

DAVID Y. IGE
GOVERNOR



HAKIM OUANSAFI
EXECUTIVE DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
HAWAII PUBLIC HOUSING AUTHORITY
1002 NORTH SCHOOL STREET
POST OFFICE BOX 17907
Honolulu, Hawaii 96817
FAX: (808) 832-6030

BARBARA E. ARASHIRO
EXECUTIVE ASSISTANT

IN REPLY PLEASE REFER TO:

ADDENDUM NO. 3

SPENCER HOUSE, MASONRY STABILIZATION AND REPAIRS, HA 1073
IFB-CMB-2016-05
HPHA JOB NO. 13-039-173

June 7, 2016

NOTICE TO ALL PROSPECTIVE CONTRACTORS:

The Hawaii Public Housing Authority (HPHA) is issuing this Addendum No. 3 to the Invitation for Bid IFB-CMB-2016-05, HPHA Job No. 13-039-173 for Spencer House, Masonry Stabilization and Repairs.

This Addendum modifies the original solicitation documents for the project dated April 2016. The items in this Addendum shall govern the work, taking precedence over previously issued specifications and drawings governing the items mentioned. Acknowledge receipt of this Addendum in the space provided on the sealed Bid Form.

1. CHANGES TO THE INVITATION (NOTICE) FOR BIDS

- a. REPLACE the last sentence of the sixth (6th) paragraph of the INVITATION (NOTICE) FOR BIDS with the following sentence:
"Bidders must possess a valid State of Hawaii Contractor's "A" or "B" License to be eligible to bid."
Bidders are reminded that Contractor shall perform with its own organization, work amounting to not less than twenty percent (20%) of the total contract cost, exclusive of costs for materials and equipment the Contractor purchases for installation by its subcontractors.

2. CHANGES TO THE REFERENCE DOCUMENTS

- a. ADD the Limited Hazardous Materials Survey, Spencer House, dated June 1, 2015, prepared by Enviroservices & Training Center, LLC., to the Reference Documents.

3. CHANGES TO THE SPECIFICATIONS

- a. In SECTION 01715 – Existing Conditions - Asbestos/Lead/Hazardous Material Survey, REPLACE Subparagraph 1.01B.3. with new Subparagraph 1.01B.3:
“3. Section 13281 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIAL for requirements of work which disturbs asbestos-containing material.
- b. In SECTION 01715 – Existing Conditions - Asbestos/Lead/Hazardous Material Survey, after Subparagraph 1.01B.3., ADD new Subparagraph 1.01B.4.:
“4. Section 13288 – TESTING/AIR MONITORING for requirements for monitoring and compliance.
- c. ADD the attached SECTION 13281 – REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIALS
- d. REPLACE previously issued specification SECTION 13288 – TESTING/AIR MONITORING in the entirety with the attached new SECTION 13288 – TESTING/AIR MONITORING. The reissued specification section supersedes the previously issued specification section with the same number and title.

4. CHANGES TO THE DRAWINGS

- a. Detail 8/A402 is added to Drawing Sheet DETAILS S402. REPLACE in the entirety the previously issued drawing DETAILS S402 reissued with ADDENDUM No. 2 and dated June 3, 2016, with the attached DETAILS S402 reissued with ADDENDUM No. 3 and dated June 6, 2016. The reissued drawing supersedes the previously issued drawings with the same sheet number.
- b. No other changes or revisions were made.

5. RESPONSES TO REQUESTS FOR INFORMATION (RFIs)

- c. *Question:* On the Form of Bid issued with Addendum No. 2 – June 3, 2016, page B-1, please clarify that the statement in Bid Item #2 “consist of all concrete repair work of spalls and delaminations not covered by the Base Bid” is indicating that the Base bid includes the cost for the spalls that are listed on the plans (i.e. A101, A102, A103, etc...) and the list of the Estimated Quantity in the Bid Item #2 is not a summary of the spall listed on the plan sheets but additional to those quantities.

Response: On the Form of Bid, Bid Item #2 includes all concrete spall, delamination and crack repairs and all asbestos abatement as Variable Quantities Unit Prices items. The estimated quantities for Slab Leading Edge Spall Repair (LE), Slab Soffit Spall Repair (S), Vertical Wall Spall Repair (VW), and CMU Vertical Wall Spall Repair (CMU) are a summary of the total amounts indicated on the drawings and are NOT additional quantities to the

amounts indicated on the drawings. The amount of Major Crack (over 1/16") Repair, Minor Crack (less than 1/16") Repair, and Asbestos Abatement are not indicated on the drawings. The quantities on the drawings are only for reference and are not to be included in Bid Item #1 or #2. In Bid Item #2, the Bidders should only include the amounts of concrete spall, delamination and crack repairs and asbestos abatement indicated in Estimated Quantity column in Bid Item #2.

All other terms and conditions shall remain in full force and effect.

APPROVED BY:



Rick T. Sogawa
Procurement Officer





June 1, 2015

Hawaii Engineering Group, Inc
Executive Center
1088 Bishop Street, Suite #2506
Honolulu, Hawaii 96813

Attention: Mr. Ather R. Dar, S.E.

Subject: **LETTER REPORT
LIMITED HAZARDOUS MATERIALS SURVEY
SPENCER HOUSE, 1035 SPENCER STREET
HONOLULU, HAWAII 96822**

The purpose of this Letter Report is to document the limited hazardous materials survey activities recently completed by EnviroServices & Training Center, LLC (ETC) for Spencer House located at 1035 Spencer Street, Honolulu, Hawaii 96822 (Subject Site). The sampling activities were limited to areas that will be affected by the decorative block and concrete masonry unit railing and spalling repair project as specified to ETC by Ms. Shereen El-Kadi of Hawaii Engineering Group, Inc.

SCOPE OF WORK

ETC performed the following scope of work:

- Mobilized a State of Hawaii Department of Health (DOH)/Environmental Protection Agency (EPA) certified Asbestos Hazard Emergency Response Act (AHERA) building inspector and lead risk assessor to the Subject Site;
- Collected six (6) bulk samples of suspected asbestos containing material (ACM);
- Submitted three (3) samples to EMC Labs, Inc. (EMC) and three (3) samples to Hawaii Analytical Laboratory, LLC (HAL) for asbestos analysis via EPA Method 600/R-93/116;
- Collected two (2) paint chip samples from the Subject Site;
- Submitted the two (2) paint chip samples to EMC for lead analysis via EPA Method 7420; and
- Provided this Letter Report documenting ETC's methodologies, findings, and recommendations.

WORK ACTIVITIES

Asbestos

On December 9, 2015 and May 24, 2016, ETC personnel collected a total of six (6) samples of suspected asbestos containing materials for asbestos analysis. The suspected ACM samples were collected from various areas at the Subject Site in accordance with EPA guidelines and recommendations.

The suspected ACM were wetted with amended water before sample collection. A small piece was then carefully cut out and placed into a labeled re-sealable plastic bag. The sampling equipment was cleaned between each sample collection to avoid cross-contamination between samples. The approximate quantity of each suspected asbestos-containing material was noted. Sample locations were randomly selected in accordance with EPA protocols and recommendations.

All samples were properly logged and recorded following strict chain of custody procedure. Samples were submitted to EMC in Phoenix, Arizona and HAL in Honolulu, Hawaii for analysis by polarized light microscopy in accordance with EPA Method 600/R-93/116. EMC and HAL are accredited for bulk asbestos analysis through successful participation in the National Voluntary Lab Accreditation Program (NVLAP).

Lead Paint

On December 9, 2015, ETC personnel collected two (2) paint chip samples from painted surfaces at the Subject Site for total lead analysis. The samples were collected in accordance with EPA guidelines and recommendations.

The samples were properly logged and recorded following strict chain of custody procedure and submitted to EMC in Phoenix, Arizona for analysis in accordance with EPA Method 7420.

RESULTS

Asbestos

None of the samples collected contained levels of asbestos above the regulatory limit of 1%. The results of this analysis are contained in Table 1.

TABLE 1
ASBESTOS SURVEY RESULTS
SPENCER HOUSE

<i>Sample ID</i>	<i>Material Description</i>	<i>Condition</i>	<i>Category</i>	<i>Friability</i>	<i>Analysis Layer</i>	<i>Asbestos Content</i>
4078-AB-01	Decorative Block Railing Grout	Damaged	Misc.	None Friable I	All	None Detected
4078-AB-02						None Detected
4078-AB-03						None Detected
15078-A01	White Popcorn Ceiling	Damaged	Surfacing	Friable	All	Chrysotile 12%
15078-A02						None Detected
15078-A03						None Detected

Lead Paint

Laboratory results indicated that none of the sampled paint surfaces contained lead in excess of the EPA/United States Department of Housing and Urban Development (HUD) guideline of 0.5 percent by weight defining Lead-Based Paint (LBP). Detectable levels of lead less than the EPA/HUD guideline were found in the sampled paints, classifying them as Lead-Containing Paint (LCP). These results are summarized in Table 2.

TABLE 2
LEAD PAINT SURVEY RESULTS
SPENCER HOUSE

<i>Sample ID</i>	<i>Location</i>	<i>Color</i>	<i>Description</i>	<i>Condition</i>	<i>Reporting Limit (% Pb by weight)</i>	<i>Lead Concentration (% Pb by weight)</i>
4078-Pb-01	Building Exterior	Brown	Metal Railings	Fair	0.010	0.049
			CMU Walls			
4078-Pb-02	Building Exterior	Red	Concrete Walkway	Good	0.010	0.104

RECOMMENDATIONS

Based on ETC's visual inspection of the facility, inventory of potentially hazardous materials, and laboratory data, ETC recommends the following:

- Manage and/or remove and dispose of hazardous and regulated materials in accordance with applicable local, state, and federal regulations, prior to renovation and/or demolition activities that may disturb these materials.
- All friable ACM must be removed and disposed of by a qualified asbestos abatement contractor. Friable ACM is defined as those materials that may be crumbled, pulverized, or otherwise damaged by hand pressure.
- Remove and dispose of all loose and flaking (poor condition) lead-containing paint that may be disturbed during renovation/demolition activities in accordance with applicable local, state, and federal regulations. Note that conditions of paint may have changed since the time of this survey.
- Abatement and demolition contractor(s) must take appropriate measures to comply with applicable EPA, Occupational Safety and Health Administration (OSHA) and Hawaii Occupational Safety and Health (HIOSH) regulations pertaining to the handling of ACM and lead-containing materials and worker protection.
- Have air monitoring conducted for airborne asbestos fibers and lead dust by qualified personnel during any abatement and general renovation/demolition activities in areas that were determined to contain this contaminant.



LIMITATIONS

ETC's findings, conclusions, and recommendations are based on research, site observations, and/or analytical data, which were gathered and accessible at the time and location of this project. We make no guarantee or warranty; either expressed or implied, except that our services are consistent with good commercial or customary practices designed to conform to acceptable industry standards. ETC has completed this project in accordance with the Guidelines, Standards, and Code of Ethics adopted by members of the American Industrial Hygiene Association, and American Conference of Governmental Industrial Hygienists.

This report is exclusively for the use and benefit of Hawaii Engineering Group, Inc. Reuse of the information contained herein by any other party will be at such party's own risk.

Thank you for allowing ETC to serve you. Please contact us at 839-7222 with any questions.

Sincerely,

ENVIROSERVICES & TRAINING CENTER, LLC

A handwritten signature in black ink that reads "Celena Freitas". The signature is written in a cursive style with a large initial "C" and a long, sweeping underline.

Celena Freitas

State of Hawaii Asbestos Inspector Certification # HIASB-3180

State of Hawaii/EPA Lead Risk Assessor Certification # PB-0432

Attachment: Laboratory Results
Photographic Documentation

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0163920

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client: ENVIROSERVICES & TRAINING CENTER Job# / P.O. #: 15-4078
Address: 505 WARD AVE, STE 202 Date Received: 12/10/2015
HONOLULU HI 96814 Date Analyzed: 12/14/2015
Collected: 12/09/2015 Date Reported: 12/14/2015
Project Name: SPENCER HOUSE EPA Method: EPA 600/R-93/116
Address: Submitted By: CYNTHIA LEWIS
Collected By:

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents
0163920-001 4078-AB-01		LAYER 1 Decorative Block Railing Grout, Off White	No	None Detected	Carbonates Gypsum Quartz Binder/Filler 100%
		LAYER 2 Paint, Brown	No	None Detected	Carbonates Gypsum Quartz Binder/Filler 100%
0163920-002 4078-AB-02		LAYER 1 Decorative Block Railing Grout, Off White	No	None Detected	Carbonates Gypsum Quartz Binder/Filler 100%
		LAYER 2 Paint, Brown	No	None Detected	Carbonates Gypsum Quartz Binder/Filler 100%
0163920-003 4078-AB-03		LAYER 1 Decorative Block Railing Grout, Off White	No	None Detected	Carbonates Gypsum Quartz Binder/Filler 100%
		LAYER 2 Paint, Brown	No	None Detected	Carbonates Gypsum Quartz Binder/Filler 100%

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0163920

Bulk Asbestos Analysis by Polarized Light Microscopy

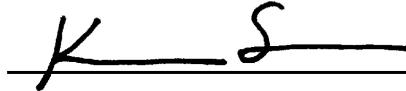
NVLAP#101926-0

Client:	ENVIROSERVICES & TRAINING CENTER	Job# / P.O. #:	15-4078
Address:	505 WARD AVE, STE 202	Date Received:	12/10/2015
	HONOLULU HI 96814	Date Analyzed:	12/14/2015
Collected:	12/09/2015	Date Reported:	12/14/2015
Project Name:	SPENCER HOUSE	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	CYNTHIA LEWIS
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents
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Analyst - Kurt Kettler



Signatory - Lab Manager - Ken Scheske

Distinctly stratified, easily separable layers of samples are analyzed as subsamples of the whole and are reported separately for each discernible layer. All analyses are derived from calibrated visual estimate and measured in area percent unless otherwise noted. The report applies to the standards or procedures identified and to the sample(s) tested. The test results are not necessarily indicated or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. These reports are for the exclusive use of the addressed client and that they will not be reproduced wholly or in part for advertising or other purposes over our signature or in connection with our name without special written permission. The report shall not be reproduced except in full, without written approval by our laboratory. The samples not destroyed in testing are retained a maximum of thirty days. The laboratory measurement of uncertainty for the test method is approximately less than 1 by area percent. Accredited by the National Institute of Standards and Technology, Voluntary Laboratory Accreditation Program for selected test method for asbestos. The accreditation or any reports generated by this laboratory in no way constitutes or implies product certification, approval, or endorsement by the National Institute of Standards and Technology. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. Polarized Light Microscopy may not be consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials.

CHAIN OF CUSTODY

EMC Labs, Inc.
 9830 S. 51st St., Ste B-109
 Phoenix, AZ 85044
 (800) 362-3373 Fax (480) 893-1726

LAB#: 163920
 TAT: 2 days
 Rec'd: DEC 10 P.M.

COMPANY NAME: ENVIROSERVICES & TRAINING CENTER, LLC
505 Ward Ave. Suite #202
Honolulu, HI 96814
 CONTACT: Cynthia Lewis
 Phone/Fax: (808) 839-7222 Ext. 238
 Email: clewis@gotoetc.com

BILL TO: (If Different Location)
Trina Oshiro

Now Accepting: **VISA - MASTERCARD**

Price Quoted: \$ _____ / Sample \$ _____ / Layers

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. **TURNAROUND TIME:** [Same Day RUSH] [1-Day] [2-Day] [3-4-5 Day] [6-10 Day]

****Prior confirmation of turnaround time is required

****Additional charges for rush analysis (please call marketing department for pricing details)

****Laboratory analysis may be subject to delay if credit terms are not met

2. **TYPE OF ANALYSIS:** [Bulk-PLM] [Air-PCM] [Lead] [Point Count] [Fungi: AOC, W-C, Bulk, Swab, Tape]

3. **DISPOSAL INSTRUCTIONS:** [Dispose of samples at EMC] / [Return samples to me at my expense]
 (If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. Project Name: **SPENCER HOUSE**
 P.O. Number: _____ Project Number: 15-4078

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS		
					ON	DPH	FLOW RATE
1	4078-AB-01	12/09/15	CMU / Decorative block railing grout	Yes			
2	4078-AB-02	12/09/15	CMU / Decorative block railing grout	Yes			
3	4078-AB-03	12/09/15	CMU / Decorative block railing grout	Yes			

SPECIAL INSTRUCTIONS: PLEASE STOP AT FIRST POSITIVE

Sample Collector: (Print) Cynthia Lewis / VCL-ROBERTS (Signature) [Signature]
 Relinquished by: CL Date/Time: 12/09/15 Received by: Diana Federico Date/Time: 12/10/15
 Relinquished by: Diana Federico Date/Time: 12/10/15 Received by: [Signature] Date/Time: 12/10/15
 Relinquished by: _____ Date/Time _____ Received by: _____ Date/Time _____

** In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Phoenix, Arizona and prevailing party will be entitled to attorney's fees and court costs.



9830 South 51st Street, Suite B-109 / PHOENIX, ARIZONA 85044 / 480-940-5294 or 800-362-3373 / FAX 480-893-1726
emclab@emclabs.com

LEAD (Pb) IN PAINT CHIP SAMPLES
EMC SOP METHOD #L01/1 EPA SW-846 METHOD 7420

EMC LAB #: L57950		DATE RECEIVED: 12/10/15			
CLIENT: Enviroservices & Training Center, LLC		REPORT DATE: 12/15/15			
CLIENT ADDRESS: 505 Ward Ave. Suite #202 Honolulu, HI 96814		DATE OF ANALYSIS: 12/14/15			
PROJECT NAME: Spencer House		P.O. NO.:			
PROJECT NO.: 15-4078					
EMC # L57950-	SAMPLE DATE /15	CLIENT SAMPLE #	DESCRIPTION	REPORTING LIMIT (%Pb by weight)	%Pb BY WEIGHT
1	12/09	4078-Pb-01	Exterior Brown Paint on Metal Railing, CMU Railings and Walls	0.010	0.049
2	12/09	4078-Pb-02	Exterior Red Paint on Concrete Walkways	0.010	0.104

^ = Dilution Factor Changed * = Excessive Substrate May Bias Sample Results BRL = Below Reportable Limits # = Very Small Amount Of Sample Submitted, May Affect Result

This report applies to the standards or procedures identified and to the samples tested only. The test results are not necessarily indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. Unless otherwise noted, all quality control analyses for the samples noted above were within acceptable limits.

Where it is noted that a sample with excessive substrate was submitted for laboratory analysis, such analysis may be biased. The lead content of such sample may, in actuality, be greater than reported. EMC makes no warranty, express or implied, as to the accuracy of the analysis of samples noted to have been submitted with excessive substrate. Resampling is recommended in such situations to verify original laboratory results.

These reports are for the exclusive use of the addressed client and are rendered upon the condition that they will not be reproduced wholly or in part for advertising or other purposes over our signature or in connection with our name without special written permission. Samples not destroyed in testing are retained a maximum of sixty (60) days.

ANALYST: 
Jason Thompson

QA COORDINATOR: 
Kurt Kettler

CHAIN OF CUSTODY
 EMC Labs, Inc.
 9830 S. 51st St., Ste B-109
 Phoenix, AZ 85044
 (800) 362-3373 Fax (480) 893-1726

LAB#: 257950
 TAT: 3 days
 Rec'd: 12/10/15

COMPANY NAME: ENVIROSERVICES & TRAINING CENTER, LLC
505 Ward Ave. Suite #202
Honolulu, HI 96814
 CONTACT: Cynthia Lewis
 Phone/Fax: (808) 839-7222 Ext. 238
 Email: clewis@gotoetc.com

BILL TO: (If Different Location)
Trina Oshiro

Now Accepting: **VISA - MASTERCARD** Price Quoted: \$ _____ / Sample \$ _____ / Layers

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. **TURNAROUND TIME:** [Same Day RUSH] [1-Day] (2-Day) [3-4-5 Day] [6-10 Day]

****Prior confirmation of turnaround time is required

****Additional charges for rush analysis (please call marketing department for pricing details)

****Laboratory analysis may be subject to delay if credit terms are not met

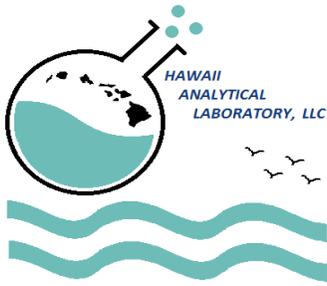
2. **TYPE OF ANALYSIS:** [Bulk-PLM] [Air-PCM] (Lead) [Point Count] [Fungi: AOC, W-C, Bulk, Swab, Tape]

3. **DISPOSAL INSTRUCTIONS:** (Dispose of samples at EMC) / [Return samples to me at my expense]
 (If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. Project Name: SPENCER HOUSE							
P.O. Number: _____			Project Number: 15-4078				
EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS		
					ON	OFF	FLOW RATE
1	4078-Pb-01	12/09/15	Exterior brown paint on metal railing, CMU railings and walls	Yes			
2	4078- Pb-02	12/09/15	Exterior red paint on concrete walkways	Yes			

SPECIAL INSTRUCTIONS: _____
 Sample Collector: (Print) Cynthia Lewis (Signature) [Signature]
 Relinquished by: CL Date/Time: 12/09/15 Received by: [Signature] Date/Time: 12/10/15
 Relinquished by: [Signature] Date/Time: 12/10/15 Received by: [Signature] Date/Time: 12/10/15
 Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

** In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Phoenix, Arizona and prevailing party will be entitled to attorney's fees and court costs.



**Hawaii Analytical
Laboratory
ANALYTICAL REPORT**

Tuesday, May 31, 2016

3615 Harding Avenue, Ste. 308, Honolulu, Hawaii 96816
Phone: (808) 735-0422

EnviroServices & Training Center, LLC
505 Ward Avenue, Suite 202

Phone Number: (808) 839-7222
Facsimile: (808) 839-4455
Email:

Honolulu HI 96814

Lab Job No: 20163213
Date received: 5/24/2016
Your Project: 15-4078, 1035 Spencer Street, 5/24/2016

Bulk Asbestos Determination

Sample No.	Your Sample Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
201616652	15078-A01 <u>Layer</u> <u>White popcorn ceiling</u>	Yes	Chrysotile	12	None Detected		Calcite + quartz + polystyrene	5/27/2016
Comments								
201616653	15078-A02 <u>Layer</u> <u>Not analyzed due to stop analysis request.</u>							
Comments								
201616654	15078-A03 <u>Layer</u> <u>Not analyzed due to stop analysis request.</u>							
Comments								

Hawaii Analytical Laboratory is a NIST NVLAP accredited laboratory (NVLAP Lab Code 200655-0).
Hawaii Analytical Laboratory is an analytical facility accredited in accordance with the recognized ISO/ IEC 17025:2005.

EnviroServices & Training Center, LLC
505 Ward Avenue, Suite 202

Phone Number: (808) 839-7222
Facsimile: (808) 839-4455
Email:

Honolulu HI 96814

Lab Job No: 20163213
Date received: 5/24/2016
Your Project: 15-4078, 1035 Spencer Street, 5/24/2016

General Comments

The bulk sample[s] analysis subject of this analytical report were conducted in general accordance with the procedures outlined in the United States Environmental Protection Agency's "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (EPA-600/M4-82-020, Dec. 1982) and/ or "Method for Determination of Asbestos in bulk Building Materials" (EPA-600/R-93-116, July 1993). The analysis of each bulk sample relates only to the material examined, and may or may not represent the overall composition of its original source. Floor tile and other resinously bound materials, when analyzed by the EPA methods referenced above may yield false negative results because of limitations in separating closely bound fibers and in detecting fibers of small length and diameter. Alternative methods of identification, including Transmission Electron Microscopy (TEM) may or may not be applicable and suffer from serious analytical limitations of their own including a lack of standardized or accredited methodology. We utilize calibrated visual area estimation on a routine basis and do not conduct point counting unless specifically requested to do so. Estimated error for the visual determinations presented are 50% relative (1 to 5%); 25% relative (6 to 25%) and 20% (>26% v/v). Whole sample percentage results are estimated on the basis of the relative "volume" of each readily discernable layer. We will not separate layers which in our opinion are not readily discernable. This report is not to be duplicated except in full without the expressed written permission of Hawaii Analytical Laboratory. This report must not be used by the client to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government. Unless otherwise indicated, the sample condition at the time of receipt was acceptable.

Results and Symbols Definitions

None Detected = asbestos was not observed in the sample.

Tr = Trace (<1%), i.e., asbestos WAS detected BELOW our quantifiable limits of 1.0%. Point counting and gravimetric reduction, where applicable, are recommended to improve accuracy.

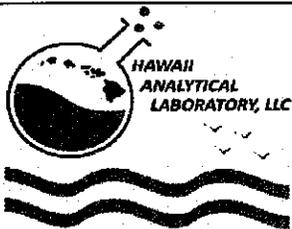
> This testing result is greater than the numerical value listed.

< This testing result is less than the numerical value listed.



Ms. Jennifer Hsu Liao
Laboratory Manager

Hawaii Analytical Laboratory is a NIST NVLAP accredited laboratory (NVLAP Lab Code 200655-0).
Hawaii Analytical Laboratory is an analytical facility accredited in accordance with the recognized ISO/ IEC 17025:2005.



3615 Harding Avenue, Suite 308
 Honolulu, HI 96816
 Ph: 808-735-0422 - Fax: 808-735-0047
 www.analyzehawaii.com

New Client?

Report To* : Celena Freitas
 Company : ENVIRO SERVICES
 Address* : 505 Ward Avenue, Suite 200
Honolulu, Hawaii 96814
 Phone / Cell No.* : 808 839 1222
 Report results to : Cfreitas@gotoetc.com
 via email or fax :

Invoice To* : _____
 Company : _____
 Address* : _____
 Phone / Cell No.* : _____
 Purchase Order No. : _____
 Email Invoice To : _____

Need Results By*:

- 5 Working Days (WD)
- 4 WD
- 3 WD
- 2 WD
- 24 hours
- 6 hours or less
- 4 hours or less
- 1-2 hours

Site/Project Name: 1035 Spencer Street

Client Project No.: 15-4078

Sampled By: S. Chan

Comments / Special Instructions: verbal results needed?

PLM POSITIVE STOP Instructions:
 Positive stop per SAMPLE
 Positive stop per LAYER

LAB USE ONLY
 Lab Report No.: **20163213**

Sample Identification / Description* (Maximum of 30 Characters)	Date Sampled* (mm/dd/yy)	Collection Medium	Sample Area / Air Volume	Analysis Requested*	Method Reference	Lab ID
15078-A01	5/24/16	Bulk		PM		201616652
" A02	↓	↓		↓		201616653
" A03	↓	↓		↓		201616654

Relinquished By (Print and Sign) <u>STEVEN K CHAN</u>	Date/Time <u>5/24/16 1515</u>	Received By (Print and Sign) <u>Sharyse Hagino / Sharyse A</u>	Date/Time <u>05-24-16 P03:09</u>
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Sample description can be paint chips, concrete, specific sample collection location, etc...
 If matrix is 'soil', please specify if it is a FOREIGN SOIL SAMPLE (outside Hawaii) in the comment section.
 All samples submitted are subject to Hawaii Analytical Laboratory terms and conditions.
 *Required fields, failure to complete these fields may result in a delay in your samples being processed.



15078-A01: White Popcorn Ceiling



4078-Pb-01: Brown Paint on Metal Railings and CMU,
Decorative Block Walls



4078-Pb-02: Red Paint on Concrete Walkway

DIVISION 13 - SPECIAL CONSTRUCTION

SECTION 13281 – REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIALS

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION

- A. The Contractor shall furnish all labor, materials, and equipment necessary to carry out the safe removal of Asbestos-Containing Material (ACM) from the *Spencer House located at 1035 Spencer Street, Honolulu, Oahu, Hawaii*. The Contractor shall perform all work, including the removal, transportation, and disposal of ACM, in accordance with applicable regulatory requirements to include all incidental and pertinent operations. The asbestos work shall include the removal of the asbestos-containing white popcorn ceiling material located in the Parking Lot.
- B. It shall be the responsibility of the Contractor to verify the exact areas and quantities identified as asbestos-containing and verify the total work and/or effort to remove identified ACM to accommodate the planned renovation activities.
- C. Contractor shall ensure that employees and subcontractors involved in disturbing or removing hazardous materials have access to relevant information, understand and control the asbestos hazards, and avoid exposure to self, site workers, and the public. Refer to Section 01715 EXISTING CONDITIONS and Section 13288 TESTING/AIR MONITORING for Contractor responsibilities involving compliance.
- D. In performing this project, all possible safeguards, precautions and protective measures should be utilized to prevent exposure of any individual to asbestos particulates.
- E. In general, the principal items of work shall be as follows:
 - 1. Protection of all nearby occupants, visitors, and the general public.
 - 2. Preparation of work areas.
 - 3. Removal of ACM.
 - 4. Proper disposal of ACM and asbestos-contaminated waste generated during the project (with documentation).
 - 5. Final cleanup, visual clearance, and clearance air sampling.

1.2 COORDINATION WITH OTHER SECTIONS:

- A. See specification 13282 – LEAD-CONTAINING PAINT CONTROL MEASURES.
- B. See specification section 13288 – TESTING AND AIR MONITORING.

1.3 COORDINATION

Masonry Stabilization & Repairs at Spencer House

Removal and Disposal of
Asbestos-Containing Material

The Abatement Contractor shall coordinate the removal of ACM with the State and/or the State's authorized Representative. The Abatement Contractor shall also submit the proper notification to the State of Hawaii Department of Health (DOH) as indicated in Part 1, Subpart 1.04 SUBMITTALS, A, number 2.

1.4 **SUBMITTALS**

- A. **Pre-Project Submittals:** The following submittals must be provided within ten calendar days from the award to the State and/or their Authorized Representative, unless otherwise specified:
1. **Detailed Work Plan:** The plan shall state the actual start and completion dates for each phase of the asbestos removal work and other work specified. The schedule shall be formulated on a day/week basis. The schedule shall be updated weekly, with copies submitted to the State and/or their Authorized Representative. The Work Plan shall indicate the means and methods the Abatement Contractor intends to utilize to safely abate the ACM (including engineering controls, safety precautions, removal procedures, equipment used, etc.). The Work Plan shall comply with local, state, and federal regulatory requirements and this specification.
 2. **Notices:** As early as possible, but not later than 20 working days before commencement of any on-site project activity, submit a written "10-day notification" in accordance with the State of Hawaii, Hawaii Administrative Rules (HAR) Title 11, Department of Health, Chapter 501 Asbestos Requirements Standard for Demolition and Renovation Section 11-501-7, of the proposed asbestos abatement work with copies to State of Hawaii, Department of Health, Indoor Air Quality and Radiological Health Branch, 591 Ala Moana Boulevard, Room 133, Honolulu, Hawaii 96813. Payment of the notification fee(s) shall be the responsibility of the Contractor.
- B. **Permits:** Submit copies of all permits and arrangements for transportation and disposal of asbestos-containing or contaminated materials.
- C. **Manufacturer's Data:** Submit copies of manufacturer's specifications, material safety data sheets (MSDS), installation instructions and field test procedures for each material, and all equipment related to asbestos handling and abatement (e.g., chemical mastic remover), including other data as may be required to show compliance with these specifications and proposed uses within ten consecutive calendar days from the award. Indicate by transmittal form that a copy of each installation instruction has been distributed to the installer.
- D. **Samples:** Submit samples of the following items for approval prior to ordering materials:
1. **Asbestos Encapsulant(s):** Submit copies of manufacturer's literature including all laboratory data, MSDS, and application instructions.
 2. **Plastic Sheeting:** Three 8-1/2- by 11-inch pieces of each thickness and type with labels indicating actual mil thickness.
 3. **Surfactant:** Submit copies of manufacturer's literature, including all laboratory data, MSDS, mixing and application instructions.
 4. **Tapes and Adhesives:** Submit Copies of manufacturer's literature including all laboratory data.

5. Warning Labels and Signs: Submit copies of examples of all required signage.
 6. Protective Clothing: Submit copies of manufacturer's literature on all protective clothing.
 7. Respirator Equipment: Submit copies of manufacturer's literature on all respirator equipment.
- E. Documentation For Instruction: Submit to the State and/or their Authorized Representative, documentation that each and every individual including foremen, supervisors, other company personnel or agents, and any other individual who may be exposed to airborne asbestos fibers, who may be responsible for any aspects of abatement activities, or who is allowed or permitted to enter areas where such exposure may occur, is AHERA-trained (and current) which includes instruction on the hazards and health effects of asbestos exposure. Also submit to the State and/or their Authorized Representative, documentation that the personnel stated above have had instructions on the nature of the activities and operations which create a risk of asbestos exposure and the necessary protective steps, on use and fitting of respirators (in accordance with qualitative procedures as detailed in HIOSH 12-145, Qualitative and Quantitative Fit Testing Procedures), on protective clothing, on entry and exit from the work areas under normal and emergency conditions, on all aspects of work procedures and protective measures, and on all provisions of HIOSH 12-145, and that each and every employee understands this instruction. This documentation shall be an outlined format of the instruction and shall be signed by all employees to be engaged on this project and by all individuals before being allowed within the project site and must include acknowledgment and an assumption of the potential risk of exposure by that individual and a release of liability of the State and/or their Authorized Representative for any such exposure. The Abatement Contractor shall be responsible for keeping the documentation up to date and subsequent submittals to the State and/or their Authorized Representative before any additional employee or individual, not currently on this list, is allowed within the project site.
- F. State of Hawaii Certification: The Abatement Contractor shall submit to the State and/or their Authorized Representative, training documentation and certification (i.e., copies of current State of Hawaii asbestos certification card) that each and every individual, including foremen, supervisors, other company personnel or agents, and any other individuals who may be exposed to airborne asbestos fibers, who may be responsible for any aspects of abatement activities, or who is allowed or permitted to enter areas where such exposure may occur has a valid and current certification from the Director as required in the State of Hawaii, Title 11, HAR, Department of Health, Chapter 504, Asbestos Abatement Certification Program, Section 11-504-4 Certification Requirements. In addition, the Abatement Contractor's personnel on site shall have available at all times, their personal State of Hawaii Asbestos Certification ID card. The validity of this card may be checked at anytime during the project by the State and/or their Authorized Representative or any other authority governing this project.
- G. Physician's Documentation: Submit to the State and/or their Authorized Representative, documentation from a physician that all employees or agents who may be exposed to airborne asbestos have been medical monitored to determine whether they are physically capable of working while wearing the respirator required without suffering

adverse health effects. In addition, documentation that all individuals permitted within the project site have received medical monitoring or had such monitoring made available to them as required in HIOSH 12-145-11(a). The Abatement Contractor must be aware of and provide information to the examining physician about unusual conditions in the work place environment (e.g., high temperatures, humidity, chemical contaminants) that may have an impact on the employee's ability to perform work activities. The Abatement Contractor shall keep and make available to all affected individuals a record and the results of such examinations.

- H. Hazard Communication Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Hazard Communication Program prepared in accordance with all applicable laws.
- I. Safety Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Health and Safety Plan prepared in accordance with all applicable laws.
- J. HEPA Vacuums: Submit the manufacturer's certification that vacuums conform to ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems as applicable to this project.
- K. Air Supply Equipment and Respirators: Submit certification that respirators meet all requirements of HIOSH and the EPA. Document NIOSH approval of all respiratory protective devices utilized on site. Include the manufacturer's certification of HEPA filtration capabilities for all cartridges and filters.
- L. Rental Equipment: When rental equipment is to be used in abatement areas or to transport asbestos-containing waste, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the State and/or their Authorized Representative.
- M. Post-Project Submittals (M-P): Maintain a log of all personnel other than the Abatement Contractor's employees and agents who enter the work area while asbestos operations are in progress until after final clearance is received that the work area is suitable for re-occupancy. The log shall contain the following information as a minimum:
 - 1. Date of visit.
 - 2. Visitor's name, employer, business address, and telephone number.
 - 3. Time of entry and exit from work area.
 - 4. Purpose of visit.
 - 5. Type of protective clothing and respirator worn.
 - 6. Certificate of release signed and filed with the Abatement Contractor.
- N. Daily Log: Maintain a daily log documenting the dates and times of, but not limited to, the following items:
 - 1. Meetings: purpose, attendees, brief discussion.

2. Visitations authorized and unauthorized at the job site.
 3. Special or unusual events, e.g., equipment failures, accidents.
 4. Air monitoring tests and test results.
 5. Documentation of the Abatement Contractor's completion of the following:
 - a. Inspection of work area preparation prior to start of removal and daily thereafter.
 - b. Progress of the work.
 - c. Abatement Contractor's inspections prior to areas from which such materials have been removed.
 - d. Removal of waste materials from work area.
 - e. Decontamination of equipment.
 - f. Abatement Contractor's final inspection/final visual inspection.
- O. Waste Disposal Manifest Forms: Submit copies of all transport manifests, trip tickets and disposal receipts for all asbestos-containing waste materials removed from the work area during the abatement process to the State and/or their Authorized Representative.
- P. Final payment will not be made until copies of all submittals have been furnished to the State and/or their Authorized Representative.

1.5 PRODUCT HANDLING

Delivery and Storage of Materials: Deliver materials to the site in original packages, containers or bags fully identified with the manufacturer's name brand and lot number. Store materials in a dry, well-ventilated space as approved by the State. Material that becomes contaminated with asbestos shall be disposed of in accordance with applicable regulations.

1.6 PROTECTION

- A. Site Security: The work area is to be restricted only to authorized, trained, and protected personnel. These may include the Abatement Contractor's employees, the Contractor's employees, the State and/or their Authorized Representative, local inspectors and any other designated individuals. A list of authorized personnel shall be established prior to commencing with work activities for this project.
1. Entry to the work area by unauthorized individuals shall not be permitted without the prior approval of the State and/or their Authorized Representative and any such entry shall be immediately reported to the State and/or their Authorized Representative by the Abatement Contractor.
 2. A detailed Visitor's Log shall be maintained daily, throughout the duration of the project.

3. The Abatement Contractor shall have control, subject to approval of the State and/or their Authorized Representative, of security in the work area and in proximity of the Abatement Contractor's equipment and materials.
- B. Site Protection and Safety: As a minimum, follow the applicable safety requirements of the EPA, HIOSH, OSHA and NIOSH. Take all necessary precautions to ensure there is no asbestos contamination to areas outside of the designated work area.
- C. Safeguarding of Property: The Abatement Contractor shall take necessary precautions to safeguard their work and also the property of the State during the execution of this contract. The Abatement Contractor shall be responsible for, and make good on, any and all damages caused by employee negligence.

1.7 **ABBREVIATIONS**

- A. AHERA: Asbestos Hazard Emergency Response Act.
- B. ANSI: American National Standards Institute, Inc.
- C. ASTM: American Society for Testing and Materials.
- D. CFR: Code of Federal Regulations.
- E. HAR: Hawaii Administrative Rules.
- F. HIOSH: Division of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii.
- G. EPA: U.S. Environmental Protection Agency.
- H. NESHAPS: National Emission Standards for Hazardous Air Pollutants.
- I. NIOSH: National Institute for Occupational Safety and Health.
- J. OSHA: Occupational Safety and Health Administration.

1.8 **GENERAL REQUIREMENTS**

- A. In performing the asbestos abatement activities, all possible safeguards, precautions, and protective measures should be utilized to prevent exposure of any individual to asbestos fibers.
- B. Furnish Abatement Contractor's certification, within ten (10) calendar days from award, indicating the Abatement Contractor is experienced with the EPA, OSHA and HIOSH regulations related to asbestos removal, transportation, and disposal.
- C. Furnish employee certifications, within ten (10) calendar days from award, that employees have had instructions on the dangers of asbestos exposure, on respirator use, and decontamination, from an EPA-approved training facility, as required by

AHERA Regulations 40 CFR 763, Appendix C to Subpart E (worker training), April 30, 1987.

- D. Abatement Contractor shall examine and have at all times in his possession at his office (one copy) and in view at each job-site office (one copy) a current issue of the following publications:
1. State of Hawaii: Occupational Safety and Health Standards; Title 12, Subtitle 8, Part 3, Chapter 145, Asbestos.
 2. State of Hawaii: Hawaii Administrative Rules (HAR) Chapter 11-501, 503, and 504.
 3. Title 29, Code of Federal Regulations, Part 1926 Construction Industry, Occupational Safety and Health Administration (OSHA), U.S. Department of Labor.
 4. State of Hawaii: Occupational Safety and Health Standards, Title 12, Subtitle 8, Part 1.
 5. State of Hawaii: Occupational Safety and Health Standards, Title 12, Chapter 203 - Hazard Communication.
 6. Title 40, Code of Federal Regulations, Part 61, Subparts A and M, National Emission Standards for Hazardous Air Pollutants.
 7. Guidance for Controlling Asbestos-Containing Materials in Buildings (purple book).
 8. Title 34, Code of Federal Regulations, Part 231, Appendix C, Procedures for Containing and Removing Building Materials Containing Asbestos.
 9. ANSI Z88.80 Practice for Respiratory Protection.
 10. EPA, Model Accreditation Plan, 40 CFR Part 763 Subpart E, Appendix C.
- E. The Abatement Contractor shall comply with the above requirements and any applicable Federal, State and/or local regulations. Where conflict or any inconsistency among requirements or with this specification exists, the more stringent requirements shall apply. Additional costs to the Abatement Contractor due to ignorance of the above requirements and any applicable Federal, State and local regulations, shall not be paid by the State.

- F. All regulations shall govern over these specifications, except that any more stringent specification or specification providing greater protection against asbestos exposure, injury, loss or liability shall control to the extent permitted by regulation. Any questions regarding conflict or inconsistency between specifications and/or regulations should be directed to the State and/or their Authorized Representative.
- G. Whenever approval of the State and/or their Authorized Representative is required prior to proceeding with other work, the following shall be complied with:
 - 1. The Abatement Contractor shall allow the State and/or their Authorized Representative 24-hours from notification to respond to the request for inspection.
 - 2. The Abatement Contractor shall designate one person (either a foreman or superintendent) who will be authorized to request inspections. The name of the designated person shall be submitted in writing to the State and/or their Authorized Representative prior to commencing the work. Requests from any other person will not be considered an official request.
 - 3. The designated person, when requesting inspection, shall provide the following information:
 - a. Name of caller.
 - b. Building areas or rooms to be inspected.
 - c. Work phase of inspection, as specified.
- H. The Abatement Contractor shall provide all required protective barriers to isolate the areas where asbestos disturbance is taking place from the surrounding areas and other portions of the building.

1.9 PERSONNEL PROTECTION REQUIREMENTS

- A. The Abatement Contractor acknowledges that he alone is responsible for instruction and enforcement of personal protection requirements and that these specifications provide only a minimum acceptable standard.
- B. Provide workers with personally issued and marked respiratory equipment approved by NIOSH and accepted by OSHA and HIOSH. Work area preparation shall be performed, at a minimum, in half-mask dual cartridge respirators equipped with HEPA cartridges approved for asbestos by NIOSH. All removal work related to the removal and bagging of asbestos-containing materials shall be performed in, at a minimum, half-face, dual cartridge respirators equipped with HEPA cartridges approved for asbestos by NIOSH.
- C. Loading and Unloading of Double-Bags at the Project Site and Landfill: This task will be performed in, at a minimum, half-face dual-cartridge respirators equipped with HEPA cartridges that are NIOSH approved for asbestos.

- D. Other: Should any condition, for any reason, be encountered where the exposure level exceeds the action levels provided by the State and/or their Authorized Representative and/or regulatory standards, the Abatement Contractor shall stop work and determine the causes of the excessive levels. Should the action level continue to be exceeded, the Abatement Contractor shall stop work. Work will not be resumed until approval is received from the State and/or their Authorized Representative.
- E. Beards: Prohibit beards that interfere with the seal of the respirator face piece.
- F. Provide workers with sufficient sets of disposable protective full body clothing consisting of material impenetrable by asbestos fibers and of the proper size for each individual to accommodate movement without tearing. Such clothing shall consist of full-body coveralls, footwear, gloves, and headgear. Provide hard hats as required by applicable safety regulations. Disposable clothing shall not be allowed to accumulate and shall be disposed of as asbestos-contaminated waste. Protective clothing shall be worn by all personnel within the work area from the start of the removal through post-removal encapsulation work, until the Abatement Contractor has received acceptance of the asbestos-containing material removal and post-removal encapsulation work.
- G. No visitors shall be allowed in work areas, except as authorized by the State and/or their Authorized Representative. Provide authorized visitors with suitable disposable protective full-body clothing consisting of material impenetrable by asbestos fibers and of the proper size for each individual to accommodate movement without tearing. Such clothing shall consist of full-body coverall, footwear, gloves and headgear, including hard hat when required and insulated rubber boots or equal. It shall be the authorized visitor's responsibility to provide their own respiratory protection and proof of current respirator fit testing.
- H. All electrical systems used for asbestos abatement operations shall as a minimum be protected with "Ground Fault Circuit Interrupters (GFCI)" selected and installed in strict accordance with the manufacturer's instructions, the National Electric Code and all other pertinent ones.
- I. Additional safety equipment (e.g., hard hats meeting the requirements of ANSI Z89.1-1981, eye protection meeting the requirements of ANSI Z87.1-1979, safety shoes meeting the requirements of ANSI Z41.1-1967, disposable PVC gloves), as necessary, shall be provided to all workers and authorized visitors.

1.10 **DEFINITIONS**

- A. Abatement: Procedure to control fiber release from asbestos-containing building materials.
 - 1. Removal or Disturbance: All herein specified procedures necessary to remove or disturb asbestos-containing materials from an area and disposal of the material at an approved site in an acceptable manner.
 - 2. Post-Removal Surface Encapsulation: Procedures necessary to coat surfaces from which asbestos-containing materials have been removed or disturbed and where designated on the drawings to control any residual fiber release.

- B. Air-Monitoring: The process of measuring the fiber content of a specific, known volume of air in a stated period of time. For this project, NIOSH 7400 Method or approved substitute per HIOSH Regulation's, shall be used.
- C. Amended Water: Water to which a surfactant has been added to reduce water surface tension and thereby provide more effective penetration.
- D. APR: Air Purifying Respirator.
- E. Asbestos-Containing Material: Asbestos-Containing Material (ACM), a material that contains any type of asbestos in amounts of greater than 1%.
- F. Authorized Visitor: The State and/or their Authorized Representative or a representative of any regulatory or other agency having jurisdiction over the project.
- G. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area without dismantling.
- H. Friable Asbestos: Asbestos-containing material which can be crumbled to dust, when dry, under hand pressure.
- I. HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of mono-dispersed particles 0.3 micrometers or greater in diameter.
- J. HEPA Vacuum Equipment: Vacuuming equipment that utilizes a HEPA filter.
- K. Holding Area: A secure area used for the storage of double-bagged asbestos-containing material before removal from the site to an approved disposal site.
- L. Post-Removal Encapsulation: To apply a liquid material to surfaces from which asbestos-containing material has been removed to control the possible release of residual fibers, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components (penetrating encapsulant).
- M. PAPR: Powered Air Purifying Respirator.
- N. Surfactant: A chemical-wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
- O. Project Monitor: A person certified by the DOH as a Project Monitor may provide services that include the following:
 - 1. Recommend to the building owner abatement options to mitigate the health hazard posed by the asbestos-containing materials in the building;
 - 2. Collect environmental air samples for the purpose of work area and clearance air sampling at abatement project sites. The Project Monitor shall not be an employee of the abatement entity performing the abatement, as this would constitute as a conflict of interest;
 - 3. Provide advice regarding personal protective equipment;

4. Oversee abatement projects carried out by abatement entities;
 5. Perform visual inspections of completed abatement projects to determine if the project meets completion requirements; and
 6. To serve as the State's representative to ensure that abatement is done correctly.
- P. State: The State of Hawaii
- Q. State's Authorized Representative: Authorized State representative who is a Qualified Environmental Consultant (QEC), hired by the State to conduct onsite visual inspections, air monitoring during the Abatement Contractor's work activities, the Abatement Contractor's compliance with applicable regulatory requirements and the project specifications, and clearance air sampling following asbestos abatement activities (as necessary). The State's Authorized Representative shall have the authority to stop the work due to the Abatement Contractor's non-compliance with applicable regulatory requirements and/or the project specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Plastic Sheeting: Minimum thickness of 6-mil polyethylene film.
- B. Plastic Bags: Minimum thickness 6-mil polyethylene film labeled as specified hereinafter.
- C. Tapes: Tape shall be capable of sealing joints of adjacent sheets of polyethylene and for attaching polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including the use of amended water. Cloth duct tape, minimum two (2)-inch wide, and double-faced foam tapes, by Nashua, 3-M, Arno, or approved equal shall be used on polyethylene sheeting, red or NATO orange tape, minimum 2 inches wide for exit arrows.
- D. Adhesives: Adhesives shall be capable of sealing joints of adjacent sheets of polyethylene and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water. 3-M #76, #77, or approved equal.
- E. Surfactant (Wetting Agent): 50 percent (%) polyoxyethylene ester and 50 percent (%) polyoxyethylene ether, or equivalent, and shall be mixed with water to provide a concentration of one (1) ounce, or more as needed, of surfactant to five (5) gallons of water. (An equivalent surfactant shall be understood to mean material with a surface tension of 29 dynes/cm as tested in its properly-mixed concentration, using ASTM Method D 1331-56, "Surface and Interfacial Tension of Solutions of Surface-Active Agents.")
- F. Asbestos Encapsulant: Encapsulant shall be non-flammable with a Class A fire classification. Encapsulant shall be odorless when dry, and compatible with materials applied by others (as part of this Contract). All references to application at strengths

below full strength shall be as approved by the product manufacturer for the intended use.

- G. Warning Labels and Signs: As required by OSHA regulations 29 CFR 1910.1001, 29 CFR 1926.58 and HIOSH regulation 12-145. Permanent signage for access panels and areas with encapsulated asbestos-containing materials shall be as specified hereinafter. Signage shall be approved by the State and/or their Authorized Representative.
- H. Protective Clothing: Full body protective covering, impermeable to asbestos fibers. DuPont® Tyvek™ coveralls, or equivalent. The Abatement Contractor shall have all the required sets of coveralls required for this project prior to the start of work. There will be no time extension for the unavailability of coveralls or related equipment.
- I. Other Materials: Provide all other materials, which may be required to properly prepare and complete this project.

2.2 TOOLS

- A. General: Provide and fabricate suitable tools for the asbestos abatement procedures.
- B. Water Sprayer: Airless or a pressure sprayer for amended water application as applicable.
- C. HEPA Vacuum: High Efficiency Particulate Air (HEPA) vacuum.
- D. Paint/Encapsulant Sprayer: Airless type.
- E. No power-driven tools or equipment shall be permitted for removal of asbestos-containing materials.
- F. Other tools and equipment as necessary.

PART 3 - EXECUTION

3.1 WORK AREA PREPARATION

Work by the Asbestos Abatement Contractor:

Step 1:

- A. Posting of Caution Signs: Post caution signs in and around the work area to comply with 29 CFR 1910.1001, 29 CFR 1926.58, 12-145-8 and all other Federal, State and local requirements. Signs shall be posted at a distance sufficiently far enough away from the work area to permit a person to read the sign and take the necessary protective measures to avoid exposure.
- B. Inspect Openings: At the beginning and end of each work day, the Abatement Contractor shall inspect and ensure that all doors, windows and other openings into the work area are closed and locked.

- C. Sealing Openings: Seal all openings, including but not limited to corridors, vents, and any other penetrations of the work area, with 2-layers of plastic sheeting sealed with tape. Doorways and corridors that will not be used for passage during the work shall be sealed with a minimum of 2-layers of 6-mil thick plastic sheeting completely sealed with tape to provide airtight barriers.
- D. Construct barriers to minimize visual exposure of the Abatement Contractor's employees to nearby occupants and the general public.

Step 2:

Provide Decontamination Areas: Construct a personnel decontamination unit and establish an equipment decontamination area outside of each work area as approved by the State and as specified hereinafter.

Step 3:

AFTER THE SEALING AND TEMPORARY BARRIER INSTALLATION WORK IS COMPLETED, NOTIFY THE STATE'S AUTHORIZED REPRESENTATIVE AND GET THEIR APPROVAL PRIOR TO PROCEEDING WITH STEP 4.

Step 4:

A. Temporary Electricity and Lighting:

1. At the discretion of the State, existing electrical service to the work area may be used for temporary electrical power during the asbestos abatement activities. If the State does not provide temporary electrical power, the Abatement Contractor shall make the necessary arrangements (i.e., provide portable generators) to supply power to the site to carry out the safe removal of the ACM.
2. If available, the Abatement Contractor shall verify the location(s) of available service and shall tie into the existing system(s) at a location approved by the State. The Abatement Contractor shall install circuit and branch wiring, with area distribution boxes located so that power is available throughout the project by use of construction-type power cords. The Abatement Contractor shall use ground fault circuit interrupter (GFCI) for all electrical equipment used inside the work area.

B. Temporary Water:

1. At the discretion of the State, existing domestic water service to the building may be used for temporary water during the asbestos abatement activities. If the State does not provide domestic water service, the Abatement Contractor shall make the necessary arrangements to supply water to the site to carry out the safe removal of the ACM.
2. If available, the Abatement Contractor shall verify the location(s) of available service and shall tie into the existing system(s) at a location approved by the State. The Abatement Contractor shall install branch piping with taps as necessary throughout the site.

C. Temporary Sanitation Facilities:

1. The use of existing toilet facilities must be coordinated with the State. If onsite toilet facilities are not available, the Contractor shall provide temporary toilet facilities. Personnel must be in a decontaminated state before using the sanitation facility.
2. Maintain the sanitation facility in a clean and sanitary condition in compliance with applicable codes and ordinances.

D. Temporary Fire Protection:

1. Provide and maintain temporary fire protection equipment during the asbestos abatement operations.
2. Equipment shall be of the appropriate type to fight fires associated with the existing building materials and those materials used during the construction operations.

Step 5:

AFTER STEP 4 IS COMPLETED, NOTIFY THE STATE'S AUTHORIZED REPRESENTATIVE AND OBTAIN VERBAL AUTHORIZATION PRIOR TO PROCEEDING WITH REMOVAL WORK AS SPECIFIED HEREINAFTER. COMMENCEMENT OF WORK SHALL NOT START UNTIL THE STATE'S AUTHORIZED REPRESENTATIVE HAS APPROVED THE FOLLOWING:

- A. Pre-abatement submissions, notifications, postings and permits have been provided and are satisfactory.
- B. All equipment for abatement, clean-up and disposal are on hand.
- C. All worker training (and certification) is completed and current.

3.2 DECONTAMINATION ENCLOSURE SYSTEMS

- A. General: The Abatement Contractor shall construct a decontamination enclosure system or use portable units, acceptable to the State and/or their Authorized Representative for all indoor removal work that involves friable and non-friable ACM that may become friable during the removal activities.
- B. Asbestos Abatement Activities: Asbestos abatement work shall be performed within a containment system maintained under negative pressure throughout the duration of abatement activities (including clearance air sampling). Entry/exit to/from the containment system shall be through an air-lock (i.e., multi-chamber decontamination system). The containment system(s) shall be described in detail in the Work Plan submitted to, and approved by, the State and/or their Authorized Representative prior to the commencement of abatement activities
- C. Access: In all cases, access between clean areas and the dedicated work areas (indoor and outdoor) shall be through a personnel decontamination unit equipped with curtained doorways.
- D. Personnel Decontamination Unit: Provide a personnel decontamination unit contiguous to the work area(s), in accordance with HIOSH regulation 12-145-7 consisting of a minimum of one totally enclosed chamber for non-friable ACM, and three totally

enclosed chambers for friable ACM removal. Decontamination units established for friable ACM abatement activities shall include a fully functional shower system equipped with running water necessary for decontamination procedures.

- E. Maintenance of Decontamination Unit: At the beginning of each work shift and throughout abatement operations, all areas shall be kept clean at all times.
- F. The Abatement Contractor shall designate a worker responsible for the decontamination system, cleaning, repairing and sanitizing respirator equipment after each use, and who will be responsible for maintenance of the decontamination system.

At the end of each work shift the decontamination unit shall be thoroughly HEPA vacuumed and wet cleaned.

- G. Personnel Protection Notice: Post the following notice in each decontamination area:
 - 1. All workers and authorized personnel, in order to enter the work areas, shall:
 - a. Remove applicable street clothing, unless it is to remain in the equipment room for eventual disposal.
 - b. Don the appropriate respiratory protection and follow all training procedures and manufacturer's instructions.
 - c. Don protective clothing (full-body coveralls, gloves, boots, headgear, etc.) after donning respirator.
 - d. No smoking, eating, or drinking shall be allowed inside the work area or the decontamination area.
 - 2. All workers and authorized personnel, in order to leave the work area, shall enter the decontamination unit and:
 - a. Remove gross (visible) contamination from themselves and their equipment using HEPA vacuum and/or wet methods.
 - b. With the respirator still in place, remove protective clothing (full-body coveralls, gloves, boots, headgear, etc.) and dispose and/or store appropriately.
 - c. With the respirator still in place, thoroughly rinse off in the attached shower system.
 - d. Exit shower, remove respirator and place in container/plastic bag for storage and re-use.

3.3 WASTE WATER FILTERING SYSTEM

All wastewater generated at the project site shall be treated as contaminated with asbestos and shall be filtered using two in-line filter cartridges (Filterite Type 6CMC-1 or approved equal) with 2" inlets and outlets. The outlet of the first cartridge shall connect to the inlet of the second cartridge. The first cartridge shall contain six 100-micron pre-

filters and a second cartridge shall contain six 0.5 micron filters or equal staging according to filtering unit type. Filtered wastewater shall be collected and disposed of properly in the county sanitary sewer system in accordance with current City and County of Honolulu, Environmental Services, Division of Environmental Quality Standards. Discharge of water in the county storm drain system is prohibited unless the proper permit is acquired. Dispose of contaminated filters as asbestos-contaminated material.

3.4 NEGATIVE AIR PRESSURE SYSTEMS

- A. Quality of Exhaust Units: The Abatement Contractor shall determine the number of units based on the size of the work area, provide one complete air change every 15 minutes in all locations of the work areas, and achieve a negative pressure differential of -0.02 inches of water column. The Abatement Contractor shall inspect and correct deficient airtight barriers if required negative pressure cannot be achieved. Additional units shall be provided by the Abatement Contractor at no additional charges to maintain required negative pressure. The Abatement Contractor shall provide one spare exhaust unit of equal size and capacity as the largest operational unit at the site. The Abatement Contractor shall be responsible for maintaining the integrity of the negative pressure systems within the work areas.
- B. Location of Exhaust Units: Locate units so that make-up air enters the work area primarily through the decontamination enclosure unit and traverses the work area as much as possible. Vent all exhaust units to the outside of the work area. Provide flexible or rigid ducting as necessary to provide an airtight enclosure where ducting passes through the work area or occupied portions of the building and for the intake repositioning as required during the removal work.
- C. Air Openings: Provide additional make-up openings as may be necessary to effectively move air through the work area and to avoid creating too high a pressure differential that would damage or cause "blow-in" of temporary barriers and plastic sheeting. Provide inlets by making openings in the plastic sheeting near the ceiling and as far back as possible from the exhaust units. Seal openings whenever the pressure differential drops below the required minimum.
- D. Air Exchanges: A Minimum of four air changes per hour. Minimum of 72 air changes is required prior to clearance testing.
- E. Negative Pressure Exhaust Unit Filter Replacement: Change filters in exhaust units in accordance with the manufacturer's recommendations and in accordance with EPA Guidance For Controlling Asbestos-Containing Materials in Buildings, Appendix J, paragraph J.3.2.2.1 or when there is an obvious loss of negative pressure.
- F. System Dismantling: When the clearance criteria have been achieved, remove and dispose of pre-filters and shut off the exhaust units. If the exhaust units are to be used in another work area, leave the final HEPA filter in place and seal all intake openings to the unit to prevent contamination due to the asbestos filter collected in the final filter, wet wipe all exposed surfaces, seal the unit completely with plastic sheeting and move unit as required.

3.5 REMOVAL OF ASBESTOS-CONTAINING MATERIALS

- A. Coordinate all work with the State and/or their Authorized Representative. Impact asbestos materials in accordance with applicable regulatory requirements while implementing engineering controls to prevent asbestos fibers from becoming airborne.
- B. Workers performing removal and disturbance work shall wear full body protective clothing and respirators as specified.
- C. Lightly wet the ACM with amended water. Initially wet the surface and continuously apply a mist for the duration of the removal work.
- D. Do not use liquids or moisture on live electrical items.
- E. Materials shall be removed as described in detail in the Work Plan submitted to, and approved by, the State and/or their Authorized Representative prior to the commencement of abatement activities. Acceptable methods shall include those which do not create dust and do not make the materials friable. For this project hand tools shall be used. No sawing, grinding, sanding, drilling, pulverizing, wire-brushing, or other dust producing operations shall be permitted.
- F. Following removal of ACM, the Abatement Contractor shall HEPA vacuum and wet wipe all surfaces at each location where ACM has been either removed or disturbed.
- G. All bags or wrapped ACM must have proper labeling placed on the exterior surfaces to comply with regulatory and Department of Transportation requirements.

3.6 ASBESTOS FIBER CONCENTRATIONS IN THE WORK AREA

The maximum permissible exposure to airborne concentrations or asbestos fibers within the work area when under respirator shall be in accordance with Hawaii OSHA, Rule 12-202-13(b). The work shall stop whenever these limits are exceeded and the Abatement Contractor shall remedy the condition prior to commencing the work. The expenses resulting from the delays shall be the Abatement Contractor's responsibility and shall not be paid by the State.

3.7 DISPOSAL OF ASBESTOS-CONTAINING MATERIAL AND ASBESTOS CONTAMINATED WASTE (SOLID AND/OR LIQUID)

- A. As the work progresses and waste is generated, the Abatement Contractor shall legally transport properly packaged materials to the authorized disposal site(s). Waste generated shall be removed from the site daily unless a temporary storage area has been designated as approved by the State. The Abatement Contractor shall pre-schedule and obtain the approval of the State prior to removing the waste from the work area(s). Transport all waste to the pre-designated disposal site(s) in accordance with EPA regulation 40 CFR 61.152, Department of Transportation regulations 49 CFR Parts 171 and 172, HIOSH regulation 12-145-10 and local regulations. The Abatement Contractor shall keep abreast of all changes to transportation regulations and fully comply with them.
- B. Sealed waste bags may be temporarily stored in the work area, or in a pre-designated outside area (e.g., a locked container or dumpster) approved by the State and/or their Authorized Representative until a truckload quantity is obtained. The temporary storage

area shall be prominently identified and posted with signs. Waste containers shall be lined with polyethylene sheets.

- C. The Contractor shall remove bagged material from the designated holding area to the storage area or waste container. Ensure that all containers are sealed properly before removing for transport and disposal. Bags and containers shall be marked with OSHA labels prescribed by the Hawaii OSHA regulations referenced in these specifications. Label shall state, "DANGER - CONTAINS ASBESTOS FIBERS - AVOID CREATING DUST - CANCER AND LUNG DISEASE HAZARD." Additionally, label bags in accordance with OSHA requirement 29 CFR 1910.1001, HIOSH regulation 12-145-8 or EPA regulation 40 CFR 61.150 if more restrictive. The outside of all waste containers or bags shall be clean before leaving the work area. For ACM waste material to be transported off the facility site, label containers or wrapped waste materials with the name of the waste generator and the location at which the waste was generated.
- D. A label with the name of the waste generator and location from which the waste was generated shall be clearly indicated on the outside of the bags or wrapped ACM in accordance with the November 20, 1990 NESHAP Revision, Final Rule, Waste Disposal Section which describes marking, labeling and offsite disposal requirements. Shipment records shall be maintained using forms described in this latest NESHAP Revision.
- E. Vehicles used for transporting waste to the disposal sites shall have a completely enclosed, lockable storage compartment. Storage compartments shall be plasticized and sealed with a minimum of one layer of 6-mil polyethylene sheeting on the sides and top and two layers of 6-mil polyethylene sheeting on the floor (bed). Waste materials, except those with sharp edges (metal edging, screws, nails, broken tile with sharp edges, etc.) that are properly double bagged, may be transported to the disposal site. The compartment shall be thoroughly wet-cleaned and/or HEPA vacuumed following the disposal of each load. At the conclusion of the asbestos abatement, or before transport vehicles are used for other purposes, the polyethylene sheeting shall be properly removed and disposed of as contaminated waste. After this has been accomplished, compartments shall once again be wet-cleaned and HEPA vacuumed.
- F. Workers unloading bags at the disposal sites shall be dressed in full-body protective clothing and half-face respirators equipped with HEPA cartridges.
- G. Waste disposal manifest forms shall be properly completed to assure custody and disposal of all asbestos-containing material and asbestos-contaminated waste at approved disposal sites. Forms shall be kept on file as directed by the State with copies submitted to the State and/or their Authorized Representative the next working day after each trip.

NOTE: IT IS THE ABATEMENT CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT ANY LANDFILL USED FOR DISPOSAL OF ASBESTOS-CONTAINING OR ASBESTOS CONTAMINATED WASTE IS APPROVED FOR THAT PURPOSE.

Bags must be placed at the landfill into the designated hole for burial. Dumping of bags from the containers will not be allowed. However, if a bag is torn and if acceptable by the landfill, the entire container may be buried or the tear shall immediately be mended with duct tape. The repaired bag shall be placed into an additional bag and sealed for disposal.

- H. Liquid waste for disposal into the sanitary sewer system shall be filtered as specified in Part 3, Subpart 3.03 WASTE WATER FILTERING SYSTEM.
- I. If, at any time, the State and/or their Authorized Representative determines that work practices are violating pertinent regulations, or endangering workers, or contaminating the environment, they will immediately notify the Abatement Contractor for immediate corrective action.
- J. The Abatement Contractor shall pay all waste disposal charges including special handling fees not included in the bid proposal. No reimbursement of disposal charges or handling fees will be made by the State. The Abatement Contractor shall make a 24-hour advance notice of all deliveries to the landfill. Delivery time shall be as directed by the landfill operator.

3.8 FINAL CLEANUP

- A. Remove all visible accumulation of ACM and debris from each area. The work area shall be totally visibly clean and dust free. The Abatement Contractor, in the presence of the State's Authorized Representative, shall make a complete visual inspection of the work area to ensure debris and dust free conditions. Visual inspections shall be performed in accordance with the American Society of Testing and Materials (ASTM) E1368-05, Standard Practice for Visual Inspection of Asbestos Abatement Projects.
- B. All contaminated equipment and tools used for removal work shall be washed and cleaned in the work area prior to removing them from the work areas. No washing of contaminated equipment and tools will be allowed outside the work area.
- C. Following visual clearance, the Abatement Contractor shall then encapsulate the removal areas. If the removal area does not pass visual clearance inspection as determined by the State's Authorized Representative, the Abatement Contractor shall conduct additional cleaning as directed by the State's Authorized Representative, with subsequent visual clearance inspections until the area is deemed acceptable.
- D. The Abatement Contractor shall remain in proper respiratory protection until approval by the State's Authorized Representative.
- E. Once the State's Authorized Representative has indicated that the work area(s) have passed the visual inspection, the work area(s) shall remain undisturbed during the required 72 air exchanges. Upon completion of the required air exchanges, the State's Authorized Representative shall conduct final clearance air sampling. Following the completion of clearance air sampling and analysis using phase contrast microscopy (PCM), if the air samples meet the EPA Recommended Clearance Criterion the work area will be returned to the Abatement Contractor for containment deconstruction.
- F. The Abatement Contractor shall remove air filtration devices, plastic sheeting and signage required by the asbestos removal work. Signage applicable to job site safety and the performance of the remaining portions of the work shall remain as applicable.
- G. Completely remove all temporary materials when their use is no longer required. Restore existing facilities to their original condition as approved by the State. When the

above listed criteria have been satisfied, the work area shall be open to those without respiratory protection.

3.9 PERSONAL AIR MONITORING

The Abatement Contractor is responsible for all Federal and State occupational monitoring requirements.

3.10 ADDITIONAL CHARGES FOR TESTING/AIR MONITORING BEYOND CONTRACT TIME

The Abatement Contractor shall be responsible for the direct reimbursement to the State of all air monitoring charges required by the Abatement Contractor's not completing the work in the specified contract period. The Abatement Contractor shall also be responsible for the reimbursement of additional fees incurred for additional clearance samples if the initial samples do not satisfy applicable regulatory criterion.

END OF SECTION 13281

SECTION 13288 – TESTING/AIR MONITORING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies the Contractor's Responsibilities for personnel monitoring and record keeping.
- B. This Section specifies project air monitoring and inspectional services for the purposes of:
 - 1. Verifying compliance with SECTION 13281 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS and SECTION 13282 – LEAD-CONTAINING PAINT CONTROL MEASURES
 - 2. Ensuring that the State's legally required documentation is collected.
 - 3. Providing engineering control during the project.

1.2 REFERENCES

- A. The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only, and include but are not limited to, the following:

1. CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926.21	Safety Training and Education
29 CFR 1926.33	Access to Employee Exposure and Medical Record
29 CFR 1926.59	Hazard Communication
29 CFR 1926.62	Lead Exposure in Construction
29 CFR 1926.65	Hazard Waste Operations and Emergency Response
29 CFR 1926.103	Respiratory Protection
29 CFR 1926.51	Sanitation
29 CFR 1926.200	Accident Prevention Signs and Tags
29 CFR 1926.59	Hazard Communication
29 CFR 1926.1101	Asbestos, Tremolite, Anthophyllite, Actinolite
29 CFR 1910. 134	Respiratory Protection
40 CFR 61-SUBPART A	General Provisions
40 CFR 61-SUBPART M	National Emission Standard for Asbestos
40 CFR 763	Asbestos Containing Material in Schools
40 CFR 260	Hazardous Waste Management Systems: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Generators of Hazardous Waste
40 CFR 263	Transporters of Hazardous Waste
40 CFR 264	Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

40 CFR 265	Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 268	Land Disposal Restriction
40 CFR 745	Lead; Requirement for Lead-Based Paint Activities
49 CFR 172	Hazardous Materials, Tables, and Hazardous Materials Communications Regulations
49 CFR 178	Shipping Container Specification

2. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 560/5-85-024 Guidance for Controlling ACM in Buildings

3. HAWAII OCCUPATIONAL SAFETY AND HEALTH (HIOSH)

12-114.2	Personal Protective Equipment
12-121.2	Fall Protection
12-122.2	Materials Handling, Storage, Use, and Disposal
12-145.1	Asbestos
12-148.1	Lead
12-151	Hazardous Waste Operations and Emergency Response
12-206-13	Asbestos

4. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

HUD Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing

5. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.2	(1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems
ANSI Z88.2	(1992) Respiratory Protection

6. UNDERWRITERS LABORATORIES INC. (UL)

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

- A. Action Level - Lead: Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8-hour period.
- B. Area Sampling: Sampling of concentrations which is representative of the airborne concentrations but is not collected in the breathing zone of personnel (approximately 1.5 to 1.8 meters above the floor).

- C. Background: The ambient airborne asbestos concentration in an uncontaminated area as measured prior to any asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar but asbestos free locations.
- D. Competent Person - Asbestos: As used in relation to asbestos, refers to a person employed by the Contractor who is trained in the recognition and control of asbestos hazards in accordance with current federal, State, and local regulations and has the authority to take prompt corrective actions to control the asbestos hazards.
- E. Competent Person - Lead: As used in relation to lead, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations, has the authority to take prompt corrective actions to control the lead hazards and is an EPA certified lead inspector or risk assessor.
- F. Monitoring Specialist - Asbestos: The monitoring specialist enters the work area to set up air monitoring devices and then collects the various air samples to be sent to the laboratory for analysis. The monitoring specialist has working experience in the asbestos abatement industry and a working knowledge of all applicable State and Federal occupational safety and health regulations and formal training in occupational safety and health. The Monitoring Specialist shall have currently attended and passed the Hawaii Department of Health Project Monitor course as specified in Hawaii Administrative Rules, Title 11, 504 and be currently certified by the State of Hawaii as an asbestos Project Monitor. This course shall be approved by a State of Hawaii Accreditation Program. The Monitoring Specialist shall also have demonstrable experience in asbestos air monitoring techniques and respiratory protection. The Monitoring Specialist will perform work under the direction of the State's Authorized Representative.
- G. Monitoring Specialist – Lead: A person who performs air monitoring and inspection during lead disturbance work under the direction of the State's Authorized Representative.
- H. Permissible Exposure Limit (PEL) - Asbestos: 0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101 or other Federal legislation having legal jurisdiction for the protection of workers health.
- I. Permissible Exposure Limit (PEL) - Lead: 50 micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more or less than 8 hours in a work day, the PEL shall be determined by the following formula:
- $$\text{PEL (micrograms per cubic meter of air)} = 400/\# \text{ hours worked per day}$$
- J. Personal Sampling: Air sampling which is performed to determine concentrations within the breathing zone of a specific employee. Samples shall be representative of the employees work tasks. The breathing zone shall be considered an area within 12 inches of the nose or mouth of an employee.

K. Qualified Testing Laboratory – Asbestos:

1. Environmental and Work Area Monitoring Laboratory – The testing laboratory employed by the State’s Authorized Representative to perform analysis of environmental and work area air monitoring samples and report concentrations of airborne lead.

The laboratory shall be accredited by the American Industrial Hygiene Association (AIHA) for each type of asbestos analysis performed by the laboratory.

2. Personal Air Monitoring Laboratory – The testing laboratory utilized by the air monitoring firm retained by the Contractor to perform analysis of personal air monitoring samples and report airborne concentrations of asbestos. Collection of the Contractor’s OSHA personal air samples will be performed by a firm independent of the Contractor, at the Contractor’s expense.

The laboratory shall be a successful participant in the American Industrial Hygiene Association’s (AIHA) Proficiency Analytical Testing (PAT) program for phase contrast microscopy (PCM).

L. Qualified Testing Laboratory – Lead:

1. Environmental and Work Area Monitoring Laboratory – The testing laboratory employed by the State’s Authorized Representative to perform analysis of environmental and work area air monitoring samples and report concentrations of airborne lead.

The laboratory shall be accredited under the EPA’s National Lead Laboratory Accreditation Program (NLLAP) by the American Industrial Hygiene Association’s (AIHA’s) Environmental Lead Laboratory Accreditation Program (ELLAP) and successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program for each lead matrix analyzed by the laboratory. The laboratory shall fulfill all requirements of accreditation for analyzing lead in air. Laboratory personnel performing the work shall have been judged proficient in the analysis of lead in the applicable parameter by successful participation within the last year in AIHA’s ELPAT.

2. Personal Air Monitoring Laboratory – The testing laboratory utilized by the air monitoring firm retained by the Contractor to perform analysis of personal air monitoring samples and report airborne concentrations of lead. Collection of the Contractor’s OSHA personal air samples will be performed by a firm independent of the Contractor, at the Contractor’s expense.

The laboratory shall be accredited under the EPA’s National Lead Laboratory Accreditation Program (NLLAP) by the American Industrial Hygiene Association’s (AIHA’s) Environmental Lead Laboratory Accreditation Program (ELLAP) and successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program for each lead matrix analyzed by the laboratory. The laboratory shall fulfill all requirements of accreditation for

analyzing lead in air. Laboratory personnel performing the work shall have been judged proficient in the analysis of lead in air by successful participation within the last year in AIHA's ELPAT.

3. Toxicity Characteristic Leaching Procedure (TCLP) Testing Laboratory - The testing laboratory employed by the Contractor to perform TCLP tests of a representative sample of the debris waste stream of each structure and of any lead-contaminated chips or debris generated through abatement to determine whether or not the waste is hazardous or non-hazardous. The laboratory shall be experienced in and analyze TCLP samples using the EPA Method 1311/6010.

M. State: The State of Hawaii

N. State's Authorized Representative: Authorized State representative who is a Qualified Environmental Consultant (QEC), hired by the State to conduct onsite visual inspections, air monitoring during the Abatement Contractor's work activities, the Abatement Contractor's compliance with applicable regulatory requirements and the project specifications, and clearance air sampling following asbestos abatement activities (as necessary). The State's Authorized Representative shall have the authority to stop the work due to the Abatement Contractor's non-compliance with applicable regulatory requirements and/or the project specifications.

O. In addition, Definitions as outlined in SECTION 13281 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS and SECTION 13282 – LEAD-CONTAINING PAINT CONTROL MEASURES.

1.4 ABBREVIATIONS

- A. ANSI: American National Standards Institute, Inc.
- B. CFR: Code of Federal Regulations
- C. HIOSH: Division of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii
- D. EPA: U.S. Environmental Protection Agency
- E. NESHAP: National Emission Standards for Hazardous Air Pollutants
- F. NIOSH: National Institute for Occupational Safety and Health
- G. OSHA: Occupational Safety and Health Administration
- H. The State: The State of Hawaii

1.5 COORDINATION

The Contractor shall coordinate with the State's authorized representative for the testing/air monitoring requirements included in these specifications for testing/air monitoring specialist and all applicable Federal, State and local regulations.

1.6 PRE-CONSTRUCTION CONFERENCE

- A. A conference shall be held prior to construction and shall be conducted by the State.
- B. Attendance: The Contractor, Project Designer, State's Authorized Representative, and monitoring specialist shall also attend.
 - 1. Agenda:
 - a. Review final schedule for project.
 - b. Verify legal requirements and special conditions
 - c. Verify compliance with pre-construction requirement
 - d. Obtain copies of all mandatory notifications.
 - e. Inspect sample respiratory equipment and other abatement equipment.
 - f. Review procedures and responsibilities.
 - g. Clarify the scope of work and its best impact on the users of the building.

1.7 DESCRIPTION OF WORK

Furnish all labor, materials, and equipment necessary to carry out the personnel monitoring, record keeping, air monitoring and inspectional services in compliance with all applicable Federal, State and Local laws and regulations during the performance of the Project.

1.8 SUBMITTALS

As specified in SECTION 13281 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS and SECTION 13282 – LEAD-CONTAINING PAINT CONTROL MEASURES.

1.9 REQUIREMENTS

- A. The Contractor shall comply with the above requirements and any applicable Federal, State and local regulations. Where there is any conflict or inconsistency among requirements, the more stringent requirement shall apply. Ignorance of the above requirements and any applicable State and County Regulation resulting in additional cost to the Contractor shall not be reimbursable or billable to the State.
- B. All regulations shall govern over these Specifications, except when the Specification is providing greater protection against hazardous materials exposure, injury, loss or liability. Any question regarding conflict or inconsistency between Specification and/or regulations should be directed to the State's Authorized Representative.

- C. Whenever approval of the State's Authorized Representative is required prior to proceeding with other work, the Contractor shall comply with the following:
1. The Contractor shall give, at a minimum, five (5) days notification to the State's Authorized Representative prior to the start of any work.
 2. The Contractor shall not begin any work without the State's Authorized Representative present onsite.
 3. The Contractor shall allow the State's Authorized Representative 24 hours from notification to respond to the request for site inspection(s).
 4. The Contractor shall designate one person (either a foreman or superintendent) who will be authorized to request inspections. The name of the designated person shall be submitted in writing to the State's Authorized Representative prior to commencing work. Requests from any other person will not be considered official requests.
 5. The designated person requesting an inspection shall provide the following information:
 - a. Name of caller.
 - b. Building and rooms to be inspected.
 - c. Work phase of inspection, as specified.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 AIR SAMPLING – ASBESTOS

- A. Sampling for airborne concentrations of asbestos fibers shall be performed by the State's Authorized Representative. Sampling of airborne concentrations of asbestos fibers shall be performed in accordance with 29 CFR 1926.1101 and as specified herein. Unless otherwise specified, NIOSH Method 7400 will be followed for all sampling and analysis.
- B. Sampling During Asbestos Work: The performance and execution of the Contractor's work shall be closely and continuously monitored by the State's Authorized Representative. Air monitoring and inspection by the State's Authorized Representative shall be performed in the work area surroundings and in any occupied adjacent buildings to ensure full compliance with the Specification and all applicable regulations. The Contractor shall provide full cooperation and support to the State's Authorized Representative and to their technicians throughout the work.

Visual Clearance will be conducted by the State's Authorized Representative after the visual inspection has been passed the Contractor shall remove all signs, temporary barriers and materials when their use is no longer required.

- C. Air Monitoring With Respect To Contractor's Employees
1. The Contractor shall be responsible for all personal air monitoring as required by OSHA regulations. All personal air monitoring will be conducted by an agent of the Contractor who is currently certified by the Hawaii Department of Health to conduct personal air sampling.
 2. The Contractor shall provide own personal sampling of 25% of his workers or minimum of two workers, whichever is greater as indicated in 29 CFR 1926.1101 and governing environmental regulations.
 3. Laboratory performing analysis shall be an independent party, not financially or managerially connected with the Contractor. Laboratory shall also be approved by the State's Authorized Representative and AIHA accredited in the type of analysis being performed.
 4. At the conclusion of each day's sampling, copies of all air monitoring records shall be provided to the State's Authorized Representative.
 5. Results of sample analysis shall be provided to the State's Authorized Representative within forty-eight (48) hours of collection.
- D. All other air sampling for compliance with the Specification shall be performed by the authorized representative of the State.

3.2 AIR SAMPLING – LEAD

- A. Environmental and work area air monitoring of airborne lead concentrations shall be performed by the State's Authorized Representative in accordance with 29 CFR 1926.62 and as specified herein.
- B. Sampling During Lead Work: The State's Authorized Representative shall perform area air monitoring during the entire renovation operation. The Contractor shall allow access to the work area and assist the authorized representative as needed.
- C. Sufficient area air monitoring shall be conducted at the border of the lead control area to ensure unprotected personnel are not exposed to lead concentrations above 30 micrograms per cubic meter of air at all times. As a minimum, conduct area monitoring in areas immediately adjacent to the lead control area daily during each shift in which renovation operations are performed. At least one sample on each shift shall be taken on the downwind side of the lead control area.
- D. If the outside boundary of the lead control area is determined to have air lead levels above the background levels the Contractor shall be required to adequately correct the conditions causing the increased lead levels. Any work necessary to correct the condition will be completed by the Contractor at no additional cost to the State.

- E. If the outside boundary of the lead control area is determined to have air lead levels at or above 30 micrograms per cubic meter of air, the Contractor shall immediately stop work and correct the conditions causing the increased level.
- F. Work shall resume only when approval is given by the State's Authorized Representative.
- G. Air Monitoring With Respect To Contractor's Employees
 - 1. The Contractor's Competent Person shall perform initial personal air monitoring to determine employee exposure during renovation work. During initial personal monitoring, the first two full days of work (two 8-hour work shifts), and until results of the personal air monitoring tests show airborne lead concentrations below the action level, all workers shall be provided with a minimum of air-purifying half-mask respirators and disposable protective clothing.
 - 2. Personal monitoring samples shall be taken on at least 25 % of the employees or a minimum of 2 employees, whichever is greater, or a representative sample of employees with the greatest potential for exposure as determined by the State's Authorized Representative during each work shift.
 - 3. At the end of the period of initial determination all results shall be submitted to a laboratory for analysis by NIOSH Method 7082.
 - 4. Results from the first two full days (two 8-hour work shifts) of initial air monitoring, signed by the testing lab employee performing the analysis and the Competent Person, shall be provided to the State's Authorized Representative within 48 hours after completion of sampling.
 - 5. Results of initial air monitoring shall be used by the Contractor's Competent Person to determine appropriate worker protection requirements for similar work activities. Determination shall be submitted to State's Authorized Representative within 48 hours.
 - 6. If the personal air monitoring tests covering a period of two full work days (two 8-hour work shifts) show airborne lead concentrations below the action level, the Contractor's Competent Person may determine that the use of HEPA-filtered air purifying respirators is not required. Other elements of protective clothing shall continue to be worn throughout the renovation operation.
 - 7. If exposure to lead at or in excess of 30 micrograms per cubic meter of air as an 8-hour time weighted average is indicated, the Contractor's Competent Person will immediately notify the Contractor and State's Authorized Representative. The Contractor will provide and require all persons exposed to this concentration of airborne lead dust to wear, at a minimum, half mask air purifying respirators with HEPA filters. In addition, the Contractor's work procedures will be immediately reviewed by the State's Authorized Representative and the Contractor and modifications in the Contractor's work performance shall be implemented to lower the concentration of airborne lead.

8. Results of air monitoring shall be submitted to the State's Authorized Representative within 48 hours of collection, signed by the testing lab employee who performed the analysis and the Competent Person.

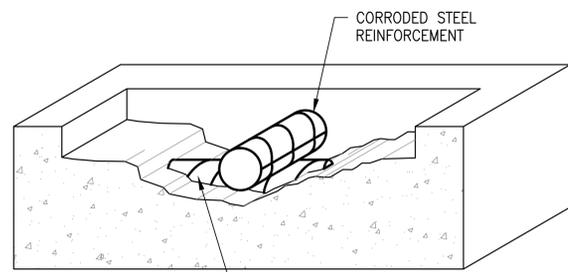
3.3 LEAD WASTE CHARACTERIZATION

- A. TCLP testing of the gross solid lead renovation debris shall be performed by the Contractor to characterize the debris as either non-hazardous or hazardous waste. Metal items to be demolished and removed shall be recycled.
- B. The Contractor shall not concentrate, treat, or inter-mix wastes from outside this project with the debris and wastes generated by this project.
- C. For lead-containing paint wastes generated by renovation operations, including used disposal PPE, lead paint chips and waste from paint stripping operations, TCLP testing of the waste shall be provided and paid for by the Contractor as specified herein.
- D. All TCLP test samples shall be collected by the Contractor in accordance with SW 846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods."
- E. All TCLP test samples shall be analyzed for lead concentration using EPA Method 1311/6010 by the TCLP Testing Laboratory.
- F. Submit results of TCLP tests to the State's Authorized Representative within 3 working days of collection, signed by the testing lab employee performing the analysis and the Contractor's Competent Person.

3.4 PAYMENT

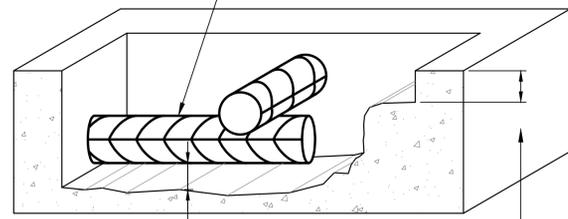
Payment for abatement monitoring shall be included in the lump sum bid. The final payment will not be made until proper documentation of the disposal of hazardous waste is submitted.

END OF SECTION



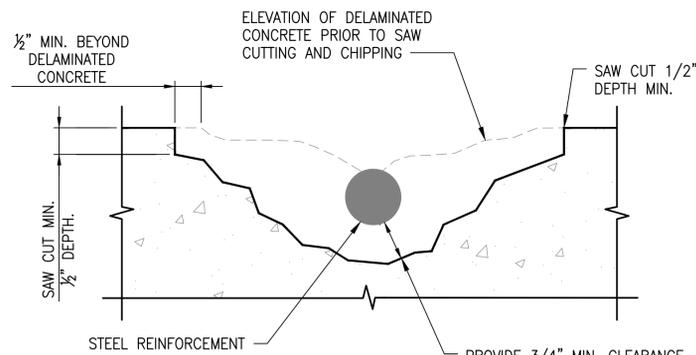
IF UNCORRODED BARS ARE EXPOSED AND DISTURBED DURING THE REMOVAL PROCESS...

...THEN THE BAR SHALL BE FULLY EXPOSED AS IF IT WERE FOUND TO BE HEAVILY CORRODED



UNDERCUT EXPOSED STEEL REINFORCEMENT MIN. OF 3/4 INCH

SAW-CUT EXPOSED STEEL REINFORCEMENT MIN 3/4 INCH



1/2" MIN. BEYOND DELAMINATED CONCRETE

SAW CUT MIN. 1/2" DEPTH.

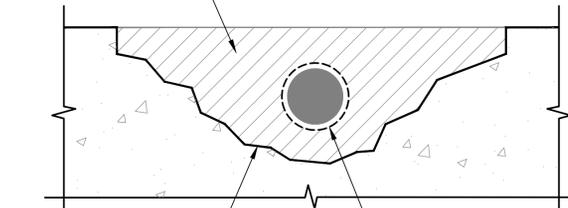
ELEVATION OF DELAMINATED CONCRETE PRIOR TO SAW CUTTING AND CHIPPING

SAW CUT 1/2" DEPTH MIN.

STEEL REINFORCEMENT

PROVIDE 3/4" MIN. CLEARANCE AROUND CIRCUMFERENCE OF STEEL REINFORCEMENT

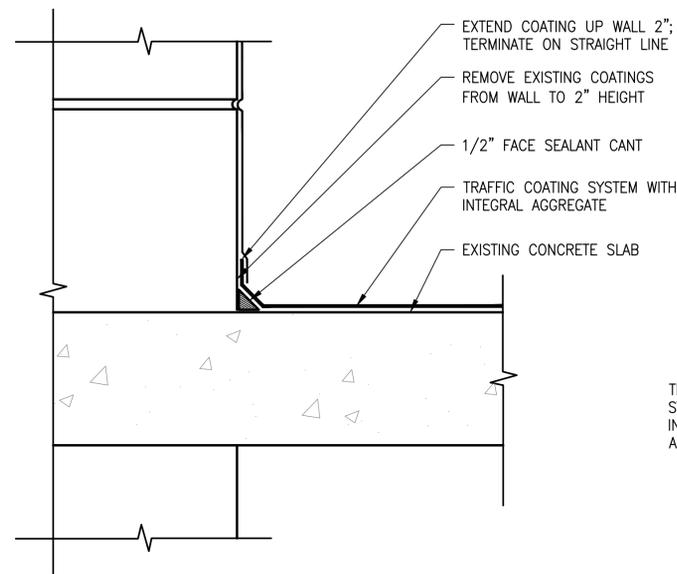
REPAIR MATERIAL SHALL BE NOT LESS THAN 1/2" THICK THROUGHOUT THE REPAIRED AREA



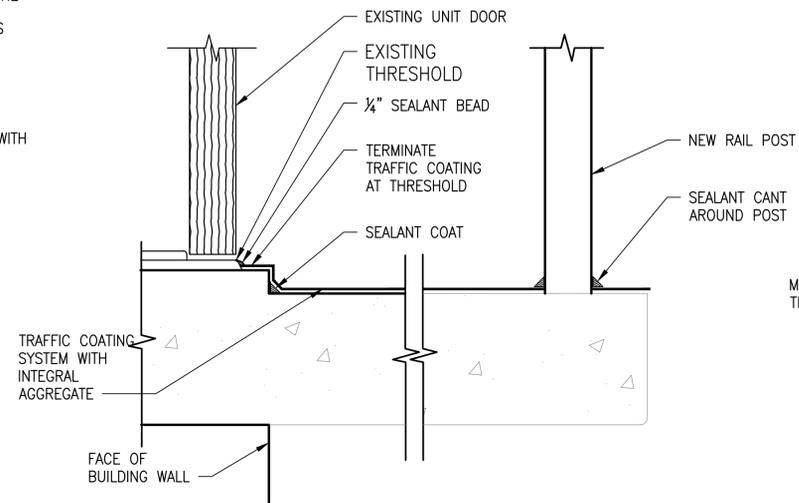
TREAT FACE OF EXCAVATION WITH CORROSION INHIBITOR AND PRIMER

CLEAN STEEL OF RUST, CORROSION, ETC. APPLY BONDING/ANTI-CORROSION AGENT TO ENTIRE CIRCUMFERENCE OF STEEL REINFORCEMENT.

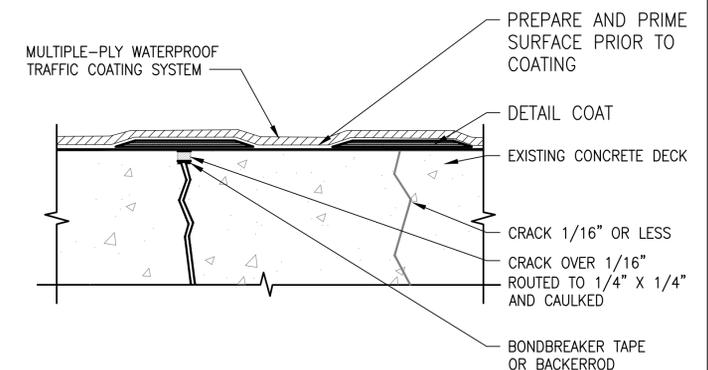
1 CONCRETE REPAIR DETAIL
A402 NOT TO SCALE



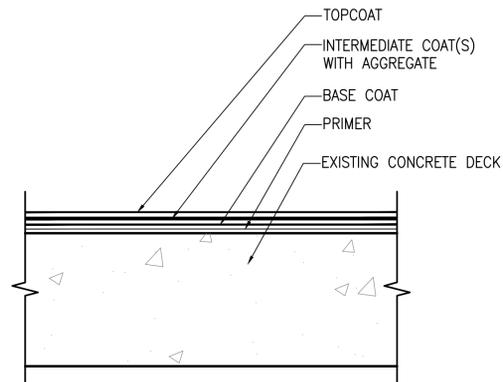
2 TRAFFIC COATING AT VERT. WALL
A402 NOT TO SCALE



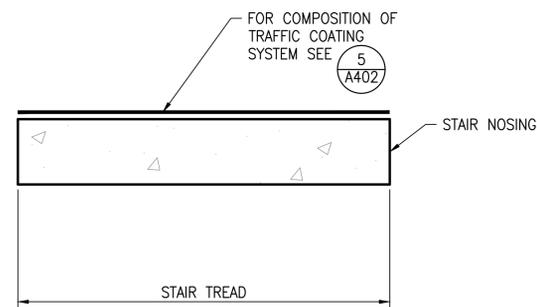
3 TRAFFIC COATING DETAIL
A402 NOT TO SCALE



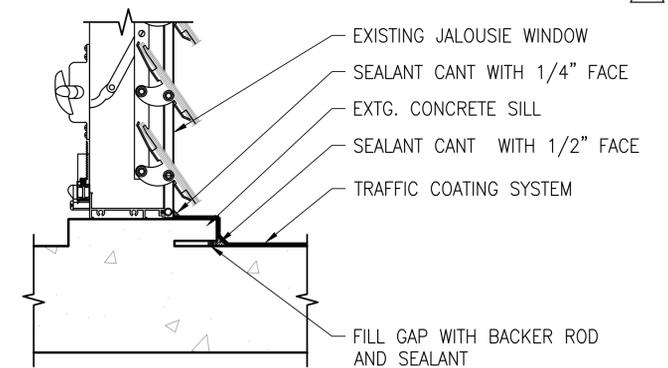
4 DECK CRACK REPAIR DETAIL
A402 NOT TO SCALE



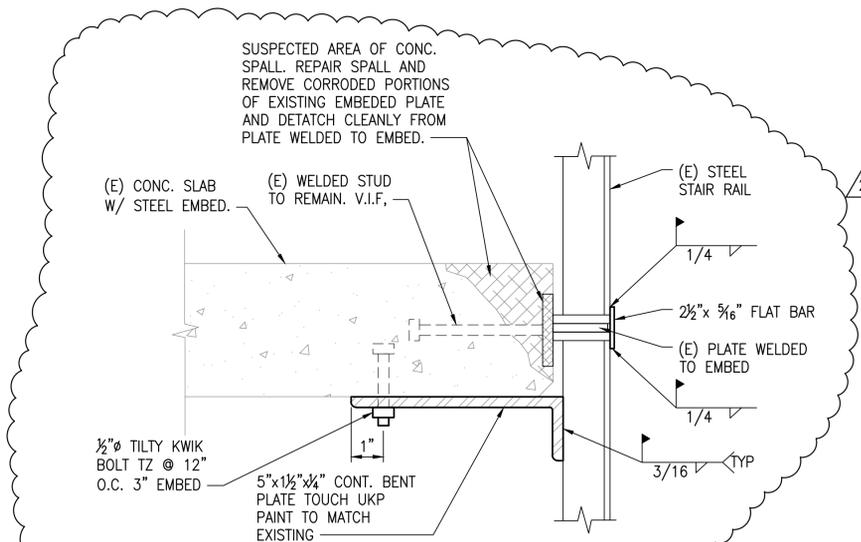
5 TRAFFIC COATING SYSTEM
A402 NOT TO SCALE



6 STAIR SECTION
A402 NOT TO SCALE



7 TRAFFIC COATING DETAIL @ WINDOW
A402 NOT TO SCALE



8 STAIR RAIL ATTACHMENT
A402 NOT TO SCALE

A3	2	ADDENDUM 3	6/6/16	
A2	1	ADDENDUM 2	6/3/16	
REVISION NO.	SYMBOL	DESCRIPTION	DATE	APPROVED: STATE PUBLIC WORKS ENGINEER
DEPT. OF ACCOUNTING AND GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII HPHA SPENCER HOUSE MASONRY STABILIZATION & REPAIRS HONOLULU, OAHU, HAWAII				
DETAILS				
HAWAII ENGINEERING GROUP, INC.		DAYS JOB NO.	DRAWING NO.	
DESIGNED BY: TP	CHECKED BY: TP	13-036-173	S402	
DRAWN BY: HP	APPROVED BY: AD	DATE	SHEET	
SCALE: AS NOTED	APRIL 2016	14 OF 15 SHITS		