with polyethylene sheet and seal all seams with tape to provide a durable leakproof liner prior to depositing any materials in the waste bin.
  2. As the work progresses, workers from uncontaminated areas in full protective clothing and appropriate respiratory protection (based on results of exposure assessment) shall enter the equipment decontamination unit and place an adequate supply of plastic bags within the clean room. Workers in the wash room shall be passed plastic bags for receiving single-bagged material already vacuumed and wiped clean. Waste in cleaned, single bags shall then be placed into the new bags to accomplish double-bagging of the waste. Ensure that all plastic bags are sealed properly and appropriately labeled before removing for transport and disposal.
  3. Plastic bags used for asbestos-containing and contaminated waste shall be sealed by using a HEPA vacuum to remove as much air as possible from the bag, then twisting the neck of the bag several full turns and wrapping the neck of the bag with duct tape, next folding the twisted neck over to form a "U", and finally wrapping the neck with duct tape once more.
  4. Plastic bags that contain any standing water (e.g. from settling or over wetting) shall not be sealed and removed from the work area until the excess water has been removed from the plastic bags.
  5. Vehicles or carts used for transporting asbestos-containing materials to the waste bin shall have a completely enclosed storage compartment. Loads of waste shall be sized to allow the compartment door or lid to fully close. Storage compartments shall be

plasticized and sealed with a minimum of one (1) layer of 6-mil polyethylene on the sides and on the floor. The compartments shall be thoroughly wet cleaned and HEPA vacuumed following the transfer of each load of material to the waste bin. At the conclusion of the project (or before transport vehicles are used for other purposes), the polyethylene shall be properly removed and disposed of as contaminated waste. After this is accomplished, compartments shall once again be wet cleaned and HEPA vacuumed. (Note: Rental vehicles shall not be used unless accompanied by a letter from the rental company verifying the disclosure of planned use. Rented vehicles shall receive clearance inspection prior to being returned to the rental company.)

6. All friable asbestos-containing waste will be disposed of as California hazardous asbestos waste. Non-friable asbestos-containing waste may be disposed of as non-hazardous asbestos waste. In addition, all plastic sheeting, tape, cleaning material, including mops and sponges, clothing, filters, and all other contaminated disposable materials shall be packaged, labeled, and disposed of as hazardous asbestos-containing waste.
7. Maintain a log to account for the number of pieces of waste, i.e., number of bags, boxes, etc. Piece count shall be reported to the University as well as shipping weight.

### 3.07 ASBESTOS-CONTAINING MATERIAL REMOVAL PROCEDURES

#### A. General

1. Work area shall be cleaned and isolated in accordance with the procedures set forth in Article 3.01 of this Section.
2. Waste containers shall be sealed when full. Bags shall not be overfilled. Bags shall be securely sealed to prevent accidental opening and leakage by tying the tops of bags in an overhand knot or by taping in gooseneck fashion. Bags shall not be sealed with wire or cord.
3. Large components removed intact may be wrapped in two layers of 6-mil polyethylene sheeting secured with duct tape for transport to a landfill.
4. Contractor shall adhere to disposal authority's size and weight requirements for containers (bags or packages).
5. Cleanup shall proceed in accordance with Article 3.08 - Cleanup Procedures.

#### B. Thermal Systems Insulations (TSI) Material Removal Procedures:

1. Removal of TSI material where feasible may be performed using glove bags.
  - a. Glove bags shall be installed so that they completely cover the piping and other structures where asbestos work is to be done. Glove bags shall be installed by cutting the sides of the glove bag to fit the size of pipe or opening from which asbestos is to be removed. The glove bag is attached to the pipe by folding the open edges together and securely sealing them with tape. All openings in the glove bag must be sealed with duct tape or equivalent material. The bottom seam of the glove bag must also be sealed with duct tape or equivalent to prevent any leakage from the bag that may result from a defect in the bottom seam. After installation, the glove bag shall be smoke tested to ensure a leak-tight construction.
2. TSI shall be sprayed with amended water using spray equipment capable of providing a low-pressure application.

3. Wetted TSI material shall be removed from the pipes utilizing appropriate hand tools. Waste material shall be packed in 6-mil plastic bags as it is removed and placed in properly labeled containers for transport. Material shall not be allowed to dry out prior to insertion into the container.
  4. After removal of the TSI, the piping and other structures from which the asbestos has been removed must be thoroughly cleaned with a polyethylene brush and wet wiped until no traces of asbestos debris can be seen.
  5. When the asbestos removal has been completed, a vacuum hose from a HEPA filtered vacuum must be inserted into the glove bag through the appropriate port to remove any air in the bag that may contain asbestos fibers. When the air has been removed from the bag, the bag should be squeezed tightly (as close to the top as possible), twisted, and sealed with duct tape in order to keep the asbestos-containing materials safely in the bottom of the bag. The HEPA vacuum can then be removed from the bag, and the glove bag itself can be removed from the work area to be disposed of properly.
  6. Dispose of TSI waste as hazardous asbestos waste in accordance with Article 3.10 – Disposal Procedures.
- C. Non-Hazardous Materials Demolition Procedures:
1. During demolition provide safeguards, including warning signs and lights, barricades, and the like, for protection of the public, Contractor's employees and existing improvements to remain.
  2. Dust control: Control dust at all times.
    - a. Contractor shall install, operate and maintain the HEPA filtration as required for a Negative Pressure Enclosure as defined by CCR Title 8 §1529 during non-asbestos removal work. Water control: Control the use of water to prevent damage to the existing facility and improvements to remain.
  3. Security: Coordinate security with the University; refer to Division One.
    - a. Take necessary precautions to keep trespassers out of demolition areas.
    - b. Properly secure demolition areas from entry when demolition is not in progress but do not block required emergency exits.
  5. Whenever possible use small hand or small power tools designed for sawing or grinding; whenever possible avoid the use of tools with a hammering and chopping motion.
  6. All non-hazardous waste shall be disposed, salvaged, or recycled as noted in Article 1.03.
  7. All non-hazardous waste shall be compartmentalized throughout the work area. Waste shall be piled at the end of each day and shall not be left in place.
  8. Non-hazardous materials and items shall be removed in their entirety. They shall not be allowed to hang. Remove all nails, screws, nuts and bolts remaining after items are removed.
  9. Screws, nails, nuts and bolts on the floor shall be cleaned up at the end of each shift.

### 3.08 CLEANUP PROCEDURES

#### A. General

1. Visible accumulations of ACM, ACCM and asbestos-contaminated debris shall be removed and containerized utilizing nonmetallic tools (squeegees, shovels, and the like). Surfaces in the work area, including plastic sheeting, shall then be wet cleaned. Equipment used in the work area shall be included in the cleanup, and shall be removed from work areas via the decontamination enclosure system or waste load-out, at appropriate times in the cleaning sequence.
  2. None of the procedures described in this Article relieve the Contractor of the responsibility to meet the final clearance criteria as established by this Section.
- B. Negative Pressure Enclosure/Full Containment Work Area Removal Cleanup Procedures:
1. The windows, doors, and HVAC vents shall remain sealed, and any HEPA filtered pressure differential systems, waste load-out, and decontamination enclosure systems shall remain in service. After initial cleaning polyethylene sheeting on walls and floors shall be removed.
  2. The work area and other contaminated areas shall be cleaned utilizing HEPA-vacuum and wet-wiping procedures. After completion of the cleaning operation, a complete visual inspection of the work shall be conducted with the University to ensure that the work area is free of visible asbestos debris. A final check shall be made for asbestos debris, and further cleaning will be conducted as necessary. The University shall be notified 24 hours in advance of the requirement for a visual inspection.
  3. Contractor shall notify the University that the negative pressure enclosure work areas are ready for review and clearance air monitoring. The negative pressure enclosure areas shall be cleaned until they pass the Clearance Air Monitoring Standard. The University will require up to 72-hours to complete clearance air monitoring after the work area is dry.
  4. Upon notification from the University that the negative pressure enclosure work areas have passed the standard for visual clearance and clearance air monitoring, the Contractor shall remove isolation and/or critical barriers, decontamination unit, dismantle negative air pressure devices, and remove asbestos warning signs/ribbon.

### 3.09 CLEARANCE AIR MONITORING

- A. The following clearance air monitoring procedures will be used in negative pressure enclosure work areas.
1. After completion of cleanup operations, Contractor shall notify the University that the work areas are ready for clearance air monitoring. Notification shall be a minimum of one working day prior to the need for clearance air monitoring. Final clearance air monitoring shall be conducted only after the procedures set forth in Article 3.08 of this Section have been completed, the area has been satisfactorily cleaned and the abatement area has been thoroughly dried.
  2. The University shall conduct the final clearance air monitoring by collecting and analyzing a minimum of two air samples per work area utilizing PCM analysis. Clearance air monitoring may require one work shift (24 hours) to complete. The University, at its discretion, may perform aggressive, TEM clearance air monitoring including blowing the area with a leaf blower and running fans while the air sampling pumps are running.
  3. Clearance of a work area shall be achieved when each sample taken within the contained work area indicates airborne asbestos fiber concentrations at or below 0.01 fibers per



cubic centimeter of air, as determined by phase contrast microscopy. If TEM the analytical method for clearance will be NIOSH 7402 Method.

4. Abatement areas not achieving clearance shall be re-cleaned using procedures set forth in Article 3.08 of this Section, and retested until clearance is achieved. The cost of additional samples, consultant air monitoring fees, and labor for re-cleaning the work areas that fail final air clearances shall be paid for by the Contractor.

### 3.10 DISPOSAL PROCEDURES

- A. As the work progresses, to prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos-containing waste shall be removed and transported to the prearranged disposal location.
- B. Unless other arrangements are made satisfactory to the University, bagged or wrapped material shall be removed from the work areas and placed in a Contractor supplied dumpster a minimum of every day. The dumpster shall be marked with asbestos warning signs and be locked at all times when not in use. When a dumpster is full, it shall be removed from University property by the end of the next business day.
- C. Disposal shall occur at an authorized site, in accordance with regulatory requirements of NESHAPs and applicable state and local guidelines and regulations, including the California State Department of Health Services, Toxic Substances Control Division.
- D. Uniform hazardous waste manifests, non-hazardous waste dated forms, dump receipts; trip tickets, transportation manifests, or other documentation of disposal shall be delivered to the University Representative for their records.

### 3.11 OSHA PERSONNEL AIR MONITORING

- A. Air monitoring required by OSHA for asbestos exposure determination is work of the contractor. The contractor is responsible for providing daily OSHA compliance monitoring as per 8 CCR 1529 and 29 CFR 1926.1101.
  1. At minimum, Contractor shall conduct representative (25% of crew) breathing zone personal air monitoring of its employees twice each shift and repeated daily.
  2. Monitoring shall be conducted by a qualified air professional experienced and knowledgeable about the methods of air monitoring and in accordance with 8 CCR 1529 and CFR 1926.1101.
  3. Monitoring results and appropriate laboratory analysis work shall be submitted to the University within twenty-four (24) hours of the monitoring work.

### 3.12 ALTERNATE PROCEDURES

- A. The procedures described in this Section shall be utilized at all times, unless alternate procedures are submitted and approved by the University.
- B. If contractor desires to use alternate procedures, a request shall be made in writing to the University providing details of the proposed alternative(s).
- C. Alternative procedures shall provide equivalent or greater protection than the procedures that they replace.
- D. Alternative procedures shall be approved in writing by the University prior to implementation.

**\*\*END OF SECTION\*\***

## SECTION 02081

### LEAD-RELATED DEMOLITION WORK

#### PART 1 GENERAL

##### 1.01 DESCRIPTION

- A. This section consists of furnishing work necessary to perform the removal, packaging, handling, transportation, and disposal of lead-containing materials and lead-contaminated materials located within the limits of the project site. This section also consists of furnishing work necessary to perform lead work as defined by CCR Title 8 Section 1532.1. Work shall be performed in accordance with all federal, state, and local requirements and statutes. The work specified herein:
1. Is lead-related work as defined by CCR Title 8, Section 1532.1.
  2. Is not lead abatement as defined by CCR Title 17, Division 1, Chapter 8.
  3. The intent of this work is the proper removal and disposal of lead-containing materials due the replacement of the boilers and associated components.
  4. The work consists of the removal of lead-containing materials by persons knowledgeable, qualified, and trained in the removal, treatment, handling, packaging, transportation, and disposal of lead-containing materials, and the subsequent cleaning of the affected environment.
  5. These persons shall comply with federal, state and local regulations and mandated work practices, and shall be capable of performing the work in the Contract.
  6. In the event that any requirement in this section differs from any applicable regulations, the contractor shall report the difference to the University's representative and shall comply with the most applicable requirement as agreed upon with the University's representative.
  7. Paints on the building, building components, and equipment except those specifically listed in survey reports as having no lead detected, are assumed to be lead based paint.

##### 1.02 SCOPE OF WORK

- A. General Requirements: Work of this section includes, but is not limited to, the following:
1. Properly handling lead-containing and contaminated materials and items that will be demolished during the course of the boiler replacement.
- B. Lead-Related Demolition Scope of Work: The Contractor shall perform the following work. Paint waste shall be disposed of hazardous RCRA Pb containing waste by Contractor. Painted building components shall be characterized by the contractor and legally disposed of by the contractor. Copies of waste characterization shall be provided to the University Representative prior to disposal.



1. Remove, package, transport, and properly dispose of boiler systems and components with lead-based/containing paint noted for removal on demo sheets. This work shall be done in compliance with CCR Title 8 section 1532.1.

### 1.03 RELATED WORK

- A. SECTION 01300 – SUBMITTALS
- B. SECTION 02080 – ASBESTOS RELATED DEMOLITION WORK
- C. SECTION 02110 – DEMOLITION

### 1.04 APPLICABLE DOCUMENTS AND REGULATIONS

- A. It is the responsibility of the Contractor to know the current regulations controlling work and to perform all project related work in accordance with such regulations that provide for worker and public safety against lead exposure.
- B. The publications listed below form a part of this specification to the extent referenced. The current issue of each document shall govern. Where conflict among requirements or with these Specifications exists, the more stringent requirements shall apply. The publications are referenced in the text by basic designation only.

#### CODE OF FEDERAL REGULATIONS (CFR)

29 CFR Part 1910 Occupational Safety and Health Standards for General Industry

29 CFR Part 1910.134 Respiratory Protection

29 CFR Part 1200 Hazard Communication – General Industry

29 CFR Part 1926 Occupational Safety and Health Regulations for Construction

29 CFR Part 1926.59 Hazard Communication - Construction

29 CFR Part 1926.62 Lead

#### U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

40 CFR Part 148 Hazardous Waste Injection Restrictions

40 CFR Part 260 Hazardous Waste Management Systems: General

40 CFR Part 261 Identification and Listing of Hazardous Waste

40 CFR Part 262 Standards Applicable to Generators of Hazardous Waste

40 CFR Part 263 Standards Applicable to Transporters of Hazardous Waste

40 CFR Part 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

40 CFR Part 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

40 CFR Part 268 Land Disposal Restrictions

49 CFR Part 171-185 U.S. Department of Transportation (USDOT)

49 CFR Part 172 Hazardous Material Table, Special Provisions, Hazardous Material Communications, Emergency Response Information, and Training Requirements.

49 CFR Part 178 Specifications for Packaging

40 CFR Part 745 Lead; Renovation, Repair, and Painting Program

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701 (1989) Methods of Fire Test for Flame-Resistant Textiles and Films

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH OSHA Booklet 3142 Lead in Construction

CALIFORNIA CODE OF REGULATIONS (CCR)

8 CCR Part 1532.1 Lead

8 CCR Part 5144 Respiratory Protection

8 CCR Part 5194 Hazard Communication

17 CCR, Div. 1, Cpt. 8 Accreditation, Certification, and Work Practices for Lead-Based Paint and Lead Hazards

22 CCR, Div. 4, Cpt. 30 Hazardous Waste Handling

UNDERWRITERS LABORATORIES (UL)

UL 586 (1990) High-Efficiency, Particulate, Air Filter Units

PART 6. CALIFORNIA LABOR CODE SECTION 6501.5-6505.5

ALL OTHER STATE, COUNTY, AND LOCAL CODES AND ORDINANCES AS APPLICABLE.

#### 1.05 NOTIFICATIONS AND PERMITS

A. Contractor shall make all required written notifications or applications to regulatory agencies including the following if applicable:

1. California Division of Occupational Safety and Health (Cal-OSHA) Lead Work Pre-Job Notification shall be accordance with 8 CCR Part 1532.1.
2. Local or facility agencies as applicable.

#### 1.06 SUPERVISOR/COMPETENT PERSON AND WORKERS

- A. If the results of the initial exposure assessment indicate that the Action Level will be exceeded during the work, workers shall have received training in accordance with 8 CCR Part 1532.1 and 17 CCR, Division 1, Chapter 8. The training shall be provided prior to the time of job assignment and, at least, annually. Additionally, workers shall be certified as CDPH Lead-Related Construction Workers including one CDPH Lead-Related Supervisor in accordance with 8 CCR Part 1532.1.
- B. If the results of the initial exposure assessment indicate that the Action Level will not be exceeded during the work, worker training including the following information is required at a minimum. The Contractor shall submit documentation that the workers have received the following training.

1. An employee's right to access to records under 29 CFR Part 1910.1020.
  2. The contents and requirements of 29 CFR Part 1926.62 and 8 CCR 1532.1.
  3. The specific nature of the operation that could result in exposure to lead.
  4. The purpose, proper selection, fitting, use, and limitations of respirators.
  5. Purpose and description of the medical surveillance program and the medical removal protection program, including information concerning the adverse health affects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant).
  6. Relevant engineering controls and good work practices.
  7. The contents of any compliance plan in effect.
  8. Instructions that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.
- C. Additionally, contractor shall comply with 40 CFR Part 745 in the demolition of lead-based materials in the project scope.

#### 1.07 SUBMITTALS

- A. Submit, as applicable, the following to the University's Representative for approval within 10 days of receiving the Notice to Proceed. These submittals are in addition to those required in Section 01300. These submittals shall conform to the requirements of Section 01300. In addition to the copies required by 01300, the Contractor shall submit the listed submittals here as electronic PDF files. Any scanned documents shall be scanned at a minimum resolution of 300dpi.
1. Submit copies of written notifications to regulatory agencies.
    - a. California Division of Occupational Safety and Health (Cal-OSHA) Lead Work Area Pre-Job Notification.
    - b. Local or facility agencies as applicable.
  2. Manufacturer's product data and material safety data sheets for all chemical products to be used on site.
- B. Following completion of initial exposure assessment, submit to the University's Representative documentation that includes the following. The air sample results shall be provided to the University's Representative 36 hours after completion of the sampling. The final report shall be provided 48 hours after completion of the sampling.
1. All personal air sampling performed by the contractor during the initial exposure assessment. The personal air sampling results shall be provided as 8-hour TWA results.
  2. A final report listing a description of the Trigger Tasks utilized during the initial exposure assessment and a conclusion detailing whether the work is classified as lead-related or not for each for each task.

## 1.08 NOTICES AND POSTINGS

- A. Post at the job site a list of persons authorized to enter the lead-related demolition work area.
- B. Additional postings shall include:
  - 1. Visitor entry and exit log.
  - 2. Employee daily sign in/out log.
  - 3. Work area entry and exit procedures.
  - 4. Emergency procedures.

## 1.09 WORK SEQUENCE

- A. Work Sequence: The following is the work sequence for the project.
  - 1. Perform non-hazardous lead related demolition concurrently with the asbestos-related demolition work.

## 1.11 PERSONAL PROTECTION AND SAFETY

- A. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his/her appliances, methods, and for any damages that may result from his/her operations, improper construction practices, or maintenance. He shall erect and properly maintain at all times as required by the conditions and progress of the work, proper safeguards for the protection of workmen and the public and shall post warning signs around the job site.
- B. Work shall be performed in accordance with the requirements of applicable regulations including, but not limited to 29 CFR Part 1926.62, 8 CCR Part 1532.1, and 17 CCR, Division 1, Chapter 8. Matters of interpretation of the standards shall be submitted to the appropriate agency for resolution before starting work. Where these requirements vary, the most stringent shall apply.
- C. Respiratory protection requirements:
  - 1. Respirators used shall be selected from those approved by NIOSH for use in atmospheres containing lead dust above the Action Level.
- D. A Hazard Communication Program shall be implemented in accordance with 29 CFR Part 1926.59.
- E. Right-to-know notices shall be placed in clearly visible areas of the work site in compliance with Federal, State, and local regulations.
- F. A wash/decontamination station shall be provided on the site at all times that lead related demolition work is being performed.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. General: Contractor shall adhere to the following:
  - 1. All plastic, spray-on strippable coatings and structural materials used shall be UL-certified as fire retardant or non-combustible.

2. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer, brand name (where applicable), and model.
3. Polyethylene sheeting utilized for worker decontamination and barriers shall be black or opaque in color and shall be a minimum of 6-mil in thickness. All polyethylene shall be fire retardant. Waste containers utilized during the project shall be properly labeled as required by 29 CFR Part 1926.62, 8 CCR Part 1532.1, and, if applicable, 22 CCR 66504.
4. Warning signs as required by 8 CCR Part 1532.1 and 29 CFR 1926.62 shall be utilized during lead-related demolition activities.

## 2.02 EQUIPMENT

### A. General:

1. HEPA vacuums equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79.
2. Respirators furnished to the workers by the Contractor. The respirators shall have been tested and approved by National Institute of Occupational Safety and Health (NIOSH) for use in lead contaminated atmospheres. Respirator usage during the project shall be determined by the results of the initial exposure assessment and shall be in accordance with the requirements of 8 CCR 1532.1 and the work plan submitted by the Contractor.
3. Contractor shall provide full body disposable protective clothing, including head, body, and foot coverings to workers and visitors in sizes adequate to accommodate movement without tearing. Full body disposable protective clothing shall be utilized at all times during lead-related demolition activities.
4. Additional safety equipment including hard hats, eye protection, safety shoes, and disposable gloves as necessary, shall be furnished to all workers and authorized visitors. This safety equipment shall be utilized at all times during lead-related demolition activities.
5. Furnish disposable mops, rags, and sponges for work area decontamination.

## PART 3 EXECUTION

### 3.01 LEAD-CONTAINING MATERIAL WORK PREPARATION

- A. Lead-Related Work Area Preparation: The following preparation activities shall be performed in areas where lead-containing materials are disturbed outside of full asbestos removal enclosures.
  1. Prepare a lead work control area by placing lead warning tape and proper signage around the removal area. The warning tape should be placed a sufficient distance away from the removal area to allow persons who are not properly trained or who are not wearing personal protective equipment to avoid the contaminated area.
  2. Install remote worker decontamination unit described in Article 3.02 or as agreed upon with the University's Representative.
  3. Lead Workers shall don personnel protective equipment as required in Article 2.02.

4. Contractor shall shut down and lock out all HVAC equipment serving the areas where work will be performed.
5. For exterior work, place one layer of 6-mil polyethylene sheeting critical barriers over openings leading into the building.
6. For exterior work, work shall not proceed during days of substantial wind.
7. Floor shall be covered with a drop cloth consisting of one layer of 6-mil polyethylene sheeting. Where the work is adjacent to a wall, the drop cloth shall be secured to the wall with duct tape. The drop cloth shall extend out horizontally from under the point of removal to a distance of at least half the height of the highest material being removed.
8. Perform lead-containing material removal in accordance with Article 3.06 – Lead-Related Demolition.

### 3.02 WORKER DECONTAMINATION SYSTEMS

- A. Worker decontamination enclosure systems shall be provided at a location near or adjacent to the lead work control areas. As a minimum, one system at a single location is required.
  1. The personnel decontamination unit shall not be located inside the work area unless otherwise authorized by the University's Representative.

### 3.03 MAINTENANCE OF CONSTRUCTION/LEAD-RELATED WORK AREA BARRIERS

- A. At any time during the lead related work activities after barriers have been erected, if visible material is observed outside of the work area or if damage occurs to barriers, work shall immediately stop, repairs shall be made to barriers, and debris/residue cleaned up using appropriate procedures. In addition, the barriers shall be moved farther away from the lead-related work area.

### 3.04 COMMENCEMENT OF WORK SHALL NOT OCCUR UNTIL

- A. Work at the building shall not occur until the following items have been completed.
  1. Construction and lead work control area barriers are in place.
  2. At least one wash station/decontamination station is operational.

### 3.05 WORKPLACE ENTRY AND EXIT PROCEDURES

- A. General: The following procedures shall be followed prior to entrance into any lead-related work area:
  1. Personnel, before entering the lead-related work area, shall read and be familiar with posted regulations, personal protection requirements (including workplace entry and exit procedures), and emergency procedures. Personnel shall wear personal protective equipment as necessary for the task.
  2. To exit the work area, personnel shall proceed to the wash station/decontamination station where they shall remove protective equipment and deposit disposable clothing into appropriately labeled containers for disposal and wash their hands, face, and any other exposed portions of their body.

### 3.06 LEAD-RELATED WORK



- A. Lead-Related Work: The Contractor shall utilize the following procedures in addition to those proposed in the lead-related demolition work plan required by Article 1.08 when performing lead-related demolition/work.
1. Lead-related demolition/work shall be performed in a manner that reduces the amount of airborne lead particulate generated. Dismantling operations shall be conducted in a careful, safe manner, insuring that intact lead-based paint remains so.
  2. If mechanical methods (power equipment) are used such as saws, grinders, or drills this equipment should be used in a manner that reduces the amount of airborne lead particulate generated. The equipment shall be decontaminated prior to removing it from the lead work control area.

### 3.07 LEAD WORK AREA CLEAN UP PROCEDURE

- A. Maintain surfaces within the lead work control area free of accumulations of lead debris and dust. Restrict the spread of dust and debris. Keep waste from being distributed over the work area. Do not dry sweep or use compressed air to clean up the area. When the lead removal operation has been completed, clean the drop cloth and immediate adjacent areas of visible lead contamination by vacuuming with a HEPA filtered vacuum cleaner and/or wet mopping.

### 3.08 LEAD-RELATED DEMOLITION FINAL INSPECTION

- A. The University will perform a visual inspection of each lead work control area at the completion of each phase of lead-related demolition/work. The inspection will determine that all lead-containing dust and debris has been cleaned up and that all lead-containing materials have been removed, packaged, and placed into the proper waste containers. If the final visual inspection is not acceptable, the Contractor shall perform the cleanup procedures listed in Article 3.07 of this Section.

### 3.09 LEAD WASTE HANDLING PROCEDURES

- A. The contractor will be responsible for lead waste characterization of all waste streams generated during the demolition project, using existing data supplied by the University or additional analysis data from samples collected by the Contractor, as deemed necessary, from the waste streams generated. Waste handling and disposal shall be conducted according to all governing regulations.

### 3.10 OSHA PERSONNEL AIR MONITORING

- A. Air monitoring required by OSHA for lead exposure is work of the contractor. The contractor is responsible for providing daily OSHA compliance monitoring as per 29 CFR Part 1926.62 and 8 CCR Part 1532.1.
1. Monitoring results and appropriate laboratory analysis work shall be submitted to University's Representative within twenty-four (24) hours of the monitoring work.

### 3.11 ALTERNATE PROCEDURES

- A. The procedures described in this Section shall be utilized.
- B. If specified procedures cannot be utilized, a request shall be made in writing to the University providing details of the problem encountered and proposed alternatives.
- C. Alternative procedures shall provide equivalent or greater protection than the procedures that they replace.
- D. Alternative procedure shall be approved in writing by the University prior to implementation.

**\*\*END OF SECTION\*\***



SECTION 07840  
FIRESTOPPING

PART 1 GENERAL

1.01 DESCRIPTION

A. Section includes: Fire stopping for the following:

1. Penetrations through fire-resistance-rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.
4. Sealant joints in fire-rated construction.

B. Related work

1. Sealants required or specified in other Sections.

1.02 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide firestopping systems produced and installed to resist the spread of fire and the passage of smoke and other gases in compliance with Code.
- B. Comply with California Code of Regulations - Title 24, CBC - Chapter 7, Fire Tests of Through-Penetration Fire Stops.
- C. Underwriters Laboratories (UL) of Northbrook, IL runs ASTM E-814 under their designation of UL 1479 and publishes the results in their "Fire Resistance Directory" that is updated annually with a midyear supplement.

1. UL Fire Resistance Directory

- a. Through-Penetration Fire Stop Devices (XHCR).
- b. Fire Resistance Rating (BXUV).
- c. Through-Penetration Fire Stop Systems (XHEZ).
- d. Fill, Voids or Cavity Material (XHHW).
- e. Forming Materials (XHKU).

- D. Test Requirements: UL 2079, "Tests for Resistance of Building Joint Systems"(November 1994).

1.03 SUBMITTALS

- A. Procedure: In accordance with Section 01340.
- B. Data: Manufacturer product data for all materials and prefabricated devices and

manufacturer's installation instructions. Submitted material must be approved by Campus Fire Marshal prior to installation.

- C. Certification: Letter of certification, or certified laboratory test report that the material or combination of materials proposed for use meets the requirements specified in ASTM E 814, are so classified in UL Building Materials Directory, and are approved by the Building Department.
- D. Evaluation reports: Evidence of fire resistive joint systems' compliance with ICBO Evaluation Service Acceptance Criteria AC30, from ICBO Evaluation Service
- E. Documentation:
  - 1. Include illustrations, from a qualified testing and inspecting agency, applicable to each through penetration firestop configuration for construction and penetrating items.
  - 2. Where Project conditions require modification of qualified testing and inspecting agency illustration to suit a particular through penetration firestop condition, obtain Campus Fire Marshal acceptance of the modification prior to submitting shop drawings.

#### 1.04 QUALITY ASSURANCE

- A. Single source responsibility: Obtain through penetration firestop systems, for each kind of penetration and construction condition indicated, from a single manufacturer.
- B. Applicator's Qualifications: Company specializing in performing work of this section, with a minimum of 5 years experience who specializes in the installation of firestop products. Personnel shall be certified, licensed, or otherwise qualified by firestopping manufacturer as having been provided necessary training to select and install products according to manufacturer's requirements. Company must be Factory Mutual Approved.
- C. Compatibility: Provide firestop systems compatible with one another and with substrates under conditions of application and service.
- D. A manufacturer's direct representative (not distributor or agent) to be on site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.
- E. Firestop system installation, must meet requirements of ASTM E 814, UL 14'S or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.
- F. For those firestop applications that exist for which no UL tested system is available through any manufacturer, a manufacturer's engineering judgement derived from similar UL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineer judgement drawings must follow requirements set forth by She International Firestop Council (September 7, 1994).

#### 1.05 HANDLING

- A. Storage: Store and handle materials to prevent their deterioration or damage. Do not use damaged and contaminated materials.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS:

- A. Subject to compliance with through penetration firestop systems (XHEZ) listed in Volume II of the UL Fire Resistance Directory, provide products of one or a combination of the following, as required by condition of use:
1. Hilti Construction Chemicais, Inc.  
Tulsa, OK, telephone 918.252.6901.
  2. Tremco Inc.  
Beachwood, OH, telephone 216.292.5000.
  3. 3M Fire Protection Products.  
St. Paul, MN, telephone 612.736.0203

### 2.02 MATERIALS

- A. All through penetrations shall be labeled on both sides of the wall to indicate the appropriate UL system number, product used, installation date, hour rating installer, location number and telephone contact for the corresponding manufacturer. Material installed shall be as required for installation conditions and to achieve the required fire resistance.
- B. Use only firestop products that have been UL 1479, ASTM E-814, or UL2079 tested for specific fire rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire rating involved for each separate instance.
- C. For penetrations by non combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following materials are acceptable:
1. Hilti FS 601 Elastomeric Firestop Sealant
  2. Hilti FS ONE High Performance Intumescent Firestop Sealant
  3. 3M Fire Stop Sealant 2000 4. 3M Fire Barrier CP25 WB
  4. Tremco Tremstop Fyre Sil Sealant
- D. For fire rated construction joints and other gaps, the following materials are acceptable:
1. Hilti FS 601 Elastomeric Firestop Sealant
  2. Hilti CP 601 s Elastomeric Firestop Sealant.
  3. Hilti CP 606 Flexible Firestop Sealant.
  4. Hilti CP 672 Firestop Joint Spray
  5. 3M Firestop Sealant 2000
  6. Tremco Tremstop Fyre Sil Sealant

- E. For penetrations by combustible items (penetrants consumed by high heat aflame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe (closed piping systems) the following materials are acceptable:
1. Hilti FS ONE High Performance Intumescent Firestop Sealant
  2. Hilti CP 618 Firestop Putty
  3. Hilti CP 642 Firestop Jacket
  4. Hilti CP 643 Firestop Jacket
  5. 3M Fire Barrier CP25 WB
  6. 3M Fire Barrier FS 195 Wrap/Strip
  7. Tremco Tremstop WBM Intumescent Firestop Sealant
- F. For penetrations by combustible plastic pipe (open piping systems), the following materials are acceptable:
1. Hilti CP 642 Firestop Jacket
  2. Hilti CP 643 Firestop Jacket
  3. Hilti FS ONE High Performance Intumescent Firestop Sealant
  4. 3M Fire Barrier PPO Plastic Pipe Device
- G. For large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways' the following materials are acceptable:
1. Hilti FS 635 Trowelable Firestop Compound
  2. Hilti FIRE BLOCK
  3. 3M Firestop Foam 2001
  4. 3M Fire Barrier CS 195 Composite Sheet
- H. For openings between structurally separate sections of wall and floors. Top of walls, the following materials are acceptable:
1. Hilti FS 60t Elastomeric Firestop Sealant
  2. Hilti CP 601s Elastomeric Firestop Sealant
  3. Hilti CP 606 Flexible Firestop Sealant
  4. Hilti FS ONE High Performance Intumescent Firestop Sealant
  5. 3M Fire Barrier CP 25 WB
- I. Provide a firestop system with a "F" Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.
- J. Provide a firestop system with an Assembly Rating as determined by UL 2079 which is equal to the time rating of construction being penetrated.
- K. Firestopping at Electrical Vboxes and Utility Outlets.
1. Hilti CP 618 Firestop Putty Stick
  2. Hilti CP 617 and CP 617L Firestop Putty Pad
- L. For voids created at the intersection of the exterior wall assemblies (curtain wall) and rated floor assembly, the following material is acceptable:
1. 3M Fire Barrier Spray and Thermafiber Safing (No equal)
- M. For pipe penetrations of cast in place concrete floors and concrete over metal decking the following material is acceptable:
1. Hilti CP 680 Cast-In Firestop Device (No equal)

### PART 3 EXECUTION

#### 3.01 PREPARATION

- A. Verify conditions and measurements affecting the work of this Section at site. Make sure that detrimental conditions are corrected before proceeding with installation.

#### 3.02 INSTALLATION

- A. Install materials in compliance with their manufacturer's instructions and the printed instructions of UL Fire Resistance Directory.
- B. Masking:
  - 1. Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed and that would be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials.
  - 2. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

#### 3.03 IDENTIFICATION

- A. Identify firestopping with pressure sensitive, self adhesive preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestopping installation where the labels will be visible to anyone seeking to remove penetrating items or firestopping. Include the following information on the labels:
  - 1. The words: "WARNING FIRESTOPPING DO NOT DISTURB. NOTIFY BUILDING MANAGEMENT OF ANY DAMAGE"
  - 2. Contractor's name, address and phone number.
  - 3. Firestopping system designation of applicable testing and inspecting agency.
  - 4. Date of installation.
  - 5. Firestopping manufacturer's name.
  - 6. Installer's name.

#### 3.04 CLEANING

- A. Clean-up spills of liquid components.
- B. Cut and trim excess materials neatly, flush with adjacent surfaces.

**\*\*END OF SECTION\*\***