

REQUIREMENTS and SPECIFICATIONS TO CONSTRUCT

**FORT RUGER
BUILDING 306, HURRICANE HARDENING
STATE JOB NO: CA-1324-C
TAX MAP KEY: 3-1-042: 018 and 027
HONOLULU, OAHU, HAWAI'I**

FOR THE STATE OF HAWAI'I, DEPARTMENT OF DEFENSE

MAY 2014

**Architect: Design Partners, Inc.
Environmental Consultant: EnvironMETeo (EMET) Services, Inc.**

**Name: Clifford How
Asbestos Project Designer Certification Number: HIASB-0011
Expiration Date: 8/27/14**

**Name: Clifford How
Lead Paint Project Designer Certification Number: PB-0149
Expiration Date: 01/23/2017**

SECTION 00010 - TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

	Page(s)
Table of Contents	1 - 2
DIVISION 1 - GENERAL REQUIREMENTS	
Section 01100 Project Requirements.....	1 - 11
Section 01310 Project Management and Coordination	1 - 5
Section 01320 Construction Progress Documentation.....	1 - 8
Section 01330 Submittal Procedures.....	1 - 4
Section 01500 Temporary Facilities and Controls.....	1 - 10
Section 01524 Construction Waste Management	1 - 9
Attachment Appendix A	1 - 4
Section 01700 Execution Requirements	1 - 5
Section 01715 Existing Conditions - Asbestos / Lead / Hazardous Material Survey	1 - 2
Attachment 1 Asbestos and Lead Paint Survey Report.....	1 - 40
Attachment 2 Inspection Report for Asbestos, Lead-Based Paint and Arsenic.....	1 - 67
Attachment 3 Limited Asbestos & Lead Survey	1 - 12
Attachment 4 Asbestos Inspection Final Report and Management Plan	1 - 21
Attachment 5 Prioritization Asbestos Assessment Study	1 - 10
Section 01770 Closeout Procedures	1 - 6
DIVISION 2 - SITE CONSTRUCTION	
Section 02070 Selective Demolition.....	1 - 5
DIVISION 7 - THERMAL AND MOISTURE PROTECTION	
Section 07920 Sealants.....	1 - 5
DIVISION 8 - DOORS AND WINDOWS	
Section 08110 Steel Doors and Frames	1 - 6
Section 08410 Aluminum Entry Doors and Window Wall.....	1 - 7
Section 08520 Aluminum Windows	1 - 5
Section 08710 Finish Hardware.....	1 - 11
Section 08800 Glazing	1 - 6
DIVISION 9 - FINISHES	
Section 09900 Painting.....	1 - 10

DIVISION 10 - SPECIALTIES

Section 10200 Metal Wall Louvers..... 1 - 5

DIVISION 13 - SPECIAL CONSTRUCTION

Section 13280 Removal and Disposal of Asbestos-Containing Material 1 - 19
Section 13283 Disturbance of Lead-Containing Material 1 - 14
Section 13288 Testing / Air Monitoring 1 - 2

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01100 - PROJECT REQUIREMENTS

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: The Project consists of the replacement of existing exterior windows, doors and louvers with new hurricane resistant window, door and louver assemblies, and associated door hardware, painting, and hazardous material removal.
 - 1. Project Location: Building 306
State of Hawaii
Department of Defense
3949 Diamond Head Road
Honolulu, Hawai'i 96816
- B. Perform operations and furnish equipment, fixtures, appliances, tools, materials, related items and labor necessary to execute, complete and deliver the Work as required by the Contract Documents.
- C. The Division and Sections into which these specifications are divided shall not be considered an accurate or complete segregation of work by trades. This also applies to work specified within each section.
- D. Contractor shall not alter the Drawings and Specification. If an error or discrepancy is found, notify the Project Contact Person.
- E. Specifying of interface and coordination in the various specification sections is provided for information and convenience only. These requirements in the various sections shall complement the requirements of this Section.

1.02 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated and include incomplete sentences. Omission of words or phrases such as "the Contractor shall", "as shown on the drawings", "a", "an", and "the" are intentional. Omitted words and phrases shall be provided by inference to form complete sentences. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates. Where devices, or items, or parts thereof are referred to in the singular, it is intended that such reference shall apply to as many such devices, items or parts as are required to properly complete the Work.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be

performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

a. The words "shall", "shall be", or "shall comply with", depending on the context, are implied where a colon (:) is used within a sentence or phrase.

3. Abbreviations and Acronyms for Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Terms

1. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean directed by Project Contact Person, requested by Project Contact Person, and similar phrases.
2. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on drawings or to other paragraphs or schedules in specifications and similar requirements in the Contract Documents. Terms such as "shown", "noted", "scheduled", and "specified" are used to help the user locate the reference.
3. Furnish: The term "furnish" means to supply and deliver to project site, ready for unloading, unpacking, assembly, and similar operations.
4. Install: The term "install" describes operations at project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
5. Provide: The terms "provide" or "provides" means to furnish and install, complete and ready for the intended use.
6. Installer: An installer is the Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-Subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
7. Submit: Terms such as "submit", "furnish", "provide", and "prepare" and similar phrases in the context of a submittal, means to submit to the Contracting Officer.

C. Industry Standards

1. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
2. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

3. **Conflicting Requirements:** If compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the Project Contact Person for a decision before proceeding.

1.03 CONTRACT

- A. Refer to other contract conditions.

1.04 WORK SEQUENCE

- A. The Work shall be appropriately phased to ensure there is no disruption to the operations of the facility, except as described below, during the facilities normal business hours.
- B. It is intended that the work within a given area be completed before moving onto another area. Therefore, after an individual or grouping of existing window(s) or door(s) assembly have been removed, the work to install the new window(s) or door(s) assembly shall be completed **BEFORE** beginning work on another individual or grouping of window(s) or door(s). The replacement of individual and groupings of windows and doors shall be identified in the Contractor's Phasing Plan.
 1. Window and door openings shall not be left open and unsecured. Before leaving the job-site on a daily basis, installation of the new replacement window(s) and/or door(s) shall be complete.
 2. Since the building will remain operational throughout the duration of the project (i.e. staff and employees will be in their offices), as much as possible the work to replace windows shall be performed from the exterior side of the building. Plastic sheeting or other appropriate material shall be placed over the interior side of the window opening to prevent the migration of dust and debris into the building.
- C. Contractor's Phasing Plan: Submit a proposed work schedule / Phasing Plan to the Project Contact Person for approval before work is started. The Phasing plan shall include the following:
 1. Procedures for careful removal and disposition of materials and equipment, including hazardous materials, windows, doors, louvers, etc.
 2. Coordination with other work in progress
 3. The schedule for the disconnection and reconnection of electronic door locks and intrusion detection system.
 4. A detailed description of the methods and equipment to be used for each phase.
 5. Sequence of operations.
 6. Plan for temporarily vacating spaces and relocation of occupants where health and safety hazards will occur.

1.05 USE OF PREMISES AND WORK RESTRICTIONS

- A. General: The Contractor is notified that Building 306 will be operational and shall remain accessible to the building's staff and patrons for the duration of the construction period. No additional compensation or time will be granted to the Contractor for failure to acknowledge and account for the requirements of this section in his bid.
- B. The Contractor shall coordinate, schedule and perform his work and operations in such a manner so as to minimize inconveniences, hazards and disturbances to the building's occupants and patrons, and to ensure their safety.
1. The Contractor shall consult with the Project Contact Person regarding the site conditions and factors that affect construction scheduling and procedures.
 2. All work, including access, utility outages and facility disruptions, shall be coordinated in writing with the Project Contact Person. Clearly identify the elements of work and disruptions in the work schedule.
 3. The Contractor shall employ, insofar as possible, such methods and means of carrying out its work so as not to cause any interruptions or interference to the facilities operations. Where the Contractor's operations would result in interruptions which would adversely impact the operations of the facility, the Contractor shall rearrange his schedule of work accordingly. Such adjustments to the Contractor's schedule shall not entitle the Contractor to additional compensation.
 4. As the facility will remain operational throughout the entire duration of the project, the Contractor shall maintain safe access and egress around the project site/areas of work at all times.
 5. Confine construction activities, operations, materials, equipment and appliances to the immediate vicinity of the project work area.
 - a. Do not unreasonably obstruct or interfere with the operation of the staff and public.
 - b. Building walkways, corridors, entry and egress paths, and exits shall be kept clear of stored materials, dirt and debris. Areas accessible to the staff and public shall be protected from hazardous conditions.
 6. Disruptions of access, etc. shall be scheduled and coordinated, in advance, with the Project Contact Person.
 - a. Disruptions (including the location where work will be performed) shall also be identified in the work schedule.
 - b. The Contractor shall provide construction aids as necessary to maintain the normal operations of the facility and to protect the facilities staff, patrons and visitors. Relocate construction aids as requested by the Contracting Officer to accommodate legitimate requirements of the facility.

- c. Areas surrounding the area(s) of work shall be kept clean of dirt and debris at all times.
- C. No on-site work shall be allowed until all materials to be installed are in the possession of the general contractor or the relevant subcontractor and the area of work has been properly prepared and readied for installation.
 - 1. The General Contractor shall provide evidence to the Project Contact Person that this provision has been satisfied. The project construction schedule shall be developed on this basis.
 - 2. Once the Work, including that of individual phases, has started, it shall proceed without interruption, until Work and/or the Work of the individual phase has been completed.

D. Contractor's use of premises is restricted as follows:

- 1. Construction Times and Schedule:
 - a. The normal business hours for the Building 306 are from 7:30 a.m. to 4:30 p.m., Monday through Friday, excluding State Holidays.
 - b. The National Guard also occupies Building 306 on "drill weekends", from 7:30 a.m. to 4:30 p.m. The "drill weekend" dates are noted in paragraph 1.09 below.
 - c. The Contractors normal working hours are from 7:45 a.m. to 4:30 p.m., Monday through Friday, excluding State Holidays.

d. **The following work shall be performed outside of the facilities normal business hours:**

- 1) Hazardous materials (e.g. ACM) removal work.
- 2) Demolition work creating excessive dust and noise, such as concrete coring, hammer drilling, saw cutting, circular or reciprocating saws, hammering, trenching and excavation, etc.
- 3) Work generating obnoxious odors (e.g. painting and the installation of sealants and caulking). NOTE: Portable fan units shall be provided to exhaust the odors to the building exterior.
- 4) Work to replace the windows within the following rooms:

Room No.	Occupancy	Window(s) No.
204	TAG Conference Room	205, 206
205	Deputy Adjutant General (DAG)	207, 208, 209
206	DAG Secretary	210
207	TAG Secretary	210
209	The Adjutant General (TAG)	211, 212, 213

- e. Coordinate, pre-arrange and obtain approval from the Project Contact Person for temporary disconnection and/or connection, and any

anticipated disruptions to the electronic door locks and intrusion detection system.

- f. Night, weekend and overtime work is allowed unless restricted elsewhere.
 - 1) Work performed outside of the facilities normal business hours shall be coordinated in writing with the Project Contact Persons a minimum of 14-calendar days, in advance of the proposed work date.
 - 2) Pay for overtime costs for work performed outside of the facilities normal business hours as part of the contract.
 - 3) Pay for Special Duty Officers as described under "Security Provisions" below as part of the contract.
- 2. Site Access and Parking:
 - a. Parking: Do not use parking stalls in regularly designated parking zones within the Facility grounds. Unauthorized vehicles parked in marked stalls and in any area outside of the designated project construction site will be subject to towing at the Contractor's expense.
 - b. Refer to SECTION 01700 – EXECUTION REQUIREMENTS for parking requirements.
 - c. Maintain access to the Loading area through Project Contract Limits.
 - d. Access to the building entrances shall not be blocked.
 - e. The Contractor shall not utilize the access driveway fronting the main building entrance (Door No. 1) unless coordinated in advance with the Project Contact Person. Use of this driveway shall be limited to the loading and un-loading of materials and equipment. The Contractor shall schedule use of this driveway, in writing, a minimum of 14-calendar days in advance of the requested use date.
 - e. Obey all local rules and regulations governing safety, parking and traffic circulation.
 - f. Keep access roads to the project site free of dirt and debris. Provide, erect and maintain lights, barriers, signs, etc. when working on facility roads, driveways, and walkways to protect pedestrians and others.
- 3. Storage and Staging:
 - a. The Contractor shall coordinate parking, storage and staging areas with the Project Contact Persons prior to construction.
 - 1) No storage of materials inside of Building 306 will be allowed.
 - 2) Contractor trailers for the storage of equipment, machinery, supplies and materials can be parked on-site. Coordinate location with the Project Contact Person.

- b. The Contractor shall maintain full responsibility for equipment, machinery, supplies/materials. The State shall not be liable for injury, losses or damages incurred by the Contractor.
4. Barricades, Signs and Lighting:
- a. Utilize barricades, constructed of appropriate materials, along with warning and directional signage, at construction areas to prevent unauthorized individuals from entering the construction area.
 - 1) Meet with the Project Contact Person to discuss and define the actual location of barricades. To ensure the protection and safety of the staff and patrons, adjust or extend the barricades and directional signs if directed by the Project Contact Person, at no additional cost to the State.
 - 2) Locate barricades to maintain existing, and required, fire exits or lanes from adjacent buildings.
 - b. Barricades shall be constructed to prevent the migration of dust and debris outside of the work area. The Contractor shall be responsible for cleaning of dust and debris found outside of the area of work, to the satisfaction of the Project Contact Person, at no additional cost to the State.
 - c. The Contractor shall provide temporary enclosures or coverings where necessary or required, or as directed by the Contracting Officer, at no additional cost to the State. Furniture and flooring within the immediate vicinity of the work shall be covered with clean drop cloths or plastic sheeting to protect them from dust and debris.
6. Sanitation:
- a. The Contractor will be allowed the use of the restrooms in Building 306 as long as this privilege is not abused. An example of abuse is the lavatories are found soiled with construction debris like cement, dry wall plaster, grease, sealant, etc. Frequently soiled fixtures would be cause to terminate the use of the building's facilities and the Contractor will then be responsible to find or provide sanitary facilities outside of the building.
7. Noise and Dust Control:
- a. The Contractor shall protect furniture and equipment within the barricade enclosure and work area with appropriate material to protect the furniture and equipment from dust and damage.
 - b. In adjacent locations surrounding the project site, noise, dust and other disrupting activities, resulting from construction operations, are detrimental to the conduct of the Facility activities. Therefore, Contractor shall monitor its construction activities. Exercise precaution when using equipment and machinery to keep the noise and dust levels to a minimum.
 - c. To reduce loud disruptive noise levels, ensure mufflers and other devices are provided on equipment, internal combustion engines and compressors.

- d. Schedule construction activities that create excessive noise and dust problems, such as concrete coring, drilling, hammering, trenching, and demolition, for the weekends, holidays or non-business hours. Overtime costs for the Contractor's employees and work force are the Contractor's responsibility.
 - d. The Project Contact Person will require any construction activity that produces excessiveness of noise and dust to be performed during non-business hours. The Project Contact Person shall make the final determination. Overtime costs for the Contractor's employees and work force are the Contractor's responsibility.
 - e. The use of radios or stereos by the Contractor's employees is expressly prohibited.
8. Contractor Attire and Conduct:
- a. Proper attire (in good taste) and safety equipment shall be worn at all times.
 - b. The Contractor and its employees shall wear shirts identifying the Contractor's company and shall also maintain photo identification on their person at all times.
 - c. The Contractor is cautioned that the building is occupied by The Adjutant General, Deputy Adjutant General, their immediate staff, and other high level military and civilian personnel. In addition, the building is frequently visited by dignitaries of the U.S. Government and other Nations. Therefore, the Contractor's employees and those of their subcontractors shall be respectful and on their best behavior while on the premises. The Contractor shall remove employees exhibiting disrespectful behavior from the project site at the request of the Project Contact Person.
9. Other Conditions:
- a. Arrange for construction debris and trash to be removed from project site weekly.
 - 1) Use of the facilities solid waste container is prohibited.
 - 2) If encountered, hazardous material waste shall be removed from the project site on a daily basis.
 - b. Operate machinery and equipment with discretion and with minimum interference to driveways and walkways. Do not leave machinery and equipment unattended on roads and driveways.
 - d. Keep access roads to the project site free of dirt and debris. Provide, erect and maintain lights, barriers, signs, etc. when working on campus roads, driveways and walkways to protect pedestrians and moped/bicycle riders. Obey the facilities traffic and safety regulations.

- e. Store materials in the areas as designated by the Project Contact Person. Locate construction equipment, machinery, equipment and supplies within the Project Contract Limits.
- f. Keep access roads to the project site free of dirt and debris. Provide, erect and maintain lights, barriers, signs, etc. when working on facility roads, driveways and walkways to protect pedestrians and moped/bicycle riders. Obey facility traffic and safety regulations.

E. Security Provisions:

1. When work is performed outside the normal operating hours of the building or Department (or Users operations), only a single entry to the building will be permitted and a Special Duty Officer (Deputy Sheriff) shall be stationed at this entrance throughout the period that it is open. Additional Officers will be required for workers or crews at each separate interior work site. The additional Officer(s) shall escort and monitor each worker or crew in each separate part of the building interior or other portions of the building.
2. Contact and arrange with the Department of Public Safety, Sheriff's Division, Special Duty Coordinator (telephone 587-2647) and the Sheriff's office on the island or region on Oahu where the project is to be constructed to provide the security personnel.
3. Make arrangements at least 48 hours before security personnel are required. Special Duty Officer charges are \$30.00 per hour or fraction thereof (minimum of quarter hour increments), for a minimum of 4 hours. If the situation requires more Sheriffs, each additional Sheriff will be paid at the same hourly rate. A Sergeant at an hourly rate of \$35.00 will be required for every four Sheriffs and a Lieutenant at an hourly rate of \$40.00 will be required for every three Sergeants. If the Sheriff's office receives less than 12 hours notice for cancellation of scheduled security services, a minimum of four hours per Sheriff will be assessed to the requester.
4. Pay for State Security Guard's cost as part of the contract. Payment shall be made directly to the Special Duty Officer within 5 days of receipt after the Officer fills out a W-9 form on the jobsite.
5. Contact the Sheriff's Office under the local jurisdiction of the project building in addition to contacting the Special Duty Coordinator as follows:
(1) Capitol District: (808) 586-1352

Note that the Sheriff's Offices do not possess keys for access to the building. Such that arrangements must be made with the Project Contact Person to provide keys or the means for access to the building after normal working hours.

6. The Contractor shall be restricted to the areas of construction and shall at no time enter other areas unless granted permission by the Sheriff's Deputy on duty.
7. All movements of the Contractor's employees into and within the building will be subject to control by the Sheriff's Deputies.

- a. Drug Free System: Comply with the ban on smoking and other use of tobacco products, alcoholic beverages and other illegal substances at all times..

1.06 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: The State may execute a separate contract for certain construction at the project site, that was not known at the time Offers were submitted.
- B. Cooperate fully with separate Contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.07 FUTURE WORK

- A. It is not anticipated the State will award a future contract that depends on the Work under this contract.

1.08 STATE HOLIDAY SCHEDULE

<u>Holiday</u>	<u>Date Celebrated</u>	<u>Day of the Week</u>
Statehood Day	August 15, 2014	Friday
Labor Day	September 1, 2014	Monday
General Election Day	November 4, 2014	Tuesday
Veteran's Day	November 11, 2014	Tuesday
Thanksgiving	November 27, 2014	Thursday
Christmas	December 25, 2014	Thursday
New Year's Day	January 1, 2015	Thursday
Dr. Martin Luther King, Jr. Day	January 19, 2015	Monday
President's Day	February 16, 2015	Monday
Prince Jonah Kuhio Kalaniana'ole Day	March 26, 2015	Thursday
Good Friday	April 3, 2015	Friday
Memorial Day	May 25, 2015	Monday
King Kamehameha I Day	June 11, 2015	Thursday
Independence Day	July 3, 2015	Friday
Statehood Day	August 21, 2015	Friday
Labor Day	September 7, 2015	Monday

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Project meetings.

1.02 PERFORMANCE AND COORDINATION

- A. Contractor is in charge of the Work within the Project Contract Limits, and shall direct and schedule the Work. Include general supervision, management and control of the Work of this project, in addition to other areas more specifically noted throughout the Specifications. Final responsibility for performance, interface, and completion of the Work and the Project is the Contractor's.
- B. The Contractor is responsible for jobsite Administration. Provide a competent superintendent on the job and provide an adequate staff to execute the Work. In addition, all workers shall dress appropriately and conduct themselves properly at all times. Loud abusive behavior, sexual harassment and misconduct will not be tolerated. Workers found in violation of the above shall be removed from the job site as directed by the Project Contact Person.
- C. The State will hold the Contractor liable for all the acts of Subcontractors and shall deal only with the Prime Contractor in matters pertaining to other trades employed on the job.
- D. Coordination: Provide project interface and coordination to properly and accurately bring together the several parts, components, systems, and assemblies as required to complete the Work pursuant to the GENERAL CONDITIONS and SPECIAL CONDITIONS.
 - 1. Provide interface and coordination of all trades, crafts and subcontracts. Ensure and make correct and accurate connections of abutting, adjoining, overlapping, and related work. Provide anchors, fasteners, accessories, appurtenances, and incidental items needed to complete the Work, fully, and correctly in accordance with the Contract Documents.
 - 2. Provide additional structural components, bracing, blocking, miscellaneous metal, backing, anchors, fasteners, and installation accessories required to properly anchor, fasten, or attach material, equipment, hardware, systems and assemblies to the structure.
 - 3. Provide excavation, backfilling, trenching and drilling for trades to install their work.
 - 4. Provide concrete foundations, pads, supports, bases, and grouting for trades as needed to install their work.

5. Provide caulking, sealing, and flashing as required to waterproof the building complete and as required to insulate the building thermally and acoustically. Include sealing, flashing, and related work as required to prevent moisture intrusion, air infiltration, and light leakage.
6. Materials, equipment, component parts, accessories, incidental items, connections, and services required to complete the Work which are not provided by Subcontractors shall be provided by the Contractor.
7. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1.03 COOPERATION WITH OTHER CONTRACTORS

- A. The State reserves the right at any time to contract for or otherwise perform other or additional work within the Project Contract Limits. The Contractor of this project shall to the extent ordered by the Project Contact Person, conduct its work so as not to interfere with or hinder the progress or completion of the work performed by the State or other Contractors.

1.04 COORDINATION WITH OTHER PRIME CONTRACTORS

- A. Multiple prime Contractors performing work under separate agreements with the State may be present near the project location, adjacent to and abutting the Project Contract Limits. This Contractor shall coordinate activities, sequence of work, protective barriers and any and all areas of work interfacing with other Prime Contractor's work. Contractor shall provide a continuity of finishes, walks, landscape, etc. at abutting Contract Limits so no additional work will be required. Any damage to other Prime Contractor's Work committed by this Contractor (or its Subcontractor) shall be repaired promptly at no additional cost to the State.
- B. Coordinate Subcontractors and keep them informed of any work from the other Projects that may affect the site or the Subcontractor's work. If the Contractor has any questions regarding its coordination responsibilities or needs clarification as to the impact in scheduling of its work and the work of other projects, this Contractor shall notify the Project Contact Person in writing.
- C. Subject to approval by the Project Contact Person, this Contractor shall amend and schedule its work and operations to minimize disruptions to the work and operations of other projects.
 1. Relocate or remove and replace temporary barriers, fencing supports or bracing to allow work by others to proceed unimpeded. Do not remove required barriers supporting work until specified time or as approved by the Project Contact Person. This does not relieve the Contractor of the responsibility of proper coordination of the work. If directed by the Project Contact Person, leave in place any temporary barriers.
 2. Coordinate work that abuts or overlaps work of the other projects with the Project Contact Person and other Prime Contractors to mutual agreement so that work is 100 percent complete with continuity of all materials, systems and finishes.

3. When directed by the Project Contact Person, provide access into the construction zone to allow the other project's Contractor(s) to perform their Work and work that must be interfaced.
 4. Contractor shall adjust and coordinate its Work and operations as required by the other projects as part of the Work of this contract without additional cost or delay to the State.
 5. When directed by the Project Contact Person provide a combined Contractor's construction schedule.
- D. Other Contracts: If known, they are listed in SECTION 01100 - PROJECT REQUIREMENTS.

1.05 PROJECT MEETINGS AND TRAINING

- A. General: Schedule and conduct meetings and conferences as directed by the Project Contact Person at the Contractor's field office, unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Project Contact Person of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Contractor record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Project Contact Person, within 7 days of the meeting.
- B. Preconstruction Conference: Project Contact Person shall schedule a preconstruction conference before the start of construction, at a time convenient to the Project Contact Person. Conference will be held at the Project site or another convenient location. The Project Contact Person shall conduct the meeting to review legal and contracting requirements, review responsibilities, and personnel assignments.
1. Attendees: Project Contact Person, and design consultants; Facility Users; Contractor and its superintendent; major Subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and coordination.
 - d. Designation of responsible personnel.
 - e. Use of the premises.

- f. Responsibility for temporary facilities and controls.
 - g. Parking availability.
 - h. Office, work, and storage areas.
 - i. Equipment deliveries and priorities.
 - j. First aid.
 - k. Security.
 - l. Sustainable design requirements such as:
 - 1. Construction Waste Management and recycling
 - 2. Commissioning
 - 3. Recordkeeping, submittals, etc.
 - m. Progress cleaning.
 - n. Working hours.
- C. Progress Meetings: Conduct progress meetings at monthly or other intervals as determined by the Project Contact Person. Coordinate dates of meetings with preparation of payment requests.
- 1. Attendees: In addition to Project Contact Person, each Contractor, Subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Outstanding Requests for information (clarification).
 - 2) Interface requirements.
 - 3) Sequence of operations.

- 4) Status of outstanding submittals.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site utilization.
 - 9) Temporary facilities and controls.
 - 10) Work hours.
 - 11) Hazards and risks.
 - 12) Progress cleaning.
 - 13) Quality and work standards.
 - 14) Force Account work.
 - 15) Change Orders and Change Proposals.
 - 16) Documentation of information for payment requests.
- c. Corrective Action Plan: Contractor shall provide a plan of corrective action for any item which is delayed or expected to be delayed, then that item impacts the contractual dates.
3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
- a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Schedule of Prices.
 - 4. Payment Application.
- B. Related Sections include the following:
 - 1. SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION for preparing a combined Contractor's Construction Schedule.
 - 2. SECTION 01330 - SUBMITTAL PROCEDURES for submitting schedules and reports.

1.02 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path and control the total length of the project. They must start and finish on the planned early start and finish times.
 - 2. Predecessor activity is an activity that must be completed before a given activity can be started.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of project.
- C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.

- E. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either the Department or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- F. Schedule of Prices: A statement furnished by Contractor allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Payment Applications.

1.03 SUBMITTALS

- A. Required Submittals: Submit 8 sets of the list of the required submittals, by Specification Section, within 15 days after award of the contract or upon earlier written instructions from the Project Contact Person.
 - 1. The listing shall indicate and include the following:
 - a. The number of copies required for submittal.
 - b. Planned submittal date.
 - c. Approval date required by the Contractor.
 - d. A space where the "date of submittal" can be inserted.
 - e. A space where the "date of approval" can be inserted.
 - f. A space where an "action code" can be inserted.
- B. Construction Schedule: Submit 7 sets of the Construction Schedule for review within 15 days after the award of the contract or upon earlier written instructions from the Project Contact Person.
- C. Schedule of Prices: Submit 3 sets of the Schedule of Prices integrated with the Construction Schedule for review within 15 days after the award of the contract or upon earlier written instructions from the Project Contact Person.
 - 1. Use the Department's forms for Payment applications.
- D. Payment Application: Submit the payment application at earliest possible date and no sooner than the last day of the month after all payroll affidavits, updated submittal registers, and schedules have been submitted.

1.04 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate Contractors.

- B. Construction Schedule: Coordinate Contractor's Construction Schedule with the Schedule of Prices, Submittals Schedule, loaded monthly event activity, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.
- C. Schedule of Prices: Coordinate preparation of the schedule with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Prices with other required administrative forms and schedules, including the following:
 - a. The Department's Payment Application form and the Construction Progress Report continuation sheet for the event cost estimate per time period.
 - b. Submittals Schedule.

PART 2 - PRODUCTS

2.01 SUBMITTALS SCHEDULE

- A. Comply with the GENERAL CONDITIONS "SHOP DRAWINGS AND OTHER SUBMITTALS" Article. Furnish required submittals specified in this Section and in the Technical Sections. Submittals include one or more of the following: shop drawings, color samples, material samples, technical data, material safety data information, schedules of materials, schedules of operations, guarantees, certifications, operating and maintenance manuals, and field posted as-built drawings.
- B. Preparation: Furnish a schedule of submittals per Project Contact Person.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Prices, and Contractor's Construction Schedule.
 - 2. The schedule shall accommodate a minimum of 25 calendar days for the State's review, as applicable for the Island the project is located.
 - 3. Prepare and submit an updated list to the Project Contact Person at monthly intervals or as directed by the Project Contact Person. The listing shall reflect all approvals received since the last update.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE - GANT CHART CRITICAL PATH METHOD (CPM)

- A. The construction schedule shall address the entire project, to the extent required by the Contract Documents, and shall show an expedient and practical execution of work. If requested by the Project Contact Person, the Contractor shall participate in a preliminary meeting to discuss the proposed schedule and requirements prior to submitting the schedule.

- B. The Construction Schedule shall indicate the following:
1. Elements of the Project in detail time scaled by month or by week, and a project summary.
 2. The order and interdependence of activities and the sequence in which the work is to be accomplished.
 3. How the start of a given activity is dependent upon the completion of preceding activities and how its completion restricts the start of following activities.
 4. The submittal and approval of shop drawings, samples, procurement of critical materials and equipment, receipt of materials with estimated costs of major items for which payment will be requested in advance of installation, fabrication of special materials and equipment, and their installation and testing.
 5. Activities of the State that have an effect on the progress schedule, such as the required delivery dates for State furnished materials and equipment and other similar items.
 6. Provide a separate report with the following:
 - a. The description of the activity.
 - b. The duration of time in calendar days.
 - c. For each activity indicate the early start date.
 - d. For each activity indicate the early finish date.
 - e. For each activity indicate the late start date.
 - f. For each activity indicate the late finish date.
 - g. Total float time.
 - h. Cost of event.
 - i. Contract-required dates for completion of all or parts of the Work.
 - j. Events are to be used on "Monthly Progress Report" for monthly payment request.
- C. Upon completion of the Project Contact Person's review, the Contractor shall amend the schedule to reflect the comments. If necessary, the Contractor shall participate in a meeting with the Project Contact Person to discuss the proposed schedule and changes required. Submit the revised schedule for review within 7 calendar days after receipt of the comments.

- D. Use the reviewed schedule for planning, organizing and directing the work, for reporting progress, and for requesting payment for the work completed. Unless providing an update, do not make changes to the reviewed schedule without the Project Contact Person's approval.
- E. Should changes to the schedule be desired, submit a request in writing to the Project Contact Person and indicate the reasons for the proposed change. If the changes are major, the Project Contact Person may require the Contractor to revise and resubmit the schedule at no additional cost to the State. Contractor shall mitigate the impact of all changes by readjusting the sequence of activities, duration of time, or resources utilizing available float.
 - 1. A change is major if, in the opinion of the Project Contact Person, the change affects the substantial completion date or other contractual and milestone dates.
 - 2. Minor changes are those that only affect activities with adequate float time.
- F. Once the schedule is reviewed by the Project Contact Person, the Contractor shall submit 6 sets of the revised schedule within 14 calendar days.
- G. Throughout the duration of the project, the Project Contact Person may require more detailed breakdowns of activities, logic, and schedule submittals from the Contractor.
- H. Updated Schedules: Submit at monthly intervals or as directed by the Project Contact Person. The schedule shall reflect all changes occurring since the last update including the following:
 - 1. Activities started and completed during the previous period.
 - 2. The estimated duration to complete each activity that was started but not completed.
 - 3. Percentage of cost payable for each activity.
 - 4. Modifications and pending proposed changes.
 - 5. Narrative report describing current and anticipated problem areas or delaying factors with their impact together with an explanation of corrective actions taken or proposed.
- I. Failure on the part of the Contractor to submit updated schedules may be grounds for the Project Contact Person to withhold progress payments for items noted on the schedule.
- J. Contractor shall prosecute the work according to the CPM Schedule. The Project Contact Person shall rely on the reviewed Contractor's CPM Schedule and regular updates for planning and coordination. The Project Contact Person's review of the Contractor's CPM Construction Schedule does not relieve the Contractor of its obligation to complete the work within the allotted contract time. Nor does the review grant, reject or in any other way act on the Contractor's request for adjustments to complete remaining contract work, or for claims of

additional compensation. These requests shall be processed in accordance with other relevant provisions of the contract.

- K. If the Project Contact Person issues a field order or change order or other directive that affects the sequence or duration of work activities noted on the construction progress schedule, the Contractor shall promptly update the schedule. To accomplish this update, add, delete or revise the work activities noted or change the logic in the schedule to show the Contractor's plan to incorporate the change into the flow of work. All change orders and time extension requests that affect the construction schedule shall be evaluated based on their impact on the approved Construction Schedule.
- L. If the current work is behind schedule or projected to be behind schedule, such as negative float on a critical activity or inability to meet the Contract Completion Date, the Project Contact Person may require the Contractor, at the Contractor's cost, to take remedial measures to get the project back on schedule. This may require increasing the work force, working overtime and weekends, air freighting materials, or other similar actions.
- M. If at any time the Project Contact Person determines that any critical activity has fallen behind the CPM schedule by 15 calendar days or more, the Contractor shall submit a remedial plan to recapture the lost scheduled time. Include a revised schedule. Furnish the remedial plan no later than 7 calendar days from Project Contact Person's notification.
- N. If an accelerated schedule is proposed, refer to GENERAL CONDITIONS Section 7.22 "CONSTRUCTION SCHEDULE".

2.03 SCHEDULE OF PRICES

- A. Furnish a schedule of prices per Project Contact Person.
- B. Provide a breakdown of the Contract Sum in enough detail to facilitate developing and the continued evaluation of Payment Applications. Provide several line items for principal subcontract amounts, or for materials or equipment purchased or fabricated and stored, but not yet installed, where appropriate. Round amounts to nearest whole dollar; total shall equal the Contract Price.
- C. Each item in the Schedule of Prices and Payment Application shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

2.04 PAYMENT APPLICATION

- A. Use the Schedule of Prices as the Monthly Construction Progress Report. Each Payment Application shall be consistent with previous applications and payments. The Project Contact Person shall determine the appropriateness of each payment application item.

- B. Payment Application Times: The State of Hawaii has 30 days from date of receipt of invoice to make payment. The period covered by each Payment Application starts on the first day of the month or following the end of the preceding period and ends on the last day of the month.
- C. Updating: Update the schedule of prices listed in the Payment application when Change Orders or Contract Modifications result in a change in the Contract Price.
- D. Provide a separate line item for each part of the Work where Payment Application may include materials or equipment purchased or fabricated and stored, but not yet installed.
- E. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
- F. Provide separate line items for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
- G. Payment Application Forms: Use and submit copies of the Payment Application and Construction Progress forms provided by Project Contact Person.
- H. Application Preparation: Complete every entry on form. Execute by a person authorized to sign legal documents on behalf of the Contractor.
 - 1. Entries shall match data on the Schedule of Prices and Contractor's Construction Schedule. Use updated schedules if revisions were made. Include amounts of Change Orders and Contract Modifications issued before last day of construction period covered by application.
- I. No payment will be made until the following are submitted each month:
 - 1. Monthly Estimate, 7 copies.
 - 2. Monthly Progress Report, 7 copies.
 - 3. Statement of Contract Time, 7 copies.
 - 4. Updated Submittal Register, 1 copy.
 - 5. Updated Progress Schedule, 1 copy.
 - 6. All Daily Reports, 1 copy.
 - 7. All Payroll Affidavits for work done, 1 copy.
- J. Retainage: The Department will withhold retainage in compliance with the GENERAL CONDITIONS.
- K. Transmittal: Submit the signed original and 6 copies of each Payment Application for processing.

2.05 CONTRACTOR DAILY PROGRESS REPORTS

- A. The General Contractor and all Subcontractors shall keep a daily report of report events.
- B. The form of the Contractor Daily Progress Report shall be as directed by the Project Contact Person.
- C. Submit copies of the previous week's reports on Monday morning at 10:00 a.m.
- D. Submit copies of the reports with the monthly payment request for the whole period since the last payment request submittal.
- E. Deliver the reports in hard copy, by e-mail, or web based construction management as directed by the Project Contact Person.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Comply with the GENERAL CONDITIONS "Shop Drawings and Other Submittals" section and "Material Samples" section.
- B. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- C. Related Sections include the following:
 - 1. SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 2. SECTION 01770 - CLOSEOUT PROCEDURES for submitting warranties, project record documents and operation and maintenance manuals.

1.02 SUBMITTAL PROCEDURES

- A. Coordinate Work and Submittals: Contractor shall certify the submittals were reviewed and coordinated.
- B. Submittal Certification: Provide in MS Word when submitting electronically. Project Contact Person will provide an electronic copy of the Submittal Certification. Provide a reproduction (or stamp) of the "Submittal Certification" and furnish the required information with all submittals. Include the certification on:
 - 1. The title sheet of each shop drawing, or on
 - 2. The cover sheet of submittals in 8-1/2 inch x 11-inch format, or on
 - 3. One face of a cardstock tag (minimum size 3-inch x 6-inch) tied to each sample. On the sample tag, identify the sample to ensure sample can be matched to the tag if accidentally separated. The opposite face of the tag will be used by the Project Contact Person to receive, review, log stamp and include comments.
- C. Variances: The Contractor shall request approval for a variance. Clearly note any proposed deviations or variances from the Specifications, Drawings, and other Contract Documents on the submittal and also in a separately written letter accompanying the submittal.

D. Submittal Certification Form (stamp or digital)

CONTRACTOR'S NAME: _____
PROJECT: _____

As the General Contractor, we checked this submittal and we certify it is correct, complete, and in compliance with Contract Drawings and Specifications. All affected Contractors and suppliers are aware of, and will integrate this submittal into their own work.

SUBMITTAL NUMBER _____ DATE RECEIVED _____
REVISION NUMBER _____ DATE RECEIVED _____
SPECIFICATION SECTION NUMBER /PARAGRAPH NUMBER _____
DRAWING NUMBER _____
SUBCONTRACTOR'S NAME _____
SUPPLIER'S NAME _____
MANUFACTURER'S NAME _____

NOTE: DEVIATIONS FROM THE CONTRACT DOCUMENTS ARE PROPOSED AS FOLLOWS (Indicate "NONE" if there are no deviations)

CERTIFIED BY	_____
--------------	-------

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SUBMITTAL REGISTER AND TRANSMITTAL FORM

- A. Contractor shall use submittal register and transmittal forms as directed by the Project Contact Person.

- B. The listing of required submittals within this Section is provided for the Contractor's convenience. Review the specification technical sections and prepare a comprehensive listing of required submittals. Furnish submittals to the Project Contact Person for review.

- C. Contractor shall separate each submittal item by listing all submittals in the following groups with the items in each group sequentially listed by the specification section they come from:
 - 1. Administrative
 - 2. Data
 - 3. Tests
 - 4. Closing

- D. Contractor shall separate all different types of data as separate line items all with the column requirements.

- E. Contractor shall send monthly updates and reconciled copies electronically to the Project Contact Person and the Design Consultant in MS Word or MS Excel or other format as accepted by the Project Contact Person.

Section No. - Title	Shop Drawings & Diagrams	Samples	Certificates (Material, Treatment, Applicator, etc.)	Product Data, Manufacturer's Technical Literature	MSDS Sheets	Calculations	Reports (Testing, Maintenance, Inspection, etc.)	Test Plan	O & M Manual	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty	Manufacturer's Guaranty or Warranty (Greater than one year)
01320 - Construction Progress Documentation											■			■		
01330 - Submittal Procedures			■											■		
01500 - Temporary Facilities and Controls							■							■		
01524 - Construction Waste Management						■	■							■		
01700 - Execution Requirements														■		
01770 - Closeout Procedures	■								■				■	■	■	
02070 - Selective Demolition											■			■		
07920 - Sealants		■		■	■									■	2	
08110 - Steel Doors and Frames	■			■										■		
08410 - Aluminum Entry Doors and Window Wall	■	■	■	■			■		■					■		

Section No. - Title	Shop Drawings & Diagrams	Samples	Certificates (Material, Treatment, Applicator, etc.)	Product Data, Manufacturer's Technical Literature	MSDS Sheets	Calculations	Reports (Testing, Maintenance, Inspection, etc.)	Test Plan	O & M Manual	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty	Manufacturer's Guaranty or Warranty (Greater than one year)
08520 - Aluminum Windows	■	■	■	■			■		■							2
08710 - Finish Hardware			■	■					■					■	1	10,2
08800 - Glazing		■		■										■		5
09900 - Painting		■	■	■	■		■				■			■	2	
10200 - Metal Wall Louvers	■	■	■	■												
13280 - Removal and Disposal of Asbestos-Containing Material	■	■	■	■	■						■			■		
13283 - Disturbance of Lead-Containing Material		■		■	■		■				■			■		

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

- A. Requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. Temporary utilities include but are not limited to, the following:
 - 1. Water service and distribution.
 - 2. Ventilation.
 - 3. Electric power service.
 - 4. Lighting.
 - 5. Telephone service.
- C. Support facilities include, but are not limited to, the following:
 - 1. Storage and fabrication sheds.
 - 2. Trash, refuse disposal.
- D. Security and protection facilities and measures include, but are not limited to, the following:
 - 1. Environmental protection.
 - 2. Barricades, warning signs, and lights.
 - 3. Fire protection.
- E. Related Sections: Refer to Divisions 2 through 16 for other temporary requirements including ventilation, humidity requirements and products in those Sections.

1.02 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to the State and shall be included in the Contract Price. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
 - 1. Other Contractors with agreements with the State or Federal Government working within the contract limits.
 - 2. Occupants of Project.
 - 3. Testing agencies.
 - 4. Project Contact Person and personnel of authorities having jurisdiction.

1.03 SUBMITTALS

- A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. Landfill Disposal Receipts: Submit copies of receipts issued by a landfill facility. Include receipts with Contractor Daily Progress Report.

1.04 QUALITY ASSURANCE

- A. Standards: Comply with IBC Chapter 33, "Safeguards During Construction", ANSI A10.6, "Safety Requirements for Demolition Operations", NECA's "Temporary Electrical Facilities", and NFPA 241, "Construction, Alteration, and Demolition Operations".
 - 1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
 - 2. Electrical Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70, "National Electrical Code".
 - a. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.05 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 - 1. Keep temporary services and facilities clean and neat.
 - 2. Relocate temporary services and facilities as required by progress of the Work.

1.06 PREPARATION AND PROTECTION

- A. Protection of Property: Continually maintain adequate protection of the Work from damage and protect all property, including but not limited to buildings, equipment, furniture, grounds, vegetation, material, utility systems located at and adjoining the job site. Repair, replace or pay the expense to repair damages resulting from Contractor's fault or negligence.
- B. Before starting work to be applied to previously erected constructions, make a thorough and complete investigation of the recipient surfaces and determine their suitability to receive required additional construction and finishes. Make any repair that is required to properly prepare surfaces, and coordinate the Work to provide a suitable surface to receive following Work.
- C. Commencing work by any trade implies acceptance of existing conditions and surfaces as satisfactory for the application of subsequent work, and full responsibility for finished results and assumption of warranty obligations under the Contract.

- D. Protect existing (including interiors) work to prevent damage by vandals or the elements. Provide temporary protection. Use curtains, barricades, or other appropriate methods. Take positive measures to prevent breakage of glass and damage to plastic, aluminum and other finishes.
- E. Repairs and Replacements: Promptly replace and repair damages to the approval of the Project Contact Person. Additional time required to secure replacements and to make repairs does not justify a time extension.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Project Contact Person. Provide materials suitable for use intended.
- B. Plastic Enclosure Fence: Industry standard 4-foot high plastic fencing with metal (or wood) post supports at 10-feet on center connected with a top and bottom 12-gauge soft annealed galvanized tie wires securely connected to posts. Posts shall be capable of resisting a lateral load of 100 pounds measured at the top of the post.

2.02 EQUIPMENT

- A. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA recommended classes for exposures. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- B. Electrical Outlets: Properly configured, NEMA polarized outlets to prevent insertion of 110 to 120 V plugs into higher voltage outlets; equipped with ground fault circuit interrupters, reset button, and pilot light.
- C. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125 V ac, 20 A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

- A. General: Connect to existing service where directed by the Project Contact Person.
 - 1. Arrange with utility company, the Department, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction.
- B. Water Service: A temporary tap into the facility's existing water system is allowed, subject to the following conditions:
 - 1. Comply with the Department of Health's and County water provider's requirements when tapping into the existing water system.
 - 2. Reasonable amounts of water will be available without charge.
 - 3. Should the Contractor at any time fail to comply with any or all of the above conditions, the Department may terminate the use of water. The Contractor shall remove the hookup within 48 hours of notification of such termination.
- C. Sanitary Facilities: Use of user's existing toilet facilities will be permitted where and when directed by the Project Contact Person, as long as facilities are cleaned and maintained in a condition acceptable to user. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include transformers, overload protected disconnecting means, automatic ground fault interrupters, and main distribution switchgear. Use of State facilities electrical power services will be permitted as long as equipment is maintained in a condition acceptable to the Project Contact Person.
- E. Electrical Distribution: Provide receptacle outlets adequate for connection of power tools and equipment. Protect wiring, in conduits or other, measures when exposed to possible damage or traffic areas.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations.
- G. Telephone Service: Provide a portable wireless telephone with voice-mail or messaging service for superintendent's use in making and receiving telephone calls when at the construction site.

3.03 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access or where shown on Contract Drawings or as directed by the Project Contact Person.
 - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion.

B. Temporary Sign(s):

1. Warning Sign: Attached to PART 3 - EXECUTION of this Section.
2. Provide temporary signs to provide directional information to constructional personnel and visitors.
3. Construct signs with durable materials, properly supported or mounted, and visible.

C. Trash, Refuse Disposal:

1. Department of Health - Illegal Dumping Notice. See attachment to Part 3 of this section.
 - a. This Notice to be printed out on 8.5x11" paper.
 - b. This Notice to be posted at the job site field office and/or in locations visible to all contractors, subcontractors, suppliers, vendors, etc. throughout the duration of the project.
2. Illegal Dumping of solid waste could subject the Contractor to fines and could lead to felony prosecution in accordance with Chapter 342H, HRS. For more information, see the following web site:
<http://www.hawaii.gov/health/environmental/waste/sw/pdf/llldump.pdf>
3. Provide waste collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.
4. Do not burn debris or waste materials on the project site.
5. Do not bury debris or waste material on the project site unless specifically allowed elsewhere in these specifications as backfill material.
6. Haul unusable debris and waste material to an appropriate off site dump area.
 - a. Water down debris and waste materials during loading operations or provide other measures to prevent dust or other airborne contaminants.
 - b. Vacuum, wet mop, or damp sweep when cleaning rubbish and fines which can become airborne from floors or other paved areas. Do not dry sweep.
 - c. Use enclosed chutes or containers to conveying debris from above the ground floor level.
7. Clean up shall include the collection of all waste paper and wrapping materials, cans, bottles, construction waste materials and other objectionable materials, and removal as required. Frequency of clean up shall coincide with rubbish producing events.

3.04 ENVIRONMENTAL CONTROLS

- A. General: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- B. Dust Control:
 - 1. Prevent dust from becoming airborne at all times including non working hours, weekends and holidays in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 60.1 Air Pollution Control.

 - 2. Contractor is responsible for and shall determine the method of dust control. Subject to the Contractor's choice, the use of water or environmentally friendly chemicals may be used over surfaces that create airborne dust.

 - 3. Contractor is responsible for all damage claims due to their negligence to control dust.

- C. Noise Control:
 - 1. Keep noise within acceptable levels at all times in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 46 Community Noise Control. Obtain and pay for the Community Noise Permit when construction equipment or other devices emit noise at levels exceeding the allowable limits.

 - 2. Ensure mufflers and other devices are provided on equipment, internal combustion engines and compressors to reduce loud disruptive noise levels and maintain equipment to reduce noise to acceptable levels.

 - 3. Unless specified elsewhere, do not start construction equipment that meet allowable noise limits prior to 6:45 A.M. or equipment exceeding allowable noise levels prior to 7:00 A.M.

- D. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect existing landscaping and tree root systems from damage, flooding, and erosion due to construction activity.

3.05 VIOLATION OF ENVIRONMENTAL PROVISIONS

- A. Violations of any of the above environmental control requirements or any other pollution control requirements; which may also be specified in the other Specifications sections, shall be resolved under the SUSPENSION and CORRECTIVE WORK Section of the GENERAL CONDITIONS.

3.06 BARRICADES AND ENCLOSURES

- A. Barricades: Before construction operations begin, erect temporary construction barricade(s) to prevent unauthorized persons from entering the project area and to the extent required by the Project Contact Person.
 - 1. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.

2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Project Contact Person with 2 sets of keys.
 3. Maintain temporary construction barricade(s) throughout the duration of the Work. During the course of the project, the Project Contact Person may require additional barricades be provided for the safety of the public. Contractor shall erect the additional barricade(s) at its own expense.
 4. Construction: Plastic fencing.
- B. Security Enclosure and Lockup:
1. Install substantial temporary enclosure around partially completed areas of construction.
 2. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- C. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

3.07 TEMPORARY FIRE PROTECTION

- A. Install and maintain temporary fire protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Provide fire extinguishers as required:
 - a. Other Locations: Class ABC dry chemical extinguishers or a combination of extinguishers of NFPA recommended classes for exposures.
 - b. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor.
 2. Store combustible materials in containers in fire safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire exposure areas.
 4. Supervise welding operations, combustion type temporary heating units, and similar sources of fire ignition.

3.08 OPERATION, TERMINATION, AND REMOVAL

- A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by heat temperatures and similar elements.
- B. Termination and Removal: Remove each temporary facility when need for its service has ended, or when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. The Department reserves the right to take possession of Project identification signs.

3.09 ATTACHMENTS

- A. Warning Sign: Requirements for Warning Sign.
- B. Department of Health - Illegal Dumping Notice.

END OF SECTION

DEPARTMENT OF HEALTH ILLEGAL DUMPING NOTICE

The law requires you to dispose solid waste only at recycling or disposal facilities permitted by the Department of Health.

“Solid waste” includes municipal refuse, construction and demolition waste, household waste, tires, car batteries, derelict vehicles, green wastes, furniture, and appliances.

Illegal dumping of solid waste or allowing illegal disposal of solid waste on your property even if contractual or other arrangements are made could subject you to fines from \$10,000 to \$25,000 per occurrence and could lead to felony prosecution in accordance with Chapter 342H, HRS.

**Contact the Department of Health,
Solid Waste Section at 586-4226
to report illegal dumping activities
or if you have further questions.**

SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.
- B. Related Sections include the following:
 - 1. SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS for environmental-protection measures during construction, and location of waste containers at Project site.
 - 2. SECTION 02070 - SELECTIVE DEMOLITION for disposition of waste resulting from partial demolition of buildings, structures, and site improvements and for disposition of hazardous waste.
- C. The State's goal is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that goal, the Contractor shall:
 - 1. Practice efficient waste management when sizing, cutting, and installing products and materials and
 - 2. Use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse.

1.02 DEFINITIONS

- A. **Construction Waste:** Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. **Demolition Waste:** Building and site improvement materials resulting from demolition or selective demolition operations.
- C. **Disposal:** Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. **Recycle:** Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. **Salvage:** Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.03 REFERENCES

- A. *A Contractor's Waste Management Guide: Best Management Practices and Tools for Job Site Recycling and Waste Reduction in Hawaii*, 1999. Request a copy from the State of Hawaii, Clean Hawaii Center (808) 587-3802 or download from www.hawaii.gov/dbedt/ert/cwmg/index.html.
- B. *Minimizing Construction & Demolition Waste*. State of Hawaii, Department of Health guidance on construction and demolition (C&D) waste management and listing of permitted C&D waste management facilities. Download from www.state.hi.us/health/eh/shwb/sw.

1.04 PERFORMANCE REQUIREMENTS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 50 percent by weight of total waste generated by the Work.
- B. Salvage/Recycle Requirements: State's requirement is to salvage and recycle as much nonhazardous demolition and construction waste as possible including the following materials:
 - 1. Demolition Waste:
 - a. Doors and frames.
 - b. Door hardware.
 - c. Windows.
 - d. Glazing.
 - e. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.
 - 6) Wood crates.
 - 7) Plastic pails.

1.05 SUBMITTALS

- A. Waste Management Plan: Submit 3 copies of plan within 30 days of date established for the Notice to Proceed.

- B. Waste Reduction Progress Reports:** Concurrent with each Application for Payment, submit three copies of report. Include separate reports for demolition and construction waste. Failure to submit this report may render the Payment Application incomplete and delay payment. Include the following information (the Progress Reports may be submitted in a form similar to Table 2 of Appendix A):
1. Material category.
 2. Generation point of waste.
 3. Total quantity of waste in tons.
 4. Quantity of waste salvaged, both estimated and actual in tons.
 5. Quantity of waste recycled, both estimated and actual in tons.
 6. Total quantity of waste recovered (salvaged plus recycled) in tons.
 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
 8. Records (Donations, Sales, Recycling/Processing, Landfill/Incinerator) as described in the following paragraph).
- C. Before request for Substantial Completion, submit:**
1. **Waste Reduction Calculations:** Before request for Substantial Completion, submit three copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work. Fill out the actual quantities in Appendix A Table 2 WASTE REDUCTION WORK PLAN. Also include an actual Cost/Revenue analysis to be compared with the projected Cost/Revenue analysis of the Waste Management Plan (See Appendix A Table 3).
 2. **Records of Donations:** Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
 3. **Records of Sales:** Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
 4. **Recycling and Processing Facility Records:** Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
 5. **Landfill and Incinerator Disposal Records:** Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- D. Qualification Data:** For Waste Management Coordinator and refrigerant recovery technician.

- E. **Statement of Refrigerant Recovery:** Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.06 QUALITY ASSURANCE

- A. **Waste Management Coordinator Qualifications:** Submit qualifications of individual designated as Waste Management Coordinator, including resume and past related projects.
- B. **Refrigerant Recovery Technician Qualifications:** Certified by EPA-approved certification program.
- C. **Regulatory Requirements:** Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. **Waste Management Conference:** Conduct conference at Project site to comply with requirements in SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION. Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each subcontractor.

1.07 WASTE MANAGEMENT PLAN

- A. **General:** Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Use the plan included in Appendix A of this section and fill out the appropriate items. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. **Waste Management Coordinator:** Indicate name of individual(s) to be responsible for implementing, monitoring, and reporting status of waste management plan.
- C. **Waste Identification:** Fill out Table 1 of Appendix A. Indicate anticipated types and quantities of demolition, site-clearing, and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

- D. **Waste Reduction Work Plan:** Fill out the estimated quantities in Table 2 of Appendix A. The actual quantities will be filled out at the end of the project. List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
1. **Salvaged Materials for Reuse:** For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 2. **Salvaged Materials for Sale:** For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 3. **Salvaged Materials for Donation:** For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 4. **Recycled Materials:** Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 5. **Disposed Materials:** Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 6. **Handling and Transportation Procedures:** Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.
- E. **Cost/Revenue Analysis:** Fill out Table 3 of Appendix A. Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
1. Total quantity of waste.
 2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
 3. Total cost of disposal (with no waste management).
 4. Revenue from salvaged materials.
 5. Revenue from recycled materials.
 6. Savings from reusing materials versus purchasing new materials.
 7. Savings in hauling and tipping fees by donating materials.
 8. Savings in hauling and tipping fees that are avoided.

9. Handling and transportation costs. Include cost of collection containers for each type of waste.
 10. Net additional cost or net savings from waste management plan.
- F. Forms: Prepare waste management plan on forms included in Appendix A.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Recycled-content, salvaged, or otherwise resource-efficient products are specified in appropriate sections.

PART 3 - EXECUTION

3.01 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by the Project Contact Person. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 1. Comply with SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS for operation, termination, and removal requirements.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
 3. Provide education for all on-site workers on efficient waste reduction and waste management when, sizing, cutting, and installing products and materials.
 4. Use meetings, signage, and subcontractor agreements to communicate the goals of the waste reduction plan. Consider incorporating the meetings with the safety meetings.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

2. Comply with SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS for controlling dust and dirt, environmental protection, and noise control.
- E. Provide a central cutting area to facilitate re-use of existing cutoffs and to consolidate scrap for recycling.

3.02 SALVAGING DEMOLITION WASTE

- A. First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Sale or donation of waste suitable for reuse shall be considered.
- B. Salvaged Items for Reuse in the Work:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until installation.
 4. Protect items from damage during transport and storage.
 5. Items shall meet or exceed specification requirements.
 6. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- C. Salvaged Items for Sale and Donation: Sale not permitted on Project site. Labor for loading donated items is acceptable to local trade practices; union labor if applicable.
- D. Salvaged Items for State's Use:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to State.
 4. Transport items to storage area designated by State.
 5. Protect items from damage during transport and storage.

3.03 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to the State.
- C. Hazardous Materials:
1. Materials separated for recycling must be clean: materials must not contain contaminants such as lead-based paint, asbestos, PCB's, or Freon.

2. Manage hazardous waste materials separately from recyclable materials.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Make sure bins are in convenient locations as close as possible to where material is being generated.
 - b. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste off State's property and transport to recycling receiver or processor.

3.04 RECYCLING DEMOLITION WASTE

- A. Clean untreated, unpainted wood: Send to permitted recycling facility.
- B. Green Waste: Send to permitted recycling facility.
- C. Clean Metals: Send to permitted recycling facility.

3.05 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 2. Polystyrene Packaging: Separate and bag materials.
 3. Untreated Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 4. Untreated Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Wood Materials:
 1. Untreated Clean Cut-Offs of Lumber: Grind or chip into small pieces.

2. Untreated Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- C. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.
- 3.06 DISPOSAL OF WASTE**
- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator currently permitted to authorities having jurisdiction.
1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off State's property and legally dispose of them at a permitted landfill.

END OF SECTION

APPENDIX A

WASTE MANAGEMENT PLAN

Project Title: **<Insert Project Title>**

Waste Management Coordinator: **<Insert Name, Title, and contact information>**

Recycling Requirement - To recycle/salvage **<Insert Percentage>** of waste generated on the site.

TABLE 1: WASTE IDENTIFICATION

Material	Est. Qty.	Est. tons *	Point of Generation	Comments/Assumptions

* Avg volume-to-weight conversions are:
Mixed waste 5.7 yds/ton
Wood 6.7 yds/ton
Cardboard 20 yds/ton
Drywall 4 yds/ton
Rubble 1.4 yds/ton

TABLE 2: WASTE REDUCTION WORK PLAN

Material	S/R/D *	Est Qty S/R/D (tons)	Actual Qty S/R/D(tons)	Handling and Transport Procedures	Destination (Name, address, phone) **

*S Salvage/Reuse
 R Recycle
 D Dispose

** For materials sent for recycling or disposal, send to facilities currently permitted by the DOH, Solid Waste Section (808) 586-4226.

No solid waste management permit required for on-site processing of clean waste concrete, provided the processed product meets the "inert fill material" definition in Chapter 342H, HRS.

Solid Waste Management Permit required if destination site accepts for processing such waste materials (eg. Clean waste concrete) from other sites.

TABLE 3: COST/REVENUE ANALYSIS

Material	Est Cost of Disposal(1)	Est Revenue from Salvage/Recycle(2)	Est Cost of Salvage/Recycle(3)	Est Net Savings/Cost (1)+(2)-(3)

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including the following:
 - 1. Construction layout. Field engineering and surveying.
 - 2. General installation of products.
 - 3. Progress cleaning.
 - 4. Starting and adjusting.
 - 5. Protection of installed construction.
 - 6. Correction of the Work.
- B. Related Sections
 - 1. SECTION 01770 - CLOSEOUT PROCEDURES.

1.02 SUBMITTALS

- A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.03 NOTIFICATION

- A. Contact the Project Contact Person and the Project Contact Person at least 3 working days prior to starting any onsite work.

1.04 PROJECT AND SITE CONDITIONS

- A. Project Contract Limits (Contract Zone Limits) indicate only in general the limits of the work involved. Perform necessary and incidental work, which may fall outside of these demarcation lines. Confine construction activities within the Project Contract Limits and do not spread equipment and materials indiscriminately about the area.
- B. Disruption of Utility Services: Prearrange work related to the temporary disconnection of electrical and other utility systems with the Project Contact Person listed in the SPECIAL CONDITIONS and the Project Contact Person. Unless a longer notification period is required elsewhere in the Contract Documents, notify the Project Contact Person at least 15 days in advance of any interruption of existing utility service. Time and duration of interruptions are subject to the Project Contact Person's approval. Keep the utility interruptions and duration to a minimum so as not to cause inconvenience or hardship to the facility. If temporary electrical or other utility systems hook-up is required, provide the necessary services. Pay for temporary services as part of the contract, unless specifically noted otherwise.

- C. Contractor, Subcontractor(s) and their employees will not be allowed to park in zones assigned to Users or facility personnel. Subject to availability, the Project Contact Person may designate areas outside of the Contract Zone Limits to be used by the Contractor. Restore any lawn area damaged by construction activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 EXAMINING THE SITE

- A. Contractor and Subcontractors are expected to visit the site and make due allowances for difficulties and contingencies to be encountered. Compare contract documents with work in place. Become familiar, with existing conditions, the conditions to be encountered in performing the Work, and the requirements of the drawings and specifications.
- B. Verify construction lines, grades, dimensions and elevations indicated on the drawings before any clearing, excavation or construction begins. Bring any discrepancy to the attention of the Project Contact Person, and make any change in accordance with the Project Contact Person instruction.
- C. Obtain all field measurements required for the accurate fabrication and installation of the Work included in this Contract. Verify governing dimensions and examine adjoining work on which the Contractor or Subcontractor's work is in any way dependent. Submit differences discovered during the verification work to the Project Contact Person for interpretations before proceeding with the associated work. Exact measurements are the Contractor's responsibility.
- D. Furnish or obtain templates, patterns, and setting instructions as required for the installation of all Work. Verify dimensions in the field.
- E. Contractor shall accept the site in the condition that exists at the time access is granted to begin the Work. Verify existing conditions and dimensions shown and other dimensions not indicated but necessary to accomplish the Work.
- F. Locate all general reference points and take action to prevent their destruction. Lay out work and be responsible for lines, elevations and measurements and the work executed. Exercise precautions to verify figures and conditions shown on drawings before layout of work.

3.02 SITE UTILITIES AND TONING

- A. Cooperate, coordinate and schedule work to maintain construction progress, and accommodate the operations and work of the owners of underground or overhead utility lines or other property in removing or altering the lines or providing new services.

- B. Contact all the various utility companies before the start of the work to ascertain any existing utilities and to develop a full understanding of the utility requirements with respect to this Project. Furnish the Project Contact Person with evidence that the utility companies were contacted.
- C. Should the Contractor discover the existence and location of utilities in the contract drawings are not correct, do not disturb the utilities and immediately notify the Project Contact Person.
- D. Do not disturb or modify any utilities encountered, whether shown or not on the Contract Drawings, unless otherwise instructed in the drawings and specifications or as directed by the Project Contact Person. Repair and restore to pre-damaged condition any utilities or any other property damaged by construction activities.
- E. Transfer to "Field Posted As-Built" drawings the location(s) and depth(s) of new and existing utilities that differ from the Contract Drawings. Locate by azimuth and distance and depth(s) from fixed referenced points.

3.03 FIELD MEASUREMENTS

- A. Take field measurements to fit and install the Work properly. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Submit a Request For Information (RFI) immediately upon discovery of the need for clarification of the Contract Documents. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.04 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to existing conditions. If discrepancies are discovered, notify the Project Contact Person promptly.

3.05 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent or temporary benchmarks, control points and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without the Project Contact Person's approval. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to the Project Contact Person before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base all replacements on the original survey control points.

3.06 INSTALLATION

- A. Install materials, items, fixtures required by the various Divisions and Sections of the Specifications in accordance with Contract Documents, by workers specially trained and skilled in performance of the particular type of work, to meet guarantee and regulatory agency requirements. Should the drawings or specifications be void of installation requirements, install the materials, items, and fixtures in accordance with the manufacturer's current specifications, recommendations, instructions and directions.

3.07 CUTTING AND PATCHING

- A. Oversee cutting and patching of concrete, masonry, structural members and other materials where indicated on drawings and as required by job conditions. Unless noted elsewhere in the contract documents, do not cut or patch existing or new structural members without previously notifying the Project Contact Person.
- B. Provide patch materials and workmanship of equal quality to that indicated on the drawings or specified for new work.

3.08 CLEANING

- A. General: Clean the Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste more than 7 days unless approved otherwise by the Project Contact Person.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use only cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.09 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions to provide proper temperature and relative humidity conditions.

3.10 CORRECTION OF THE WORK

- A. Repair or replace defective construction. Restore damaged substrates and finishes. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair defective components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

SECTION 01715 - EXISTING CONDITIONS - ASBESTOS / LEAD / HAZARDOUS MATERIAL SURVEY

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the results of the State's survey for Asbestos and Lead materials and is provided for the Contractor's information.
- B. Related Sections include the following:
 - 1. SECTION 13280 - REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIAL for requirements of all work which disturbs ASBESTOS.
 - 2. SECTION 13283 - DISTURBANCE OF LEAD-CONTAINING MATERIAL for requirements of all work which disturbs paint with lead.
 - 3. SECTION 13288 - TESTING / AIR MONITORING for requirements of work specified.

1.02 ASBESTOS

- A. The structure or structures to be renovated or modified under this contract were surveyed for the presence of asbestos containing building materials (ACBM), using 11-501 requirements and/or 11-502 requirements (when applicable). A copy of the initial survey report, as well as any subsequent supplemental survey report(s) if performed, are included in this Section.
 - 1. The report(s) are included, even when no ACBM was found, for the Contractor's information. Review the attached report(s) for the basis on which the negative ACBM finding was made. Contractor may perform further surveys at its own expense, if ACBM not shown in the report(s) is suspected in the areas of the building(s) in which work will be performed. If ACBM is found, notify the Project Contact Person immediately. The State will reimburse the Contractor for the testing cost if ACBM is found.
 - 2. If there is ACBM outside of the areas in which work will be performed, this ACBM shall not be disturbed in any way.
- B. If applicable, notify employees, subcontractors and all other persons engaged on the project of the presence of asbestos in the existing buildings in accordance with the requirements of Chapter 110, Article 12 110 2 (f) (1) (B) of the Occupational Safety and Health Standards, State of Hawaii.
- C. In the event that work is required in any building or buildings on the site other than the one(s) designated within this project scope, request copies of the asbestos survey report(s) for such building(s) from the Project Contact Person. Based on the information contained in the additional survey(s), notify affected personnel per paragraph 1.02.B.

1.03 LEAD PAINT

- A. Inform employees, subcontractors and all other persons engaged in the project that lead paint is present in the existing building(s) and at the job site. Follow the requirements of Title 12 (Department of Labor and Industrial Relations), Subtitle 8 (Division of Occupational Safety and Health), Chapter 148 (Lead Exposure in Construction), Hawaii Administrative Rules.
- B. Review the attached lead testing data which identify locations paint with lead was found. Lead testing was for design purposes only, and the results do not satisfy any of the requirements of Chapter 12-148.
- C. All paint shall be considered to contain lead until proven otherwise.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SURVEY

- A. Attachment 1: Asbestos and Lead Paint Survey Report, 40 pages, dated April 16, 2014, prepared by EnvironMETeo Services, Inc.
- B. Attachment 2: Inspection Report for Asbestos, Lead-Based Paint and Arsenic, 67 pages, dated April 2010, prepared by EnviroQuest, Inc.
- C. Attachment 3: Limited Asbestos & Lead Survey, 12 pages, dated October 8th, 2004, prepared by Professional Service Industries, Inc.
- D. Attachment 4: Asbestos Inspection Final Report and Management Plan, 21 pages, dated April 9, 1993, prepared by PSI/Hall-Kimbrell Division.
- E. Attachment 5: Prioritization Asbestos Assessment Study, 10 pages, dated OCTOBER 22, 1990, prepared by PSI/Hall-Kimbrell Environmental Services, Inc.

END OF SECTION



EnvironMETeo Services, Inc.
Environmental / Industrial Health & Safety

Asbestos and Lead Paint Survey Report

For:

**Design Partners, Inc.
1580 Makaloa Street, Suite 1100
Honolulu, Hawaii 96814**

Facilities Surveyed:

**Hawaii Army National Guard (HIARNG)
Department of Defense, Building 306
3949 Diamond Head Road
Honolulu, Hawaii 96816**

Project:

**Hawaii Army National Guard (HIARNG)
Department of Defense Building 306, Hurricane Hardening
DOD Job. No. CA-1324-C**

Conducted by:

**EnvironMETeo Services, Inc. (EMET)
94-520 Ukee Street, Suite A
Waipahu, Hawaii 96797**

Date of Report: April 16, 2014

EMET ID: 1402066



Table of Contents

Certification of Report	2
Summary.....	5
Asbestos-Containing Material	5
Asbestos Bulk Sampling	6
Asbestos Analyses	7
Lead Paint.....	7
Lead Paint Sampling and Analyses	8
Limitations.....	8
Asbestos Survey Report	Appendix A (18 pages)
Asbestos Survey Sample Locations Sketch.....	Appendix B (2 pages)
Lead Survey Report	Appendix C (1 page)
Certifications	Appendix D (4 pages)



Certification of Report

We certify that this report is based on a physical survey of EMET scope of work areas at the Hawaii Army National Guard (HIARNG), Department of Defense Building 306, located in Honolulu, Hawaii. The survey included an inspection for asbestos-containing materials (ACM) and lead-painted surfaces/building components.

The survey was conducted by EnvironMETeo Services, Inc. (EMET) on March 26, 2014 and was limited to the following scope of work:

Asbestos and Lead Paint Investigation

1. Inspection, evaluation, and sample collection of suspect asbestos-containing materials by EPA-accredited and State of Hawaii certified inspector, as indicated in email correspondence received February 10 and 11, 2014 received from DPI, in accordance with H.A.R. 11-501 from the following:

Building 306

- interior and exterior
 - perimeter window/window frame caulking material (2 floors)
 - perimeter door/door frame caulking material (2 floors)

2. Lead paint inspection of painted surfaces, as indicated in email correspondence received February 10 and 11, 2014 received from DPI, from painted surfaces from the following:



Building 306

- interior and exterior
 - perimeter window/window frame surfaces (2 floors)
 - perimeter door/door frame surfaces (2 floors)
 - interior and exterior painted surfaces adjacent for window and door frames (e.g. wall next to door/window)

The survey results are based on analyses of samples of suspect materials collected from visually- and physically-accessible areas/materials.

Bulk samples of suspect asbestos-containing materials taken during the survey were analyzed for asbestos content by a National Institute of Standards and Technology (NIST)-accredited laboratory under the National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos fiber analysis. Laboratory analyses performed by Polarized Light Microscopy (PLM) for asbestos identification are in accordance with U.S. Environmental Protection Agency (EPA) Test Method 600/R-93/116.

Painted surfaces were tested for lead concentrations using an X-Ray Fluorescence (XRF) spectrum analyzer, a testing methodology approved by the EPA and the U.S. Department of Housing and Urban Development (HUD).



EMET makes no warranty and assumes no liability for the inappropriate use or misuse of this document.

Stephen Kaneshiro

Asbestos Building Inspector

Hawaii State Certification # HIASB-2307

Lead Based Paint Risk Assessor

Hawaii State Certification #PB-0676

Hawaii Army National Guard, DOD, Building 306 4
Hurricane Hardening, DOD Job No. CA-1324-C

Asbestos and Lead Survey
EMET: 1402066

EnvironMETeo (EMET) Services, Inc. Waipio Gentry Business Park 94-520 Uke'e Street, Suite A Waipahu, Hawaii, USA 96797-4200
(808) 671-8383...Telephone (808) 671-7979...Facsimile



Summary

EnvironMETeo Services, Inc. (EMET) conducted a survey for asbestos-containing materials (ACM) and lead-painted surfaces/building components at EMET scope of work areas at the Hawaii Army National Guard (HIARNG), Department of Defense Building 306, located in Honolulu, Hawaii, on March 26, 2014. The survey was conducted by Stephen Kaneshiro of EMET in accordance with Hawaii Administrative Rules (HAR) 11-501 and EMET's scope of work.

The survey was requested and authorized by Mr. Nhan Nguyen of Design Partners, Inc. and performed in preparation for planned renovations and demolition.

The following material was identified as ACM during this survey:

2nd Floor

- **gray caulking at door and window frames, found at interior and exterior sides of store front doors, windows and window frames (not friable, ± 880 lf)**

Lead-containing paint was found. No lead-based paint was found.

Asbestos-Containing Material

The State of Hawaii and the EPA define ACM as any material containing more than one percent (>1%) asbestos by area. This definition can be found in the following regulations:

- **HAR, Title 11, Department of Health, Chapter 501 (11-501), Asbestos Requirements**



- HAR, Title 12, Department of Labor and Industrial Relations, Subtitle 8, Hawaii Occupational Safety and Health Division (HIOSH), Part 3, Construction Standards, Chapter 145.1 (12-145.1), Asbestos
- EPA 40 CFR Part 61, Subpart M - National Emission Standards for Hazardous Air Pollutants (NESHAP), revised July 1, 1990, Asbestos NESHAP Revision Final Rule

Asbestos Bulk Sampling

Fifteen (15) samples of suspect ACM were collected and analyzed. The samples were placed in plastic containers with a unique identification number assigned to each sample and entered on a field data sheet. The sample locations were indicated on field drawings and shown in Appendix B.

Samples were collected of the following observed suspect asbestos-containing material:

1st Floor Suspect Materials

gray caulking at door and window frames	white caulking at louvre frames
---	---------------------------------

2nd Floor Suspect Materials

white caulking at door frame	gray caulking at door and window frames
black caulking at window frames	



Asbestos Analyses

The samples were analyzed for asbestos using Polarized Light Microscopy (PLM) for the identification of asbestos, in accordance with EPA Test Method 600/R-93/116. Laboratory analytical data sheets are provided in Appendix A.

The following material was identified as ACM during this survey:

2nd Floor

- **gray caulking at door and window frames**, found at interior and exterior sides of store front doors, windows and window frames (not friable, ± 880 lf)

Lead Paint

HUD regulations, 24 CFR Parts 35, 200, 881, and 886, guidelines for the evaluation and control of lead-based paint (LBP) hazards in housing, revised April 1, 1999, define LBP as paint with a lead content of 1.0 mg/cm² or greater by XRF analyzer, or 0.5% wt. or 5000 ppm by Atomic Absorption (AA) analysis. The EPA regulations 40 CFR Part 745, revised July 1, 1999, similarly defined LBP as stated in HUD regulations.

However, the Occupational Safety and Health Administration (OSHA) and HIOSH regulate any activity disturbing paint that contains lead (referred to as lead-containing paint or LCP), even if the lead content is below the EPA/HUD standard for lead-based paint.

XRF test results of painted surfaces equal to or greater than 1.0 mg/cm² are defined as LBP in accordance with EPA and HUD regulations.



Lead Paint Sampling and Analyses

Painted surfaces were analyzed for lead using an XRF analyzer. A total of 18 analyses of painted surfaces/building components and calibrations were performed. A unique identification number was assigned to each test location and entered on a field data sheet and a field drawing. The ID number, location, description, and lead concentration of each sample are indicated in the XRF Analyzer Test Results, which are provided in Appendix C.

The test results indicate that none of the sampled painted surfaces / building components contained a lead content equal to or greater than 1.0 mg/cm². However, the sampled painted surfaces/components showed a lead content of less than 1.0 mg/cm² and are considered to be lead-containing paint (LCP).

Painted surfaces may vary in paint type, color and condition, and any damaged painted surfaces may vary significantly from area to area in terms of the condition and degree of damage. The results provide the lead content of all paint layers in a tested surface, as there may be more than one layer of paint on the tested surface.

Limitations

This hazardous materials survey was performed to identify suspect materials in areas scheduled for planned renovations. Original building plans and specifications and those for past renovations, if any, were not available for review. Therefore, because of these limitations, the highly variable nature of building construction, and the limits to the survey as defined by EMET's scope of work, the potential remains for undiscovered hazardous materials. Hidden materials encountered during renovation or demolition not characterized in this



survey or previous surveys should be assumed to be hazardous until analyzed and proven otherwise.

This report is not a specification and should not be used as such.



Appendix A

Asbestos Survey Report

(18 pages)

**Hawaii Army National Guard, DOD, Building 306
Hurricane Hardening, DOD Job No. CA-1324-C**

**Asbestos and Lead Survey
EMET: 1402066**

EnvironMETeo (EMET) Services, Inc. Waipio Gentry Business Park 94-520 Uke'e Street, Suite A Waipahu, Hawaii, USA 96797-4200
(808) 671-8383...Telephone (808) 671-7979...Facsimile

Building/Area/Space Surveyed Information Sheet

EMET ID	ID	Name
1402066	306	Bldg 306

Inspection Date 3/26/2014	Location 3949 Diamond Head Road Honolulu, HI 96816	ACM PRESENT? YES YES = PRESENT NO = NOT PRESENT
Client Name Design Partners, Inc.		

Building/Space Uses	% Floor Space	No. of Floors/Levels in Area Surveyed	No. of Roof Levels (if applicable)
offices	100	2	

Specific Areas of Building Surveyed
 perimeter windows/louvres and doors/door frames

Inspector #1 Identification

Name: Stephen Kaneshiro
 State of HI Certification No.: HIASB-2307
 State of HI Certification Expiration Date: 9/7/2014
 Building Inspector Certification Exp. Date: 4/26/2014

Inspector #2 Identification

Name:
 State of HI Certification No.:
 State of HI Certification Expiration Date:
 Building Inspector Certification Exp. Date:

Inspector #3 Identification

Name:
 State of HI Certification No.:
 State of HI Certification Expiration Date:
 Building Inspector Certification Exp. Date:

Inspector Comments

EMET's scope of work was limited to the areas listed above in Specific Areas Surveyed. This report is not a specification for the removal of asbestos-containing material and should not be used as such. Results of the presence or absence of asbestos are based on the survey and on analyses of the suspect materials encountered. Original building plans and specifications were not available for review. Therefore, because of these limitations and the highly variable nature of building construction, the potential remains for undiscovered ACM. EMET makes no warranty and assumes no liability for the inappropriate use or misuse of this document.

EMET Services, Inc. • 94-520 Uke`e Street, Suite A • Waipahu, Hawaii 96797
Phone: (808) 671-8383 • FAX: (808) 671-7979

Unified Homogeneous/Sample Area ACM - Space and Salient Cross Reference

EMET ID 1402066 Building ID and Name 306 Bldg 306

Document Number 3949 Diamond Head Road Honolulu, HI 96816

For the ACM - Space Identified as:

066-306-1

Unified Sample Area or Salient ID	Homogeneous Sample Area/Lot or Salient Description	Comments	ACBM Present		Material Type*			Recommended Response Action	Estimated Costs (Approx.)	
			Suspected	Confirmed	Frangible	T	DC		PD	Removal
066-306-1A	gray caulking at door and window frames		Yes	No ACM						
066-306-1B	white caulking at louvre frame		Yes	No ACM						

* Refers to Material Type and Damage Conditions	** Recommended Response Actions
<p>T = Material Type S = Surfacing M = Miscellaneous T = Thermal Systems</p> <p>DC = Damage Condition ND = No Damage D = Damaged SD = Significant Damage</p> <p>PD = Potential Damage Condition NPD = No Potential Damage PD = ACBM w/ Potential Damage PSD = Potential Significant Damage</p>	<ol style="list-style-type: none"> 1. Isolate area and restrict access. Remove or repair ASAP. 2. Continue Operations and Maintenance (O&M) program. 3-5. Remove or repair ASAP, or reduce potential for disturbance. Repair, continue O&M. Lower number indicates higher priority if all repair cannot be done immediately. 6-7. Continue O&M. Take preventive measures to reduce disturbance. Number indicates priority for removal. 8. Continue O&M until major renovation or demolition requires removal under NESHAP'S, or until hazard assessment factors change. <p>Note: An O&M program may include enclosure and encapsulation.</p>

EMET Services, Inc. • 94-520 Uke'e Street, Suite A • Waipahu, HI 96797 • Phone (808) 671-8383 • Fax (808) 671-7979
 1402066-306 Page 2

Sample Area Report -- Area Master

EMET ID	Building Number and Name		Inspection Date
1402066	306	Bldg 306	3/26/2014
Document Number	Sample Area/Lot Number and Name		Unified Sample Area Number
	066-306-1A	gray caulking at door and window frames	
	Drawing/Sketch Number and Name		066-306-1A


A Sample Area should contain material of one, and only one, composition or matrix. An exception can be made in the case of layered applications of materials, such as occurs with a Three Coat Plaster system, that generally matches the same physical locations. Special care must be taken while collecting samples of layered materials, to enable the analysis to discern the several matrices present. Such conditions should be described in detail on the Sample Notes form for the analyst.

Location of Confirmed, Assumed, or New ACM within Building

Unified Sample Area/Homogeneous Material

gray caulking at door and window frames	Not Applicable
---	----------------

<p style="text-align: center;">SAMPLING STRATEGY DATA</p> <p>Ceiling Height #1 <input style="width: 40px;" type="text"/> #2 <input style="width: 40px;" type="text"/></p> <p>Square Feet of Ceiling Materials <input style="width: 100%;" type="text"/></p> <p>Square Feet of Wall Materials <input style="width: 100%;" type="text"/></p> <p>Square Feet of Floor Surface <input style="width: 100%;" type="text"/></p> <p>Linear Feet of TSI <input style="width: 100%;" type="text"/></p> <p>Square Feet of Structural Steel Coatings (including over-spray) <input style="width: 100%;" type="text"/></p> <p>Square Feet of Other ACM <input style="width: 100%;" type="text"/></p> <p>Linear Feet of Other ACM <input style="width: 100%;" type="text"/></p> <p>Total square and/or linear feet of ACM: <input style="width: 100%;" type="text"/></p>	<p style="text-align: center;">RISK ASSESSMENT DETERMINATION</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Material Type</td> <td style="width: 33%;">Damage Condition</td> <td style="width: 34%;">Potential Damage</td> </tr> <tr> <td style="text-align: center;">..</td> <td style="text-align: center;">..</td> <td style="text-align: center;">..</td> </tr> <tr> <td>Visible</td> <td>Reachable</td> <td>Water Damage</td> </tr> <tr> <td style="text-align: center;">..</td> <td style="text-align: center;">..</td> <td style="text-align: center;">..</td> </tr> <tr> <td>Barriers</td> <td>Ventilation</td> <td>If Yes Friable</td> </tr> <tr> <td style="text-align: center;">..</td> <td style="text-align: center;">..</td> <td style="text-align: center;">..</td> </tr> <tr> <td>Air Movement</td> <td>Proximity to Repair Items</td> <td>Activity</td> </tr> <tr> <td style="text-align: center;">..</td> <td style="text-align: center;">..</td> <td style="text-align: center;">..</td> </tr> </table>	Material Type	Damage Condition	Potential Damage	Visible	Reachable	Water Damage	Barriers	Ventilation	If Yes Friable	Air Movement	Proximity to Repair Items	Activity
Material Type	Damage Condition	Potential Damage																							
..																							
Visible	Reachable	Water Damage																							
..																							
Barriers	Ventilation	If Yes Friable																							
..																							
Air Movement	Proximity to Repair Items	Activity																							
..																							

<p style="text-align: center;">SAMPLE ANALYSIS SUMMARY SECTION</p> <p>Total number of samples collected <input style="width: 40px; text-align: center;" type="text" value="3"/></p> <p>Total number of samples analyzed <input style="width: 40px; text-align: center;" type="text" value="3"/></p> <p>IS ASBESTOS-CONTAINING MATERIAL PRESENT? <input style="width: 40px; text-align: center;" type="text" value="NO"/></p> <p>Samples Collected by <input style="width: 40px; text-align: center;" type="text" value="EMET"/></p> <p>Sample Numbers <input style="width: 100%;" type="text" value="066-306-1a1, 066-306-1a2, 066-306-1a3"/></p> <p>Samples Analyzed by <input style="width: 40px; text-align: center;" type="text" value="EMET"/></p> <p>Number of Salient Designations <input style="width: 40px;" type="text"/></p>	<p style="text-align: center;">PHOTOGRAPH</p> 
---	---

EMET Services, Inc. • 94-520 Uka'e Street, Suite A • Waipahu, Hawaii 96797
Phone: (808) 671-8383 • FAX: (808) 671-7979

Sample Log and Notes

Building Number and Name

306	Bldg 306
-----	----------


EMET ID

1402066

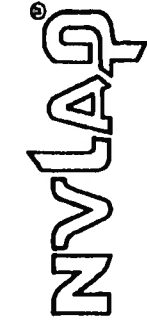
Sample Area/Lot Number and Name

066-306-1A	gray caulking at door and window frames
------------	---

Sample Number	% Asbestos	Description of Sampled Material	Sample Location
066-306-1a1	0	gray caulking at door and window frames	See Sketch 066-306-1
066-306-1a2	0	gray caulking at door and window frames	See Sketch 066-306-1
066-306-1a3	0	gray caulking at door and window frames	See Sketch 066-306-1

Inspector's Name	Signature	Date Samples Collected
Stephen Kaneshiro		3/26/2014

EMET Services, Inc. 94-520 Uke'e Street, Suite A Waipahu, HI 96797
Phone (808) 671-8383 Fax (808) 671-7979



LABORATORY REPORT

Asbestos Bulk Sample Analysis by Polarized Light Microscopy
in accordance with Test Methods EPA 600/M4-82-020 and EPA 600/9-93/116

Client: Design Partners, Inc.
Address: 1580 Makaloa St., Suite 1100
Honolulu, HI 96814

Building: Bldg 306
Address: 3949 Diamond Head Road
Honolulu, HI 96816

NVLAP LAB CODE 101807-0

Approved Signatory:

Sample/Homogeneous Area: 066-306-1A Analysis Date: 3/28/2014 Report Date: 3/28/2014

Lab ID	Sample ID	Color	homogeneity	Asbestos Present	Asbestos (Type) Area %	Fibrous Components Area %	Non-fibrous Components Area %	comments
066-001	066-306-1a1	gray	Yes	No	<1	-	misc. part.	
066-002	066-306-1a2	gray	Yes	No	<1	-	misc. part.	
066-003	066-306-1a3	gray	Yes	No	<1	-	misc. part.	

*Accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for the scope specific under Lab Code 101807-0.

*Laboratory test report may not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

*Laboratory test report relates only to items tested.

*Samples analyzed as received by the laboratory, interpretation is responsibility of the client.

*Asbestos fiber percentage approximate - performed by visual observation only.

*This method is not reliable for analysis of tile or other materials when fiber size is less than 10 microns and/or below detection limit (appr. 1%) of current PLM techniques

Note: EPA, OSHA, and HIOSH define "asbestos-containing material" as any material or product which contains more than one percent asbestos.

This report may not be reproduced except in full and with the permission of EMET.

EMET Services, Inc. 94-520 Uke'e Street, Suite A, Waipahu, Hawaii 96797 Phone: (808) 671-8383 FAX: (808) 6717979

EMET ID 1402066

Sample Area Report -- Area Master

EMET ID	Building Number and Name		Inspection Date
1402066	306	Bldg 306	3/26/2014
Document Number	Sample Area/Lot Number and Name		Unified Sample Area Number
	066-306-1B	white caulking at louvre frame	
	Drawing/Sketch Number and Name		
			066-306-1B

A Sample Area should contain material of one, and only one, composition or matrix. An exception can be made in the case of layered applications of materials, such as occurs with a Three Coat Plaster system, that generally matches the same physical locations. Special care must be taken while collecting samples of layered materials, to enable the analysis to discern the several matrices present. Such conditions should be described in detail on the Sample Notes form for the analyst.

Unified Sample Area/Homogeneous Material

Location of Confirmed, Assumed, or New ACM within Building

white caulking at louvre frame	Not Applicable
--------------------------------	----------------

SAMPLING STRATEGY DATA

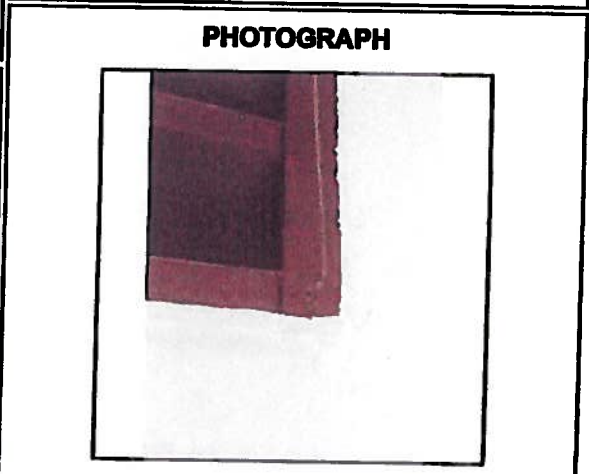
Ceiling Height #1		#2	
Square Feet of Ceiling Materials			
Square Feet of Wall Materials			
Square Feet of Floor Surface			
Linear Feet of TSI			
Square Feet of Structural Steel Coatings (including over-spray)			
Square Feet of Other ACM			
Linear Feet of Other ACM			
Total square and/or linear feet of ACM:			

RISK ASSESSMENT DETERMINATION

Material Type	Damage Condition	Potential Damage
--	--	--
Visible	Reachable	Water Damage
--	--	--
Barriers	Ventilation	If Yes
--	--	--
Air Movement	Proximity to Repair Items	Activity
--	--	--

SAMPLE ANALYSIS SUMMARY SECTION

Total number of samples collected	3
Total number of samples analyzed	3
IS ASBESTOS-CONTAINING MATERIAL PRESENT?	NO
Samples Collected by	EMET
Sample Numbers	066-306-1b1, 066-306-1b2, 066-306-1b3
Samples Analyzed by	EMET
Number of Salient Designations	



EMET Services, Inc. • 94-520 Uke'e Street, Suite A • Waipahu, Hawaii 96797
Phone: (808) 671-8383 • FAX: (808) 671-7979

Sample Log and Notes

Building Number and Name

306	Bldg 306
-----	----------

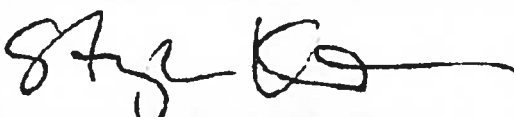
EMET ID

1402066

Sample Area/Lot Number and Name

066-306-1B	white caulking at louvre frame
------------	--------------------------------

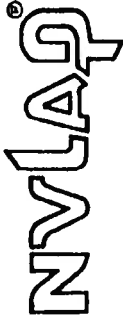
Sample Number	% Asbestos	Description of Sampled Material	Sample Location
066-306-1b1	0	white caulking at louvre frame	See Sketch 066-306-1
066-306-1b2	0	white caulking at louvre frame	See Sketch 066-306-1
066-306-1b3	0	white caulking at louvre frame	See Sketch 066-306-1

Inspector's Name	Signature	Date Samples Collected
Stephen Kaneshiro		3/26/2014

EMET Services, Inc. 94-520 Uke'e Street, Suite A Waipahu, HI 96797
Phone (808) 671-8383 Fax (808) 671-7979

1402066-306 Page 7

LABORATORY REPORT



Asbestos Bulk Sample Analysis by Polarized Light Microscopy
in accordance with Test Methods EPA 600/M4-82-020 and EPA 600/9-93/116

Client: Design Partners, Inc. Building: Bldg 306
Address: 1580 Makaloe St., Suite 1100 Address: 3949 Diamond Head Road
Honolulu, HI 96814 Honolulu, HI 96816

NVLAP LAB CODE 101807-0

Approved Signatory:

Sample/Homogeneous Area: 066-306-1B Analysis Date: 3/28/2014 Report Date: 3/28/2014

Lab ID	Sample ID	Color	Homogeneity	Asbestos Present	Asbestos (Type) Area %	Fibrous Components Area %	Non-fibrous Components Area %	comments
066-004	066-306-1b1	white	Yes	No	<1	-	misc. part.	
066-005	066-306-1b2	white	Yes	No	<1	-	misc. part.	
066-006	066-306-1b3	white	Yes	No	<1	-	misc. part.	

*Accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for the scope specific under Lab Code 101807-0.
*Laboratory test report may not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government
*Laboratory test report relates only to items tested.

*Samples analyzed as received by the laboratory. Interpretation is responsibility of the client.

*Asbestos fiber percentage approximate - performed by visual observation only.

*This method is not reliable for analysis of tile or other materials when fiber size is less than 10 microns and/or below detection limit (appr. 1%) of current PLM techniques

Note: EPA, OSHA, and HIOSH define "asbestos-containing material" as any material or product which contains more than one percent asbestos.

This report may not be reproduced except in full and with the permission of EMET.

EMET Services, Inc. 94-520 Uke'e Street, Suite A, Waipahu, Hawaii 96797 Phone: (808) 671-8383 FAX: (808) 6717979

EMET ID 1402066

Unified Homogeneous/Sample Area ACM - Space and Salient Cross Reference

EMET ID 1402066	Building ID and Name 306 Bldg 306	For the ACM - Space Identified as: 066-306-2
Document Number	Building Location 3949 Diamond Head Road Honolulu, HI 96816	

Unified Sample Area or Salient ID	Homogeneous Sample Area/ Lot or Salient Description	Comments	ACBM Present		Material Type*			Recommended Response Action	Estimated Costs (Approx.)	
			Suspected	Confirmed	Friable	T	DC		PD	Removal
066-306-2A	white caulking at door frame		Yes	No ACM						
066-306-2B	gray caulking at door and window frames		Yes	ACM	No	M	ND	PSD	8	
066-306-2C	black caulking at window frame		Yes	No ACM						

<p>* Refers to Material Type and Damage Conditions</p> <p>T = Material Type: S = Surfacing M = Miscellaneous T = Thermal Systems</p> <p>DC = Damage Condition: ND = No Damage D = Damaged</p> <p>PD = Potential Damage Condition: NPD = No Potential Damage PD = ACBM w/ Potential Damage PSD = Potential Significant Damage</p>	<p>** Recommended Response Actions</p> <p>1. Isolate area and restrict access. Remove or repair ASAP. 2. Continue Operations and Maintenance (O&M) program. 3-5. Remove or repair ASAP, or reduce potential for disturbance. 6-7. Repair, continue O&M. Lower number indicates higher priority if all repair cannot be done immediately. 8. Continue O&M. Take preventive measures to reduce disturbance. Number indicates priority for removal. 9. Continue O&M until major renovation or demolition requires removal under NESHAPS, or until hazard assessment factors change. Note: An O&M program may include enclosure and encapsulation.</p>
--	--

EMET Services, Inc. • 94-520 Uka'e Street, Suite A • Waipahu, HI 96797 • Phone (808) 671-8383 • Fax (808) 671-7979

Sample Area Report -- Area Master

EMET ID	Building Number and Name		Inspection Date
1402066	306	Bldg 306	3/26/2014
Document Number	Sample Area/Lot Number and Name		Unified Sample Area Number
	066-306-2A	white caulking at door frame	
	Drawing/Sketch Number and Name		066-306-2A

A Sample Area should contain material of one, and only one, composition or matrix. An exception can be made in the case of layered applications of materials, such as occurs with a Three Coat Plaster system, that generally matches the same physical locations. Special care must be taken while collecting samples of layered materials, to enable the analysis to discern the several matrices present. Such conditions should be described in detail on the Sample Notes form for the analyst.

Unified Sample Area/Homogeneous Material

Location of Confirmed, Assumed, or New ACM within Building

white caulking at door frame	Not Applicable
------------------------------	----------------

SAMPLING STRATEGY DATA

Ceiling Height #1		#2	
Square Feet of Ceiling Materials			
Square Feet of Wall Materials			
Square Feet of Floor Surface			
Linear Feet of TSI			
Square Feet of Structural Steel Coatings (including over-spray)			
Square Feet of Other ACM			
Linear Feet of Other ACM			
Total square and/or linear feet of ACM:			

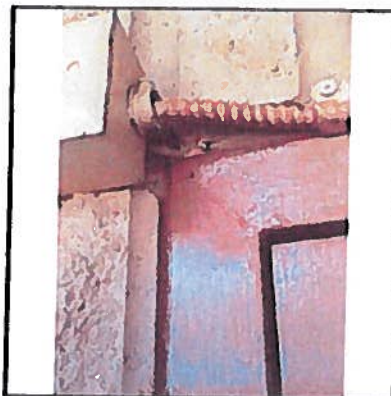
RISK ASSESSMENT DETERMINATION

Material Type	Damage Condition	Potential Damage
--	--	--
Visible	Reachable	Water Damage
--	--	--
Barriers	Ventilation	If Yes
--	--	--
Air Movement	Proximity to Repair Items	Friable
--	--	--

SAMPLE ANALYSIS SUMMARY SECTION

Total number of samples collected	3
Total number of samples analyzed	3
IS ASBESTOS-CONTAINING MATERIAL PRESENT?	NO
Samples Collected by	EMET
Sample Numbers	066-306-2a1, 066-306-2a2, 066-306-2a3
Samples Analyzed by	EMET
Number of Salient Designations	

PHOTOGRAPH



EMET Services, Inc. • 94-520 Uke'e Street, Suite A • Waipahu, Hawaii 96797
Phone: (808) 671-8383 • FAX: (808) 671-7979

Sample Log and Notes

Building Number and Name

306	Bldg 306
-----	----------

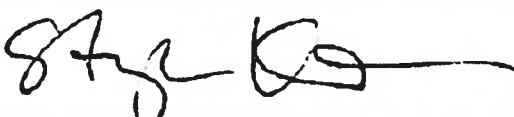
EMET ID

1402066

Sample Area/Lot Number and Name

066-306-2A	white caulking at door frame
------------	------------------------------

Sample Number	% Asbestos	Description of Sampled Material	Sample Location
066-306-2a1	0	white caulking at door frame	See Sketch 066-306-2
066-306-2a2	0	white caulking at door frame	See Sketch 066-306-2
066-306-2a3	0	white caulking at door frame	See Sketch 066-306-2

Inspector's Name	Signature	Date Samples Collected
Stephen Kaneshiro		3/26/2014

**EMET Services, Inc. 94-520 Uke`e Street, Suite A Waipahu, HI 96797
Phone (808) 671-8383 Fax (808) 671-7979**

1402066-306 Page 11



LABORATORY REPORT

Asbestos Bulk Sample Analysis by Polarized Light Microscopy
in accordance with Test Methods EPA 600/M4-82-020 and EPA 600/9-93/116

Client: Design Partners, Inc. Building: Bldg 306
Address: 1580 Makaloa St., Suite 1100 Address: 3949 Diamond Head Road
Honolulu, HI 96814 Honolulu, HI 96816

NVLAP LAB CODE 101807-0

Approved Signatory:

Sample/Homogeneous Area: 066-306-2A Analysis Date: 3/28/2014 Report Date: 3/28/2014

Lab ID	Sample ID	Color	homogeneity	Asbestos Present	Asbestos (Type) Area %	Fibrous Components Area %	Non-fibrous Components Area %	comments
066-007	066-306-2a1	white	Yes	No	<1	.	misc. part.	
066-008	066-306-2a2	white	Yes	No	<1	.	misc. part.	
066-009	066-306-2a3	white	Yes	No	<1	.	misc. part.	

*Accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for the scope specific under Lab Code 101807-0.

*Laboratory test report may not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

*Samples analyzed as received by the laboratory. Interpretation is responsibility of the client.

*Asbestos fiber percentage approximate - performed by visual observation only.

*This method is not reliable for analysis of tile or other materials when fiber size is less than 10 microns and/or below detection limit (appr. 1%) of current PLM techniques

Note: EPA, OSHA, and HIOSH define "asbestos-containing material" as any material or product which contains more than one percent asbestos.

This report may not be reproduced except in full and with the permission of EMET.

EMET Services, Inc. 94-520 Uke'e Street, Suite A, Waipahu, Hawaii 96797 Phone: (808) 671-8383 FAX: (808) 6717979

EMET ID 1402066

Sample Area Report -- Area Master

EMET ID	Building Number and Name		Inspection Date
1402066	306	Bldg 306	3/26/2014
Document Number	Sample Area/Lot Number and Name		Unified Sample Area Number
	066-306-2B	gray caulking at door and window frames	
	Drawing/Sketch Number and Name		
	066-306-2	066-306-2	066-306-2B

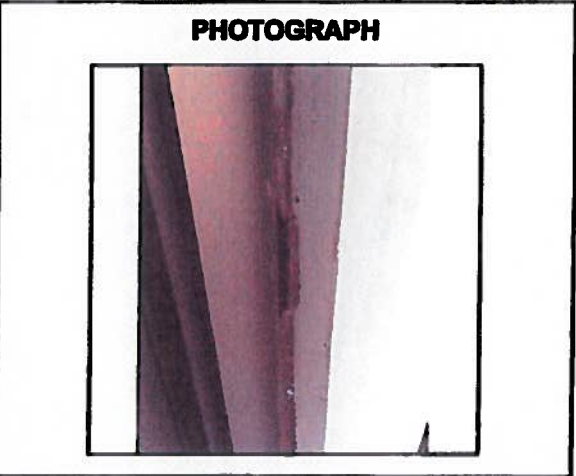
A Sample Area should contain material of one, and only one, composition or matrix. An exception can be made in the case of layered applications of materials, such as occurs with a Three Coat Plaster system, that generally matches the same physical locations. Special care must be taken while collecting samples of layered materials, to enable the analysis to discern the several matrices present. Such conditions should be described in detail on the Sample Notes form for the analyst.

Location of Confirmed, Assumed, or New ACM within Building

Unified Sample Area/Homogeneous Material gray caulking at door and window frames	See Sketch 066-306-2 interior and exterior sides of store front doors, windows and window frames
--	---

SAMPLING STRATEGY DATA Ceiling Height #1 <input type="text"/> #2 <input type="text"/> Square Feet of Ceiling Materials <input type="text"/> Square Feet of Wall Materials <input type="text"/> Square Feet of Floor Surface <input type="text"/> Linear Feet of TSI <input type="text"/> Square Feet of Structural Steel Coatings (including over-spray) <input type="text"/> Square Feet of Other ACM <input type="text"/> Linear Feet of Other ACM <input type="text" value="±880"/> Total square and/or linear feet of ACM: <input type="text" value="±880"/>	RISK ASSESSMENT DETERMINATION <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Material Type</td> <td style="width: 33%;">Damage Condition</td> <td style="width: 33%;">Potential Damage</td> </tr> <tr> <td>Miscellaneous</td> <td>None</td> <td>Significant</td> </tr> <tr> <td>Visible</td> <td>Reachable</td> <td>Water Damage</td> </tr> <tr> <td>More than 10%</td> <td>Within reach</td> <td>None</td> </tr> <tr> <td>Barriers</td> <td>Ventilation</td> <td>If Yes</td> </tr> <tr> <td>None</td> <td>Yes</td> <td>Both</td> </tr> <tr> <td></td> <td>No</td> <td>Friable</td> </tr> <tr> <td></td> <td></td> <td>Category II</td> </tr> <tr> <td>Air Movement</td> <td>Proximity to Repair Items</td> <td>Activity</td> </tr> <tr> <td>High</td> <td>Less than 1 ft.</td> <td>High</td> </tr> </table>	Material Type	Damage Condition	Potential Damage	Miscellaneous	None	Significant	Visible	Reachable	Water Damage	More than 10%	Within reach	None	Barriers	Ventilation	If Yes	None	Yes	Both		No	Friable			Category II	Air Movement	Proximity to Repair Items	Activity	High	Less than 1 ft.	High
Material Type	Damage Condition	Potential Damage																													
Miscellaneous	None	Significant																													
Visible	Reachable	Water Damage																													
More than 10%	Within reach	None																													
Barriers	Ventilation	If Yes																													
None	Yes	Both																													
	No	Friable																													
		Category II																													
Air Movement	Proximity to Repair Items	Activity																													
High	Less than 1 ft.	High																													

SAMPLE ANALYSIS SUMMARY SECTION	
Total number of samples collected	3
Total number of samples analyzed	3
IS ASBESTOS-CONTAINING MATERIAL PRESENT?	YES
Samples Collected by	EMET
Sample Numbers	066-306-2b1, 066-306-2b2, 066-306-2b3
Samples Analyzed by	EMET
Number of Salient Designations	<input type="text"/>



**EMET Services, Inc. • 94-520 Uka'e Street, Suite A • Waipahu, Hawaii 96797
Phone: (808) 671-8383 • FAX: (808) 671-7979**

Sample Log and Notes

Building Number and Name

306	Bldg 306
-----	----------

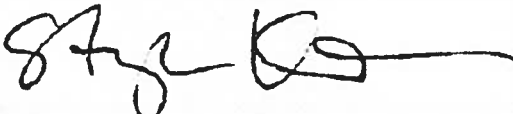
EMET ID

1402066

Sample Area/Lot Number and Name

066-306-2B	gray caulking at door and window frames
------------	---

Sample Number	% Asbestos	Description of Sampled Material	Sample Location
066-306-2b1	3	gray caulking at door and window frames	See Sketch 066-306-2
066-306-2b2	3	gray caulking at door and window frames	See Sketch 066-306-2
066-306-2b3	3	gray caulking at door and window frames	See Sketch 066-306-2

Inspector's Name	Signature	Date Samples Collected
Stephen Kaneshiro		3/26/2014

**EMET Services, Inc. 94-520 Uke'e Street, Suite A Waipahu, HI 96797
Phone (808) 671-8383 Fax (808) 671-7979**

1402066-306 Page 14



LABORATORY REPORT

Asbestos Bulk Sample Analysis by Polarized Light Microscopy
in accordance with Test Methods EPA 600/M4-82-020 and EPA 600/9-93/116

NVLAP LAB CODE 101807-0

Client: Design Partners, Inc. Building: Bldg 306
Address: 1580 Makaloa St., Suite 1100 Address: 3949 Diamond Head Road
Honolulu, HI 96814 Honolulu, HI 96816

Approved Signatory:

Sample/Homogeneous Area: 066-306-2B Analysis Date: 3/28/2014 Report Date: 3/28/2014

Lab ID	Sample ID	Color	homogeneity	Asbestos Present	Asbestos (Type) Area %	Fibrous Components Area %	Non-fibrous Components Area %	comments
066-010	066-306-2b1	gray	Yes	Yes	chrysotile 3	-	misc part 97	
066-011	066-306-2b2	gray	Yes	Yes	chrysotile 3	-	misc part 97	
066-012	066-306-2b3	gray	Yes	Yes	chrysotile 3	-	misc part 97	

*Accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for the scope specific under Lab Code 101807-0.

*Laboratory test report may not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

*Laboratory test report relates only to items tested

*Samples analyzed as received by the laboratory, interpretation is responsibility of the client.

*Asbestos fiber percentage approximate - performed by visual observation only

*This method is not reliable for analysis of tile or other materials when fiber size is less than 10 microns and/or below detection limit (appr. 1%) of current PLM techniques

Note: EPA, OSHA, and HIOSH define "asbestos-containing material" as any material or product which contains more than one percent asbestos.

This report may not be reproduced except in full and with the permission of EMET.

EMET Services, Inc. 94-520 Uke e Street, Suite A, Waipahu, Hawaii 96797 Phone: (808) 671-8383 FAX: (808) 671-7979

EMET ID 1402066

Sample Area Report -- Area Master

EMET ID	Building Number and Name		Inspection Date
1402066	306	Bldg 306	3/26/2014
Document Number	Sample Area/Lot Number and Name		Unified Sample Area Number
	066-306-2C	black caulking at window frame	
	Drawing/Sketch Number and Name		
			066-306-2C


A Sample Area should contain material of one, and only one, composition or matrix. An exception can be made in the case of layered applications of materials, such as occurs with a Three Coat Plaster system, that generally matches the same physical locations. Special care must be taken while collecting samples of layered materials, to enable the analysis to discern the several matrices present. Such conditions should be described in detail on the Sample Notes form for the analyst.

Location of Confirmed, Assumed, or New ACM within Building

Unified Sample Area/Homogeneous Material

black caulking at window frame	Not Applicable
--------------------------------	----------------

<p>SAMPLING STRATEGY DATA</p> <p>Ceiling Height #1 <input type="text"/> #2 <input type="text"/></p> <p>Square Feet of Ceiling Materials <input type="text"/></p> <p>Square Feet of Wall Materials <input type="text"/></p> <p>Square Feet of Floor Surface <input type="text"/></p> <p>Linear Feet of TSI <input type="text"/></p> <p>Square Feet of Structural Steel Coatings (including over-spray) <input type="text"/></p> <p>Square Feet of Other ACM <input type="text"/></p> <p>Linear Feet of Other ACM <input type="text"/></p> <p>Total square and/or linear feet of ACM: <input type="text"/></p>	<p>RISK ASSESSMENT DETERMINATION</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Material Type</td> <td style="width: 33%;">Damage Condition</td> <td style="width: 33%;">Potential Damage</td> </tr> <tr> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>Visible</td> <td>Reachable</td> <td>Water Damage</td> </tr> <tr> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>Barriers</td> <td>Ventilation</td> <td>If Yes</td> </tr> <tr> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>Air Movement</td> <td>Proximity to Repair Items</td> <td>Friable</td> </tr> <tr> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> </table>	Material Type	Damage Condition	Potential Damage	--	--	--	Visible	Reachable	Water Damage	--	--	--	Barriers	Ventilation	If Yes	--	--	--	Air Movement	Proximity to Repair Items	Friable	--	--	--
Material Type	Damage Condition	Potential Damage																							
--	--	--																							
Visible	Reachable	Water Damage																							
--	--	--																							
Barriers	Ventilation	If Yes																							
--	--	--																							
Air Movement	Proximity to Repair Items	Friable																							
--	--	--																							

<p>SAMPLE ANALYSIS SUMMARY SECTION</p> <p>Total number of samples collected <input style="width: 50px;" type="text" value="3"/></p> <p>Total number of samples analyzed <input style="width: 50px;" type="text" value="3"/></p> <p>IS ASBESTOS-CONTAINING MATERIAL PRESENT? <input style="width: 50px;" type="text" value="NO"/></p> <p>Samples Collected by <input style="width: 50px;" type="text" value="EMET"/></p> <p>Sample Numbers <input style="width: 80%; border: none;" type="text" value="066-306-2c1, 066-306-2c2, 066-306-2c3"/></p> <p>Samples Analyzed by <input style="width: 50px;" type="text" value="EMET"/></p> <p>Number of Sallent Designations <input style="width: 50px;" type="text"/></p>	<p style="text-align: center;">PHOTOGRAPH</p> <div style="text-align: center;">  </div>
--	--

EMET Services, Inc. • 94-520 Uka'e Street, Suite A • Waipahu, Hawaii 96797
Phone: (808) 671-8383 • FAX: (808) 671-7979

Sample Log and Notes

Building Number and Name

306	Bldg 306
-----	----------


EMET ID

1402066

Sample Area/Lot Number and Name

066-306-2C	black caulking at window frame
------------	--------------------------------

Sample Number	% Asbestos	Description of Sampled Material	Sample Location
066-306-2c1	0	black caulking at window frame	See Sketch 066-306-2
066-306-2c2	0	black caulking at window frame	See Sketch 066-306-2
066-306-2c3	0	black caulking at window frame	See Sketch 066-306-2

Inspector's Name	Signature	Date Samples Collected
Stephen Kaneshiro		3/28/2014

EMET Services, Inc. 94-520 Uke'e Street, Suite A Waipahu, HI 96797
Phone (808) 671-8383 Fax (808) 671-7979

1402066-306 Page 17

LABORATORY REPORT



Asbestos Bulk Sample Analysis by Polarized Light Microscopy
in accordance with Test Methods EPA 600/M4-82-020 and EPA 600/9-93/116

Client: Design Partners, Inc.
Address: 1580 Makaloa St., Suite 1100
Honolulu, HI 96814

Building: Bldg 306
Address: 3949 Diamond Head Road
Honolulu, HI 96816

NVLAP LAB CODE 101807-0

Approved Signatory:

Sample/Homogeneous Area: 066-306-2C Analysis Date: 3/28/2014 Report Date: 3/28/2014

Lab ID	Sample ID	Color	Asbestos homogeneity Present		Asbestos (Type) Area %	Fibrous Components Area %	Non-fibrous Components Area %	comments
			Yes	No				
066-013	066-306-2c1	black		No	<1		misc. part.	
066-014	066-306-2c2	black	Yes	No			misc. part.	
066-015	066-306-2c3	black	Yes	No	<1		misc. part.	

*Accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for the scope specific under Lab Code 101807-0.
*Laboratory test report may not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

*Samples analyzed as received by the laboratory. Interpretation is responsibility of the client.

*Asbestos fiber percentage approximate - performed by visual observation only.

*This method is not reliable for analysis of tile or other materials when fiber size is less than 10 microns and/or below detection limit (appr. 1%) of current PLM techniques

Note: EPA, OSHA, and HIOSH define "asbestos-containing material" as any material or product which contains more than one percent asbestos.

This report may not be reproduced except in full and with the permission of EMET.

EMET Services, Inc. 94-520 Uka'e Street, Suite A, Waipahu, Hawaii 96797 Phone: (808) 671-8383 FAX: (808) 671-7979

EMET ID 1402066



Appendix B

Asbestos Survey Sample Locations Sketch

(2 pages)

**Hawaii Army National Guard, DOD, Building 306
Hurricane Hardening, DOD Job No. CA-1324-C**

**Asbestos and Lead Survey
EMET: 1402066**

EnvironMETeo (EMET) Services, Inc. Waipio Gentry Business Park 94-520 Uke'e Street, Suite A Waipahu, Hawaii, USA 96797-4200
(808) 671-8383 Telephone (808) 671-7979 Facsimile

ASBESTOS SAMPLE LOCATION PLAN

BLDG #	NAME OF BUILDING	ADDRESS	SKETCH #
306	DEPARTMENT OF DEFENSE	3849 DIAMOND HEAD ROAD HONOLULU, HI 96816	066-306-1 1 OF 1

LEGEND

ACM: SAMPLE #

NON-ACM: SAMPLE #

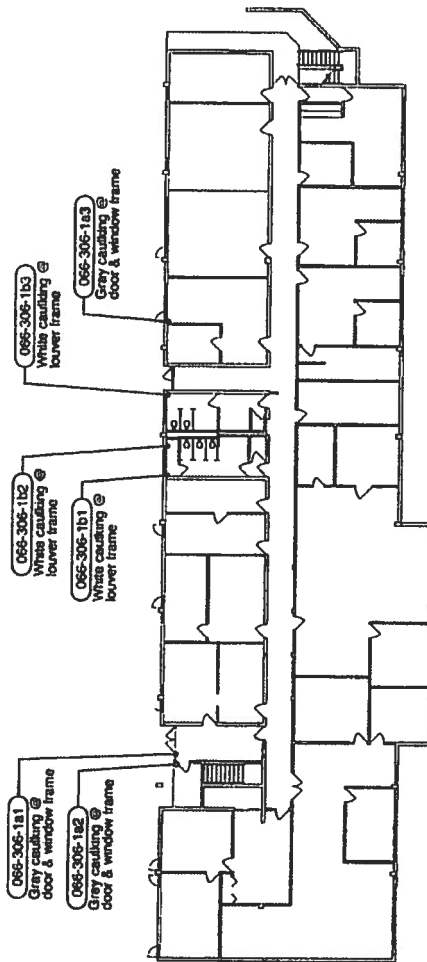
ASBESTOS-CONTAINING MATERIALS (ACM)

NO ACM DETECTED IN AREAS SAMPLED

*ASBESTOS-CONTAINING MATERIAL (ACM) IS DEFINED AS ANY MATERIAL CONTAINING > 1 % ASBESTOS

THIS SURVEY WAS LIMITED IN SCOPE TO SPECIFIC AREAS IDENTIFIED BY THIS REPORT. THIS REPORT MAKES NO WARRANTY OR REPRESENTATION AS TO THE ACCURACY OF THE DATA OR THE RESULTS OF THIS REPORT. THIS REPORT MAKES NO WARRANTY OR REPRESENTATION AS TO THE ACCURACY OF THE DATA OR THE RESULTS OF THIS REPORT. THIS REPORT MAKES NO WARRANTY OR REPRESENTATION AS TO THE ACCURACY OF THE DATA OR THE RESULTS OF THIS REPORT.

NORTH



← DIAMOND HEAD ROAD →

STEVENSON MIDDLE SCHOOL
BUILDING 306 - FIRST FLOOR PLAN (LOWER LEVEL)
NOT TO SCALE

EnvironmentalToo (EMET) Services, Inc. 94-620 Ili'e Street, Suite A Waipahu, Hawaii 96797 Phone: (808) 671-8383 Fax: (808) 671-7979

EMET I.D. #1402068

ASBESTOS SAMPLE LOCATION PLAN

BLDG #	NAME OF BUILDING	ADDRESS	SKETCH #
306	DEPARTMENT OF DEFENSE	3949 DIAMOND HEAD ROAD HONOLULU HI 96816	066-306-2 1 OF 1

LEGEND

ACM: SAMPLE #

NON-ACM: SAMPLE #

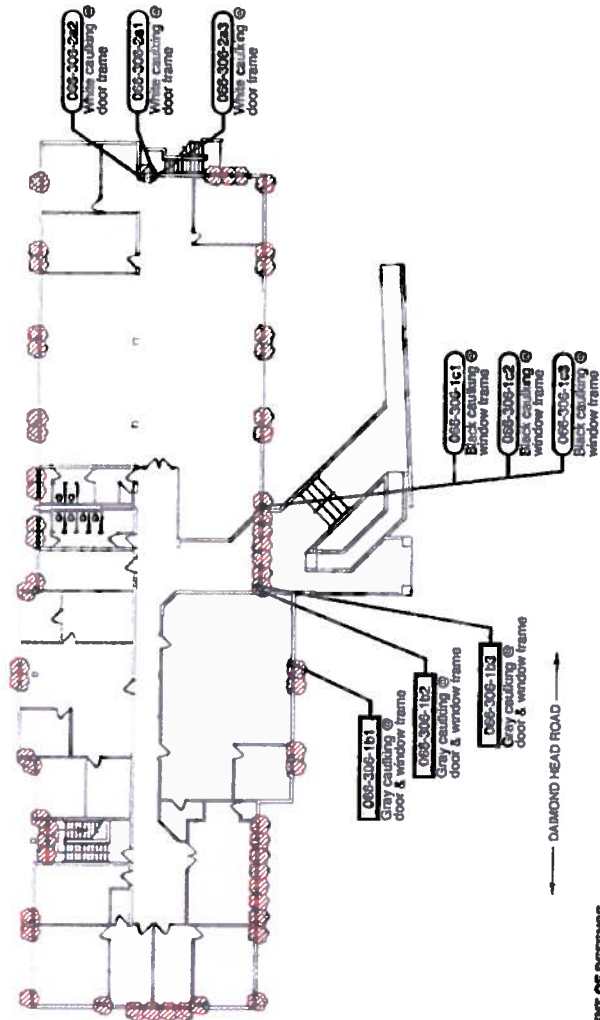
ASBESTOS-CONTAINING MATERIALS (ACM):
 * ACM are described in this Legend or boldface text.
 Non-ACM (listed here only if layered with ACM) are described in plain text.

SAMPLE AREA 066-306-2B:
 GRAY CAULKING @ DOOR & WINDOW FRAME **

* ASBESTOS-CONTAINING MATERIAL (ACM) IS DEFINED AS ANY MATERIAL CONTAINING > 1% ASBESTOS

THIS SURVEY WAS LIMITED IN SCOPE TO SPECIFIC AREAS AFFECTED BY PLANNED RENOVATION ACTIVITIES ONLY. THEREFORE, THIS REPORT MAKES NO WARRANTY FOR AREAS OF THE BUILDING WHICH WERE NOT INCLUDED IN THE SCOPE OF THE SURVEY.

** DUE TO SMALL SIZES OF SOME MATERIAL OCCURRENCES, LOCATIONS OF ACM SHOWN GRAPHICALLY ON LISTED VERTIBALLY HERE MAY NOT BE EXHAUSTIVE. CONTRACTOR SHOULD SITE-VERIFY ACM LOCATIONS AND EXTENT PRIOR TO BIDDING AND AGREEMENT.



DEPARTMENT OF DEFENSE
 BUILDING 306 - SECOND FLOOR PLAN (UPPER LEVEL)
 NOT TO SCALE

EnvironmentalPro (EMET) Services, Inc. 94-520 Uye'e Street, Suite A Wai-puhai, Hawaii 96797 Phone: (808) 671-6363 Fax: (808) 671-7979
 EMET I.D. #1402066



Appendix C

Lead Survey Report

(1 page)

**Hawaii Army National Guard, DOD, Building 306
Hurricane Hardening, DOD Job No. CA-1324-C**

**Asbestos and Lead Survey
EMET: 1402066**

EnvironMETeo (EMET) Services, Inc. Waipio Gentry Business Park 94-520 Uke'e Street, Suite A Waipahu, Hawaii, USA 96797-4200
(808) 671-8383...Telephone (808) 671-7979...Facsimile



Laboratory Report

Painted Surfaces Total Elemental Lead Analyses by X-Ray Fluorescence

EMET ID: 1402066

Test Date: March 26, 2014

Hawaii Army National Guard (HIARNG)
Department of Defense Building 306
Hurricane Hardening
DOD Job No. CA-1324-C

XRF#	Location	Component	Substrate	Condition	Color	PbC (mg/cm ²)	Lead-based Paint?	Lead-containing Paint?
1019	1st fl, exterior	wall	concrete	intact	beige	0.03 ± 0.02	no	yes
1020	1st fl, exterior	window sill	concrete	intact	beige	0.01 ± 0.02	no	yes
1021	1st fl, exterior	column	concrete	intact	beige	0.03 ± 0.02	no	yes
1022	1st fl, exterior	window frame	metal	intact	stained	0.00 ± 0.02	no	yes
1023	1st fl, exterior	door frame	metal	intact	stained	0.00 ± 0.02	no	yes
1024	1st fl, interior	wall	CMU	intact	white	0.00 ± 0.02	no	yes
1025	1st fl, interior	wall	CMU	intact	white	0.00 ± 0.02	no	yes
1026	1st fl, interior	wall	gypboard	intact	white	0.00 ± 0.02	no	yes
1027	1st fl, interior	window frame	wood	intact	white	0.00 ± 0.02	no	yes
1028	2nd fl, exterior	door frame	metal	intact	beige	0.14 ± 0.11	no	yes
1029	2nd fl, exterior	door	metal	intact	beige	0.00 ± 0.02	no	yes
1030	2nd fl, exterior	wall	CMU	intact	beige	0.05 ± 0.02	no	yes
1031	2nd fl, exterior	wall	plaster	intact	beige	0.02 ± 0.02	no	yes
1032	2nd fl, interior	wall	CMU	intact	white	0.00 ± 0.02	no	yes
1033	2nd fl, interior	wall	concrete	intact	white	0.00 ± 0.02	no	yes
1034	Calibration					1.00 ± 0.10		
1035	Calibration					1.00 ± 0.10		
1036	Calibration					1.00 ± 0.10		

Determination of paint as lead-based paint by the U. S. Department of Housing and Urban Development (HUD) is based on the values in the "PbC" column reported in mg/cm² (milligrams per square centimeter). HUD regulations, 24 CFR Parts 35, 200, 881, and 886; and Guidelines for the Evaluation and Control of Lead-based Paint (LBP) Hazards in Housing, dated June 1995, define LBP as paint with a lead content of 1.0 mg/cm² or greater.

However, OSHA and HIOSH regulate activities disturbing paint that contains lead (lead-containing paint), even if the content is below the HUD standard.

Serial #7798, Source Date 4/2014

Page 1 of 1

EnvironMETeo (EMET) Services, Inc. Waipio Gentry Business Park 94-520 Uke'e Street, Suite A Waipahu, Hawaii, USA 96797-4200
(808) 671-8383...Telephone (808) 671-7979...Facsimile



Appendix D

Certifications

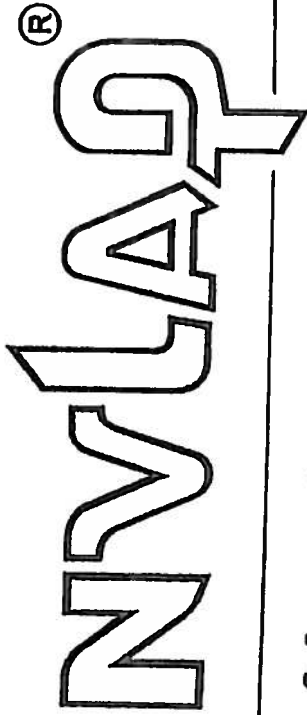
(4 pages)

**Hawaii Army National Guard, DOD, Building 306
Hurricane Hardening, DOD Job No. CA-1324-C**

**Asbestos and Lead Survey
EMET: 1402066**

EnvironMETeo (EMET) Services, Inc. Waipio Gentry Business Park 94-520 Uke'e Street, Suite A Waipahu, Hawaii, USA 96797-4200
(808) 671-8383... Telephone (808) 671-7979... Facsimile

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101807-0

EnvironMETeo Services Inc.
Waipahu, HI

is accredited by the National Voluntary Laboratory Accreditation Program for specific services.
listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2013-07-01 through 2014-06-30
Effective dates



A handwritten signature in black ink, appearing to read "M. D. M. L. J.", is written over a horizontal line.

For the National Institute of Standards and Technology

STATE OF HAWAII

DEPARTMENT OF HEALTH



Lead-Based Paint Activities Firm Certification

THIS IS TO CERTIFY THAT

EnvironMETeo Services, Inc.

has fulfilled the requirements of Chapter 11-41 Hawaii Administrative Rules and the Toxic Substance Control Act (TSCA) Section 402(a)(2), and has received certification as a firm pursuant to §11-41-4, H.A.R. to conduct lead-based paint activities in Hawaii.

This certification is valid from the date of issuance and expires on JUNE 19, 2015.

Date of Issue: FEBRUARY 21, 2012
Certification # PBF-0024

NON-TRANSFERABLE

FOR DIRECTOR OF HEALTH

REVOCABLE FOR CAUSE



**State of Hawai'i
Asbestos Certification**

Training Course Exp. Dates

W	n/a	MP	04/26/14
CS	n/a	PD	n/a
INS	04/26/14	PM	08/10/14

Kaneshiro
Stephen Y.
EnvironMETeo Services, Inc
HIASB-2307
State Exp. Date 09/07/2014

W- Worker
CS- Conf/Sup
INS- Inspector
PD= Project Designer
MP= Mgmt Planner
PM= Project Monitor



**State of Hawai'i
Lead Based Paint Activities Certification**

Expiration Dates:

Inspector n/a
Supervisor n/a
Risk Assessor 11/05/2016
Project Designer n/a
Worker n/a



Kaneshiro

Stephen

Certification # PB-0676



End of Report
(This page intentionally left blank.)



EnviroQuest

**INSPECTION REPORT FOR
ASBESTOS, LEAD-BASED PAINT AND ARSENIC**

**Buildings 300, 306 and 306A
Fort Ruger
Honolulu, Hawaii 96816**

Prepared for:

Pacific Architects
2020 South King Street
Honolulu, Hawaii 96826

Prepared by:

EnviroQuest, Inc.
98-029 Hekaha Street, Suite 21
Aiea, Hawaii 96701
808.486.5881
eqi@enviroquestinc.com

April 2010

ENVIROQUEST Project 5058.1



TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 INTRODUCTION.....	4
2.0 ASBESTOS	5
2.1 Methodology.....	5
2.2 Results	5
3.0 LEAD-BASED PAINT.....	9
3.1 Methodology.....	9
3.2 Results	9
4.0 ARSENIC CONTAINING MATERIALS	12
4.1 Methodology.....	12
4.2 Results	12
5.0 SUMMARY.....	13
5.1 Asbestos-Containing Materials.....	13
5.2 Lead-Based Paint.....	13
5.3 Arsenic Containing Materials.....	14
6.0 LIMITATIONS	15

TABLES

Table 1 - Asbestos Containing Material Summary.....	6
Table 2 - Lead Paint Summary	10
Table 3 - Arsenic Sample Summary	12

APPENDICES

1. Asbestos
2. Lead
3. Arsenic
4. Photographic Documentation



EXECUTIVE SUMMARY

ENVIROQUEST, INC. (EQI) was retained by Pacific Architects to conduct a limited hazardous material inspection of buildings 300, 308 and 308A at Fort Ruger in Honolulu, Hawaii. The inspection was conducted on April 19, 2010.

The objective of the inspection was to determine the location of asbestos-containing materials (ACMs), lead-based paints (LBPs) and arsenic containing materials which may be disturbed during by the work associated with the accessibility improvements. The inspection was limited to the areas affected by the renovation work as shown in the design drawings.



Asbestos Containing Material

The listed materials were identified as asbestos-containing materials.

Material	Location	Condition
Building 306		
Black mastic under 12"x12" black VFT	1 st floor women's restroom floor, lounge area	Good
Black mastic under 12"x12" brown VFT	2 nd Floor men's restroom floor, front area (between 1 st and 2 nd doors); and 2 nd floor women's restroom floor, lounge area	Good

The ACM was found to be in good condition and no immediate abatement action is necessary. However, if the materials are likely to be disturbed during the renovation, the material must be removed prior to the renovation activity. All removal must be completed by a certified asbestos abatement contractor under controlled conditions in accordance with EPA and Hawaii Department of Health (HDOH) regulations. Work should also be monitored by an independent industrial hygiene professional.

Lead-based Paint

The listed building components were painted or coated with LBP or lead coatings.

Color	Location	Condition
Building 300		
Red	Shower door, 1 st floor women's restroom	Intact
Building 306		
Brown	Doorframes, 1 st and 2 nd floor men's and women's restrooms	Intact
Orange	Toilet partition, 1 st floor women's restroom	Intact
Green	Ceramic wall tile, 1 st floor men's restroom	Intact
Building 306A		
Grey	Doorframes, 1 st floor, men's and women's restrooms	Intact

EPA defines lead-based paint as paint or other coatings containing lead equal to, or in excess of, 0.5% by weight. The lead-based paint components were found to be intact and can be removed during the renovation and/or demolition process as long as the paint remains in good condition. EQI does recommend that the LBP components be removed with as minimal disturbance as possible. Note that lead at various concentrations below the EPA guideline was also detected for various coatings.

The contractor's employees removing or disturbing the painted material must be informed that it contains lead and must have received training under OSHA 29 CFR 1926.62 *Lead* and HIOSH 12-148.1 *Lead*. If any other untested paints are disturbed, they should be assumed to contain lead.



Arsenic Containing Material

Arsenic containing materials were not identified in this inspection.



1.0 INTRODUCTION

This report presents the results of the limited hazardous material inspection of buildings 300, 306 and 306A at Fort Ruger in Honolulu, Hawaii. The inspection was conducted on April 19, 2010.

The objective of the inspection was to determine the location of ACM, LBP and arsenic-containing materials which may be disturbed during by the work associated with the fire sprinkler upgrade. While sample locations were selected randomly to represent homogenous materials, sampling was limited to the materials which may be disturbed by the accessibility improvement work. The listed areas were included in our inspection.

Building 300

- Men's and women's restrooms

Building 306

- 1st floor, men's and women's restrooms
- 2nd floor, men's and women's restrooms
- 1st floor and 2nd floor areas impacted by installation of new elevator
- Roof

Building 306A

- 1st floor men's and women's restrooms
- 2nd floor unisex restroom
- 2nd floor PAD storage locker room and adjacent office rooms



2.0 ASBESTOS

Eighty-seven samples were collected from suspect asbestos-containing materials.

2.1 Methodology

Prior to sampling, EQI visually surveyed the interior and exterior of the buildings for suspect asbestos-containing materials and homogeneous areas (areas that have uniform color, texture, and appearance.) Suspect materials were divided into friable and non-friable materials and placed in one of the following EPA categories:

- Surfacing Materials (sprayed or troweled-on materials)
- Thermal Systems Insulations (materials generally applied to various mechanical systems)
- Miscellaneous Materials (any materials which do not fit in the above categories)

Sampling methodology followed the general guidelines for bulk asbestos sampling as presented in Section 40, Part 763 (AHERA) of the Code of Federal Regulations (CFR) and Hawaii Administrative Rules (HAR) 11-501 and 11-502.

2.2 Results

Samples were submitted to Forensic Analytical in Rancho Dominguez, California. The samples were analyzed by polarized-light microscopy (PLM), using EPA Method 600/R-93-116, Visual Area Estimation.

Forensic Analytical is accredited for bulk asbestos analysis through successful participation in the US Department of Commerce, National Institute of Standards and Technologies (NIST), National Voluntary Laboratory Accreditation Program (NVLAP). The laboratory is currently registered to provide asbestos laboratory services in the State of Hawaii under Title 11 of the Hawaii Administrative Rules (HAR), Chapter 504.

Based on the laboratory analytical report two of the 87 samples were identified as ACM. The National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 61 Part M, defines asbestos containing materials as those which contain greater than 1% asbestos. NESHAP also categorizes ACM as either being a friable material, a Category I non-friable material or a Category II non-friable material. Friable materials are defined as those that can be reduced to powder by hand pressure. Category I non-friable materials are the asphalt roofing materials, resilient floor covering, excluding linoleum, packings, and gaskets. Category II non-friable materials are the cementitious materials such as stucco and asbestos cement board. In accordance with NESHAP requirements, samples consisting of distinct layers of materials were analyzed and reported separately by the laboratory. NESHAP also states that if asbestos is identified in amounts less than 10% in the regulated ACM (RACM), the owner or operator of the building must elect to assume the amount to be greater than 1% and treat the material as asbestos-containing material or request verification of the amount by point counting. No samples were point counted for this report.

A summary of the homogenous materials is presented in Table 1. The laboratory analytical report and chain of custody forms are included in Appendix 1.



TABLE 1
Asbestos-Containing Material Summary
Buildings 300, 306 and 306A, Fort Ruger

Homogenous Material	ACM, (Y/N)	Location	Sample ID	Friable (Y/N)	Est Qty (ACM) (ft ²)	Condition _z	Photo No.
12"x12" VFT black with tan mastic	N	Bldg 300, 1 st floor men's restroom	300-01A 300-02A 300-03A	N	—	G	36
Black covebase with tan mastic	N	Bldg 300, 1 st floor men's restroom	300-04A 300-05A 300-06A	N	—	G	—
Pink ceramic wall tile and grout	N	Bldg 300, 1 st floor men's restroom	300-07A 300-08A 300-09A	N	—	G	44
Brown ceramic floor tile and grout	N	Bldg 306, 1 st floor women's restroom floor	306-01A 306-02A 306-03A	N	—	G	4
Brown ceramic wall tile and grout (4"x4")	N	Bldg 306, 1 st floor women's restroom wall	306-04A 306-05A 306-06A	N	—	G	4
12"x12" black VFT with black mastic	Y	Bldg 306, 1 st floor women's restroom floor, near front	306-07A 306-08A 306-09A	Y	—	G	—
Gypsum wall	N	Bldg 306, 1 st floor women's restroom wall, adjacent ot locker	306-10A 306-11A 306-12A	Y	—	G	—
Green ceramic floor tile and grout	N	Bldg 306, 1 st floor men's restroom floor	306-13A 306-14A 306-15A	N	—	G	12
Green ceramic wall tile (4"x4")	N	Bldg 306, 1 st floor men's restroom wall	306-16A 306-17A 306-18A	N	—	G	7
Green ceramic floor tile and grout	N	Bldg 306, 2 nd floor women's restroom floor	306-19A 306-20A 306-21A	N	—	G	17
Pink ceramic wall tile and grout (4"x4")	N (Trace)	Bldg 306, 2 nd floor women's restroom wall	306-22A 306-23A 306-24A	N	—	G	15
Gypsum wall	N	Bldg 306, 2 nd floor women's restroom wall	306-25A 306-26A 306-27A	Y	—	G	—

EQI Project No. 5056.1



12"x12" brown VFT with black mastic	Y	Bldg 306, 2 nd floor men's restroom front floor	306-28A 306-29A 306-30A	N	—	G	19
Green covebase with brown mastic	N (Trace)	Bldg 306, 2 nd floor men's restroom front wall base	306-31A 306-32A 306-33A	N	—	G	—
Brown ceramic floor tile with grout	N	Bldg 306, 2 nd floor men's restroom front floor	306-34A 306-35A 306-36A	N	—	G	23
Brown ceramic wall tile and grout	N (Trace)	Bldg 306, 2 nd floor men's restroom front area wall	306-37A 306-38A 306-39A	N	—	G	—
Roof felt, tar and brown insulation	N	Bldg 306, roof	306-40A 306-41A 306-42A	Y	—	G	1
White fissured ceiling tile	N	Bldg 306, 1 st and 2 nd floors, hallways adjacent to restrooms	306-43A 306-44A 306-45A 306-46A 306-47A 306-48A	Y	—	G	24
White door caulking	N	Bldg 306, 1 st and 2 nd floor restroom doors	306-49A 306-50A 306-51A 306-52A 306-53A 306-54A	N	—	G	—
12"x12" beige VFT with tan mastic	N	Bldg 306A, 2 nd floor unisex restroom floor	306A-01A 306A-02A 306A-03A	N	—	G	26
Brown covebase with brown mastic	N	Bldg 306A, 2 nd floor unisex restroom	306A-04A 306A-05A 306A-06A	N	—	G	—
Gypsum wall	N	Bldg 306A, 2 nd floor unisex restroom, PADI storage locker room	306A-07A 306A-08A 306A-09A	Y	—	G	25
White fissured ceiling tile	N	Bldg 306A, PADI storage room ceiling	306A-10A 306A-11A 306A-12A	Y	—	G	29
Pink ceramic wall tile and grout	N	Bldg 306A, 1 st floor men's restroom wall	306A-13A 306A-14A 306A-15A	N	—	G	33

EQI Project No. 5058.1



Gypsum wall	N	Bldg 306A, 1 st floor men's restroom wall	306A-16A 306A-17A 306A-18A	N		G	—
12"x12" beige VFT with black mastic	N	Bldg 306A, 1 st floor men's restroom floor	306A-19A 306A-20A 306A-21A	N		G	31
Brown covebase with brown mastic	N	Bldg 306A, 1 st floor men's restroom wall	306A-22A 306A-23A 306A-24A	N		G	—

1. ACM => 1% asbestos content

2. Good (G); Damaged (D) <10% distributed or 25% localized; Significant Damage (SD), >10% distributed or 25% localized



3.0 LEAD-BASED PAINT

Forty paint chip samples were collected from painted or coated materials that may be disturbed by the renovation work.

3.1 Methodology

Prior to sampling, EQI visually surveyed the interior and exterior of the building for painted building components. Our sampling methodology generally followed the "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" published by the Department of Housing and Urban Development (HUD) in 1995.

3.2 Results

Lead in paint measurements exceeded EPA guidelines for lead in paint. EPA defines lead-based paint as paint or other coatings containing lead in equal to, or in excess of, 0.5% lead by weight. A homogenous paint summary is presented in Table 2. The laboratory analytical report and chain of custody forms are included in Appendix 2.



TABLE 2
Lead Paint Summary

Paint Color	Int/Ext	LBP, (Y/N)	LCP, (Y/N)	Paint Location	Sample ID	Condition _{s,4}	Photo No.
Tan	Int	N	N	Bldg 300, 1 st floor men's restroom door	300-01L	Intact	34
White	Int	N	N	Bldg 300, 1 st floor men's restroom doorframe	300-02L	Intact	35
White	Int	N	N	Bldg 300, 1 st floor men's restroom CMU wall	300-03L	Intact	43
Tan	Int	N	Y	Bldg 300, 1 st floor men's restroom base wall	300-04L	Intact	46
Tan/green	Int	N	N	Bldg 300, 1 st floor men's restroom, toilet partition	300-05L	Intact	45
Pink	Int	N	N	Bldg 300, 1 st floor men's restroom, ceramic tile wall	300-06L	Intact	44
Tan	Int	N	Y	Bldg 300, 1 st floor men's restroom, wood bench and metal support post	300-07L	Intact	47
Red	Int	Y	N	Bldg 300, 1 st floor women's restroom, shower door	300-08L	Intact	—
Brown	Int	N	Y	Bldg 300, 1 st floor women's restroom, shower doorframe	300-09L	Intact	—
Brown	Int	Y	N	Bldg 306, 1 st floor men's and women's restroom doorframes	306-01L	Intact	6
White	Int	N	Y	Bldg 306, 1 st floor men's and women's restroom doors	306-02L	Intact	6
White and brown	Int	N	N	Bldg 306, 1 st floor, women's restroom, CMU wall	306-03L	Intact	—
White/brown	Int	N	N	Bldg 306, 1 st floor, women's restroom, gypsum wall	306-04L	Intact	—
Orange	Int	Y	N	Bldg 306, 1 st floor women's restroom, toilet stall	306-05L	Intact	11
Brown	Int	N	N	Bldg 306, 1 st floor, women's restroom, ceramic tile floor	306-06L	Intact	4
Brown	Int	N	Y	Bldg 306, 1 st floor, women's restroom, ceramic tile wall	306-07L	Intact	4
White/green	Int	N	Y	Bldg 306, 1 st floor, men's restroom, gypsum wall	306-08L	Intact	9
Green	Int	N	Y	Bldg 306, 1 st floor, men's restroom, toilet stall	306-09L	Intact	8
Green	Int	N	N	Bldg 306, 1 st floor, men's restroom, ceramic floor tile	306-10L	Intact	12
Green	Int	Y	N	Bldg 306, 1 st floor, men's restroom, ceramic wall tile	306-11L	Intact	7
Yellow	Int	N	N	Bldg 306, 2 nd floor, women's restroom, toilet partition	306-12L	Intact	16

EQI Project No. 5058.1



Brown	Int	Y	N	Bldg 306, 2 nd floor, women's restroom, doorframe	306-13L	Intact	13
White	Int	N	Y	Bldg 306, 2 nd floor, women's restroom, door	306-14L	Intact	13
Brown	Int	N	N	Bldg 306, 2 nd floor, men's restroom, gypsum wall	306-15L	Intact	22
Brown	Int	N	Y	Bldg 306, 2 nd floor, men's restroom, toilet partition	306-16L	Intact	22
White	Int	N	N	Bldg 306, 2 nd floor, men's restroom, gypsum wall	306-17L	Intact	21
White/brown	Int	N	N	Bldg 306, 2 nd floor, men's restroom, CMU wall	306-18L	Intact	20
Green	Int	N	N	Bldg 306, 2 nd floor, women's restroom, ceramic tile floor	306-19L	Intact	17
Pink	Int	N	Y	Bldg 306, 2 nd floor, women's restroom, ceramic tile wall	306-20L	Intact	15
Brown	Int	N	N	Bldg 306, 2 nd floor, men's restroom, ceramic tile floor	306-21L	Intact	23
Brown	Int	N	Y	Bldg 306, 2 nd floor, men's restroom, ceramic tile wall	306-22L	Intact	—
Silver	Ext	N	N	Roof	306-23L	Intact	1
Brown	Ext	N	N	Bldg 306A, 2 nd floor unisex restroom, gypsum wall	306A-01L	Intact	25
White	Int	N	N	Bldg 306A, 2 nd floor unisex restroom, CMU wall	306A-02L	Intact	—
Brown	Int	N	N	Bldg 306A, 2 nd floor unisex restroom, locker	306A-03L	Intact	27
Grey	Int	Y	N	Bldg 306A, 1 st floor, men's restroom, doorframe	306A-04L	Intact	30
Brown	Ext	N	Y	Bldg 306A, 1 st floor, men's restroom, CMU wall	306A-05L	Intact	32
White	Int/Ext	N	N	Bldg 306A, 1 st floor, men's restroom, CMU wall (interior and exterior)	306A-06L	Intact	32
White	Int	N	N	Bldg 306A, 1 st floor, men's restroom, gypsum wall	306A-07L	Intact	—
Pink	Int	N	N	Bldg 306A, 1 st floor, men's restroom, ceramic tile wall	306A-08L	Intact	33

1. LBP = >0.5% lead by weight
2. LCP = >laboratory detection limit but <0.5%
3. Exterior: Intact - Entire surface is intact; Fair - ≤ 10ft²; Poor - >10 ft²
4. Interior: Intact - Entire surface is intact; Fair - ≤ 2ft² or ≤ 10%; Poor - >2 ft² or >10%



4.0 ARSENIC CONTAINING MATERIALS

One composite sample from suspect arsenic-containing roofing insulation was collected from the roof of building 306.

4.1 Methodology

Prior to sampling, EQI visually surveyed the interior and exterior of the building for suspect arsenic-containing materials. EQI collected the sample from the following material:

- Roofing insulation layer

Composite sampling strategy was utilized to determine the arsenic concentration in the insulation. Each sample consisted of three random subsamples.

4.2 Results

The sample was submitted to Forensic Analytical, in Hayward, California for analysis using *Atomic Absorption Spectroscopy, Flame* in accordance with EPA Method ICP, 3050B/6010B.

Based on the laboratory analytical laboratory report, the insulation was not identified as an arsenic containing material. The laboratory analytical report and chain of custody forms are included in Appendix 3.

TABLE 3
Arsenic Sample Summary

Material Location	Arsenic (Y/N)	Sample Description	Sample ID	Photo No.
Building 306, roof	N	Brown insulation material	306-01AR	1



5.0 SUMMARY

5.1 Asbestos-Containing Materials

The listed materials were identified as asbestos-containing materials.

Material	Location	Condition
Building 306		
Black mastic under 12"x12" black VFT	1 st floor women's restroom floor, lounge area	Good
Black mastic under 12"x12" brown VFT	2 nd Floor men's restroom floor, front area (between 1 st and 2 nd doors); and 2 nd floor women's restroom floor, lounge area	Good

The ACM was found to be in good condition and no immediate abatement action is necessary. However, if the materials are likely to be disturbed during the renovation, the material must be removed prior to the renovation activity. All removal must be completed by a certified asbestos abatement contractor under controlled conditions in accordance with EPA and Hawaii Department of Health (HDOH) regulations. Work should also be monitored by an independent industrial hygiene professional.

A trace amount of asbestos was also identified in the ceramic wall tile mortar and cove base mastic located in 2nd floor men's and women's restroom of building 306. However per National Emission Standard for Hazardous Air Pollutants (NESHAP) definition, the materials are not asbestos containing materials. However, Occupational Safety and Health Administration (OSHA) and Hawaii Division of Occupational Safety and Health (HIOSH) requirements would still apply in regards to worker exposure. The contractor's employees removing or disturbing the asbestos must be informed that it contains asbestos and must have received training under OSHA 29 CFR 1926.1101.

5.2 Lead-Based Paint

The listed materials were identified as lead-based paint.

Color	Location	Condition
Building 300		
Red	Shower door, 1 st floor women's restroom	Intact
Building 306		
Brown	Doorframes, 1 st and 2 nd floor men's and women's restrooms	Intact
Orange	Toilet partition, 1 st floor women's restroom	Intact
Green	Ceramic wall tile, 1 st floor men's restroom	Intact
Building 306A		
Grey	Doorframes, 1 st floor, men's and women's restrooms	Intact



The lead-based paint components were found to be intact and can be removed during the renovation and/or demolition process as long as the paint remains in good condition. EQI does recommend that the LBP components be removed with as minimal disturbance as possible. Note that lead at various concentrations below the EPA guideline was also detected for various coatings.

The contractor's employees removing or disturbing the painted material must be informed that it contains lead and must have received training under OSHA 29 CFR 1926.62 *Lead* and HIOSH 12-148.1 *Lead*. If any other untested paints are disturbed, they should be assumed to contain lead.

5.3 Arsenic Containing Materials

Arsenic-containing materials were not identified in this inspection.



6.0 LIMITATIONS

The information set forth is based solely on the agreed upon scope of services, on personal observation, laboratory data, and information provided by Pacific Architects.

Although this inspection provides information on the relative presence or absence of asbestos-containing materials, lead-based paint and arsenic-containing materials, it should not be construed as a final statement that all hazardous materials have been identified.

Given the often obscure and elusive nature of hazardous materials, it is never possible to absolutely dismiss the possibility of additional hazardous materials. EnviroQuest, Inc. expressly disclaims any and all liability, representations, expressed or implied, contained in, or for omission from this report, or any other written or oral communication which might be interpreted as establishing the total extent of all liability present at the subject property.

Our services have been performed with usual thoroughness and competence of the consulting profession, in accordance with the standard of professional services at this time. No other warranty or representation, either expressed or implied is included or intended.

Any question regarding our work and this report, the presentation of the information, and the interpretation of the data are welcome and should be referred to the undersigned. EQI greatly appreciates this opportunity to assist you with your industrial hygiene needs. We look forward to working with you again in the future.

David Leigh
Certified Industrial Hygienist
HIASB0251

Asbestos
Laboratory Analytical Report

Appendix 1



EnviroQuest, Inc.



Bulk Asbestos Analysis

(BPA Method 600/R-93-116, Visual Area Estimation)

EnviroQuest, Inc.
Steve Tanaka
98-029 Hekaha Street
Suite 21
Aiea, HI 96701

Client ID: 7104
Report Number: B135106
Date Received: 04/21/10
Date Analyzed: 04/26/10
Date Printed: 04/26/10
First Reported: 04/26/10

Job ID/Site: 5058.1; Fort Ruger Buildings 300, 306, 306A

FALL Job ID: 7104

Date(s) Collected: 04/19/2010

Total Samples Submitted: 9

Total Samples Analyzed: 9

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
300-01A	50564561		ND				
Layer: Black Tile							
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
300-02A	50564562		ND				
Layer: Black Tile							
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
300-03A	50564563		ND				
Layer: Black Tile							
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
300-04A	50564564		ND				
Layer: Black Non-Fibrous Material							
Layer: Beige Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
300-05A	50564565		ND				
Layer: Black Non-Fibrous Material							
Layer: Beige Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
300-06A	50564566		ND				
Layer: Black Non-Fibrous Material							
Layer: Beige Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Client Name: EnviroQuest, Inc.

Report Number: B135106

Date Printed: 04/26/10

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
300-07A	50564567						
Layer: Tan Ceramic Tile			ND				
Layer: Off-White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
300-08A	50564568						
Layer: Tan Ceramic Tile			ND				
Layer: Off-White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
300-09A	50564569						
Layer: Tan Ceramic Tile			ND				
Layer: Off-White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							



Steven Takahashi, Laboratory Supervisor, Rancho Dominguez Laboratory

Note: Limit of Quantification ("LOQ") = 1%. "Trace" denotes the presence of asbestos below the LOQ. "ND" = "None Detected". Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples received in acceptable condition unless otherwise noted.

2 of 2

2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684



EnviroQuest

PLM DATA SHEET

Pls stop @ 1st positive

Project No.: 5058.1 Project Name: Ford Ranger buildings 300, 306, 306A Date: 4/19/10

Page: 1 of 2

Material Description: 1242 VFT black/brown mastic

Sample No.	Location	% Asb.	Friable Non-Friable Asb. Type
300-01A	1 st floor men's RR, build 300		
-02A	" " "		
-03A	" " "		

CONDITION: % Damaged: % Localized: % Distributed: Total Material Quantity:

Surfacing Material		TSI		Misc.	
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gauge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gauges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gauges
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low		
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low		
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low		
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage		

Material Description: Black core base/tan mastic

Sample No.	Location	% Asb.	Friable Non-Friable Asb. Type
300-04A	1 st fl men's RR, build 300		
-05A	" " "		
-06A	" " "		

CONDITION: % Damaged: % Localized: % Distributed: Total Material Quantity:

Surfacing Material		TSI		Misc.	
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gauge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gauges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gauges
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low		
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low		
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low		
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage		

Sampled By: D. Lojz	Relinquished By/Date/Time: 10:15 AM 4-21-10	Relinquished By/Date/Time:
DOH Cert No: H536-0251	Relinquished By/Date/Time: (Signature) 4-21-10	Relinquished By/Date/Time:
Delivered to Lab By:	Relinquished By/Date/Time:	Relinquished By/Date/Time:

TURNAROUND TIME: < 12 Hours 24 Hours 3 Days 5 Days

Surfacing	< 1,000 ft ² = 3 Samples	1,000 - 5,000 ft ² = 5 Samples	> 5,000 ft ² = 7 Samples
TSI	Minimum of 3 Samples (Run) UNLESS	< 8 in. or ft ² = 1 Sample	Minimum of 3 Samples (Elbow & T)
Misc.	Minimum of 3 Samples (Heave)		
Surfacing	Sig. Damage = > 10% Dist. or 25% Local	Damaged = < 10% Dist. or 25% Local	Good = Very Limited Damage
TSI	Sig. Damage = 10% Missing Jacket OR > 10% Dist. or 25% Local	Damaged = < 10% Missing Jacket OR < 10% Dist. or 25% Local	Good = Very Limited Damage
Misc.	Sig. Damage = > 10% Dist. or 25% Local	Damaged = < 10% Dist. or 25% Local	Good = Very Limited Damage

98-029 Hohaka Street, Suite 21, Aiea, HI 98701 Phone: (808) 488-6881 Fax: (808) 488-6889 E-mail: eq@enviroquestinc.com



EnviroQuest

PLM DATA SHEET

Project No.: 5058.1

Project Name: Fort Ruger builts 300, 306, 306A

Date: 4/14/10

Page: 2 of 2

Material Description: pink ceramic wall tile/grow				Friable Non-friable	
Sample No.	Location			% Asb.	Asb. Type
300-07A	1 st st-men's RR, builtd 300				
-07A	//	//	//		
-09A	//	//	//		

CONDITION: % Damaged:		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material				TSI		Misc.	
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage				

Material Description:				Friable Non-friable	
Sample No.	Location			% Asb.	Asb. Type

CONDITION: % Damaged:		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material				TSI		Misc.	
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input type="checkbox"/> Minimal Damage				

Material Description:				Friable Non-friable	
Sample No.	Location			% Asb.	Asb. Type

CONDITION: % Damaged:		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material				TSI		Misc.	
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input type="checkbox"/> Minimal Damage				

98-029 Hakaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 488-5881 Fax: (808) 488-5889 E-mail: eq@enviroquestinc.com



Bulk Asbestos Analysis

(EPA Method 600/R-93-116, Visual Area Estimation)

EnviroQuest, Inc.
Steve Tanaka
98-029 Hekaha Street
Suite 21
Aiea, HI 96701

Client ID: 7104
Report Number: B135111
Date Received: 04/21/10
Date Analyzed: 04/26/10
Date Printed: 04/26/10
First Reported: 04/26/10

Job ID/Site: 5058.1; Fort Ruger Buildings 300,306, 306A

FALI Job ID: 7104

Date(s) Collected: 04/19/2010

Total Samples Submitted: 54

Total Samples Analyzed: 50

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306-01A	50564600						
Layer: Brown Ceramic Tile			ND				
Layer: Grey Grout			ND				
Layer: Off-White Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)		Synthetic (Trace)					
306-02A	50564601						
Layer: Brown Ceramic Tile			ND				
Layer: Grey Grout			ND				
Layer: Grey Mortar			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306-03A	50564602						
Layer: Brown Ceramic Tile			ND				
Layer: Grey Grout			ND				
Layer: Grey Mortar			ND				
Layer: Beige Mastic			ND				
Layer: Off-White Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)		Synthetic (Trace)					
306-04A	50564603						
Layer: Brown Ceramic Tile			ND				
Layer: White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306-05A	50564604						
Layer: Brown Ceramic Tile			ND				
Layer: White Grout			ND				
Layer: Off-White Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Report Number: B135111

Date Printed: 04/26/10

Client Name: EnviroQuest, Inc.

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306-06A	50564605						
		Layer: Brown Ceramic Tile	ND				
		Layer: White Grout	ND				
		Layer: Off-White Mastic	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					
306-07A	50564606						
		Layer: Grey Tile	Chrysotile	Trace			
		Layer: Black Mastic	Chrysotile	3 %			
		Total Composite Values of Fibrous Components:	Asbestos (Trace)				
		Cellulose (Trace)					
306-08A	50564607						
		Comment: Sample not analyzed due to prior positive result in series.					
306-09A	50564608						
		Comment: Sample not analyzed due to prior positive result in series.					
306-10A	50564609						
		Layer: Brown Drywall/Tape	ND				
		Layer: Off-White Skimcoat/Joint Compounds	ND				
		Layer: Paint	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (20 %) Fibrous Glass (7 %)					
306-11A	50564610						
		Layer: Brown Drywall	ND				
		Layer: Off-White Skimcoat/Joint Compound	ND				
		Layer: Paint	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (20 %) Fibrous Glass (7 %)					
306-12A	50564611						
		Layer: Brown Drywall	ND				
		Layer: Off-White Skimcoat/Joint Compound	ND				
		Layer: Paint	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (5 %) Fibrous Glass (3 %)					
306-13A	50564612						
		Layer: Green Ceramic Tile	ND				
		Layer: Grey Grout	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					
306-14A	50564613						
		Layer: Green Ceramic Tile	ND				
		Layer: Grey Grout	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					

Client Name: EnviroQuest, Inc.

Report Number: B135111

Date Printed: 04/26/10

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306-15A	50564614						
		Layer: Green Ceramic Tile	ND				
		Layer: Grey Grout	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					
306-16A	50564615						
		Layer: Light Green Ceramic Tile	ND				
		Layer: White Grout	ND				
		Layer: White Mortar	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					
306-17A	50564616						
		Layer: Light Green Ceramic Tile	ND				
		Layer: White Mortar	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					
306-18A	50564617						
		Layer: Light Green Ceramic Tile	ND				
		Layer: White Mortar	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					
306-19A	50564618						
		Layer: Beige Ceramic Tile	ND				
		Layer: Grey Grout	ND				
		Layer: Light Grey Mortar	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					
306-20A	50564619						
		Layer: Beige Ceramic Tile	ND				
		Layer: Grey Grout	ND				
		Layer: Light Grey Mortar	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					
306-21A	50564620						
		Layer: Beige Ceramic Tile	ND				
		Layer: Grey Grout	ND				
		Layer: Light Grey Mortar	ND				
		Total Composite Values of Fibrous Components:	Asbestos (ND)				
		Cellulose (Trace)					

Report Number: B135111

Date Printed: 04/26/10

Client Name: EnviroQuest, Inc.

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306-38A	50564637						
Layer: Beige Ceramic Tile			ND				
Layer: Off-White Grout			ND				
Layer: White Mortar			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306-39A	50564638						
Layer: Beige Ceramic Tile			ND				
Layer: Off-White Grout			ND				
Layer: Off-White Mortar		Chrysotile	Trace				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (Trace)							
Comment: This comment applies to the Off-White Mortar only. Due to small sample size, this result may not be repeatable.							
306-40A	50564639						
Layer: Silver Paint			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Beige Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (30 %)							
306-41A	50564640						
Layer: Silver Paint			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Beige Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (30 %)							
306-42A	50564641						
Layer: Silver Paint			ND				
Layer: Black Tar			ND				
Layer: Black Felt			ND				
Layer: Beige Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (30 %)							
306-43A	50564642						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
306-44A	50564643						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							

Client Name: EnviroQuest, Inc.

Report Number: B135111

Date Printed: 04/26/10

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306-45A	50564644						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
306-46A	50564645						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
306-47A	50564646						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
306-48A	50564647						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
306-49A	50564648						
Layer: Off-White Putty			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306-50A	50564649						
Layer: Off-White Putty			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306-51A	50564650						
Layer: Off-White Putty			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306-52A	50564651						
Layer: Off-White Putty			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Report Number: B135111

Date Printed: 04/26/10

Client Name: EnviroQuest, Inc.

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306-53A	50564652						
Layer: Off-White Putty			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306-54A	50564653						
Layer: Off-White Putty			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							



Steven Takahashi, Laboratory Supervisor, Rancho Dominguez Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'. Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (PALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by PALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by PALI. The client is solely responsible for the use and interpretation of test results and reports requested from PALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. PALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples received in acceptable condition unless otherwise noted.

8 of 8

2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684



EnviroQuest

Pls stop @ 1st positive

PLM DATA SHEET

Project No.: 50581 Project Name: Fort Ruger Buildings 300, 306 Date: 4/19/10 Page: 1 of 6

Material Description: Brown ceramic floor tile & grout. Sample No. 306-01A, 306-02A, 306-03A. Location: Build 306, 1st floor, men's RR, floor. Includes condition checkboxes for % Damaged, % Localized, % Distributed, and overall potential rating.

Material Description: Brown ceramic wall tile/grout 6 1/2" x 6". Sample No. 306-04A, -05A, -06A. Location: Build 306, 1st fl, women's RR, wall. Includes condition checkboxes for % Damaged, % Localized, % Distributed, and overall potential rating.

Administrative section with fields for Sampled By (D. Leigh), Relinquished By/Date/Time (10:15 AM, 4-21-10, FE), and DOH Cert No. (HJASB-0251).

TURNAROUND TIME: < 12 Hours 24 Hours 3 Days 5 Days

Table with 3 columns: Surfacing, TSI, Misc. and 3 rows: Sample counts, Damage criteria, and Good criteria.

88-029 Hahahe Street, Suite 21, Aiea, HI 96701 Phone: (808) 488-5881 Fax: (808) 488-5889 E-mail: eqj@enviroquestinc.com



EnviroQuest

PLM DATA SHEET

Project No.: 5058.1

Project Name: East Rucker, builds 300, 306
306A

Date: 4/19/10

Page: 2 of 6

Material Description: 12x12" white VET / black music		Fibrous Non-fibrous	
Sample No.	Location	% Asb.	Asb. Type
306-08A	Build 306, 1st floor, women's RR, stair near street		
08A	" " " "		
08A	" " " "		

CONDITION: % Damaged		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material		T&I		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input checked="" type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage				

Material Description: gyp wall (brown)		Fibrous Non-fibrous	
Sample No.	Location	% Asb.	Asb. Type
306-10A	Build 306, 1st fl, women's RR, wall adjacent to locker		
10A	" " " "		
12A	" " mens'		

CONDITION: % Damaged		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material		T&I		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input checked="" type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage				

Material Description: green ceramic floor tile/grout		Fibrous Non-fibrous	
Sample No.	Location	% Asb.	Asb. Type
306-13A	Build 306, 1st fl, men's RR, stair front corner		
14A	" " " "		
15A	" " " "		

CONDITION: % Damaged		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material		T&I		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input checked="" type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage				

89-029 Hekaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 488-8881 Fax: (808) 488-8889 E-mail: eqi@enviroquesthinc.com



EnviroQuest

PLM DATA SHEET

Project No.: 5058.1

Project Name: Fort Rucker, Build 300, 306
306A

Date: 11/9/10

Page: 3 of 6

Material Description: green ceramic wall tile (4"x4")			Friable Non-Friable
Sample No.	Location	% Asb.	Asb. Type
306-16A	Build 306, 1st fl, men's RR, 3rd area, wall		
-17A	" " " " " "		
-18A	" " " " " "		

CONDITION: % Damaged:		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material		TSI		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crumbling
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
Vibration Potential	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
Air Erosion	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage		<input type="checkbox"/> Damage		<input checked="" type="checkbox"/> Minimal Damage		

Material Description: green ceramic floor tile/grout			Friable Non-Friable
Sample No.	Location	% Asb.	Asb. Type
306-19A	Build 306, 2nd fl, women's RR, floor		
-20A	" " " " " "		
-21A	" " " " " "		

CONDITION: % Damaged:		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material		TSI		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crumbling
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
Vibration Potential	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
Air Erosion	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage		<input type="checkbox"/> Damage		<input checked="" type="checkbox"/> Minimal Damage		

Material Description: pink ceramic wall tile/grout (4"x4")			Friable Non-Friable
Sample No.	Location	% Asb.	Asb. Type
306-22A	Build 306, 2nd fl, women's RR, wall		
-23A	" " " " " "		
-24A	" " " " " "		

CONDITION: % Damaged:		% Localized:		% Distributed:		Total Material Quantity:	
Surfacing Material		TSI		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crumbling
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % Delaminating
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
Vibration Potential	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
Air Erosion	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage		<input type="checkbox"/> Damage		<input checked="" type="checkbox"/> Minimal Damage		

88-028 Hekaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 488-6881 Fax: (808) 488-5889 E-mail: eq@enviroquestinc.com



EnviroQuest

PLM DATA SHEET

Project No.: 5058.1

Project Name: Fort Ruger, Build 300, 306
306A

Date: 4/19/10

Page: 4 of 6

Material Description: gypsum wall (brown)		Friable Non-friable	
Sample No.	Location	% Asb	A b. Type
306-25A	Build 306, 2nd fl, women's RR, wall		
-26A	"/	"/	"/
-27A	"/	"/	"/

CONDITION: % Damaged		% Localized		% Distributed		Total Material Quantity	
Surfacing Material		YSI		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Detaching
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Detaching	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage				

Material Description: 12 1/2" brown VFT/black mastic		Friable Non-friable	
Sample No.	Location	% Asb.	Asb. Type
306-28A	Build 306, 2nd floor, men's RR, front floor		
-29A	"/	"/	"/
-30A	"/	"/	"/

CONDITION: % Damaged		% Localized		% Distributed		Total Material Quantity	
Surfacing Material		YSI		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Detaching
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Detaching	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage				

Material Description: green cave base / brown mastic		Friable Non-friable	
Sample No.	Location	% Asb.	Asb. Type
306-31A	Build 306, 2nd floor, men's RR, front wall base		
-32A	"/	"/	"/
-33A	"/	"/	"/

CONDITION: % Damaged		% Localized		% Distributed		Total Material Quantity	
Surfacing Material		YSI		Misc.			
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct.	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Detaching
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Detaching	<input checked="" type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges		
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low				
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage				

98-029 Hekaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-5851 Fax: (808) 486-5869 E-mail: eqi@enviroquestinc.com



EnviroQuest

PLM DATA SHEET

Project No.: 5058.1 Project Name: Fort Ruger Builds 300, 306 Date: 4/19/10. 306A Page: 5 of 6

Table with columns: Sample No., Location, % Asb., Frangible, Non-Frangible, Asb. Type. Material Description: brown ceramic floor/grout. Samples: 306-3AA, -35A, -36A.

CONDITION: % Damaged, % Localized, % Distributed, Total Material Quantity. Includes checkboxes for Surfacting Material, FSI, and Misc. categories.

Table with columns: Sample No., Location, % Asb., Frangible, Non-Frangible, Asb. Type. Material Description: brown ceramic wall (grout 1/4" x 1/4"). Samples: 306-37A, -38A, -39A.

CONDITION: % Damaged, % Localized, % Distributed, Total Material Quantity. Includes checkboxes for Surfacting Material, FSI, and Misc. categories.

Table with columns: Sample No., Location, % Asb., Frangible, Non-Frangible, Asb. Type. Material Description: roof felt (tar) brown insulation. Samples: 306-40A, -41A, -42A.

CONDITION: % Damaged, % Localized, % Distributed, Total Material Quantity. Includes checkboxes for Surfacting Material, FSI, and Misc. categories.

98-029 Hekaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-8881 Fax: (808) 486-8889 E-mail: eqi@enviroquestinc.com



EnviroQuest

PLM DATA SHEET

Project No.: 5058.1

Project Name: Fort Rucker, Buils 300, 306
306A

Date: 4/19/10

Page: 6 of 6

Material Description: white sisured ceiling tile		Location	% Asb.	Friable Non-friable Asb. Type
Sample No.				
306-47A		Build 306, 1st floor hall, near men's urinals	Re	
-44A		" " " "		
-45A		" " " "		
46A		" " 2nd floor		
47A		" " 2nd "		
48A		" " " "		

CONDITION: % Damaged: _____ % Localized: _____ % Distributed: _____		Total Material Quantity: _____	
Surfacting Material <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Crumbling - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Delaminating - _____ <input type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O/Gouges - _____		TBI <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Gouge/Punct - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Crushed - _____ <input type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O Stains - _____	
Misc. <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Crumbling - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Delaminating - _____ <input checked="" type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O/Gouges - _____			
Contact Potential	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low	Vibration Potential	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low
Air Erosion	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low	OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage <input type="checkbox"/> Damage <input checked="" type="checkbox"/> Minimal Damage

Material Description: white door caulking		Location	% Asb.	Friable Non-friable Asb. Type
Sample No.				
306-50A		Build 306, 1st floor, women's RR door		
-51A		" " " "		
51A		" " " "		
52A		" " 2nd floor		
53A		" " " "		
54A		" " " "		

CONDITION: % Damaged: _____ % Localized: _____ % Distributed: _____		Total Material Quantity: _____	
Surfacting Material <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Crumbling - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Delaminating - _____ <input type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O/Gouges - _____		TBI <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Gouge/Punct - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Crushed - _____ <input type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O Stains - _____	
Misc. <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Crumbling - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Delaminating - _____ <input checked="" type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O/Gouges - _____			
Contact Potential	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low	Vibration Potential	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low
Air Erosion	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low	OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage <input type="checkbox"/> Damage <input checked="" type="checkbox"/> Minimal Damage

Material Description:		Location	% Asb.	Friable Non-friable Asb. Type
Sample No.				

CONDITION: % Damaged: _____ % Localized: _____ % Distributed: _____		Total Material Quantity: _____	
Surfacting Material <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Crumbling - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Delaminating - _____ <input type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O/Gouges - _____		TBI <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Gouge/Punct - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Crushed - _____ <input type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O Stains - _____	
Misc. <input type="checkbox"/> Sig. Damage <input type="checkbox"/> % Crumbling - _____ <input type="checkbox"/> Damaged <input type="checkbox"/> % Delaminating - _____ <input type="checkbox"/> Good Cond. <input type="checkbox"/> % H ₂ O/Gouges - _____			
Contact Potential	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low	Vibration Potential	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low
Air Erosion	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low	OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage <input type="checkbox"/> Damage <input type="checkbox"/> Minimal Damage

98-029 Hekaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 488-5881 Fax: (808) 488-5889 E-mail: eqi@enviroquestinc.com



Bulk Asbestos Analysis

(EPA Method 600/R-93-116, Visual Area Estimation)

EnviroQuest, Inc.
Steve Tanaka
98-029 Hekaha Street
Suite 21
Aiea, HI 96701

Client ID: 7104
Report Number: B135108
Date Received: 04/21/10
Date Analyzed: 04/26/10
Date Printed: 04/26/10
First Reported: 04/26/10

Job ID/Site: 5058.1; Fort Ruger 300,306,306A

FALI Job ID: 7104

Date(s) Collected: 04/19/2010

Total Samples Submitted: 24

Total Samples Analyzed: 24

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306A-01A	50564576						
Layer: Beige Tile			ND				
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306A-02A	50564577						
Layer: Beige Tile			ND				
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306A-03A	50564578						
Layer: Beige Tile			ND				
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306A-04A	50564579						
Layer: Black Non-Fibrous Material			ND				
Layer: Beige Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306A-05A	50564580						
Layer: Black Non-Fibrous Material			ND				
Layer: Beige Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306A-06A	50564581						
Layer: Black Non-Fibrous Material			ND				
Layer: Beige Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Client Name: EnviroQuest, Inc.

Report Number: B135108

Date Printed: 04/26/10

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306A-07A	50564582						
Layer: White Drywall			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %) Fibrous Glass (3 %)							
306A-08A	50564583						
Layer: White Drywall			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %) Fibrous Glass (3 %)							
306A-09A	50564584						
Layer: White Drywall			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %) Fibrous Glass (3 %)							
306A-10A	50564585						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (55 %) Fibrous Glass (15 %)							
306A-11A	50564586						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (55 %) Fibrous Glass (15 %)							
306A-12A	50564587						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (55 %) Fibrous Glass (15 %)							
306A-13A	50564588						
Layer: Tan Ceramic Tile			ND				
Layer: White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
306A-14A	50564589						
Layer: Tan Ceramic Tile			ND				
Layer: White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Client Name: EnviroQuest, Inc.

Report Number: B135108

Date Printed: 04/26/10

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
306A-23A	50564598						
Layer: Brown Non-Fibrous Material			ND				
Layer: Brown Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Talc (Trace)							
306A-24A	50564599						
Layer: Brown Non-Fibrous Material			ND				
Layer: Brown Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Talc (Trace)							



Steven Takahashi, Laboratory Supervisor, Rancho Dominguez Laboratory

Note: Limit of Quantification (LOQ) = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples received in acceptable condition unless otherwise noted.

4 of 4

2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684



EnviroQuest

pls stop @ 1st positive

PLM DATA SHEET

Project No.: 5058.1 Project Name: Fort Ruger 300, 306, 306A

Date: 4/19/10

Page: 1 of 3

Material Description: 12x12 wft base 1 ton mastic			Friable
Sample No.	Location	% Asb.	Asb. Type
306A-01A	build 306A, unit 402 RR, front area by locker, 2009/1		
-02A	" " " " " "		
-03A	" " " " " "		

CONDITION:	% Damaged:	% Localized:	% Distributed:	Total Material Quantity:
<input type="checkbox"/> Sig. Damage <input type="checkbox"/> Damaged <input type="checkbox"/> Good Cond.		<input type="checkbox"/> Sig. Damage <input type="checkbox"/> Damaged <input type="checkbox"/> Good Cond.		<input type="checkbox"/> Sig. Damage <input type="checkbox"/> Damaged <input checked="" type="checkbox"/> Good Cond.
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage	

Material Description: Brown coat base / brown mastic			Friable
Sample No.	Location	% Asb.	Asb. Type
306A-04A	build 306A, unit 402 RR, 2nd fl, near locker		
-05A	" " " " " "		
-06A	" " " " " "		

CONDITION:	% Damaged:	% Localized:	% Distributed:	Total Material Quantity:
<input type="checkbox"/> Sig. Damage <input type="checkbox"/> Damaged <input type="checkbox"/> Good Cond.		<input type="checkbox"/> Sig. Damage <input type="checkbox"/> Damaged <input type="checkbox"/> Good Cond.		<input type="checkbox"/> Sig. Damage <input type="checkbox"/> Damaged <input checked="" type="checkbox"/> Good Cond.
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage	

Sampled By: D. Loyk	Relinquished By/Date/Time: D. Loyk 4/20/10	Relinquished By/Date/Time:
DOH Cert No: HJASB-0251	Relinquished By/Date/Time: 10:15 AM D. Carville 4-21-10 F/E	Relinquished By/Date/Time:
Delivered to Lab By:		

TURNAROUND TIME: < 12 Hours 24 Hours 8 Days 5 Days

Surfacing	<1,000 ft ² = 3 Samples	1,000 - 6,000 ft ² = 5 Samples	>6,000 ft ² = 7 Samples
T81	Minimum of 3 Samples (Run) UNLESS	<6 in. or ft ² = 1 Sample	Minimum of 3 Samples (Elbow & T)
Misc.	Minimum of 3 Samples (Havel)		
Surfacing	Sig. Damage = > 10% Dist. or 25% Local	Damaged = < 10% Dist. or 25% Local	Good = Very Limited Damage
T81	Sig. Damage = 10% Missing Jacket OR > 10% Dist. or 25% Local	Damaged = < 10% Missing Jacket OR < 10% Dist. or 25% Local	Good = Very Limited Damage
Misc.	Sig. Damage = > 10% Dist. or 25% Local	Damaged = < 10% Dist. or 25% Local	Good = Very Limited Damage

98-029 Hekaha Street, Suite 21, Aiea, HI 96701 . Phone: (808) 486-6881 Fax: (808) 486-5889 E-mail: eqj@enviroquestinc.com



EnviroQuest

PLM DATA SHEET

Project No.: 5088.1

Project Name: Fort Rucker, builds 300, 306
306A

Date: 4/14/10

Page: 2 of 3

Material Description: gyp wall (brown)		Fragile Non-fragile	
Sample No.	Location	% Asb.	Ash. Type
306A-07A	build 306A, 2nd fl, unisex wall, above sink		
306A-08A	" " " " " "		
306A-09A	" " " " " " PAD/storage locker room wall		

CONDITION:	% Damaged:	% Localized:	% Distributed:	Total Material Quantity:
	Surfacing Material	TSI		Misc.
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling -	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct -	<input type="checkbox"/> Sig. Damage
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating -	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed -	<input type="checkbox"/> Damaged
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges -	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains -	<input checked="" type="checkbox"/> Good Cond.
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage	

Material Description: white fissured ceiling tile		Fragile Non-fragile	
Sample No.	Location	% Asb.	Ash. Type
306A-10A	build 306A, 2nd fl, PAD/storage room ceiling		
-11A	" " " " " "		
-12A	" " " " " "		

CONDITION:	% Damaged:	% Localized:	% Distributed:	Total Material Quantity:
	Surfacing Material	TSI		Misc.
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling -	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct -	<input type="checkbox"/> Sig. Damage
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating -	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed -	<input type="checkbox"/> Damaged
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges -	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains -	<input checked="" type="checkbox"/> Good Cond.
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage	

Material Description: pink wall tile ceramic/gres		Fragile Non-fragile	
Sample No.	Location	% Asb.	Ash. Type
306A-13A	1st floor, men's RR, shower/sink wall		
-14A	" " " " " "		
-15A	" " " " " "		

CONDITION:	% Damaged:	% Localized:	% Distributed:	Total Material Quantity:
	Surfacing Material	TSI		Misc.
<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Crumbling -	<input type="checkbox"/> Sig. Damage	<input type="checkbox"/> % Gouge/Punct -	<input type="checkbox"/> Sig. Damage
<input type="checkbox"/> Damaged	<input type="checkbox"/> % Delaminating -	<input type="checkbox"/> Damaged	<input type="checkbox"/> % Crushed -	<input type="checkbox"/> Damaged
<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O/Gouges -	<input type="checkbox"/> Good Cond.	<input type="checkbox"/> % H ₂ O Stains -	<input checked="" type="checkbox"/> Good Cond.
Contact Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Vibration Potential	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Air Erosion	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
OVERALL POTENTIAL RATING	<input type="checkbox"/> Significant Damage	<input type="checkbox"/> Damage	<input checked="" type="checkbox"/> Minimal Damage	

98-028 Hekaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-6881 Fax: (808) 486-6889 E-mail: eq@enviroquestna.com

Lead
Laboratory Analytical Report

Appendix 2



EnviroQuest, Inc.



Hygeia Laboratories Inc.

82.W. Sierra Madre Blvd
Sierra Madre, CA 91024-2484
(626) 355-4711 (626) 355-4407 Fax

Analytical Report

AIHA ELLAP Certificate No. 465
California ELAP Certificate No. 1269

April 23, 2010

Mr. David Leigh
EnviroQuest, Inc
98-029 Hekaha St., Bldg.5, Ste 21
Aiea, HI 96701-4917

Hygeia Reference No.: **25855 10 0084**

Date Sampled: April 19, 2010

Date Received: April 21, 2010

Date Analyzed: April 22, 2010

Analyst: Nahid Motamedi

Client Ref. 5058.1 Ft. Ruger - Oahu (Accessibility Improvements)

Samples and data provided by: David Leigh

Analyte: TTLc Lead Analytical Method: EPA 7420 Detection Limit: 25 ppm Samples Analyzed: 9

Sample Matrix: paint Digestion Method: EPA 3050B Reporting Limit: 100 ppm Sample Condition Acceptable

Hygeia Sample ID	Client Sample ID	TTLc Lead Conc. (ppm)	TTLc Lead Conc. (wt%)
1211831	300-01L	<100	<0.01
1211832	300-02L	<100	<0.01
1211833	300-03L	<100	<0.01
1211834	300-04L	283	0.028
1211835	300-05L	<100	<0.01
1211836	300-06L	<100	<0.01
1211837	300-07L	1214	0.121
1211838	300-08L	11220	1.12
1211839	300-09L	1447	0.146

ppm = parts per million = mg/kg

Supervisor of Chemistry Laboratory
Nahid Motamedi

Sample results have not been blank corrected. All quality control results meet the QC requirements of AIHA ELLAP. This report only pertains to the samples investigated and does not apply to other similar material. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.



EnviroQuest

MISCELLANEOUS BULK DATA SHEET

Project Name: Accessibility Improvements, Oahu Page: 1 of 2

Location: Bi. Forest Rucker buildings 301, 206, 306A Date: 4/19/10

Turnaround Time: <12 Hrs 24 Hrs 48 Hrs 3 Days 5 Days Other: _____ Project No.: 5058A

Analysis: TCLP Lead Micro ID (spore) Tape Wipe
 TCLP RCRA 8 Soil Vacuum Water
 Total Lead Swab

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vol	Result
1	300-01L	1st floor	men's RR, tan wood door							
2	300-02L	1st floor	men's RR, white wood door frame							
3	300-03L	1st floor	men's RR, white CMU wall.							
4	300-04L	1st floor	men's RR, tan concrete base wall.							
5	300-05L	1st floor	men's RR, tan/green tiled shell							
6	300-06L	1st floor	men's RR, pink ceramic wall tile.							
7	300-07L	1st floor	men's RR, tan wood bench and metal support post							

Sampled By: David Leigh
 Delivered to Lab By: FLA EK

Retinued By/Date/Time: DLK 4/20/10
 Received By/Date/Time: DLK 4.21.10 9:30AM

Retinued By/Date/Time: _____
 Received By/Date/Time: _____

Analyzed By: _____
 Date Analyzed: 4-22-10

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: eqj@enviroquestinc.com

98-029 Hehaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-5881 Fax: (808) 486-5889 E-mail: eqj@enviroquestinc.com

25055 10 0064



EnviroQuest

MISCELLANEOUS BULK DATA SHEET

Project Name: Accessibility Improvements, Oahu Page: 2 of 2

Location: Fort Ruger, 3001306, 306A Date: 4/19/10

Turnaround Time: <12 Hrs 24 Hrs 48 Hrs 3 Days 5 Days Other: _____

Analysis: TCLP Lead Micro ID (spore) Wipe
 TCLP RCRA 8 Tape Soil Vacuum Water
 Total Lead Swab

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vol	Result
1	300			1st floor women's RR, shower	red wood door.					
2	300			1st floor, women's RR, shower	wood door trim.					
3										
4										
5										
6										
7										

Sampled By: <u>D. Lough</u>	Relinquished By/Date/Time	Analyzed By
Delivered to Lab By: <u>Red BK</u>	Received By/Date/Time	Date Analyzed
	<u>4-21-10 9:30AM</u>	<u>17</u>
		<u>4-27-10</u>

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: efi@enviroquestinc.com

88-029 Heleka Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-5881 Fax: (808) 486-5889 E-mail: efi@enviroquestinc.com



Hygeia Laboratories Inc.

02.W. Sierra Madre Blvd
Sierra Madre, CA 91024-2434
(626) 366-4711 (626) 366-4407 Fax

NIHA ELLAP Certificate No. 465
California ELAP Certificate No. 1269

Analytical Report

April 23, 2010

Mr. David Leigh
EnviroQuest, Inc
98-029 Hekaha St., Bldg.5, Ste 21
Aloha, HI 96701-4917

Hygeia Reference No.: 26866 10 0086

Date Sampled: April 19, 2010

Date Received: April 21, 2010

Date Analyzed: April 22, 2010

Analyst: Nahid Motamedi

Client Ref. 6066.1 Fl. Ruger - Oahu (Accessibility Improvements)

Samples and data provided by: David Leigh

Analyte: TTLG Lead

Analytical Method: EPA 7420

Detection Limit: 25 ppm

Samples Analyzed: 23

Sample Matrix: paint

Digestion Method: EPA 3050B

Reporting Limit: 100 ppm

Sample Condition Acceptable

<u>Hygeia Sample ID</u>	<u>Client Sample ID</u>	<u>TTLG Lead Conc. (ppm)</u>	<u>TTLG Lead Conc. (wt%)</u>
1211840	306-01L	19650	1.98
1211841	306-02L	787	0.077
1211842	306-03L	<100	<0.01
1211843	306-04L	<100	<0.01
1211844	306-05L	14180	1.42
1211845	306-06L	<100	<0.01
1211846	306-07L	332	0.033
1211847	306-08L	432	0.043
1211848	306-09L	2731	0.273
1211849	306-10L	<100	<0.01
1211850	306-11L	11860	1.19
1211851	306-12L	<100	<0.01
1211852	306-13L	14740	1.47
1211853	306-14L	997	0.1
1211854	306-15L	<100	<0.01
1211855	306-16L	2802	0.29
1211856	306-17L	<100	<0.01
1211857	306-18L	<100	<0.01
1211858	306-19L	<100	<0.01
1211859	306-20L	194	0.019

nm

Hygeia Ref. No.: 26866100086

Page 1 of 2



Analytical Report

April 29, 2010

Hygeia Reference No. 25855 10 0065

Client Reference: 5058.1 Fl. Ruger - Oahu (Accessibility Improvements)

<u>Hygeia Sample ID</u>	<u>Client Sample ID</u>	<u>TTLG Lead Conc. (ppm)</u>	<u>TTLG Lead Conc. (wt%)</u>
1211860	306-21L	<100	<0.01
1211861	306-22L	134	0.013
1211862	306-23L	<100	<0.01

ppm = parts per million = mg/kg

Supervisor of Chemistry Laboratory
Nahid Motamedi

Sample results have not been blank corrected. All quality control results meet the QC requirements of AIHA ELLAP. This report only pertains to the samples investigated and does not apply to other similar material. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.



MISCELLANEOUS BULK DATA SHEET

Project Name: Accessibility Improvements, OSHA Page: 1 of 34
 Location: Fort Rucker Buildings 300, 306, 306A Date: 4/19/10
 Turnaround Time: <12 Hrs 24 Hrs 48 Hrs 3 Days 5 Days Other: _____
 Project No.: 5058.1

Analysis: TCLP Lead Micro ID (spore) Wipe
 TCLP RCRA 8 Soil Tape Vacuum
 Total Lead Swab Water

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vol	Result
1	306									
	Brown metal door frame, 1st floor men's and women's RR's									
2	306									
	white wood door, 1st fl, men's and women's RR's									
3	306									
	white/brown cmt wall, 1st fl, women's RR wall									
4	306									
	white/brown gypsum wall, 1st floor, women's RR wall above sink.									
5	306									
	orange toilet stall									
6	306									
	brown ceramic floor slab, 1st fl, women's RR floor									
7	306									
	brown ceramic wall tile, 1st floor, women's RR wall									

Sampled By: D. Leigh Analyzed By: 17m
 Delivered to Lab By: FEL EX Date Analyzed: 4-22-10
 Relinquished By/Date/Time: D. Leigh 4/20/10
 Received By/Date/Time: [Signature] 4.21.10 9:30 AM

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: eqi@enviroquestinc.com

25855 10 0066



EnviroQuest

MISCELLANEOUS BULK DATA SHEET

Project Name: accessibility Improvements, Oahu Page: 2 of 34
 Location: Fort Ruger Buildings 300, 306, 306A Date: 4/19/10
 Turnaround Time: <12 Hrs 24 Hrs 48 Hrs 3 Days 5 Days Other: _____
 Project No.: 5058.1

Analysis: TCLP Lead Micro ID (spore) Wipe
 TCLP RCRA 8 Soil Tape Vacuum Water
 Total Lead Swab

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vol	Result
1	306									
	white/green gypsum wall, 1st fl, men's RR, wall, at toilet.									
2	306									
	green toilet stall, 1st floor, men's RR									
3	306									
	green ceramic floor slab, 1st floor, men's RR.									
4	306									
	green ceramic wall tile, 1st fl, men's RR.									
5	306									
	yellow toilet stall, 2nd fl, women's RR.									
6	306									
	Brown metal door frame, 2nd floor women's RR.									
7	306									
	Brown white wood door, 2nd fl, women's RR.									

Sampled By: D. Logg Analyzed By: _____
 Delivered to Lab By: FEDEX Date Analyzed: 4-22-10
 Requisitioned By/Date/Time: D. Logg 4/20/10 Requisitioned By/Date/Time: _____
 Received By/Date/Time: FEDEX 4.21.10 9:30AM Received By/Date/Time: _____

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: eq@enviroquestinc.com

98-029 Hekaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-5881 Fax: (808) 486-5889 E-mail: eq@enviroquestinc.com



EnviroQuest

MISCELLANEOUS BULK DATA SHEET

Project Name: accessibility improvements, Oahu Page: 3 of 4

Location: Fort Ruger, buildings 300, 306, 306A Date: 4/19/10

Turnaround Time: <12 Hrs 24 Hrs 48 Hrs 3 Days 5 Days Other: _____

Analysis: TCLP Lead Micro ID (spore) Tape Wipe
 TCLP RCRA 8 Soil Vacuum Swab Water
 Total Lead Swab

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vol	Result
1	306-15L					brown gypsum wall, 2nd fl, men's RR, wall above sink				
2	-16L					brown toilet stall, 2nd fl, men's RR				
3	-17L					white gypsum wall, 2nd fl, men's RR, by street door.				
4	-18L					white/brown CMU wall, 2nd fl, men's RR, by street door.				
5	-19L					green ceramic floor, 2nd fl, women's RR.				
6	-20L					pink ceramic wall, 2nd floor, women's RR.				
7	-21L					brown ceramic floor, 2nd fl, men's RR.				

Sampled By: David Leigh Analyzed By: _____
 Delivered to Lab By: FEZ ER Date Analyzed: 4-22-10

Relinquished By/Date/Time: _____ Received By/Date/Time: _____

Relinquished By/Date/Time: _____ Received By/Date/Time: _____

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: eqj@enviroquestinc.com



EnviroQuest

25855 10 0065

MISCELLANEOUS BULK DATA SHEET

Project Name: Accessibility Improvements, Oahu Page: 4 of 4

Location: Fort Ruger, buildings, 3002 306, 306A Date: 4/19/10

Turnaround Time: <12 Hrs 24 Hrs 48 Hrs 5 Days Other: _____

Analysis: TCLP Lead Micro ID (spore) Tape Wipe
 TCLP RCRA 8 Soil Vacuum Swab Water
 Total Lead Swab

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vol	Result
1	306									
2	306									
3										
4										
5										
6										
7										

Sampled By: D. Leigh Analyzed By: TPM

Delivered to Lab By: Red BF Date Analyzed: 4-22-10

Relinquished By/Date/Time: 3/24 4/20/10 Relinquished By/Date/Time: _____

Received By/Date/Time: EnviroQuest 4.21.10 9:30AM Received By/Date/Time: _____

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: eqj@enviroquestinc.com

88-029 Hekaha Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-5881 Fax: (808) 486-5889 E-mail: eqj@enviroquestinc.com



Hygela Laboratories Inc.

82 W. Sierra Madre Blvd.
Sierra Madre, CA 91024-2434
(626) 395-4711 (626) 395-4497 Fax

AHHA ELLAP Certificate No. 465
California ELAP Certificate No. 1269

Analytical Report

April 23, 2010

Mr. David Leigh
EnviroQuest, Inc
98-029 Hekaha St., Bldg. 5, Ste 21
Aiea, HI 98701-4917

Hygela Reference No.: 25955 10 0066
Date Sampled: April 10, 2010
Date Received: April 21, 2010
Date Analyzed: April 22, 2010
Analyst: Nahid Motamedi

Client Ref. 6058.1 Ft. Ruger - Oahu (Accessibility Improvements)

Samples and data provided by: David Leigh

Analyte: TTLc Lead Analytical Method: EPA 7420 Detection Limit: 25 ppm Samples Analyzed: 8
Sample Matrix: paint Digestion Method: EPA 3050B Reporting Limit: 100 ppm *Sample Condition Acceptable*

<u>Hygela Sample ID</u>	<u>Client Sample ID</u>	<u>TTLc Lead Conc. (ppm)</u>	<u>TTLc Lead Conc. (wt%)</u>
1211863	306A-01L	<100	<0.01
1211864	306A-02L	<100	<0.01
1211865	306A-03L	<100	<0.01
1211866	306A-04L	28190	2.82
1211867	306A-05L	197	0.02
1211868	306A-06L	<100	<0.01
1211869	306A-07L	<100	<0.01
1211870	306A-08L	<100	<0.01

ppm = parts per million = mg/kg

Supervisor of Chemistry Laboratory
Nahid Motamedi

Sample results have not been blank corrected. All quality control results meet the QC requirements of AHHA ELLAP. This report only pertains to the samples investigated and does not apply to other similar material. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.



EnviroQuest

25855 100044

MISCELLANEOUS BULK DATA SHEET

Project Name: Accessibility Improvements, Oahu Page: 1 of 2

Location: Fort Ruger buildings 300, 306, 306A Date: 4/19/10

Turnaround Time: <12 Hrs 24 Hrs 48 Hrs 3 Days 5 Days Other: _____ Project No.: 5058.1

Analysis: TCLP Lead Micro ID (spore) Tape Wipe
 TCLP RCRA 8 Soil Vacuum Swab
 Total Lead Swab Water

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vpl	Result
1	306A									
	ext brown gypsum wall, unisex RR, 2nd floor.									
2	306A									
	interior white CMU wall, unisex RR, 2nd floor									
3	306A									
	brown wood at locker.									
4	306A									
	gray metal door frame, 1st floor, men's RR.									
5	306A									
	brown exterior CMU wall, 1st floor men's RR.									
6	306A									
	interior exterior CMU wall, 1st floor men's RR.									
7	306A									
	white gypsum wall, 1st floor, men's RR.									

Sampled By: David Layth Requisitioned By/Date/Time: DJK 4/20/10 Analyzed By: DR

Delivered to Lab By: Feetk Received By/Date/Time: QD Feetk 4.21.10 9:30AM Date Analyzed: 4-22-10

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: eqi@enviroquestinc.com

98-029 Heleka Street, Suite 21, Aiea, HI 98701 Phone: (808) 486-5881 Fax (808) 486-5889 E-mail: eqi@enviroquestinc.com



EnviroQuest

MISCELLANEOUS BULK DATA SHEET

Project Name: accessibility improvements, Oahu Page: 2 of 2
 Location: Fort Ruger, builds 300, 306, 306A Date: 4/19/10
 Turnaround Time: <12 Hrs 24 Hrs 48 Hrs 5 Days Other: _____
 Project No.: 50521

Analysis: TCLP Lead Micro ID (spore) Wipe
 TCLP RCRA 8 Soil Vacuum Water
 Total Lead Swab Other: _____

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vol	Result
1	306A									
	pink ceramic wall tile, 1st floor, men's RR.									
2										
3										
4										
5										
6										
7										

Sampled By: David Loh
 Delivered to Lab By: Felix

Reinspected By/Date/Time: DL 4/20/10
 Received By/Date/Time: DL 4/20/10 9:30AM

Reinspected By/Date/Time: _____
 Received By/Date/Time: _____

Analyzed By: DL
 Date Analyzed: 4-22-10

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: eqi@enviroquestinc.com

98-029 Helekaheka Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-5881 Fax: (808) 486-5889 E-mail: eqi@enviroquestinc.com

Arsenic
Laboratory Analytical Report

Appendix 3



EnviroQuest, Inc.



Forensic Analytical Laboratories

Final Report

Metals Analysis of Bulks

EnviroQuest, Inc.
Steve Tanaka
98-029 Hekaha Street
Suite 21
Aiea, HI 96701

Client ID: 7104
Report Number: M110499
Date Received: 04/21/10
Date Analyzed: 04/22/10
Date Printed: 04/22/10
First Reported: 04/22/10

Job ID / Site: 5058.1, Accessibility Improvements, Oahu, Fort Ruger, Builds 300, 306, 306A
Date(s) Collected: 04/19/10

FALI Job ID: 7104
Total Samples Submitted: 1
Total Samples Analyzed: 1

Sample Number	Lab Number	Analyte	Result	Result Units	Reporting Limit*	Method Reference
306-01AR	30373174	As	< 7	mg/kg	7	EPA 3050B/6010B

* The Reporting Limit represents the lowest amount of analyte that the laboratory can confidently detect in the sample, and is not a regulatory level. The Units for the Reporting Limit are the same as the Units for the Final Results.

Dave Sandusky, CIH, Laboratory Supervisor, Hayward Laboratory

Analytical results and reports are generated by Forensic Analytical at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by Forensic Analytical to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by Forensic Analytical. The client is solely responsible for the use and interpretation of test results and reports requested from Forensic Analytical. Forensic Analytical is not able to assess the degree of hazard resulting from materials analyzed. Forensic Analytical reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Any modifications that have been made to referenced test methods are documented in Forensic Analytical's Standard Operating Procedures Manual. Sample results have not been blank corrected. Quality control and sample receipt condition were acceptable unless otherwise noted.

1 of 1

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218



EnviroQuest

MISCELLANEOUS BULK DATA SHEET

Project Name: accessibility improvements, Oahu Page: 1
 Location: Fort Ruger, build 306, 306, 306A Date: 4/19/10
 Turnaround Time: <12 Hrs 24 Hrs 3 Days 5 Days Other: _____
 Project No.: 50581

Analysis:
 TCLP Lead
 TCLP RCRA 8
 Total Lead
 Micro ID (spore)
 Total Arsenic

Sampling Media:
 Bulk
 Soil
 Swab
 Tape
 Vacuum
 Water
 Wipe

Sample #	Building	Int/Ext	Fir.	Room	Component	Substrate	Color	% of Waste Stream	Area / Vol	Result
1	306	ROOS		1005	INSULATION					
2										
3										
4										
5										
6										
7										

Relinquished By/Date/Time: _____
 Relinquished By/Date/Time: _____
 Received By/Date/Time: David Leigh 4/20/10
 Delivered to Lab By: DP 4/21/10 1030AM JMC

SEND ALL CORRESPONDENCE TO: _____ FAX: 808.486.5889 E-mail: eqj@enviroquestinc.com

88-028 Heleka Street, Suite 21, Aiea, HI 96701 Phone: (808) 486-5881 Fax: (808) 486-5889 E-mail: eqj@enviroquestinc.com

Photographs

Appendix 4



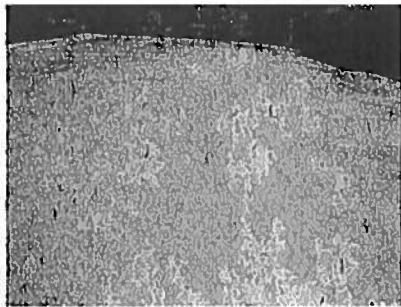


Photo #1
Building 306, roof, non-asbestos, non-arsenic containing and non-lead containing roofing material.

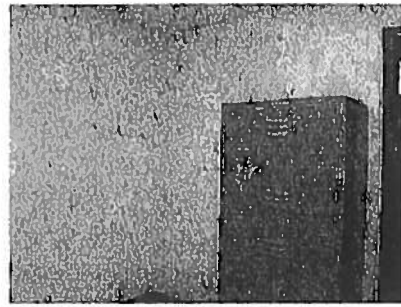


Photo #2
Building 306, 1st floor women's restroom, non-asbestos and non-lead containing gypsum wall.

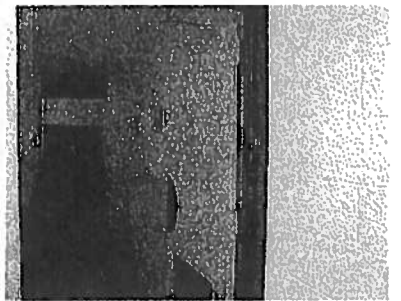


Photo #3
Building 306, 1st floor women's restroom, lead-based brown metal door frame and lead containing white wood door, and non-lead containing white CMU wall.

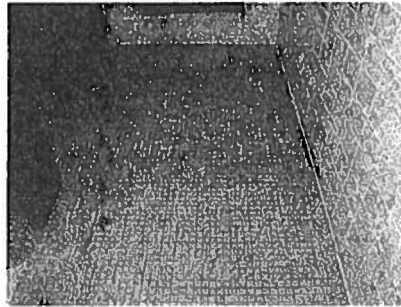


Photo #4
Building 306, 1st floor women's restroom, non-asbestos and non-lead containing brown ceramic floor tile; lead-containing ceramic wall tiles (non-asbestos).

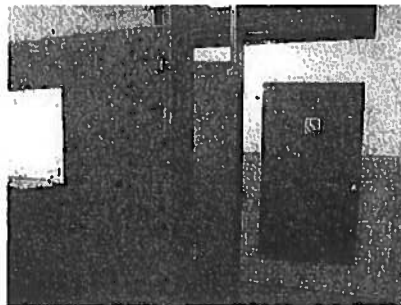


Photo #5
Building 306, 1st floor women's restroom, lead-based orange toilet stalls.



Photo #6
Building 306, 1st floor men's restroom, lead-based brown metal door frame and lead containing white wood door.



EnviroQuest

PHOTOGRAPHIC LOG
Buildings 300, 306 and 306A
Fort Ruger

<p>Photo #7 Building 306, 1st floor men's restroom, non-asbestos containing but lead-based green ceramic wall tiles.</p>	<p>Photo #8 Building 306, 1st floor men's restroom, lead containing green toilet stall.</p>
<p>Photo #9 Building 306, 1st floor men's restroom, non-asbestos but lead containing gypsum wall.</p>	<p>Photo #10 Building 306, 1st floor men's restroom, non-lead containing white CMU wall.</p>
<p>Photo #11 Building 306, 1st floor women's restroom, lead-based painted orange toilet stalls.</p>	<p>Photo #12 Building 306, 1st floor men's restroom, non-asbestos and non-lead containing ceramic floor tiles.</p>
	<p>PHOTOGRAPHIC LOG Buildings 300, 306 and 306A Fort Ruger</p>

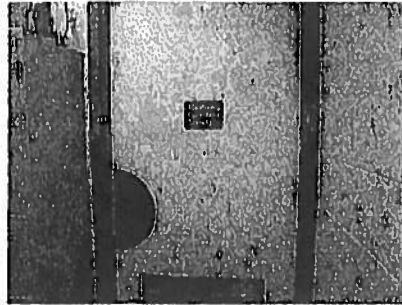


Photo #13
Building 306, 2nd floor women's restroom, lead-based brown metal door frame and lead containing white wood door.

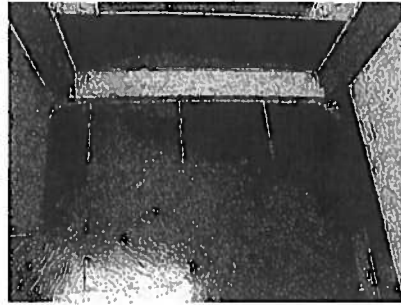


Photo #14
Building 306, 2nd floor women's restroom, lounge, brown floor tile with asbestos containing mastic.

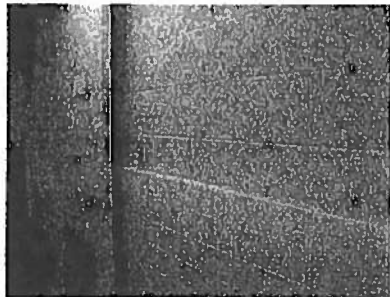


Photo #15
Building 306, 2nd floor women's restroom, lead containing pink ceramic wall (contains trace amount of asbestos) and non-lead containing white CMU wall.

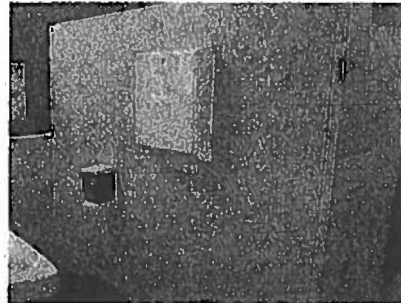


Photo #16
Building 306, 2nd floor women's restroom, non-lead containing yellow toilet stall.



Photo #17
Building 306, 2nd floor women's restroom, non-asbestos and non-lead containing ceramic floor.

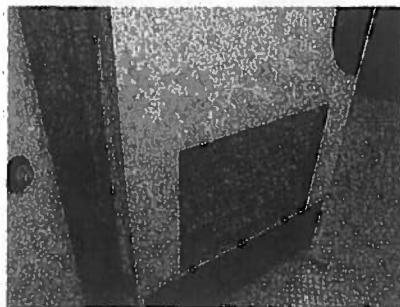


Photo #18
Building 306, 2nd floor men's restroom, lead-based brown metal door frame and lead containing white wood door.



EnviroQuest

PHOTOGRAPHIC LOG
Buildings 300, 306 and 308A
Fort Rucker

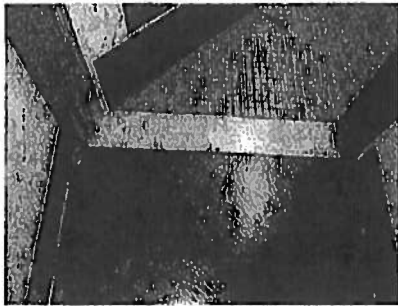


Photo #19
Building 306, 2nd floor men's restroom (at the entrance to the restroom), brown floor tile with asbestos containing black mastic.

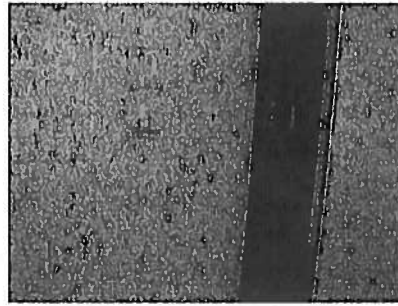


Photo #20
Building 306, 2nd floor men's restroom, non-lead containing white over brown CMU wall.

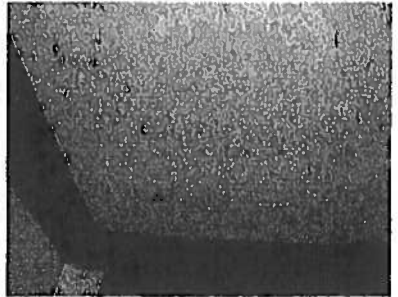


Photo #21
Building 306, 2nd floor men's restroom, non-asbestos containing and non-lead containing white gypsum wall.

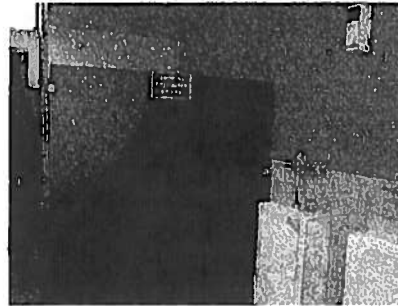


Photo #22
Building 306, 2nd floor men's restroom, lead containing brown toilet stall and non-lead containing brown gypsum wall.

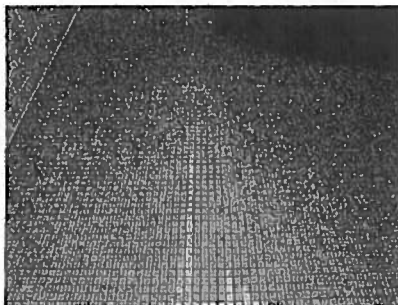


Photo #23
Building 306, 2nd floor men's restroom, non-asbestos and non-lead containing ceramic floor.



Photo #24
Building 306, 1st and 2nd floor hallway, non-asbestos containing ceiling tiles.



EnviroQuest

PHOTOGRAPHIC LOG
Buildings 300, 306 and 306A
Fort Ruger

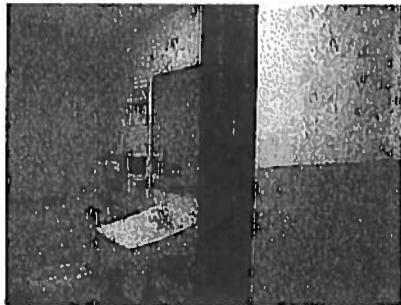


Photo #25
Building 306A, 2nd floor, unisex bathroom, non-asbestos containing and non-lead containing brown and white gypsum wall.

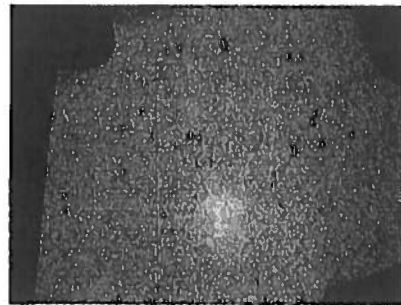


Photo #26
Building 306A, 2nd floor, unisex bathroom, non-asbestos containing 12"x12" beige floor tile with tan mastic.

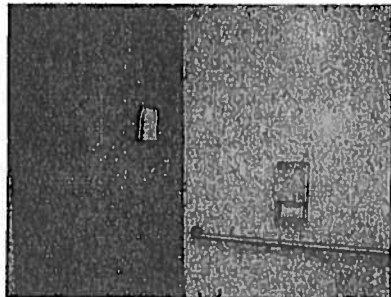


Photo #27
Building 306A, 2nd floor, unisex bathroom, non-lead containing brown wood locker.

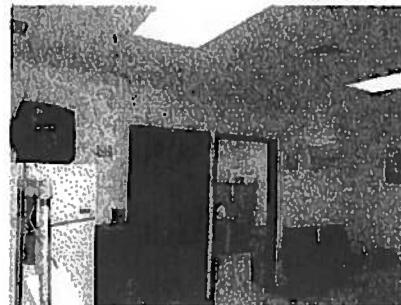


Photo #28
Building 306A, 2nd floor PAD storage locker room/ adjacent office rooms, non-asbestos containing and non lead containing gypsum wall.

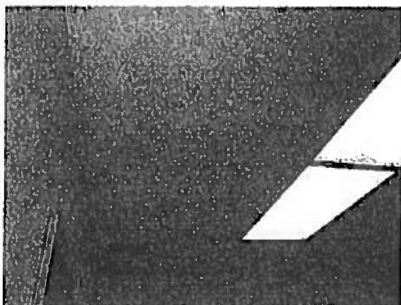


Photo #29
Building 306A, 2nd floor, PAD storage locker room, non-asbestos containing ceiling tiles.



Photo #30
Building 306A, 1st floor, men's bathroom, lead-based gray metal door frame.



EnviroQuest

PHOTOGRAPHIC LOG
Buildings 300, 306 and 306A
Fort Ruger

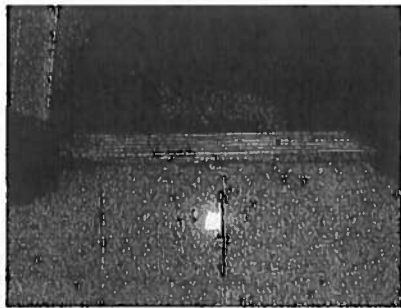


Photo #31
Building 308A, 1st floor, men's bathroom, non-lead containing 12"x12" beige floor tile with black mastic.



Photo #32
Building 308A 1st floor, men's bathroom, lead-containing brown lower CMU wall and non-lead containing white upper CMU wall.

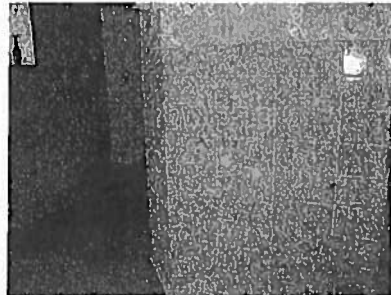


Photo #33
Building 308A, 1st floor, men's bathroom, non-lead containing pink ceramic wall tiles.

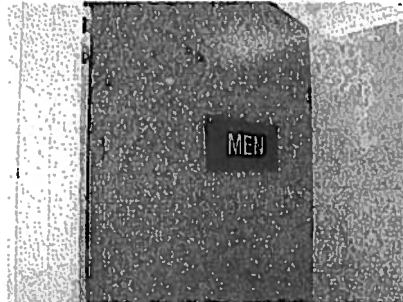


Photo #34
Building 300, gymnasium, men's bathroom, non-lead containing tan wood door.

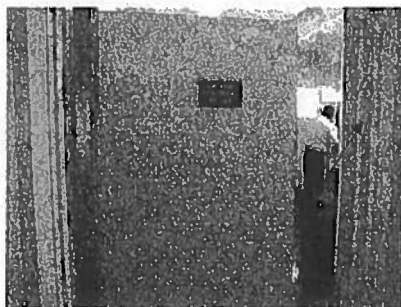


Photo #35
Building 300, gymnasium, men's bathroom, non-lead containing white wood door frame.

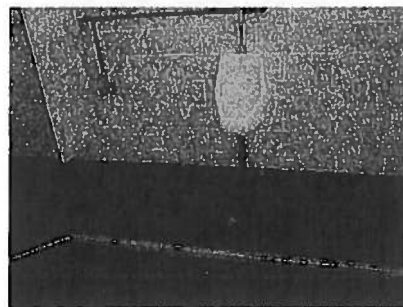


Photo #36
Building 300, gymnasium, men's bathroom, non-lead containing black floor tile with tan mastic.



EnviroQuest

PHOTOGRAPHIC LOG
Buildings 300, 308 and 308A
Fort Ruger

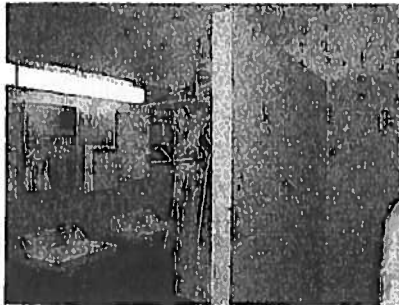


Photo #43
Building 300, gymnasium, men's bathroom, non-lead containing white CMU wall.

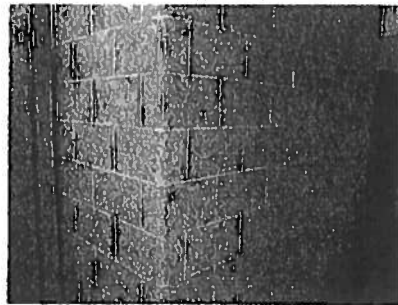


Photo #44
Building 300, gymnasium, men's bathroom, non-asbestos containing and non-lead containing pink ceramic wall.

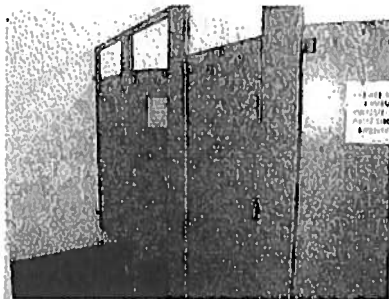


Photo #45
Building 300, gymnasium, non-lead containing tan toilet stall.

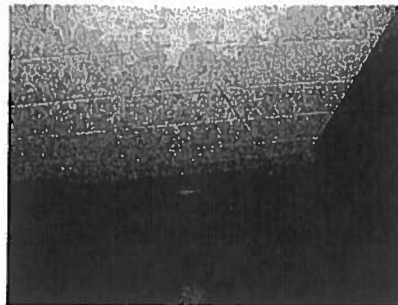


Photo #46
Building 300, gymnasium, men's bathroom, load containing tan concrete base wall.

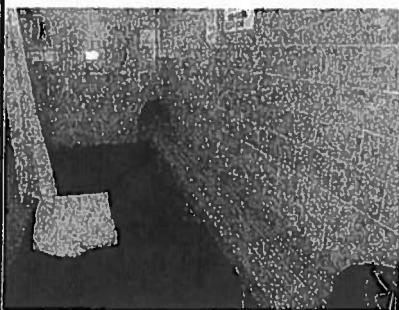


Photo #47
Building 300, gymnasium, men's bathroom, shower, lead painted tan wood bench and metal support.



EnviroQuest

PHOTOGRAPHIC LOG
Buildings 300, 306 and 306A
Fort Rucker



**LIMITED ASBESTOS & LEAD SURVEY
HAWAII ARMY NATIONAL GUARD BUILDING 306
HONOLULU, OAHU, HAWAII**

PSI PROJECT NO. 118-4A012

Performed for

**DANILO D LOPEZ ASSOCIATES
225 QUEEN STREET SUITE 9F
Honolulu, Hawaii 96813**

Conducted By

**Professional Service Industries, Inc.
Seven Waterfront Plaza Suite 400
500 Ala Moana Boulevard
Honolulu Hi 96813**

**KANANI WONG
PROJECT MANAGER**

**Robert White
Senior Technical Professional**

October 8TH, 2004



TABLE OF CONTENTS

	PAGE
Introduction.....	1
Scope of Services.....	1
Methodology.....	2
Laboratory Procedures.....	2
Sampling Procedures.....	3
Asbestos Synopsis.....	4
Lead Paint Synopsis.....	5

Appendix:

Asbestos Sample Results

Lead Paint Sample Results

Sampling Diagram

INTRODUCTION

GENERAL INFORMATION

Professional Service Industries, Inc., was retained by Danilo D Lopez Associates to conduct an inspection for possible asbestos-containing building materials (ACBM), lead-based paint (LBP) at Hawaii Army National Guard Building 306, located in Honolulu, Oahu, Hawaii. The inspection commenced on September 21st 2004. This report is for the exclusive use of Danilo D Lopez Associates.

PURPOSE

There are three main purposes to this survey: 1) To determine the presence and approximate locations of exposed and/or accessible materials which commonly contain asbestos. 2) To determine the presence, quantification, and locations of lead-based paint. 3) To determine the presence, and quantification of any other hazardous materials

WARRANTY

Professional Service Industries, Inc. warrants that the findings contained herein have been prepared in accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations after the inspection date could not have been anticipated and have not been addressed in this report.

The results reported herein are considered sufficient in detail and scope to identify accessible and/or exposed ACBM and lead based paint located in the facility at the time of this inspection. Analytical results, if any, are valid only for the materials tested. There is a possibility that material or material conditions may exist that could not be identified within the scope of the survey or that were not apparent during the site visit. No other warranties are implied or expressed.

SCOPE OF SERVICES

All inspection services were performed by EPA-accredited personnel. The scope of those services included the following:

- *Inspection walk through and quantification of areas requiring sampling.
- *Bulk sampling of suspect materials.
- *Analysis of suspect asbestos and lead-paint samples.
- *Submission of a report to Danilo D Lopez Associates.

METHODOLOGY

GENERAL REFERENCES

ACBM sampling procedures were performed in general accordance with the guidelines published by the EPA.

GENERAL PROCEDURES

The survey consisted of two major activities: a visual inspection and an assessment of suspect ACBM, LBP, other hazardous materials. Although these activities are named separately, they are integrated tasks.

VISUAL INSPECTION AND ASSESSMENT

The visual inspection and assessment were composed of six elements:

1. A visual determination as to the extent of suspect materials in or on the buildings.
2. A physical "hand pressure" test for determining the condition of suspect ACBM.
3. Selection of 3 representative paint colors including all paint layers for lead-based paint screening.
4. Sampling and documentation of observable suspect friable/nonfriable ACBM, as per Environmental Protection Agency guidelines.
5. Sampling and documentation of observable paint layers within the building.
6. Measurement of all observable suspect ACBM and lead-based paint materials sampled to determine the quantity existing within the selected facilities. Measurements were made by a visual area inspection.

LABORATORY PROCEDURES

ANALYSIS OF SUSPECT ACBM

Samples were taken under the protocol published in the EPA Publication Interim Method for the Determination of Asbestos in Bulk Insulation Samples, Publication 600/M4 82-020, revised.

Analysis was performed by using the bulk sample for visual observation and slide preparation(s) for microscopic examination and identification. The samples were

mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral, wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction, characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents. The microscopist visually estimated relative amounts of each constituent by determining the volume of each constituent in proportion of the total volume of the sample, using stereoscope.

The NVLAP accredited laboratory that performed the analysis of these samples maintains an in-house quality control program.

The PSI laboratory uses an EPA-approved quality control program, as well as EPA-approved calibration methods. Documentation of laboratory qualifications is available upon request.

ANALYSIS OF LEAD-BASED PAINT

Three paint colors were identified throughout the area's inspected. A sample of each of the layers of paint was extracted for analysis. To obtain the paint sample, an area of the outer wall with the dimensions of approximately 2 square inches was outlined with a razor. The paint film within the square was then scored and extracted down to, but not including, the substrate. These paint chip samples were placed in a sealed container, labeled, and shipped to an accredited laboratory for analysis for total lead (NIOSH 7082 Method). Restoration and repainting of sampled surfaces was not within the scope of this inspection.

Paint chip samples were subjected to acid digestion in the laboratory and analysis by Flame Atomic Absorption Spectroscopy. Laboratory test results of 0.05% lead by weight or greater are considered to be lead-based paint according to the Housing and Urban Development (HUD) Guidelines. OSHA requires worker exposure monitoring to be conducted for all LBP, even if results are less than 0.05% lead by weight.

SAMPLING PROCEDURES

Generally, sampling was confined to those materials that were accessible and did not involve destruction of wall or other building elements, physical barriers, or the structural integrity of the item being tested. While care was taken in extracting these samples, PSI did not repair any damage.

EPA guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous material. Sampling of miscellaneous materials were taken as randomly as possible while attempting to sample not readily visible areas so as to minimize the damage to the aesthetic appearance of the material.

ASBESTOS SYNOPSIS

The following asbestos samples collected were identified as non-asbestos containing (less than 1%). The following is a list of suspect materials that were sampled:

Sample Group	Material	Color	Location	% Percent Asbestos
1-1	Floor Tile	Brown	Entrance	ND
1-2	Floor Tile	Brown	Entrance	ND
1-3	Floor Tile	Brown	Entrance	ND
2-4	Ceiling Tile	White	Entrance	ND
2-5	Ceiling Tile	White	Generals Office	ND
2-6	Ceiling Tile	White	EX O's Office	ND
3-7	Covebase	Grey	Entrance	ND
3-8	Covebase	Grey	Entrance	ND
3-9	Covebase	Grey	Entrance	ND
4-10	Covebase	Grey	Generals Office	ND
4-11	Covebase	Grey	EX O's Office	ND
4-12	Covebase	Grey	Generals Office	ND

ACM CONCLUSIONS

After the site inspection, PSI extracted twelve samples to be tested. The above samples were tested by an accredited laboratory. All samples were non-asbestos containing materials. Air monitoring is not required when demolition commences on the building.

LEAD PAINT SYNOPSIS

The following samples were analyzed to be non-lead based paint (less than 0.5%) according to Housing and Urban Development (HUD) guidelines.

Sample Group	Material Component	Color	Location	Percent lead by weight
L-1	Interior Paint	Grey	Walls in Waiting Area	<0.0011
L-2	Interior Paint	White	Walls in Office Area	<0.0060
L-3	Interior Paint	Grey	Door Frame	<0.0057

LEAD-BASED PAINT CONCLUSIONS

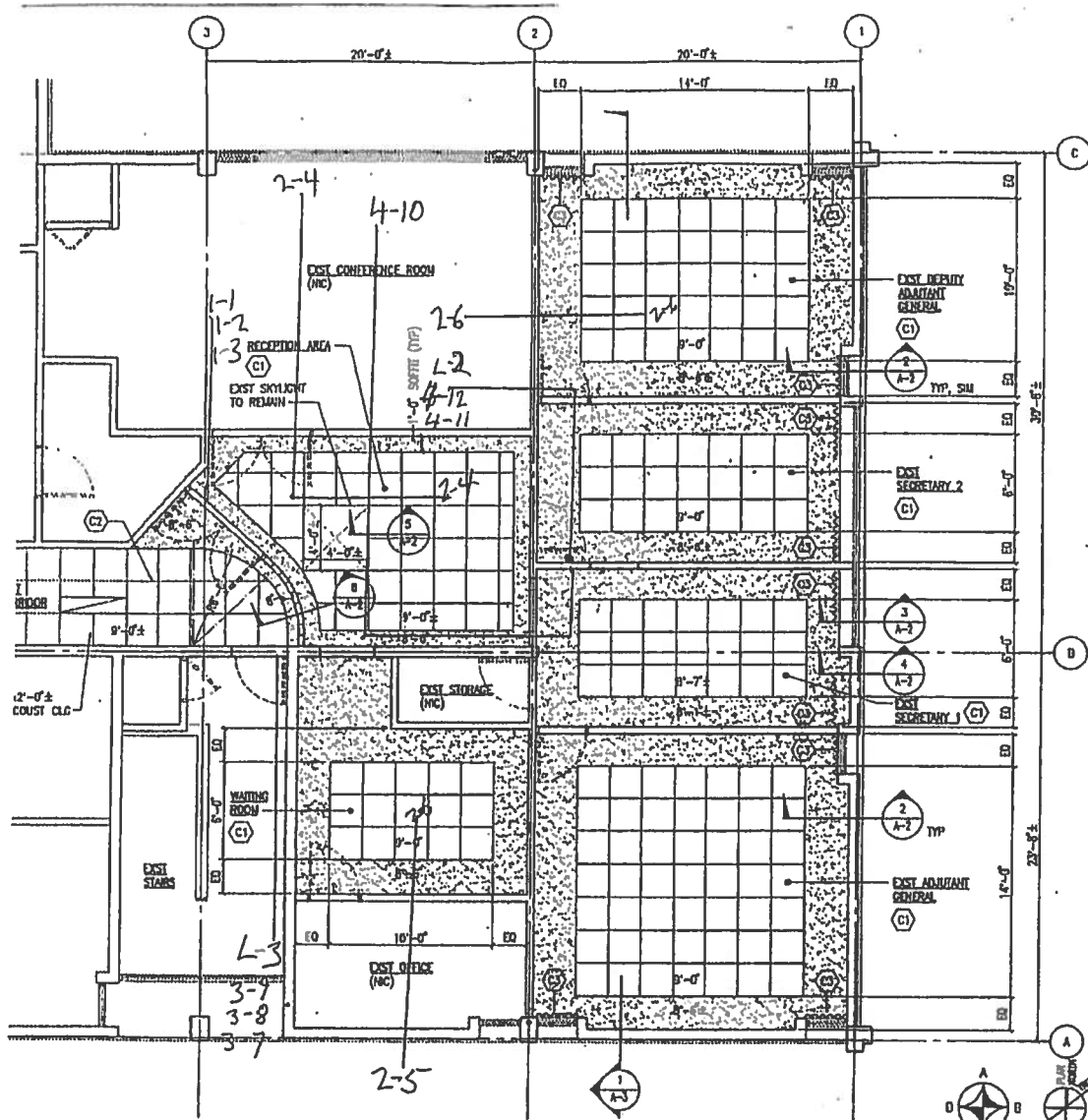
Samples were collected from the exterior of the structures only. All samples were analyzed and found to be lead containing paint. All repainting preparation work must be handled by appropriately trained personnel. Worker exposure monitoring for lead must be performed during any demolition or renovation activities conducted to components coated with lead containing paint.

APPENDIX

LEAD PAINT SAMPLE RESULTS

ASBESTOS SAMPLE RESULTS

SAMPLE LOCATION DIAGRAMS



PPER DETAILED REFLECTED CEILING PLAN

1" = 1'-0"

KEY NOTES:

- (C1) REMOVE & DISPOSE OF EXIST SUSPENDED ACOUSTICAL CEILING SYSTEM. PROVIDE SUSPENDED ACOUSTICAL CEILING SYSTEM & C/P ED SOFFIT SYSTEM.
- (C2) REMOVE, MODIFY & REINSTALL EXIST 2'-0"±x2'-0"± SUSP ACOUST CLG AS REQUIRED FOR NEW WORK.
- (C3) REMOVE & REINSTALL EXIST WINDOW DRAPE(S) & TRACK.

**DEPARTMENT OF THE
ATTORNEY GENERAL
ASBESTOS LITIGATION UNIT
ASBESTOS INSPECTION
FINAL REPORT
AND MANAGEMENT PLAN**

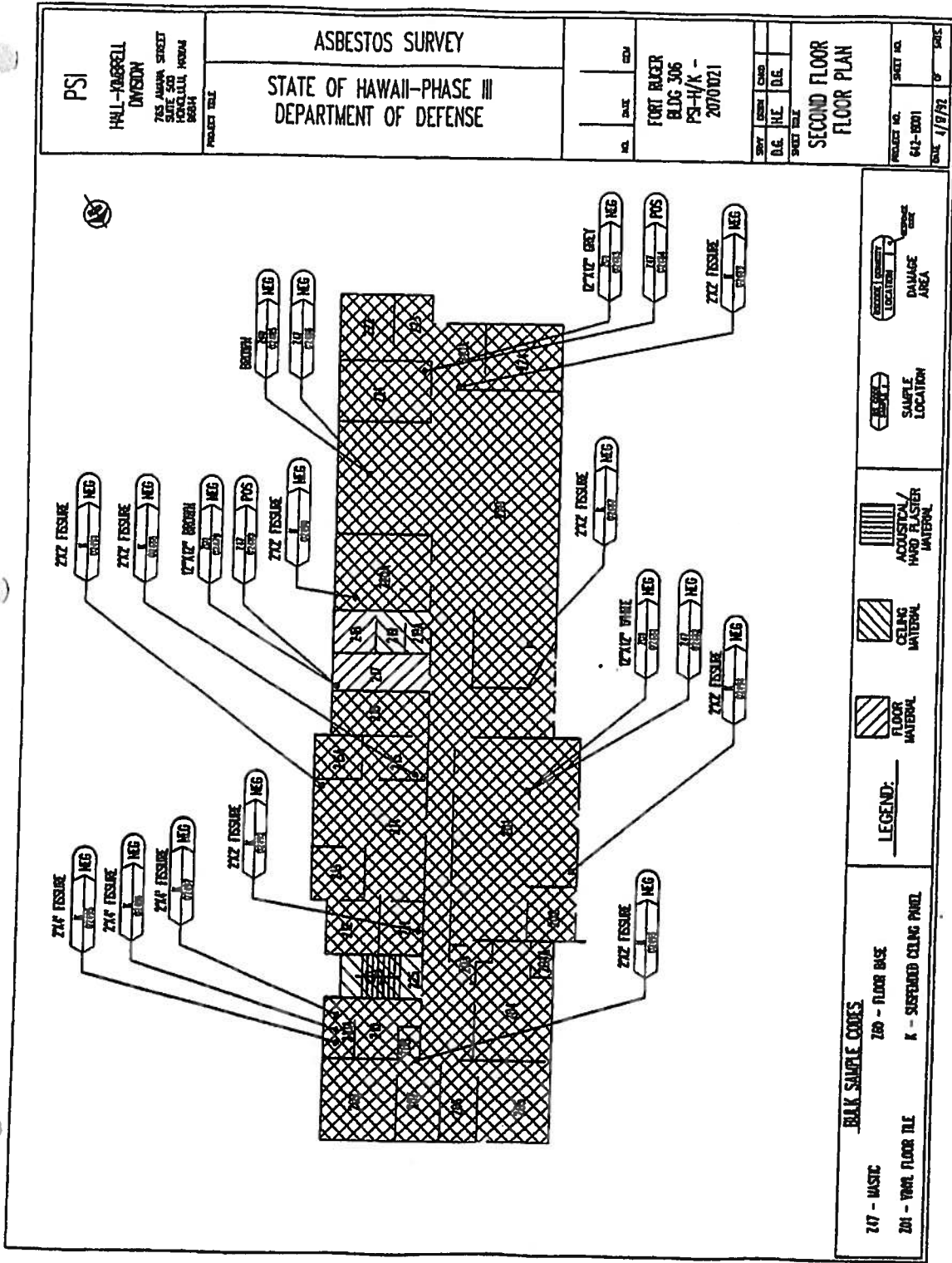
DEPARTMENT OF DEFENSE

PSI/HK Project Number 642-19001

April 9, 1993

DEPARTMENT OF DEFENSE BUILDING INDEX
CONTROL NUMBER SEQUENCE

PH	CNTRL NO	LOCATION	BUILDING DESCRIPTION	THK	ADDRESS	VOLUME NO.
III	10701001	KAPAA	BUILDING 1	4-5-15:5	4670 KAHAU RD - KAPAA, KAUAI 96746	07-1
III	10701002	KAPAA	BUILDING 2	4-5-15:5	4670 KAHAU RD - KAPAA, KAUAI 96746	07-1
III	10701003	KAPAA	BUILDING 3	4-5-15:5	4670 KAHAU RD - KAPAA, KAUAI 96746	07-1
III	10701004	KAPAA	BUILDING 4	4-5-15:5	4670 KAHAU RD - KAPAA, KAUAI 96746	07-1
V	10701005	KAPAA	BUILDING 5 (MESS1-INIKI INH)	4-5-15:5	4670 KAHAU RD - KAPAA, KAUAI 96746	07-1
III	10702001	HANAPEPE	BUILDING 3, ARMORY	1-8-08:77	HANAPEPE, KAUAI 96716	07-1
III	10702002	HANAPEPE	BUILDING 26	1-8-08:77	HANAPEPE, KAUAI 96716	07-1
III	10702003	HANAPEPE	BUILDING 27, OMS #5	1-8-08:77	HANAPEPE, KAUAI 96716	07-1
III	10702004	HANAPEPE	BUILDING 28	1-8-08:77	HANAPEPE, KAUAI 96716	07-1
III	10702005	HANAPEPE	BUILDING 29, ONSTF	1-8-08:77	HANAPEPE, KAUAI 96716	07-1
III	10703001	KEKAHA	BUILDING 1, ARMORY	1-3-02:23	8153 KEKAHA ROAD - KEKAHA, KAUAI 96752	07-1
III	10703002	KEKAHA	BUILDING 2, ARMORY	1-3-02:23	8153 KEKAHA ROAD - KEKAHA, KAUAI 96752	07-1
V	10703003	KEKAHA	BUILDING 1 (HCT LATRINE)	1-3-02:23	8153 KEKAHA ROAD - KEKAHA, KAUAI 96752	07-1
III	20701001	FORT RUGER	BUILDING 90	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701002	FORT RUGER	BUILDING 90C	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701003	FORT RUGER	BUILDING 90D	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701004	FORT RUGER	BUILDING 262	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701005	FORT RUGER	BUILDING 264C	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701006	FORT RUGER	BUILDING 90E, STMP	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701007	FORT RUGER	BUILDING 264 BRIGADE ARMORY	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701008	FORT RUGER	BUILDING 264A BRIGADE ARMORY	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701009	FORT RUGER	BUILDING 265 BRIGADE ARMORY	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701010	FORT RUGER	BUILDING 300	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701011	FORT RUGER	BUILDING 301 CO D P BR	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701012	FORT RUGER	BUILDING 302	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701013	FORT RUGER	BUILDING 303 USPFO	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701014	FORT RUGER	BUILDING 303A, USPFO	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701015	FORT RUGER	BUILDING 303B USPFO	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701016	FORT RUGER	BUILDING 304 CSMS #1	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701017	FORT RUGER	BUILDING 304A CSMS #1	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701018	FORT RUGER	BUILDING 304D CSMS #1	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701019	FORT RUGER	BUILDING 305 OMS #1&2	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701020	FORT RUGER	BUILDING 305A OMS #1&2	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1
III	20701021	FORT RUGER	BUILDING 306	3-1-42:27	3949 DIAMOND HEAD RD - HONOLULU, OAHU 96816	07-1



ASBESTOS ASSESSMENT SURVEY
 SOR Phase III

Project Number: 64219001
 Building Number: 20701021
 Building Name: DOD - Ft. Ruger 306
 Address : 3949 Diamond Head Road
 Honolulu, HI 96816

Pages: 69
 Building Type: AGR-TAGO
 Year Constructed: 1978
 Date Inspected: 01/10/92
 Inspector: Swartz/Walleman

LOCATION	SAMPLE GROUP NUMBER	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	OSM CODE	EXP POT LEVEL	PRIORITY	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
** Area	1	Ceiling Material									
ARERA Damage Code: 5 Response Action: Z7 Potential for Disturbance: 3 Reason for Damage: FG											
See Comments - 1st floor 2'x2' fissure	1	7	suspended ceiling panel	0%	0 sq.ft.	OMG	0		\$0	\$0	\$0

MS# Sample # XASB

- 1 - 10281 0%
- 1 - 10282 0%
- 1 - 10283 0%
- 1 - 10284 0%
- 1 - 10285 0%
- 1 - 10286 0%
- 1 - 10287 0%

See comments - 2nd floor 2'x2' fissure

21 8 suspended ceiling panel

0% 0 sq.ft. 0% 0 0 \$0 \$0 \$0

MS# Sample # XASB

- 21 - 2487 0%
- 21 - 2488 0%
- 21 - 2489 0%
- 21 - 2490 0%
- 21 - 2491 0%
- 21 - 2492 0%
- 21 - 2493 0%
- 21 - 2494 0%

A-FORT RUGER BLDG 306-3

ASBESTOS ASSESSMENT SURVEY
 SR Phase III

Project Number: 64219001
 Building Number: 20701021
 Building Name: DOD - Ft. Ruger 306
 Address : 3949 Diamond Head Road
 Honolulu, HI 96816

Page: 2
 Building Type: ADM-TAGC
 Year Constructed: 1978
 Date Inspected: 01/10/92
 Inspector: Swartz/Wallace

LOCATION	SAMPLE GROUP NUMBER	RUMB OF SAMPS	MATERIAL DESCRIPTION	PIPE ID	X ASB	QUANTITY	OSM CODE	EXP POT LEVEL	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
2nd fl. room 210A - 2'x4' fissure, wall	22	3	suspended ceiling panel	0%	0	0 sq.ft.	0M6	0	\$0	\$0	\$0

MS# Sample # %ASB
 22 2495 0 X
 22 2496 0 X
 22 2497 0 X

1st floor - 2' X 2' fissure ceiling panels - rooms 101-106, 109, 112, 113, 116, 117, 117A, 118, 118A, 119-122, 124-128, 130, 131, 131A, 131B, 132, 133 & R. 2nd floor - 2' X 2' fissure ceiling panels - rooms 201-216, 219, 220-225 and 5.

** Area 2 Wall/Ceiling Board

AREA DAMAGE CODE	RESPONSE ACTION	POTENTIAL FOR DISTURBANCE	REASON FOR DAMAGE
10 3	wall/ceiling board	0%	0 sq.ft.
10 3	wall/ceiling board	0%	0 sq.ft.
10 3	wall/ceiling board	0%	0 sq.ft.

See Comments - Sheetrock

MS# Sample # %ASB
 10 10298 0 X
 10 10299 0 X
 10 10300 0 X

AREA #	TOTALS	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
1	0	\$0	\$0	\$0

ASBESTOS ASSESSMENT SURVEY
SOB Phase III

Project Number: 64219001
Building Number: 20701021
Building Name: DOD - Ft. Ruger 306
Address : 3949 Diamond Head Road
Honolulu, HI 96816

Page: 71
Building Type: ABN-TAGD
Year Constructed: 1978
Date Inspected: 01/10/92
Inspector: Swartz/Malleman

LOCATION	SAMPLE GROUP OF NUMBER	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	DMJ CODE	EXP POT	PRIORITY LEVEL	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
1st Flr. - sheetrock walls - rooms 101-122, 124-133 & N. 1st Flr - sheetrock ceilings - rooms 107, 108, 111 & 115A. 2nd Flr. - sheetrock walls - rooms 201-224.											
** Area 3 Misc. Materials - Sink Undercoating											
AMERA Damage Code: 5 Response Action: 7 Potential for Disturbance: 2 Reason for Damage: A											
Rooms 121 & 135 - Black	8	1 sink undercoating		10%	2 each	OMZ	9	IV	\$181	\$578	\$759
MS# Sample # XASB											
8 - 10296	10%										
Rooms 112, 209, 220A - White	9	1 sink undercoating		2%	3 each	OMZ	9	IV	\$271	\$668	\$1,139
MS# Sample # XASB											
9 - 10297	2%										
** Area 4 Flooring Material											
AMERA Damage Code: 5 Response Action: 7 Potential for Disturbance: 2 Reason for Damage: G											
See Comments - 1st floor grey 12"x12"	2	1 vinyl floor tile		2%	9200 sq.ft.	OMI	12	IV	\$36,800	\$26,036	\$62,836
AREA # 2 TOTALS \$0 \$0 \$0											
AREA # 3 TOTALS \$452 \$1,446 \$1,898											

A-FORT RUGER BLDG 306-5

ASBESTOS ASSESSMENT SURVEY
SOB Phase III

Project Number: 64219001
 Building Number: 20701021
 Building Name: DOD - Ft. Ruger 306
 Address : 3949 Diamond Head Road
 Honolulu, HI 96816

Page: 72
 Building Type: AM-TAGO
 Year Constructed: 1978
 Date Inspected: 01/10/92
 Inspector: Swartz/Welleman

LOCATION	SAMPLE GROUP NUMBER	MRMB OF SAMPS	MATERIAL DESCRIPTION	PIPE ID	X ASB	QUANTITY	Q&A CODE	EDP POT LEVEL	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
MS# Sample # XASB											
2 - 10290 ZX											
See comments - 1st floor grey 12"x12"	3	1	mastic		5%	9200 sq.ft.	OKZ	12 IV	\$36,800	\$26,036	\$62,836
MS# Sample # XASB											
3 - 10291 5X											
1st floor room 130 - 12" x 12" blue	4	1	vinyl floor tile		0%	0 sq.ft.	OKI	0	\$0	\$0	\$0
MS# Sample # XASB											
4 - 10292 0X											
1st floor room 130 - blue 12"x12"	5	1	mastic		5%	50 sq.ft.	OKZ	12 IV	\$200	\$142	\$342
MS# Sample # XASB											
5 - 10293 5X											
See comments - 1st floor brown	6	1	floor base		0%	0 sq.ft.	OKZ	0	\$0	\$0	\$0

A-FORT RUGER BLDG 306-6

ASBESTOS ASSESSMENT SURVEY
SOH Phase III

Project Number: 64219001
Building Number: 20701021
Building Name: DOD - Ft. Ruger 306
Address : 3949 Diamond Head Road
Honolulu, HI 96816

Page: 73
Building Type: ARI-TASO
Year Constructed: 1978
Date Inspected: 01/10/92
Inspector: Swartz/Malleman

LOCATION	SAMPLE GROUP NUMBER	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	OSM CODE	EXP POT	PRIORITY LEVEL	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
----------	---------------------	----------------------	---------	-------	----------	----------	---------	----------------	---------------	-------------------	-------------

NS# Sample # XASB

6 - 10294 0%

See comments - 1st floor brown

7 1 mastic 2% 700 sq.ft. ONZ 12 1V \$2,800 \$1,981 \$4,781

NS# Sample # XASB

7 - 10295 2%

1st floor room 116 - 12"x12" multi-col

11 1 vinyl floor tile 0% 0 sq.ft. ONI 0 \$0 \$0 \$0

NS# Sample # XASB

11 - 2477 0%

1st floor room 116 - 12"x12" multi-col

12 1 mastic 0% 0 sq.ft. ONZ 0 \$0 \$0 \$0

NS# Sample # XASB

12 - 2478 0%

See comments - 2nd floor brown 12"x12"

13 1 vinyl floor tile 0% 0 sq.ft. ONI 0 \$0 \$0 \$0

A-FORT RUGER BLDG 306-7

Project Number: 64219001
 Building Number: 20701021
 Building Name: DOD - Ft. Ruger 306
 Address : 3949 Diamond Road
 Honolulu, HI 96816

ASBESTOS ASSESSMENT SURVEY
 S08 Phase III

Page: 74
 Building Type: ADM-TAGO
 Year Constructed: 1978
 Date Inspected: 01/10/92
 Inspector: Swartz/Malliman

LOCATION	SAMPLE GROUP OF NUMBER	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	OSM CODE	EXP POT	PRIORITY LEVEL	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
NS# Sample # XASB											
13 - 2479	0%										
See comments - 2nd floor brown 12"x12"	14	1 mastic		20%	5000 sq.ft.	OMZ	12	IV	\$20,000	\$14,150	\$34,150
NS# Sample # XASB											
14 - 2480	20%										
2nd floor rooms 201, 203 - white 12"x12"	15	1 vinyl floor tile		0%	0 sq.ft.	OMI	0		\$0	\$0	\$0
NS# Sample # XASB											
15 - 2481	0%										
2nd floor rooms 201, 203 - white 12"x12"	16	1 mastic		0%	0 sq.ft.	OMZ	0		\$0	\$0	\$0
NS# Sample # XASB											
16 - 2482	0%										
See comments - 2nd floor grey 12"x12"	17	1 vinyl floor tile		0%	0 sq.ft.	OMI	0		\$0	\$0	\$0

A-FORT RUGER BLDG 306-3

ASBESTOS ASSESSMENT SURVEY
SOM Phase III

Project Number: 64219001
Building Number: 20701021
Building Name: DOD - Ft. Ruger 306
Address : 3949 Diamond Head Road
Honolulu, HI 96816

Page: 75
Building Type: ARK-TAGD
Year Constructed: 1978
Date Inspected: 01/10/92
Inspector: Swartz/Mallaman

LOCATION	SAMPLE GROUP NUMBER	EURB OF SAUPS	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	OSM CODE	EXP POT	PRIORITY LEVEL	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
MS# Sample # XASB												
17 - 2483	0%											
See comments - 2nd floor grey 12"x12"	18	1	mastic		20%	4100 sq.ft.	OKZ	12	IV	\$16,400	\$11,603	\$28,003
MS# Sample # XASB												
18 - 2484	20%											
See comments - 2nd floor brown	19	1	floor base		0%	0 sq.ft.	OKZ	0		\$0	\$0	\$0
MS# Sample # XASB												
19 - 2485	0%											
See comments - 2nd floor brown	20	1	mastic		0%	0 sq.ft.	OKZ	0		\$0	\$0	\$0
MS# Sample # XASB												
20 - 2486	0%											

A-FORT RUGER BLDG 306-9

ASBESTOS ASSESSMENT SURVEY
S08 Phase III

Project Number: 64219001
Building Number: 20701021
Building Name: DOD - Ft. Ruger 306
Address : 3949 Diamond Head Road
Honolulu, HI 96816

Page: 76
Building Type: ADM-TAGO
Year Constructed: 1978
Date Inspected: 01/10/92
Inspector: Swartz/Waltman

LOCATION	SAMPLE GROUP NUMBER	NUMB OF SAMP	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	Q&H CODE	EXP POT LEVEL	RENEWAL COSTS	REPLACEMENT COSTS	TOTAL COSTS	
2nd Flr. - 12" X 12" Brown Floor Tile and Mastic - Bas. 204 thru 217 & 225. 2nd Flr. - 12" X 12" Gray Floor Tile and Mastic - Bas. 220 thru 224. 2nd Flr. - Brown Floor Base and Mastic - Bas. 201 thru 216, 219, 220 thru 225.							AREA #	4	TOTALS	\$113,000	\$79,948	\$192,948

BUILDING # 20701021 TOTALS \$113,452 \$81,394 \$194,846

A-FORT RUGER BLDG 306-10

CLIENT: DAG / Asbestos Litigation Unit
 PROJECT #: 64219001 S04 Phase III

PSI/MALL-KINGBELL ENVIRONMENTAL INC.
 ASBESTOS PETROGRAPHIC ANALYSIS

PAGE: 24
 BUILDING #: 20701021
 BUILDING: DOD - Ft. Ruger 306

GROUP#	SAMPLE NUMBER	ANALY	TYPE	CONS	HOMO	COLOR	TOT ASB	A S B E S T O S					ACT /TRE
								CHRY	AMO	CRD	ANT		
1	10281	0	PRIMARY	Y	Y	G	0	0	0	0	0	0	0
1	10282	0	PRIMARY	Y	Y	G	0	0	0	0	0	0	0
1	10283	0	PRIMARY	Y	Y	G	0	0	0	0	0	0	0
1	10284	0	PRIMARY	Y	Y	G	0	0	0	0	0	0	0
1	10285	0	PRIMARY	Y	Y	G	0	0	0	0	0	0	0
1	10286	0	PRIMARY	Y	Y	G	0	0	0	0	0	0	0
1	10287	0	PRIMARY	Y	Y	G	0	0	0	0	0	0	0
2	10290	0	PRIMARY	H	Y	G	2	2	0	0	0	0	0
3	10291	0	PRIMARY	H	Y	T	5	5	0	0	0	0	0
4	10292	0	PRIMARY	H	Y	G	-0	0	0	0	0	0	0
5	10293	0	PRIMARY	H	Y	K	5	5	0	0	0	0	0
6	10294	0	PRIMARY	H	Y	K	0	0	0	0	0	0	0
7	10295	0	PRIMARY	H	Y	K	2	2	0	0	0	0	0
8	10296	0	PRIMARY	H	Y	K	10	10	0	0	0	0	0
9	10297	0	PRIMARY	H	Y	P	2	2	0	0	0	0	0
10	10298	0	PRIMARY	Y	H	W	0	0	0	0	0	0	0
10	10298	1	Wall Brd	Y	H	W	0	0	0	0	0	0	0
10	10298	2	Paper	Y	H	W	0	0	0	0	0	0	0
10	10299	0	PRIMARY	Y	H	W	0	0	0	0	0	0	0
10	10299	1	Wall Brd	Y	H	W	0	0	0	0	0	0	0
10	10299	2	Paper	Y	H	W	0	0	0	0	0	0	0
10	10300	0	PRIMARY	Y	H	W	0	0	0	0	0	0	0
10	10300	1	Wall Brd	Y	H	W	0	0	0	0	0	0	0
10	10300	2	Paper	Y	H	W	0	0	0	0	0	0	0
11	2477	0	PRIMARY	H	Y	H	0	0	0	0	0	0	0
12	2478	0	PRIMARY	H	Y	Y	0	0	0	0	0	0	0
13	2479	0	PRIMARY	H	Y	B	0	T	0	0	0	0	0
14	2480	0	PRIMARY	H	Y	K	20	20	0	0	0	0	0

0 = Primary Analysis (Entire Sample)
 1-4 = Subanalyses

T = Trace

A-FORT RUGER BLDG 306-11

PSI/HALL-KIMBELL ENVIRONMENTAL INC.
ASBESTOS PETROGRAPHIC ANALYSIS

CLIENT: DAG / Asbestos Litigation Unit
PROJECT #: 64219001 SOR Phase III

PAGE: 25
BUILDING #: 20701021
BUILDING: DOD - Ft. Ruger 306

GROUP#	SAMPLE NUMBER	ANALY	TYPE	CONS	ROND	COLOR	TOT ASB	A S B E S T I O S					ACT /TRE
								CHRY	AMO	CRO	AMT		
15	2481	0	PRIMARY	H	Y	W	0	0	0	0	0	0	0
16	2482	0	PRIMARY	H	Y	W	0	0	0	0	0	0	0
17	2483	0	PRIMARY	H	Y	G	0	T	0	0	0	0	0
18	2484	0	PRIMARY	H	Y	K	20	20	0	0	0	0	0
19	2485	0	PRIMARY	H	Y	G	0	0	0	0	0	0	0
20	2486	0	PRIMARY	H	Y	B	0	0	0	0	0	0	0
21	2487	0	PRIMARY	Y	Y	T	-0	0	0	0	0	0	0
21	2488	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
21	2489	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
21	2490	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
21	2491	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
21	2492	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
21	2493	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
21	2494	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
22	2495	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
22	2496	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0
22	2497	0	PRIMARY	Y	Y	T	0	0	0	0	0	0	0

0 = Primary Analysis (Entire Sample)
1-4 = Subanalyses

T = Trace

A-FORT RUGER BLDG 306-12

BUILDING NAME: DOD - Ft. Ruger 306 BUILDING I.D.: 20701021 PROJECT NUMBER : 642-19001

ROOM I.D.	On Site		CEILING		WALLS				FLOOR		MECH.	MISC.	SAMPLES/COMMENTS
	Original	MS	Substr.	Surface	Right	Rear	Left	Front	Material	Base			
101	S	MS		C-27	H	H			F-6	R-16			
102	S	MS	V	C-27	H	H			F-6	R-16			
103	S	MS	V	C-27	H	H			F-6	R-16			
104	S	MS	V	C-27	H	H			F-6	R-16			
105	S	MS	V	C-27	H	H			F-6	R-16			
106	S	MS	V	C-27	H	H			F-6	R-16			
107	S	MS	V	C-27	H	H			F-6	R-16		AA	
108	S	MS	V	C-27	H	H			F-6	R-16			
109	S	MS	V	C-27	H	H			F-6	R-16			
109A	S	MS	V	C-27	H	H			F-6	R-16			
110	S	MS	V	C-27	H	H			F-6	R-16			

A-FORT RUGER BLDG 306-13

BUILDING NAME: DOD - Ft. Ruger 306 BUILDING I.D.: 20701021 PROJECT NUMBER : 642-19001

ROOM I.D.	CEILING		WALLS				FLOOR		MECH.	MISC.	SAMPLES/COMMENTS
	Original	On Site	Substr.	Surface	Right	Rear	Left	Front			
111	S	MS	R	H	H	U	U	H	F-6	R-16	
112	S	MS	C-27	H	H	U	U	H	F-6	R-16	J-2
113	S	MS	C-27	H	U	U	M	U	F-6	R-16	AA
114	S	MS	C-27	H	U	U	H	U	F-6	R-16	AA
115	S	MS	V	U	U	U	H	U	K	R-16	AA/11/0
115A	S	MS	R	U	H	H	H	H	K	R-16	
116	S	MS	C-27	H	H	U	H	H	F-21	R-16	AA
117	S	MS	C-27	H	U	U	U	H	F-6	R-16	AA
117A	S	MS	C-27	H	H	U	H	H	F-6	R-16	AA
118	S	MS	C-27	H	H	U	H	H	F-6	R-16	AA
118A	S	MS	C-27	H	H	U	H	H	F-6	R-16	AA

A-FORT RUGER BLDG 306-14

Original	ROOM I.D.		CEILING		WALLS			FLOOR		MECH.	MISC.	SAMPLES/COMMENTS
	On Site		Substr.	Surface	Right	Rear	Left	Front	Material			
119	S			C-27	H		R	H	F-6	R-16		
	MS	V				U						
120	S			C-27	H		H	H	F-6	R-16	BB	
	MS	V				U			I		AA	
121	S			C-27	H		H	H				J-4
	MS	V				U			K			
121A	S			C-27	H		H	H				
	MS	V							K			
121B	S			C-27	H		H	H				
	MS	V							K			
122	S			C-27	H		H	H	F-6	R-16		
	MS	V			U		U				AA	
123	S								F-6	R-16		
	MS	V		K	K	K	K	U			AA	
124	S			C-27	H		H	H	F-6	R-16		
	MS	V			U						AA	
125	S			C-27	H		H	H	F-6	R-16		
	MS	V			U		U				AA	
126	S			C-27	H		H	H	F-6	R-16		
	MS	V			U		U				AA	
127	S			C-27	H		H	H	F-6	R-16		
	MS	V			U		U					

A-FORT RUGER BLDG 306-15

ROOM I.D.	CEILING		WALLS				FLOOR		MECH.	MISC.	SAMPLE/COMMENTS
	Original	On Site	Substr.	Surface	Right	Rear	Left	Front			
128	S		C-27	H	H	H	H	H	F-6	R-16	
	MS	V									
130	S		C-27			R	H	H	F-6/F-1	R-16	
	MS	V			U	U					
131	S		C-27	H	H	H			F-6	R-16	
	MS	V							I		AA
131A	S		C-27	H		R	H	H	F-6		
	MS	V			U						AA/11/0
131B	S		C-27	U		H	H	H	F-6		
	MS	V			U						
132	S		C-27	H		H	H	H	F-6	R-16	
	MS	V			U	U	U	U	I		AA
133	S		C-27			R	H	H	F-6	R-16	
	MS	V			U	U			I		AA
134	S		C-27	H		H			F-6	R-16	
	MS	V					U				
135	S								F-6		J-4
	MS		K	U	U	U	U	U			
136	S										
	MS		K	U	U	U	U	U	K		
201	S		C-27			H	H	H	F-2	R-16	
	MS					U	U	U			AA

134 CAPT LOCATE
ON DPLG

A-FORT RUGER RI DG 306.16

BUILDING MAKE: DOD - Ft. Ruger 306

BUILDING I.D.: 20701021

PROJECT NUMBER : 642-19001

ROOM I.D.	CEILING		WALLS				FLOOR		MECH.	MISC.	SAMPLE/COMMENTS
	Original	On Site	Substr.	Surface	Right	Rear	Left	Front			
202		S		C-27			H	H	F-2	R-16	
		NS			U	U			I		AA
203		S		C-27	H	H	H	H	F-2	R-16	
		NS									AA
204		S		C-27			H		F-16	R-16	
		NS			H	U/Z	H		I		AA
204A		S		C-27	H		H		F-16	R-16	
		NS				U			I		
205		S		C-27	H	H	H	H	F-16	R-16	
		NS			EE	E	E	E	I		AA
206		S		C-27	H		H		F-16	R-16	
		NS				U			I		AA
207		S		C-27	H		H	H	F-16	R-16	
		NS				U			I		AA
208		S		C-27			H	H	F-16	R-16	J-2
		NS			U						
209		S		C-27	H			H	F-16	R-16	
		NS				U	U		I		
210		S		C-27			H	H	F-16	R-16	
		NS			U			U			AA
210A		S		C-27			U-27	D-27	F-16	R-16	
		NS			U						AA

A-FORT RUGER BLDG 306-17

BUILDING NAME: DOD - Ft. Ruger 306

BUILDING I.D.: 20701021

PROJECT NUMBER : 642-19001

Original	ROOM I.D.		CEILING		WALLS				FLOOR		MECH.	MISC.	SAMPLES/COMMENTS
	On Site		Substr.	Surface	Right	Rear	Left	Front	Material	Base			
211	S	MS		C-27	H			H	F-16	R-16			
212	S	MS		C-27			H	H	F-16	R-16		AA	
213	S	MS		C-27		H		H	F-16	R-16		AA	
214	S	MS		C-27			H		F-16	R-16		AA	
215	S	MS		C-27		H		H	F-16	R-16		AA	
215A	S	MS		C-27			H		F-16	R-16		AA	
216	S	MS		C-27			H		F-16	R-16		11/0	
217	S	MS		C-27		H		H	F-16	R-16		AA	
218	S	MS		C-27		H		H	F-16	R-16		AA	
219	S	MS		C-27		H		H	F-6	R-16		AA	
219A	S	MS		C-27		H		H	K			11/0	

A-FORT RUGER BLDG 306-1B

BUILDING NAME: DOD - Ft. Ruger 306
 BUILDING I.D.: 20701021
 PROJECT NUMBER : 642-19001

Original	On Site	CEILING		WALLS				FLOOR		MECH.	MISC.	SAMPLES/COMMENTS
		Substr.	Surface	Rear	Left	Front	Material	Base				
220	S		C-27	H	H	H		F-6	R-16			
	MS			U						AA		
220A	S		C-27	H	H	H		F-6	R-16		J-2	
	MS			U	U					AA		
221	S		C-27	H	H	H		F-6	R-16			
	MS	V		U		U		I		AA		
221A	S		C-27	H	H	H		F-6	R-16			
	MS			U	U			I		AA		
222	S		C-27	H	H	H		F-6	R-16			
	MS			U	U			I		AA		
223	S		C-27	H	H	H		F-6	R-16			
	MS			U	U			I		AA		
224	S		C-27	H	H	H		F-6	R-16			
	MS			U	U			I		AA		
225	S		C-27	H	H	H		F-16	R-16			
	MS			U	U							
S	S		C-27	H	H	H						
	MS			U	U			K				

A-FORT RUGER BLDG 306-19

PRIORITIZATION ASBESTOS ASSESSMENT STUDY

FORT RUGER BUILDING 306A

CONTROL # 20701038 53

for

DAGS - PROJECT MANAGEMENT

Conducted By

PSI/Hall-Kimbrell Environmental Services, Inc.
Honolulu, Hawaii

Report Number 578-09196

OCTOBER 22, 1990

VI. OPERATIONS AND MAINTENANCE PROCEDURES AND CODES

A. OPERATIONS AND MAINTENANCE CODES AND PROCEDURES

OMZ - Other Materials

This code applies to miscellaneous ACM that rarely creates a significant problem but can pose an exposure risk when being damaged or removed. Listed are some of the asbestos-containing materials that fall into this classification. If an asbestos-containing material is not directly addressed in the operations and maintenance codes, an operations and maintenance procedure may be applied using one or more of the codes that involve similar materials.

Black Insulation - Material should be removed if work may cause disturbance of it. The material should be disposed of as asbestos waste.

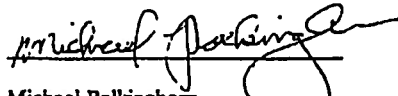
Safe Gasket - The safe drawers should not be slammed shut, and the material should be encapsulated until wet removal can be performed by trained personnel.


B. OPERATIONS AND MAINTENANCE CODES


<u>O & M CODE</u>	<u>MATERIAL REFERENCED</u>	<u>BULK SAMPLE CODES</u>
OMZ	Black insulation, gasket	BS - M,S,T,W,Z


VII. CERTIFICATION OF REPORT

The information contained in this document is based on physical inspections conducted by PSI/Hall-Kimbrell. We certify that the presence or absence of asbestos is based on the petrographic analysis of bulk samples taken during the survey.


Michael Polkinghorn
Project Manager


Rebecca M. Kissling
Microscopist


Larry Nishikawa, C.I.H.
Field Services Division Manager


Steve Bryant
Field Inspector

Hall-Kimbrel
ENGINEERING

24 S. Riverside St.
Box C - 2203
Hawthorne, Hawaii

PROJECT TITLE

FORT RUGER

NO. DATE ITEM

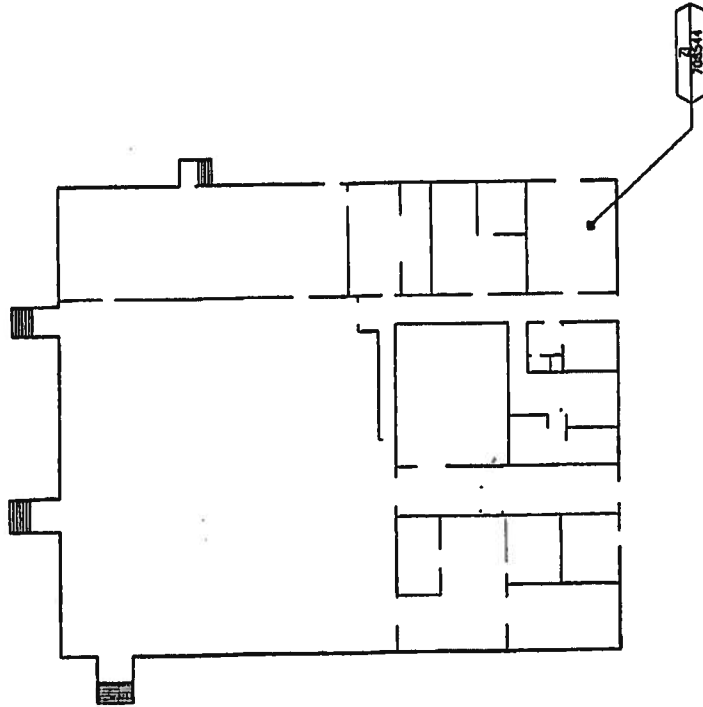
BUILDING 306A
20101023

NO.	DATE	ITEM

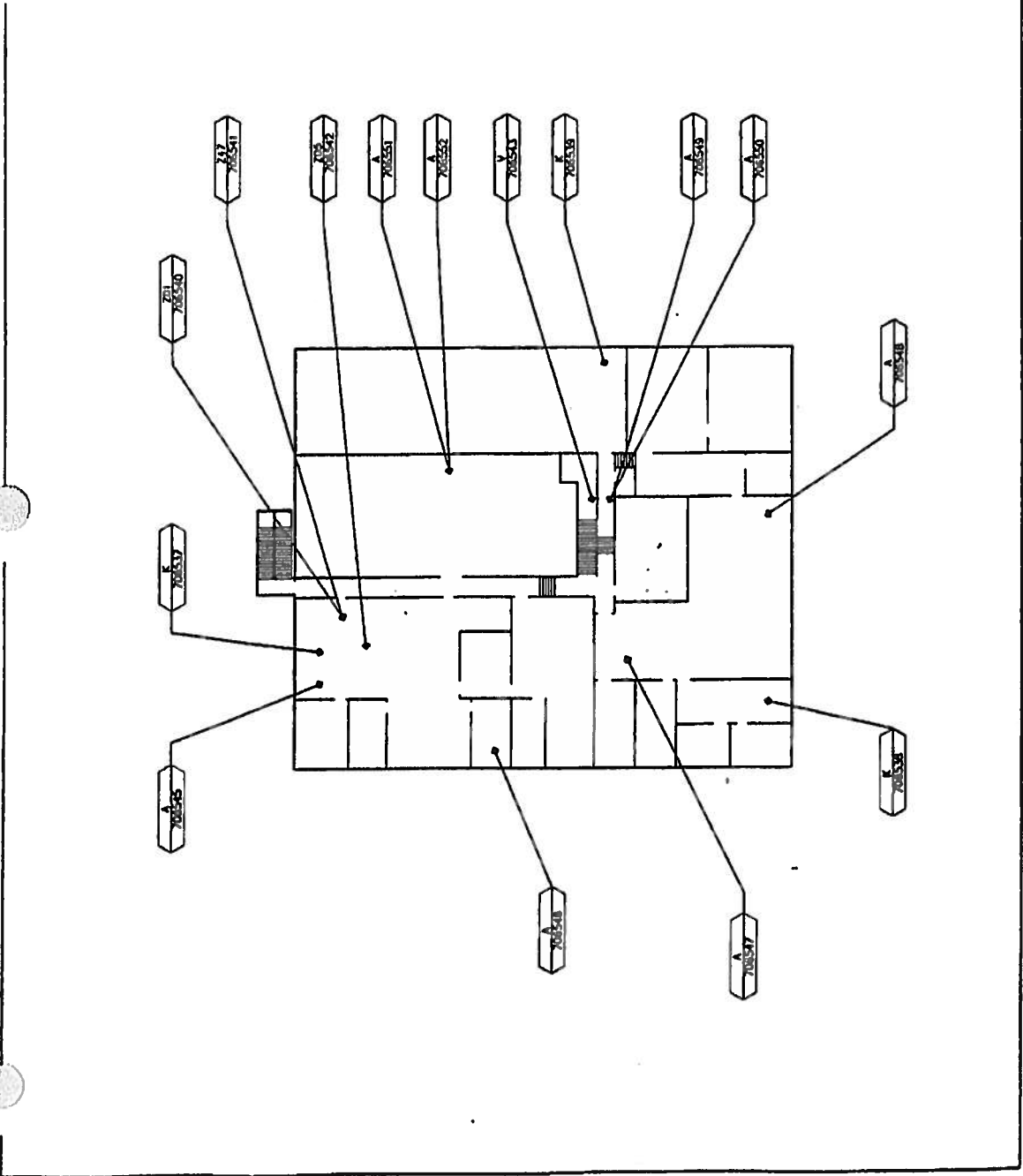
SHEET TITLE

1ST FLOOR

PROJECT NO.	SHEET NO.
578-0156	1
DATE: 07/25/90	OF 2



Hall-Kimbrell <small>ASBESTOS CONSULTANTS</small> 50 S. Franklin St. Suite C - 2023 Honolulu, Hawaii	FORT RUGER	NO.	DATE	ITEM	
		BUILDING 306A 2470100000			
PROJECT TITLE		DESIGN	DRAWN	CHECKED	APP'D
2ND FLOOR		SHEET TITLE			
PROJECT NO. SH-0836	SHEET NO. 2	DATE 01/09/99			
OF 1 SHEETS					



ASBESTOS ASSESSMENT SURVEY
FORT RUGER BLDG. 304A

Project Number: 57809196
 Building Number: 08# 207010
 Building Name: ARMORY
 Address :

Pages: 1
 Building Type: UNK
 Year Constructed: UNK
 Date Inspected: 09/25/90
 Inspector: BRYANT

LOCATION	SAMPLE GROUP NUMBER	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	Q&H CODE	EXP POT LEVEL	PRIORITY	REMOVAL COSTS	REPLACEMENT COSTS	TO CO
** Area 1 DROP CEILING PANELS											
1ST AND 2ND LEVELS-THROUGHOUT	1	3 drop or lay-in panel		0%	11985 sq.ft.	ONG	0		\$0	\$0	
NS# Sample # %ASB											
	1	- 706537		0%							
	1	- 706538		0%							
	1	- 706539		0%							

THE 2 1/4' DROP CEILING PANELS FOUND THROUGHOUT THE STRUCTURE ARE IN GOOD CONDITION AND APPEAR TO BE NEW.

LOCATION	SAMPLE GROUP NUMBER	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	Q&H CODE	EXP POT LEVEL	PRIORITY	REMOVAL COSTS	REPLACEMENT COSTS	TO CO
** Area 2 FLOOR COVERINGS											
1ST AND 2ND LEVELS-THROUGHOUT	2	1 vinyl floor tile		0%	11300 sq.ft.	ONI	0		\$0	\$0	
NS# Sample # %ASB											
	2	- 706540		0%							
1ST AND 2ND LEVELS-THROUGHOUT	3	1 mastic		0%	11300 sq.ft.	ONZ	0		\$0	\$0	

ASBESTOS ASSESSMENT SURVEY
FORT RUGER BLDG. 206A

Project Number: 57809196
Building Number: 684 207010
Building Name: ARMORY
Address :

Page: 4
Building Type: UNKN
Year Constructed: 09/25/90
Date Inspected: 09/25/90
Inspector: BRYANT

LOCATION	SAMPLE GRP OF NUMB	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	O&H CODE	EXP POT	PRIORITY LEVEL	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
	NS# Sample # 2ASB										
	3 - 706541	0X							\$0		\$0
SPECKLED BEIGE 12"x12" FLOOR TILES FOUND THROUGHOUT THE BUILDING ARE IN GOOD CONDITION AND APPEAR TO BE NEW.											
** Area 3 SAFE GASKET											
	NS# Sample # 2ASB										
	4 - 706542	65X		85%	3 sq.ft	0XZ	66	1	\$75		\$50
FILE SAFE GASKET IS IN FAIR CONDITION SHOWING DAMAGE FROM REPEATED CLOSINGS.											
** Area 4 SHEETROCK WALL											
	NS# Sample # 2ASB										
	5 - 706543	0X		0X	400 sq.ft.	0XZ	0	0	\$0		\$0
2ND LEVEL-WALL TO BE REMOVED											
3 TOTALS \$75 \$50											

ASBESTOS ASSESSMENT SURVEY
FORT RUGER BLDG. 206A

Page: 3
Building Type: UNKN
Year Constructed: 09/25/90
Date Inspected: 09/25/90
Inspector: BRYANT

Project Number: 57809196
Building Number: 084-207010-2053
Building Name: ARMORY
Address :

LOCATION	SAMPLE GROUP NUMBER	OF	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	QJM CODE	EXP POT LEVEL	PRIORITY	REMOVAL COSTS	REPLACEMENT COSTS	TOT/ COS
----------	---------------------	----	----------------------	---------	-------	----------	----------	---------------	----------	---------------	-------------------	----------

THIS WALL FOUND NEXT TO THE STAIRWAY IS IN GOOD CONDITION.

Area	5	TAR ON MECHANICAL	AREA #	4	TOTALS	\$0	\$0
------	---	-------------------	--------	---	--------	-----	-----

MECH. ROOM-ON EXPANSION TANK	6	1	black insulation	24%	10 sq.ft.	0X2	12	IV	\$110	\$25
------------------------------	---	---	------------------	-----	-----------	-----	----	----	-------	------

NS# Sample # 2458
6 - 706544 24%

TAR-LIKE MATERIAL IS FOUND ON AN EXPANSION TANK.

Area	6	ACOUSTIC INSULATION	AREA #	5	TOTALS	\$110	\$25
------	---	---------------------	--------	---	--------	-------	------

ON STEEL DECKING	7	8	sprayed acoustical plaster	0X	12800 sq.ft.	0X0	0	\$0	\$0
------------------	---	---	----------------------------	----	--------------	-----	---	-----	-----

NS# Sample # 2458	7	-	706545	0X
	7	-	706546	0X
	7	-	706547	0X
	7	-	706548	0X
	7	-	706549	0X
	7	-	706550	0X
	7	-	706551	0X
	7	-	706552	0X

ASBESTOS ASSESSMENT SURVEY
FORT RUGER BLDG. 206A

Project Number: 57809196
 Building Number: 601 207010853
 Building Name: ARMORY
 Address :

Page: 4
 Building Type:
 Year Constructed: UNKN
 Date Inspected: 09/25/90
 Inspector: BRYANT

LOCATION	SAMPLE GROUP NUMBER	MATERIAL DESCRIPTION	PIPE ID	% ASB	QUANTITY	OSM CODE	EXP POT	PRIORITY LEVEL	REMOVAL COSTS	REPLACEMENT COSTS	TOTAL COSTS
ACOUSTIC INSULATION IS FOUND BOTH EXPOSED AND UNEXPOSED ON THE STEEL DECKING. MANY AREAS OF DAMAGE CAN BE SEEN.											
						AREA #	6	TOTALS	\$0	\$0	\$0

BUILDING # 001	TOTALS	\$185	\$75
PROJECT TOTALS		\$185	\$75

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including the following:
 - 1. Project Record Documents.
 - 2. Operation and Maintenance Manuals.
 - 3. Warranties.
- B. Related documents include the following:
 - 1. SECTION 01700 - EXECUTION REQUIREMENTS.

1.02 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting a Final Inspection to determine Substantial Completion, complete the following items in addition to requirements of Article 7 of the GENERAL CONDITIONS.
 - 1. Advise the Project Contact Person of pending insurance changeover requirements.
 - 2. Submit specific warranties, final certifications, and similar documents.
 - 3. Arrange to deliver tools, spare parts, extra materials, and similar items to a location designated by the Project Contact Person. Label with manufacturer's name and model number where applicable.
 - 4. Make final changeover of permanent locks and deliver keys to the Project Contact Person. Advise the State's personnel of changeover in security provisions.
 - 5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 6. Complete final cleaning requirements, including touch up painting.
 - 7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

1.03 FINAL COMPLETION

- A. Preliminary Procedures: Within 10 days from the Project Acceptance Date, complete the following items in addition to requirements of GENERAL CONDITIONS Article 7 PROSECUTION AND PROGRESS:
 - 1. Instruct the State's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training media materials.

1.04 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit 2 copies of any updated and action taken list. In addition to requirements of GENERAL CONDITIONS Article 7 PROSECUTION AND PROGRESS, include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project Name and Title.
 - b. State Job No.
 - c. Date and page number.
 - d. Name of Contractor.

1.05 PROJECT RECORD DOCUMENTS AND REQUIREMENTS

- A. General:
1. Definition: "Project Record Documents", including Record Drawings, shall fulfill the requirements of "Field-Posted As-Built Drawings" listed in the GENERAL CONDITIONS.
 2. Do not use Project Record Documents for daily construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Project Contact Person's reference during normal working hours. Maintain these documents as specified in paragraph entitled "Record Drawings" hereinafter.
 3. The Designer, under contract with the State, will update the drawings to show all addendum, PCD, and sketch changes. The Project Contact Person will transmit these drawings (vellum) to the Contractor who will make all "red-line" corrections to these drawings to record the changes depicted on the Contractor's Field Posted Record ("As-Built") by accepted drafting practices as approved by the Project Contact Person.
 4. Where the recorded changes depicted on the Contractor's Field Posted Record ("As-Built") are in the form of shop drawings, the Contractor shall provide those shop drawings on vellum sheets in the same material and size as the drawings transmitted to the Contractor. The new drawing sheets shall be titled and numbered to conform to the construction drawings and clearly indicate what information they supercede in the actual construction drawings. For example a new drawing that replaces drawing M-3, could be numbered M3a.

5. The Contractor shall bring to the attention of the Project Contact Person any discrepancy between the changes made by the Designer and those depicted on addendum, PCD, and sketch changes. The Project Contact Person will resolve any conflicts.
 6. Submit final Record Documents (Field Posted Record Drawings) within 10 days after the Final Inspection Date but no later than the Contract Completion Date, unless the GENERAL CONDITIONS require an earlier submittal date.
 7. The Contractor shall guarantee the accuracy of its final Record Documents. The State will hold the Contractor liable for costs the State incurs as a result of inaccuracies in the Contractor's Record Documents.
 8. Deliver tools, spare parts, extra materials, and similar items to a location designated by the Project Contact Person. Label with manufacturer's name and model number where applicable.
- B. Record Drawings:
1. Maintain a duplicate full-size set of Field Posted Record ("As-Builts") Drawings at the job site. Clearly and accurately record all deviations from alignments, elevations and dimensions, which are stipulated on the drawings and for changes directed by the Project Contact Person that deviate from the drawings.
 2. Record changes immediately after they are constructed in place and where applicable, refer to the authorizing document (Field Order, Change Order, or Contract Modification). Use red pencil to record changes. Make Field Posted Record Drawings available to the Project Contact Person at any time so that its clarity and accuracy can be monitored.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark the contract drawings or the shop drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on contract drawings.
 - e. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - f. Locate concealed building utilities by dimension from bench marks or permanent structures. Locate site utilities by dimensions, azimuth and lengths from bench marks or permanent structures.
 - g. Note field order numbers, Change Order numbers, Contract Modification numbers, Alternate numbers, post-construction drawing numbers (PCD) and similar identification (RFI numbers) where applicable.

- h. The Contractor shall initial each deviation and each revision marking.
- 3. Use the final updated Contract Drawing set plus applicable shop drawings for making the final Field Posted Record Drawings submittal.
- 4. Certify drawing accuracy and completeness. Label and sign the record drawings.
- 5. Label the title sheet and on all sheets in the margin space to the right of the sheet number, written from the bottom upward, with the title "FIELD POSTED RECORD DRAWINGS" and certification information as shown below. Provide a signature line and company name line for each subcontractor that will also certify the respective drawing. Adjust size to fit margin space.

FIELD POSTED Certified By: _____ Date: _____
RECORD DRAWINGS [Contractor's Company Name]

- 6. Revise the Drawing Index and label the set "FIELD POSTED RECORD DRAWINGS". Include the label "A COMPLETE SET CONTAINS [_____] SHEETS" in the margin at the bottom right corner of each sheet. Quantify the total number of sheets comprising the set.
- 7. If the Project Contact Person determines a drawing does not accurately record a deviation or omits relevant information, the State will correct any FIELD POSTED RECORD DRAWINGS sheet. Contractor will be charged for the State's cost to correct the error or omission.
- 8. Use the final Field Posted Record Drawings sheets to create one electronic version of the set. The set shall be recorded in Adobe Acrobat PDF (Portable Document Format). Create a single indexed, bookmarked PDF file of the entire set of drawings and record on the CD. Submit one set of the final Field Posted Record Drawings sheets and the complete electronic CD set(s).

1.06 WARRANTIES

- A. Submittal Time: Submit written manufacturer's warranties at request of the Project Contact Person for designated portions of the Work where commencement of warranties other than Project Acceptance date is indicated.
- B. Partial Occupancy: Submit properly executed manufacturer's warranties within 45 days of completion of designated portions of the Work that are completed and occupied or used by the State during construction period by separate agreement with Contractor.
- C. Organize manufacturer's warranty documents into an orderly sequence based on the table of contents of the Specifications.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 inch x 11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer and prime contractor.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES", Project Name and Title, State Job Number, and name of Contractor.
 4. Use the final submittal of the warranties to create an electronic Adobe Acrobat PDF (Portable Document Format) version of the bound warranty documents files. Each sheet shall be separately scanned, at 600 DPI or better into a PDF file, indexed and recorded on a recordable compact disc (CD).
- D. Provide 2 sets of manufacturer's warranties that exceed one year and one CD as part of the closing document submittals. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 FINAL CLEANING

- A. General: Provide final cleaning. In addition to requirements of Article 7 of the GENERAL CONDITIONS conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturers written instructions unless noted otherwise. Complete the following cleaning operations before requesting final inspection for entire Project or for a portion of Project:
 1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits resulting from construction activities.

3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 4. Remove tools, construction equipment, machinery, and surplus material from Project site.
 5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 6. Remove debris and surface dust from limited access spaces, including: roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 7. Sweep concrete floors broom clean in unoccupied spaces.
 8. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 9. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass surfaces, taking care not to scratch surfaces.
 10. Remove labels that are not permanent.
 11. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 12. Replace parts subject to unusual operating conditions.
 13. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the State's property. Do not discharge volatile, harmful, or dangerous materials into drainage and sewer systems or onto State property. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

DIVISION 2 - SITE CONSTRUCTION

SECTION 02070 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

- A. Extent of selective demolition work is indicated on drawings. Selective demolition work includes, but is not limited to, removal and subsequent disposal of all materials indicated or required to be removed.
- B. It shall be the responsibility of the Contractor to examine the project site and determine the existing conditions.
- C. Execute all work in an orderly and careful manner with due consideration for all items of work to remain.
- D. Obvious conditions which exist at the site shall be accepted as part of the work, even though they may not be clearly indicated on the Drawings and/or described herein, or may vary therefrom.
- E. All debris of any kind accumulated from the work of this section shall be disposed off the site.
- F. Burning of any debris on-site will not be permitted.
- G. Permits, Notice, Etc.:
 - 1. The Contractor shall procure and pay for all necessary permits, certificates, or approvals that may be required in connection with this work.
 - 2. The Contractor shall serve proper notice and consult with the Project Contact Person regarding any temporary barricades and disconnections of electrical or other utility lines in the area which may interfere with the removal work, and all such lines where necessary shall be properly disconnected or relocated before commencing with the work.
- H. Carefully remove and store materials indicated for relocation or reinstallation. Record all deficiencies prior to removal and record with the Project Contact Person. All damage caused by the Contractor's operations shall be repaired as accepted by the Project Contact Person at no additional cost to the State.
- I. Related Work Described Elsewhere: Contractor shall review SECTION 01715 - EXISTING CONDITIONS - ASBESTOS/LEAD/HAZARDOUS MATERIAL SURVEY.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.

- B. Schedule: Submit two copies of schedule indicating proposed methods and sequence of operations for selective demolition work to the Project Contact Person for review prior to commencement of work. Include coordination for temporary shut-off and continuation of utility services as required, together with details for weather protection, dust and noise control protection.

1.03 JOB CONDITIONS

- A. Condition of Structure: The State assumes no responsibility for actual condition of items or portions of structure to be demolished.
- B. Conditions existing at time of commencement of contract will be maintained by the State insofar as practicable.
- C. Do not interfere with use of adjacent occupied spaces or buildings. Maintain free and safe passage to and from occupied spaces or other occupied buildings.
- D. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor, may be removed as work progresses. Transport salvaged items from site as they are removed. Storage or sale of removed items on site will not be permitted.
- E. Protections: Provide temporary barricades and other forms of protection as required to protect the general public and staff from injury due to selective demolition work.
 - 1. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of elements to be demolished, and adjacent facilities or work to remain.
 - 2. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
 - 3. Life safety procedures and provisions shall be in conformance with all applicable Federal, State, and City and County regulations, including HIOSH.
 - 4. Provide accessibility around temporary structures conforming to ADAAG Section 201.3 and Section 206.1.
 - 5. Remove protections, obstructions, and barricades at completion of work.
 - 6. Where barriers are erected or placed to facilitate the work, barriers shall not affect or impact the facility's fire exiting route or alarm systems.
- F. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to the State.
- G. Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from the Project Contact Person. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations, as directed by the Project Contact Person.

- H. Dust Control:
 - 1. Keep dust within acceptable levels at all times, including non-working hours, weekends, and holidays, as specified in SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS.
 - 2. Mechanical dry sweeping not permitted. Vacuuming, wet mopping, approved limited dry hand, wet or damp sweeping is acceptable.
 - 3. During loading operations, water down debris and waste materials to allay dust.
 - 4. The method of dust control and all costs incurred thereof shall be the responsibility of the Contractor.
- I. Noise Control: As specified in SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS.
- J. Fire Safety: Fire safety during demolition shall comply with NFPA 241, "Standard for Safeguarding Construction, Alteration, and Demolition Operations", and NFPA 1, "Uniform Fire Code", as amended.
- K. Demolition Work: Conform to State of Hawaii, Occupational Safety and Health Standards; Subtitle 8, Division of Occupational Safety and Health; Part 3, Construction Standards; Chapter 131.1, Demolition.
- L. Other Controls:
 - 1. Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being spilled onto the pavement. Waste water shall not be discharged into existing streams, waterways, or drainage systems such as gutter and catch basins unless treated to comply with Department of Health pollution regulations.
 - 2. Trucks hauling materials shall be covered as required by PUC regulation. Trucks hauling fine materials shall be covered.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 INSPECTION

- A. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Inventory existing conditions of structure surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; photograph, video or otherwise document and file with the Project Contact Person prior to starting work.

3.02 PREPARATION

- A. Provide temporary security type weatherproof enclosures for exterior openings resulting from demolition work.

3.03 BARRICADES AND ENCLOSURES

- A. As specified in SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS.

3.04 SELECTIVE DEMOLITION

- A. Perform selective demolition work, including all exterior improvements indicated on the drawings, in a systematic manner. Use such methods as required to complete work indicated on drawings in accordance with demolition schedule and governing regulations.
 - 1. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction. All dust shall be suppressed by a fog spray or other approved method.
 - 2. Extent of demolition and removal as shown are minimum requirements. Contractor shall be responsible for the extent of work required to properly accommodate the methods of construction required for the new work. Additional work required to accommodate construction shall be considered incidental to the new work and shall be done at no additional cost to the State.
- B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to the Project Contact Person in written, accurate detail. Pending receipt of directive from the Project Contact Person rearrange selective demolition schedule as necessary to continue overall job progress without delay.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove debris, rubbish, and other materials resulting from demolition operations from building site daily. Transport and legally dispose of materials off site.
 - 1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
 - 2. Burning of removed materials is not permitted on project site.
- B. Locksets on Swing Doors: The Contractor shall remove all locksets from all swinging doors indicated to be removed and disposed of. Contractor shall give the locksets to the Project Contact Person after their removal.

3.06 CLEAN UP AND REPAIR

- A. Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave areas broom clean.
- B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

- C. All existing grass areas disturbed or damaged due to construction or ingress or egress to the site shall be repaired to original conditions. Grass areas shall be recultivated, topsoiled, and then grassed with the same kind and type of material as existing, in a manner accepted by and to the satisfaction of the Project Contact Person.

END OF SECTION

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

SECTION 07920 - SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Completely close with sealant all joints indicated or specified to be sealed to a watertight and airtight condition without staining substrates.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Manufacturer's Data: Submit copies of manufacturer's product data and specifications for type of sealant required, to the Project Contact Person for acceptance.
- C. Material Safety Data Sheets (MSDS): Submit MSDS for each sealant product.
- D. Color Samples: Submit 4 sets of color finish samples of sealants.
- E. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Source Limitations: Obtain each type of sealant through one source from a single manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver sealants to the jobsite in sealed containers labeled to show the designated name, formula, or specification number, lot number, color, date of manufacture, shelf life, curing time, manufacturer's directions, and name of manufacturer.
- B. Storage: Carefully handle and store all materials to prevent inclusion of foreign materials. Remove from project site all damaged and deteriorated materials and materials exceeding shelf life.
- C. Sealant materials shall be handled in accordance with the manufacturer's specifications and installed prior to expiration of shelf life.

1.05 WARRANTY

- A. Provide a 2-year written warranty against leaks, air infiltration, cracks, and other failures of the installation and materials. Where sealant is associated with a system with longer warranty period, sealant warranty shall match applicable system.

1. Repair of sealants to seal leaks caused by faulty materials or workmanship;
 2. Repair or replace damage to the building or its finishes, equipment or furniture when occasioned by such leaks at no additional cost to the State.
- B. The Surety shall not be held liable beyond 2 years from the project acceptance date.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Provide sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Sealants:
1. At Exterior and Interior Vertical and Overhead Moving Joints: One-part polyurethane-based sealant, conforming to ASTM C 920, Type S, Grade NS, Class 25, Use NT. Provide one of the following, or accepted equivalent:
 - a. Vulkem 116; Tremco, Inc.
 - b. Chem-Calk 900; Bostik Construction Products Div.
 - c. Sikaflex 1a; Sika Corp.
 - d. DynaTrol 1-XL; Pecora Corp.
 - e. NP-1; Sonneborn.
 2. At Interior Vertical and Overhead Non-Moving Joints: Non-Elastomeric Sealant; acrylic-emulsion type, conforming to ASTM C 834. Provide one of the following, or accepted equivalent:
 - a. AC-20 Acrylic Latex; Pecora Corp.
 - b. Tremco Acrylic Latex 834; Tremco, Inc.
 - c. Chem-Calk 600; Bostik Construction Products Div.
 - d. Sonolac; Sonneborn.
 3. Bedding Compound: For installation of thresholds and similar items indicated to be bedded in sealant, use a preformed butyl-polyisobutylene sealant tape. Size of tape as required for the specific application. Provide one of the following, or accepted equivalent:
 - a. Extru-Seal; Pecora Corp.
 - b. 440 Tape; Tremco, Inc.
 - c. Chem-Tape 40; Bostik Construction Products Div.

- C. Primer for Sealants: Non-staining, as recommended by the sealant manufacturer.
- D. Sealant Backer Rod: Compressible rod stock of polyethylene foam, polyethylene-jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable, nonabsorptive material conforming with ASTM C 1330 as recommended for compatibility with sealant by the sealant manufacturer to control the joint depth for sealant placement, to break bond of sealant at bottom of joint, to form optimum shape of sealant bead on back side, and to provide a highly compressible backer which will minimize the possibility of sealant extrusion when joint is compressed. Do not use oakum or other types of absorptive materials as backstops.
- E. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer. Provide self adhesive tape where required.
- F. Masking Tape: Non-staining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.

3.02 EXAMINATION

- A. Examine joint widths, surfaces, and backing, and their anchorage to the structure, and conditions under which joint sealer work is to be performed, and notify Contractor in writing of conditions detrimental to proper completion of the work and performance of sealers. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to installer.

3.03 JOINT PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 1. Remove foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and accepted for sealant adhesion and compatibility by sealant manufacturer; oil; grease; waterproofing; water repellants; water; and surface dirt.
 2. Clean concrete, masonry, and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form release agents from concrete.
 4. Steel Surfaces in Contact with Sealant: Scrape and wirebrush to remove loose mill scale. Remove dirt, oil, or grease by solvent cleaning, and wipe surfaces with clean cloths.
 5. Clean metal, glass, glazed surfaces of ceramic tile, and other nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
 6. Do not permit solvents to air dry. Wipe surfaces free of solvent using clean, dry white cloth or white lintless paper.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
- D. Examine joint size and correct to achieve depth ratio of 1/2 of joint width with a minimum width and depth of 1/4-inch, maximum width of 1-inch unless specifically allowed otherwise by the sealant manufacturer.

3.04 INSTALLATION OF JOINT SEALERS

- A. General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions. Proceed with the work only when weather conditions are favorable for proper cure and development of high early bond strength.
- C. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture, or tear joint fillers.

- c. Remove absorbent joint fillers which have become wet prior to sealant application and replace with dry material.
 - 2. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.
 - 3. Install compressible seals serving as sealant backings to comply with requirements indicated above for joint fillers.
- E. Primer: Immediately prior to application of the sealant, clean out all loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete, masonry units, wood, and other porous surfaces in accordance with compound manufacturer's instructions. Do not apply primer to exposed finish surfaces.
- F. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
- 1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 - 2. Provide flush joint configuration per Figure 5B in ASTM C 1193, where indicated.

3.05 CLEAN UP

- A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

3.06 PROTECTION

- A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Project Acceptance. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION

DIVISION 8 - DOORS AND WINDOWS

SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide hurricane standard steel doors and frames as indicated and scheduled on drawings.
- B. Related Work Described Elsewhere:
 - 1. Finish hardware is specified in SECTION 08710 - FINISH HARDWARE.
 - 2. Glazing is specified under SECTION 08800 - GLAZING.
 - 3. Field applied painting is specified in SECTION 09900 - PAINTING.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Manufacturer's Data: Submit manufacturer's technical product data substantiating that products comply with requirements.
- C. Shop Drawings: Submit for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections, gauges, and finishes. Show anchorage and accessory items.
- D. Schedule: Furnish schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.

1.03 QUALITY ASSURANCE

- A. Provide doors and frames complying with ANSI/SDI A250.8, "Recommended Specifications for Standard Steel Doors and Frames", and as herein specified and ANSI A250.13, "Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies".
- B. Door Hardware Mounting Heights: The Contractor shall be responsible to coordinate all mounting heights of various finish hardware with all project requirements. Accessible hardware shall be mounted per ADAAG Section 404.2.7.
- C. Design wind pressure shall be as indicated.
- D. All steel doors and frames shall be tested under either or both of the following:
 - 1. ASTM E 1886, "Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials", and ASTM E 1996, "Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors,

and Impact Protective Systems Impacted by Windborne Debris in Hurricanes", and comply with minimum Missile Level D (9 pound 2x4 at 50 f/s).

2. Miami-Dade County, Building Code Compliance Office, Product Control Division, Notice of Acceptance (NOA) for Large and Small Missile Impact, http://www.miamidade.gov/buildingcode/pc-search_app.asp.

E. Windstorm Rated Door Assemblies Regulatory Label Requirements: Provide UL testing agency label or stamp on door and frame for wind rated labeled openings. Where UL requirements conflict with drawings or specifications, hardware conforming to UL requirements shall be provided. Conflicts and proposed substitutions shall be clearly indicated in door submittals and hardware schedule. Certification(s) of compliance shall be made available upon request by the Project Contact Person.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow metal work cartoned or crated to provide protection during transit and job storage. Provide temporary steel spreaders securely fastened to the bottom of each welded frame.
- B. Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to the Project Contact Person; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover in a dry, secure place. Place units on minimum 4-inch high wood blocking. Avoid use of non-vented plastic or canvas shelters which could create humidity chambers. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4-inch spaces between stacked doors to promote air circulation.
- D. Handle manufactured materials as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Galvanized Steel Sheets: All doors and frames shall be manufactured of commercial quality, stretcher leveled flatness, cold rolled steel per ASTM A 1008/A 1008M, "Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable", and ASTM A 568/A 568M, "Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for". Sheet shall be galvanized to 'G-90' minimum coating weight per ASTM A 924/A 924M, "Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process". Internal reinforcing shall be manufactured of hot rolled pickled and oiled steel per ASTM A 1011/A 1011M, "Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability and Ultra-High Strength".

- B. Core Materials: Polystyrene foam core, self extinguishing, non-toxic, or 1 pound density mineral fiber at steel reinforced doors.
- C. Supports and Anchors: Fabricate of not less than 18 gauge galvanized sheet steel.
- D. Frame Anchors:
 - 1. All frame jamb anchors to be provided; one each jamb per 30-inches of frame height or fraction thereof, (3 minimum).
 - 2. Floor Anchors: Angle clip type:
 - a. 16 gauge minimum.
 - b. To receive 2 fasteners per jamb.
 - c. Welded to the bottom of each jamb.
 - 3. In-Place Concrete: 3/8-inch countersunk flat head stove bolt and expansion shields.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units, except hot-dip galvanize, complying with ASTM A 153/A 153M, "Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware", Class C or D as applicable.
- F. Factory Applied Primer Paint: Rust-inhibitive enamel paint, either air-drying or baking, suitable as a base for specified finish paints conforming to ANSI/SDI A250.10, "Test Procedures and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames". Primers shall be free from asbestos, lead, mercury, chromate, and cadmium.

2.02 FABRICATION, GENERAL

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI A250.8 requirements as follows:
 - 1. Exterior Flush Panel Doors: Minimum Level 3, extra heavy-duty, Model 2, minimum 16 gauge faces.
 - 2. Doors shall conform to ANSI/SDI A250.4, "Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing", minimum Level A performance for doors as applicable.
- B. Fabricate exposed faces of doors and panels from only cold-rolled steel.
- C. Fabricate frames, concealed stiffeners, reinforcement, edge channels, and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).

- D. Fabricate all doors and frames from galvanized sheet steel. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16 gauge inverted steel channels, flush end cap cover plate, and sealed to prevent water intrusion. Door hinge edge shall be one-piece full height, 14 gauge channel, formed and tapped for hinges. Doors shall have a beveled (1/8-inch in 2-inches) lock edge and square hinge edge.
- E. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.
- F. Finish Hardware Preparation: Prepare doors and frames to receive mortised and concealed finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI/SDI A250.8, ANSI/SDI A250.6, and additional requirements of ANSI/BHMA A156.115 specifications for door and frame preparation for hardware.
 - 1. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site. Provide minimum gauge hardware reinforcing for mortise or surface applied hardware as follows:
 - a. Hinges:
 - 1) 10 gauge or equivalent number of threads on doors.
 - 2) 7 gauge on frames.
 - b. Locks: 12 gauge or equivalent number of threads.
 - c. Surface Closers: 12 gauge.
 - d. Panic Devices: 12 gauge.
 - 2. Locate finish hardware as indicated on final shop drawings or, if not indicated, in accordance with ANSI/SDI A250.8, "Recommended Specification for Standard Steel Doors and Frames", and the Americans with Disabilities Act Accessibility Guidelines (ADAAG) Section 404.2.7.
- G. Factory Painting:
 - 1. Clean, phosphatize, and prime paint exposed surfaces of steel door and frame units, including galvanized surfaces.
 - 2. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
 - 3. Apply factory coat of prime paint to an even consistency to provide a uniformly finished surface ready to receive finish paint.

2.03 STANDARD STEEL DOORS

- A. Provide metal doors of types and styles indicated on drawings or schedule. Fill all doors with mineral fiber insulation at steel reinforced doors or polystyrene foam panel reinforcement at standard hollow metal.

- B. Glazing: Glazing shall be safety type as specified in SECTION 08800 - GLAZING and secured with removable glazing beads on the secure side of door. Beads shall be snap-on or screw-on type.

2.04 STANDARD STEEL FRAMES

- A. Provide metal frames for doors of type and style as shown on drawings and schedules conforming with ANSI/SDI A250.8. Conceal fastenings, unless otherwise indicated. Fabricate frames of cold-rolled furniture steel minimum 14 gauge to conform with door physical performance level.
 - 1. Fabricate frames with mitered corners, welded construction. Continuously weld frame faces at corner joints. Mechanically interlock or continuously weld stops and rabbets. Grind welds smooth. Weld frames in accordance with the recommended practice of the Structural Welding Code Sections 1 through 6, AWS D1.1/D1.1M, and in accordance with the practice specified by the producer of the metal being welded.
 - 2. Form all frames of hot dip galvanized steel.
 - 3. Frames shall comply with ANSI/SDI A250.4, minimum Level A, one million cycle swing test performance for a 4070 door frame.
- B. Plaster Guards: Provide 26 gauge steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.
- C. Template Hardware: Factory cut doors and frames for all template hardware, including hinges, bolts, etc.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.
- B. Placing Frames: Comply with provisions of ANSI/SDI A250.11, "Recommended Erection Instructions For Steel Frames", unless otherwise indicated.
 - 1. Anchors: Provide sufficient anchorage to attach to wall and floor in accordance with ANSI/SDI A250.4, test compliance minimum Level A of one million cycles, or anchorage as detailed on drawings to specific wall conditions. Anchor exterior door frames for wind pressure requirements.
 - 2. Except for frames located at in-place concrete and masonry installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

3. In concrete construction, locate 3 wall anchors per jamb at hinge and strike levels.
 4. At in-place concrete construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.
 5. At frames to be grouted, the inside of the frame shall be given a coat of heavy-bodied bituminous paint.
- C. Door Installation:
1. Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI A250.8.
 2. Weatherstripping shall be installed at exterior door openings to provide a weathertight installation.
- D. Door Clearances: Unless otherwise recommended by the manufacturer, provide uniform clearances as listed below:
1. Head, Jamb, and Lock Edge: 1/8-inch maximum.
 2. Meeting Stile: 1/4-inch maximum (3/16-inch maximum for fire doors).
 3. Threshold: 1/8-inch (1/4-inch maximum).

3.02 ADJUST AND CLEAN

- A. Factory Coat Touch-Up: Immediately after erection, sand smooth any rusted or damaged areas of factory coating and apply touch-up of matching air-drying coating.
- B. Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating conditions.

END OF SECTION

SECTION 08410 - ALUMINUM ENTRY DOORS AND WINDOW WALL

PART 1 - GENERAL

1.01 SUMMARY

- A. Extent of hurricane aluminum entrances and window wall work are shown on the drawings.
- B. Related Work Specified in Other Sections:
 - 1. Sealants shall be exterior type for moving joints as specified in SECTION 07920 - SEALANTS.
 - 2. Lock cylinders for entrance doors are provided under SECTION 08710 - FINISH HARDWARE.
 - 3. Glazing requirements for entrance doors and window wall, including entrances specified to be factory glazed, are included in SECTION 08800 - GLAZING.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Manufacturer's Data: Submit complete manufacturer's technical literature, including full description of all materials and hardware, including weather resistance data.
- C. Shop Drawings: Submit complete shop drawings to the Project Contact Person for acceptance. Shop drawings shall include large scale detail sections of every typical composite member. Also show method of anchorage, joint systems, expansion provisions, glazing details, hardware, and its attachment and other pertinent details, and indicate all materials and finishes. Do not fabricate prior to acceptance.
- D. Samples: Submit 4 samples of finishes, including hardware to the Project Contact Person for acceptance.
- E. Test Reports: Where manufacturer's data does not clearly indicate conformance with performance requirements submit test reports from an independent laboratory certifying performance requirements of all exterior systems.
- F. Certification: Supply certification by the manufacturer that the entry doors and window wall, including finish, conform to specifications.
- G. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.
- H. Maintenance Manual: Submit 3 maintenance manuals for each type of aluminum door, hardware, and finish.

1.03 QUALITY ASSURANCE

- A. Standards: Comply with the applicable provisions of "Metal Curtain Wall, Window, Storefront, and Entrance Guide Specifications Manual" of the Architectural Aluminum Manufacturers Association (AAMA).
- B. Manufacturer: Provide systems produced by a firm with at least 5 years of experience in the fabrication of aluminum entrance doors and window wall, of the types required for this project.
- C. Perform work in accordance with Americans with Disabilities Act Accessibility Guidelines ADAAG Section 404.2.7 and NFPA 101 as applicable.
- D. Design wind pressure shall be as indicated.
- E. All aluminum entry doors and window wall shall be tested under either or both of the following:
 - 1. ASTM E 1886, "Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials", and ASTM E 1996, "Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes", and comply with minimum Missile Level D (9 pound 2x4 at 50 f/s).
 - 2. Miami-Dade County, Building Code Compliance Office, Product Control Division, Notice of Acceptance (NOA) for Large and Small Missile Impact, http://www.miamidade.gov/buildingcode/pc-search_app.asp.
- F. Windstorm Rated Assemblies Regulatory Label Requirements: Provide UL testing agency label or stamp on door and frame for wind rated labeled openings. Where UL requirements conflict with drawings or specifications, hardware conforming to UL requirements shall be provided. Conflicts and proposed substitutions shall be clearly indicated in submittals and hardware schedule. Certification(s) of compliance shall be made available upon request by the Project Contact Person.

1.04 WARRANTY

- A. Provide a written warranty from the manufacturer or his authorized representative and countersigned by the Contractor, that the completed work will not be defective in workmanship, materials or installation (including watertightness of the entire application) for a period of 2 years from the date of final acceptance and that repair or replacement of any defective work will be done promptly. This warranty does not extend to defects caused by unusual abuse.

1.05 PERFORMANCE REQUIREMENTS

- A. Submit evidence of compliance to the following minimum requirements.
 - 1. Thermal Movement: Fabricate exterior components from manufacturer's stock systems which have been designed to provide for expansion and contraction resulting from ambient temperature range of 120 degrees F.

2. Wind Loading: Fabricate exterior components from manufacturer's stock systems which have been tested at 1.5 times design load in accordance with ASTM E 330, "Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference", to withstand wind velocity of 140 mph, Exposure C, Importance Factor 1.15 in accordance with current ICC IBC with a deflection of not more than 1/175 times the length of the member. Provide internal reinforcement if required to withstand all design loads.
 3. Protected Openings: Door and window wall frame, glazing, and glazing stops shall conform to impact resistance of current ICC IBC, as amended for large missile test of ASTM E 1996, "Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes", for glazed openings within 30-feet of grade and small missile for glazed openings located more than 30-feet above grade.
 4. Wind Pressure Requirements: Exterior hurricane doors shall have been tested, rated, and factory marked for the positive and negative wind pressures as indicated.
 5. Weather Resistance: Fabricate exterior window wall components from manufacturer's stock systems which have been tested to demonstrate permanent resistance to leakages as follows with test pressure differential of 10% of design loading (excluding operable door edges).
 - a. Air Infiltration: Not more than 0.06 cfm per square foot, tested in accordance with ASTM E 283, "Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen", at a pressure differential of 6.24 psf.
 - b. Water Infiltration: No uncontrolled water penetration, tested in accordance with ASTM E 331 at 15 psf.
 - c. Uniform Load: A static air design load of 20 psf shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
 6. Seismic Load: As indicated.
- B. Field Measurement: Wherever possible, take field measurements prior to preparation of shop drawings and fabrication, to ensure proper fitting of work. However, proceed with fabrication and coordinate installation tolerances as necessary when field measurements might delay work.

1.06 PROTECTIVE COVERING

- A. Prior to shipment from the factory, finished surfaces of aluminum shall receive a protective covering. Covering shall not chip, peel, or flake due to temperature or weather, and shall protect against discoloration and surface damage from transportation, storage, and construction activities. Covering shall be readily removable without affecting the finish. Covering shall be either adhesive paper, waterproof tape, or strippable plastic.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Materials delivered to the jobsite shall be inspected for damage, and shall be unloaded with a minimum of handling. Use care in handling entry doors and window wall during transportation and at the jobsite. Store entry doors and window wall and components out of contact with the ground, under a weathertight covering, so as to prevent bending, warping, or otherwise damaging the materials. Entry doors and window wall shall not be covered with tarps, polyethylene film, or similar coverings. Provide care and handling conforming to AAMA CW-10, "Care and Handling of Architectural Aluminum from Shop to Site".
- B. Damaged entry doors and window wall shall be repaired to an "as new" condition as approved. If materials cannot be repaired, provide a new unit.
- C. Handle manufactured materials as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aluminum Extrusions: ASTM B 221 or ASTM B 221M, 6063-T5 or T6 alloy and temper.
- B. Aluminum Bars and Rods: ASTM B 211 or ASTM B 211M.

2.02 ALUMINUM DOORS AND WINDOW WALL

- A. Aluminum Entrance Doors:
 - 1. Exterior doors shall be equivalent to Arcadia IPMS 362 medium stile heavy wall doors, 1-3/4 inch thick with major portions of the door members 0.125-inch thick and glazing moldings 0.050-inch thick. Provide with 3-1/2 inch vertical stiles, 3-5/8 inch top rail, and 10-inch bottom rail and snap in glazing stops for glazing as indicated.
 - 2. Entry Door Hardware: Each door that is an element of an accessible route shall comply with Americans with Disabilities Act Accessibility Guidelines Section 404. Hardware shall conform to applicable ANSI/BHMA A156 series standard and be equivalent to the following:
 - a. Hinging: 32138 continuous hinges.
 - b. Electric Release: AR-7211 24VDC for single doors.

- c. Cylinders:
 - 1) Mortise with IC core for pair.
 - 2) Rim with IC core for single doors.
 - 3) Core provided under SECTION 08710 - FINISH HARDWARE.
 - d. Panic Devices: Touch bars:
 - 1) VD EL3347-NLOP-36 active leaf of pair.
 - 2) VD 3347-EO-36 in active of pair.
 - 3) VD 33 NLOP-36 single doors.
 - e. Pulls: 34503 10-inch offset pulls CTC exterior only conforming to ADAAG Section 404.2.7.
 - f. Power Supply: PS902 - Von Durpin.
 - g. Door Loop: DL-18 for EL panic on pair.
 - h. Closer: LCN 4041-18PA-XP surface closer or accepted equivalent (maximum opening force 8.5 pounds) conforming to ADAAG Section 404.2.8 and Section 404.2.9.
 - i. Threshold: Extruded aluminum, one piece per door opening, with ribbed surface not to exceed 1/2-inch height conforming to ADAAG Section 404.2.5.
 - j. Weatherstripping: As specified. Sill strips shall be concealed brush strips.
 - k. Remaining Hardware: Remaining hardware is provided under SECTION 08710 - FINISH HARDWARE.
- B. Window Wall (Fixed Glass) System and Door Frames: Nominal 2-1/2 inch wide x 5-inch deep frame size with 0.050-inch thick glazing stops, arranged as shown and detailed with EPDM rubber glazing gaskets. Extruded aluminum sill shall be supplied at all openings to maintain water performance standards, equivalent to Arcadia IP2551 System.
- C. Fasteners: All exposed fasteners shall be stainless steel. Perimeter anchors shall be stainless steel or galvanized steel. Exposed fasteners shall match finish of adjoining material.
- D. Weatherstripping: Weatherstripping shall be continuous silicone-treated wool pile type, or a type recommended by the door manufacturer, stile mounted, and shall be provided on head and jamb of exterior door frames. Weatherstripping for bottom of doors shall be as shown. Weatherstripping shall be easily replaced without special tools, and shall be adjustable at meeting stiles of pairs of doors.

2.03 FINISH

- A. All exposed aluminum surfaces shall be free of scratches and other blemishes. Provide dark bronze finish conforming to Aluminum Association Standard AA DAF-45, "Designation System for Aluminum Finishes", AA-M12-C22-A42, Architectural Class I, (0.7 mil or greater) and AAMA 611, "Anodized Architectural Aluminum", for all exposed surfaces, including fasteners and hardware.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive entry door and window wall units and sill plate is level in accordance with manufacturer's acceptable tolerances. Verify field measurements for entry door and window wall installation.

3.02 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

3.03 INSTALLATION

- A. Install component parts level, plumb and true to line with uniform joints. Do not use defective parts (warped, twisted, bowed, dented or abraded). Secure to structure with non-staining non-corrosive shims, anchors, fasteners, spacers, and fillers. Provide structural galvanized steel vertical stiffener members where required by height or design conditions. Use care in erection so as not to mar, abrade or stain finished surfaces. Where aluminum is to be placed in contact with steel, concrete, concrete block, and other dissimilar surfaces, back paint the aluminum before erection with an acceptable bituminous paint.
- B. Anchors: Anchors of the sizes and shapes required shall be provided for securing aluminum frames to adjacent construction. Anchors shall be placed near top and bottom of each jamb and at intermediate points not more than 25-inches apart. Transom bars shall be anchored at ends, and mullions shall be anchored at head and sill. The bottom of each frame shall be anchored to the rough floor construction with 3/32-inch thick stainless steel angle clips secured to the back of each jamb and to floor construction. Door frames free of window wall system shall be reinforced and securely anchored to floor construction. Anchor exterior frames for wind pressure requirements.
- C. Doors shall be accurately hung with proper clearances.
- D. Seal frames with an elastomeric sealant in color to match frames, making a neat fully weatherproof job complying with requirements of SECTION 07920 - SEALANTS.

- E. Set metal thresholds for exterior doors in full bed of butyl rubber, polyisobutylene mastic sealant, or preformed butyl-polyisobutylene sealant tape as specified under SECTION 07920 - SEALANTS.
- F. Dissimilar Materials: Provide separation of aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points by complying with ANSI/AAMA 101, Appendix, titled "Dissimilar Materials". Do not coat surfaces in contact with sealants after installation with any type of protective material.

3.04 PROTECTION

- A. After installation, protect by masking or other acceptable covering all exposed parts of the work from damage by grinding and polishing machines and/or by cement, acid or other harmful substances.
- B. Initiate and maintain all protection and other precautions required to ensure that doors and window wall units will be without damage or deterioration (other than normal weathering) at time of project acceptance.

3.05 ADJUST AND CLEAN

- A. Adjust doors and hardware to provide tight fit at contact points and at weatherstripping, for smooth operations and weathertight closure. Adjust closers to operate noiselessly and evenly and to conform to ADAAG Section 404.2.8 and Section 404.2.9.
- B. Clean and maintain aluminum surfaces in accordance with AAMA 609 & 610, "Cleaning and Maintenance Guide for Architecturally Finished Aluminum".
- C. Clean surfaces promptly after installation, exercising care to avoid damage to protective finishes. Remove temporary coverings and protection from adjacent surfaces. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and moving parts. Repair or replace damaged installed materials.
- D. After completion of all other work in the vicinity of the aluminum doors and window wall, remove all masking and/or other covering used to protect the work and thoroughly clean the aluminum surfaces with plain water or a commercial product as recommended by the manufacturer. Do not use abrasive cleaning agents.

END OF SECTION

SECTION 08520 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.01 SUMMARY

- A. Extent of hurricane aluminum windows is shown on drawings. Types of windows include projected windows, casement windows, and fixed windows.
- B. Related Work Described Elsewhere:
 - 1. Sealants shall be exterior type for moving joints as specified in SECTION 07920 - SEALANTS.
 - 2. Fixed storefront profile windows are provided under SECTION 08410 - ALUMINUM ENTRY DOORS AND WINDOW WALL.
 - 3. Glazing requirements, including windows specified to be factory glazed are included under SECTION 08800 - GLAZING.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Manufacturer's Data: Submit manufacturer's descriptive literature and data along with shop drawings for acceptance.
- C. Shop Drawings: Submit shop drawings to the Project Contact Person for acceptance. Do not fabricate prior to acceptance.
- D. Samples: Submit 4 samples of required finish to match finish of aluminum entry doors and window wall provided under SECTION 08410 - ALUMINUM ENTRY DOORS AND WINDOW WALL. Submit 4 samples of finishes, including hardware to the Project Contact Person for acceptance.
- E. Test Reports: Where manufacturer's data does not clearly indicate conformance with performance requirements submit test reports from an independent laboratory certifying performance requirements of all exterior systems.
- F. Certification: Supply certification by the manufacturer that the windows, including finish, conform to specifications.
- G. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.
- H. Maintenance Manual: Submit 3 maintenance manuals for each type of aluminum window and finish.

1.03 QUALITY ASSURANCE

- A. Manufacturer: Provide systems produced by a firm with at least 5 years of experience in the fabrication of aluminum windows of the types required for this project.

- B. Design wind pressure shall be as indicated.
- C. All aluminum windows shall be tested under either or both of the following:
 - 1. ASTM E 1886, "Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials", and ASTM E 1996, "Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes", and comply with minimum Missile Level D (9 pound 2x4 at 50 f/s).
 - 2. Miami-Dade County, Building Code Compliance Office, Product Control Division, Notice of Acceptance (NOA) for Large and Small Missile Impact, http://www.miamidade.gov/buildingcode/pc-search_app.asp.
- D. Windstorm Rated Window Assemblies Regulatory Label Requirements: Provide UL testing agency label or stamp on frame for wind rated labeled openings. Where UL requirements conflict with drawings or specifications, hardware conforming to UL requirements shall be provided. Conflicts and proposed substitutions shall be clearly indicated in submittals. Certification(s) of compliance shall be made available upon request by the Project Contact Person.

1.04 WARRANTY

- A. Furnish a written warranty from the manufacturer or his authorized representative and countersigned by the Contractor, that the completed work will not be defective in workmanship, materials or installation (including watertightness of the entire application) for a period of 2 years from the date of final acceptance and that repair or replacement of any defective work will be done promptly. This warranty does not extend to defects caused by unusual abuse.

1.05 PERFORMANCE REQUIREMENTS

- A. Submit evidence of compliance to the following minimum requirements for exterior windows.
 - 1. Thermal Movement: Fabricate exterior components from manufacturer's stock systems which have been designed to provide for expansion and contraction resulting from ambient temperature range of 120 degrees F.
 - 2. Wind Loading: Fabricate exterior components from manufacturer's stock systems which have been tested in accordance with ASTM E 330 to withstand wind velocity of 140 mph, Exposure C, Importance Factor 1.15 in accordance with current ICC IBC as amended.
 - 3. Protected Openings: Window frame, glazing, and glazing stops shall conform to impact resistance of current ICC IBC, as amended for large missile test of ASTM E 1996, "Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes", for glazed openings within 30-feet of grade and small missile for glazed openings located more than 30-feet above grade.

4. Weather Resistance: Fabricate window components from manufacturer's stock systems which have been tested to demonstrate permanent resistance to leakages as follows:
 - a. Air Infiltration: Not more than 0.30 cfm per foot of sash when tested in accordance with ASTM E 283 at pressure difference of 6.24 psf.
 - b. Water Infiltration: No uncontrolled water shall pass the interior vertical face of the window when tested in accordance with ASTM E 331 at pressure difference of 12.0 psf.
5. Forced Entry Resistance: All windows shall conform to AAMA 1302.5 or ASTM F 588, Performance Level 10.

1.06 PROTECTIVE COVERING

- A. Prior to shipment from the factory, finished surfaces of aluminum shall receive a protective covering. Covering shall not chip, peel, or flake due to temperature or weather, and shall protect against discoloration and surface damage from transportation, storage, and construction activities. Covering shall be readily removable without affecting the finish. Covering shall be either adhesive paper, waterproof tape, or strippable plastic.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Materials delivered to the jobsite shall be inspected for damage, and shall be unloaded with a minimum of handling. Use care in handling and hoisting windows during transportation and at the jobsite. Store windows and components out of contact with the ground, under a weathertight covering, so as to prevent bending, warping, or otherwise damaging the materials. Windows shall not be covered with tarps, polyethylene film, or similar coverings.
- B. Damaged windows shall be repaired to an "as new" condition as accepted. If materials cannot be repaired, provide a new unit.
- C. Handle manufactured materials as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aluminum extrusions shall conform to ASTM B 221 or ASTM B 221M, 6063-T5 alloy and temper.

2.02 ALUMINUM WINDOWS

- A. General: All windows shall conform to the requirements of ANSI/AAMA 101, and shall bear the AAMA label for type of classification specified.
- B. Projected window shall comply with AP-AW80; casement window shall comply with C-AW80; and fixed window shall comply with F-AW55. Window shall be equivalent to Arcadia Model IPT 200 as indicated, arranged as detailed or equivalent products of Kawneer, Architectural Products, EFCO Corp., Peerless Products, Inc., Vistawall, or other accepted manufacturer. All window and vent framing shall be minimum 2-inch in depth. Frame and ventilator extrusions shall have minimum wall thicknesses of 0.125-inch. Extruded head and jamb

receptors, and extruded sill flashing, as called for in details. Ventilators shall be tubular and corner construction shall be with clip, stake and epoxy methods.

- C. Hardware: Hinging hardware shall be heavy duty 4 bar stainless steel hinges conforming to AAMA 904. Vents shall be adjusted for specific maximum opening criteria in accordance with notes on the drawings or direction from the Project Contact Person. Hinges shall have a positive stop and an adjustable friction shoe. Cam locking hardware, strikes, and keepers shall be high pressure die-cast zinc. Finishes shall be white bronze or stainless steel. All hardware fasteners penetrating frame or inside plane of window shall be factory sealed with resilient non-hardening compound. Roto operated hardware is not acceptable.
- D. Fasteners: All exposed fasteners shall be stainless steel. Perimeter anchors shall be hard aluminum or stainless steel. Exposed fasteners shall match finish of adjoining material.
- E. Weatherstripping: Provide for ventilating sections of all windows to ensure a weathertight seal meeting the infiltration requirements specified in ANSI/AAMA 101. Provide easily replaceable factory-applied weatherstripping. Use molded vinyl, molded or molded-expanded neoprene or molded or expanded Ethylene Propylene Diene Terpolymer (EPDM) weatherstripping for compression contact surfaces. Use treated woven pile or wool, or polypropylene or nylon pile bonded to nylon fabric and metal or plastic backing strip weatherstripping for sliding surfaces. Do not use neoprene or polyvinylchloride weatherstripping where they will be exposed to direct sunlight.
- F. PVC Filler: Provide manufacturer's PVC filler to assist in shimming and sealing the perimeter of the units.
- G. Structural Silicone Sealants: Dow Corning 983 or 995 or accepted equivalent.

2.03 FINISH

- A. All exposed aluminum surfaces shall be free of scratches and other blemishes. Provide dark bronze finish conforming to Aluminum Association Standard AA DAF-45, "Designation System for Aluminum Finishes", AA-M12-C22-A42, Architectural Class I, (0.7 mil or greater), and AAMA 611, "Anodized Architectural Aluminum", for all exposed surfaces, including fasteners and hardware.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive window units and sill plate is level in accordance with manufacturer's acceptable tolerances. Verify field measurements for window installation.

3.02 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

3.03 INSTALLATION

- A. Comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators, and other components of work. Anchor windows for wind pressure requirements.
- B. Set units plumb, level, and true to line, without warp or rack of frames or sash. Anchor securely in place.
- C. Seal frames with an elastomeric sealant in color to match frames, making a neat fully weatherproof job, comply with requirements of SECTION 07920 - SEALANTS.
- D. Dissimilar Materials: Provide separation of aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points by complying with ANSI/AAMA 101, Appendix, titled "Dissimilar Materials". Do not coat surfaces in contact with sealants after installation with any type of protective material.

3.04 PROTECTION

- A. After installation, protect by masking or other acceptable covering all exposed parts of the work from damage by grinding and polishing machines and/or by cement, acid or other harmful substances.
- B. Initiate and maintain all protection and other precautions required to ensure that window units will be without damage or deterioration (other than normal weathering) at time of project acceptance.

3.05 ADJUSTING AND CLEANING

- A. Adjust operating sash and hardware to provide tight fit at contact points and at weatherstripping, for smooth operations and weathertight closure.
- B. Clean and maintain aluminum surfaces in accordance with AAMA 609 & 610, "Cleaning and Maintenance Guide for Architecturally Finished Aluminum".
- C. Clean surfaces promptly after installation of windows, exercising care to avoid damage to protective finishes. Remove temporary coverings and protection from adjacent surfaces. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and moving parts. Repair or replace damaged installed materials.
- D. After completion of all other work in the vicinity of the aluminum windows, remove all masking and/or other covering used to protect the work and thoroughly clean the aluminum surfaces with plain water or a product as recommended by the window manufacturer. Do not use abrasive cleaning agents.

END OF SECTION

SECTION 08710 - FINISH HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

- A. Hurricane rated hardware for all doors other than hardware specified in specific door sections.
- B. Weatherstripping for exterior doors.
- C. Furnish and deliver to the building site, all finishing hardware required for all doors, etc., complete as indicated on Drawings and as specified.
- D. It is the intent of this Specification to cover in general the class and character of all finish hardware required.
- E. The hardware list specified has been made for the convenience of the Contractor and covers in general the necessary hardware for doors, etc., but all other doors, etc., shown on the Drawings and not covered by the general characterization shall be fitted with appropriate hardware of the same standards as the hardware described throughout these specifications. Contractor shall furnish hardware schedule as specified.
- F. Related Work Described Elsewhere:
 - 1. Provide cylinders for doors provided under SECTION 08410 - ALUMINUM ENTRY DOORS AND WINDOW WALL.
 - 2. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Schedule: Furnish copies of the schedule of hardware in compliance with specifications and Drawings. Schedule format shall be vertical type as listed in DHI document "Sequence and Format for the Hardware Schedule". List each opening and hardware to be applied. State materials finish and manufacturer's number for each item. Required types are listed.
- C. Manufacturer's Data: Submit manufacturer's descriptive literature along with schedule.
- D. Keying Schedule: Submit a keying schedule for acceptance by the Project Contact Person; using keying nomenclature as listed in ANSI/BHMA A156.28, "Keying Systems". Door designation listed in the Keying Schedule shall be same as those used on Drawings and Hardware Schedule. Keying of locks shall be as directed by the Project Contact Person.

- E. Templates: Furnish hardware templates of each fabricator of doors, frames, and other work to be factory-prepared for the installation of hardware. Upon request, check Shop Drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.
- F. Tools and Maintenance Instructions: Furnish a complete set of special wrenches, tools, maintenance instructions, lubrication requirements, and inspection procedures applicable to each different or special hardware component.
- G. Certification: After completion and inspection by hardware supplier of all construction work, certify on an accepted form, that all items of finish hardware have been adjusted and are working properly.
- H. Record of Keying: Submit record of actual locations of installed cylinders and their master key code.
- I. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.

1.03 QUALITY ASSURANCE

- A. Perform work in accordance with Americans with Disabilities Act Accessibility Guidelines ADAAG Section 206.5, NFPA 101, "Life Safety Code", and ICC IBC as applicable. Each door that is an element of an accessible route shall comply with ADAAG Section 404 and shall be mounted no higher than 48-inches above finish floor.
- B. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience. Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.
- C. Hardware Supplier: Company specializing in architectural finish hardware, with a local stock warehouse, who has furnished hardware in Hawaii for a period of not less than three years. Products which are not locally stocked or serviced or which must be special ordered are not acceptable.
- D. Hardware Supplier Personnel: Employ an experienced Architectural Hardware Consultant (AHC), or Project Contact Person accepted equivalent, who is available at reasonable times during the course of the Work, to the Project Contact Person and Contractor for consultation about Project's hardware requirements, to verify specified hardware with door function and hardware finishes, and to establish keying system.
- E. Design wind pressure shall be as indicated.
- F. All finish hardware shall be tested under either or both of the following:
 - 1. ASTM E 1886, "Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials", and ASTM E 1996, "Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors,

and Impact Protective Systems Impacted by Windborne Debris in Hurricanes", and comply with minimum Missile Level D (9 pound 2x4 at 50 f/s).

2. Miami-Dade County, Building Code Compliance Office, Product Control Division, Notice of Acceptance (NOA) for Large and Small Missile Impact, http://www.miamidade.gov/buildingcode/pc-search_app.asp.
- G. Hardware shall conform with ANSI A250.13, "Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies".
- H. Windstorm Rated Finish Hardware Regulatory Label Requirements: Provide UL testing agency label or stamp on hardware for wind rated labeled openings. Where UL requirements conflict with drawings or specifications, hardware conforming to UL requirements shall be provided. Conflicts and proposed substitutions shall be clearly indicated in submittals and hardware schedule. Certification(s) of compliance shall be made available upon request by the Project Contact Person.

1.04 REGULATORY REQUIREMENTS

- A. Conform to applicable code for accessibility and requirements applicable to fire rated doors and frames.
- B. Definition: "Door Hardware" includes items known commercially as finish hardware which are required for swing and sliding doors, except special types of unique and non-matching hardware specified in same section as door and door frame.
- C. Requirement: Doors shall conform to ADAAG Section 206.5.
- D. Products Requiring Electrical Connection: Listed and classified by Underwriter's Laboratories, Inc., as suitable for the purpose specified and indicated.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, store, protect, and handle products to prevent damage of any kind and to maintain security of materials at the site.
- B. Inventory hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- C. Deliver individually packaged hardware items at proper times to proper locations (shop or project site) for installation.
- D. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.
- E. Deliver permanent keys to the Project Contact Person by security shipment direct from hardware manufacturer.

- F. Provide secure lock-up for hardware delivered to project but not yet installed. Control handling and installation of hardware items which are not immediately replaceable, so that completion of the Work will not be delayed by hardware losses, both before and after installation.
- G. Handle manufactured materials as recommended by the manufacturer.

1.06 WARRANTY

- A. Furnish one year warranty. Ten years from manufacturer on Door Closers and 2 years on electrical components. Where longer warrant is standard with the manufacturer, furnish the longer warranty.
- B. The Surety shall not be held liable beyond 2 years from the project acceptance date.

1.07 MAINTENANCE MATERIALS

- A. Furnish special wrenches and tools applicable to each different or special hardware component.
- B. Furnish maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 - PRODUCTS

2.01 SCHEDULED HARDWARE

- A. Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware is indicated in HARDWARE GROUPS at end of this section. Products are identified by using proprietary catalog numbers, and are used to establish quality and function of products desired.
- B. Product numbers indicated in the HARDWARE GROUPS are those of the manufacturers listed and are used to establish the quality of products intended.

2.02 MATERIALS AND FABRICATION

- A. Hand of Door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of indicated door.
- B. Base Metals: Produce hardware units of basic metal and forming method specified, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standard for each type hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish optional materials or forming methods for those indicated, except as otherwise specified.

- C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated. Fasteners exposed to the weather shall be non-ferrous metal or stainless steel.
- D. Furnish appropriate screws for installation with each hardware item. Provide Phillips flat head screws except as otherwise indicated. Finish exposed screws to match hardware finish. If exposed in surfaces of other work, to match finish of such other work as closely as possible, including prepared-for-paint finish in surfaces to receive painted finish.
- E. Expansion shields in concrete or masonry shall fill the depth and diameter of drilled holes.
- F. Provide concealed fasteners for hardware units which are exposed when door is closed, except to the extent no standard units of the type specified are available with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed in other work, except where it is not feasible to adequately reinforce the Work. In such cases, provide sleeves for each through bolt or use sex screw fasteners.
- G. Bring to the attention of the Project Contact Person any discrepancy between the Hardware Groups and door schedule prior to ordering.

2.03 HINGES

- A. General: Hinges shall conform to ANSI/BHMA A156.1 and the requirements of this specification.
- B. Templates: Except for hinges to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- C. Screws: Furnish Phillips flat head or machine screws for installation of units, except furnish Phillips flat head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges.
- D. Hinges Pins: Except as otherwise indicated, provide hinge pins as follows:
 - 1. Nonferrous Hinges: Stainless steel pins.
 - 2. Exterior, Out-Swing Doors: Non-removable pins (NRP).
 - 3. Interior Doors: Nonrising pins.
 - 4. Tips: Flat button and matching plug, finished to match leaves.
- E. Number of Hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90-inches or less in height and one additional hinge for each 30-inches of additional height.

F. Size of hinges shall be as follows:

<u>Door Thickness/Width</u>	<u>Hinge Height</u>	<u>Hinge Width</u>
1-3/4 inch to 36-inches	4-1/2 inch	4 or 4-1/2 inch
1-3/4 inch over 36-inches	5-inch	4-1/2 Extra Heavy Ball Bearing
1-3/4 inch over 48-inches	5-inch	4-1/2 Extra Heavy Ball Bearing

Note: Hinge width shall be of sufficient size to clear frame and trim when door swings 180 degrees.

2.04 LOCK CYLINDERS AND KEYING

- A. Keys: Provide 6 keys per lock with 2 keys stamped with bitting number and 2 without bitting stamping. All keys shall be stamped "DO NOT DUPLICATE" at the point of manufacture.
- B. All lock cylinders shall be minimum 6 pin heavy duty type furnished in Sargent removable core key system as an extension of the existing key system.
- C. Permanent Keying Instructions:
 - 1. All new locks shall be keyed as directed by the Project Contact Person.
 - 2. Prior to acceptance of the keys, the Contractor together with the Project Contact Person shall inspect each lock with the cut keys.

2.05 LOCKS, LATCHES, AND BOLTS

- A. General: Mortise locks and latches shall conform to ANSI/BHMA A156.13, bored locks and latches shall conform to ANSI/BHMA A156.2, bolts shall conform to ANSI/BHMA A156.16, ADAAG Section 404.2, and the requirements of this specification.
- B. Mortise locksets shall be manufactured in a single sized case formed from 12 gauge minimum steel. The case shall be closed on all sides and back. The lockset shall have a field-adjustable, beveled armored front, with a 0.125-inch minimum thickness.
- C. Mortise locksets shall have freewheeling outside levers on all exterior doors. The freewheeling lever design shall allow the lever to swing freely up to 70 degrees, when the door is locked.
- D. Strikes: Provide manufacturer's standard wrought box strike for each latch of lock bolt, with lip extended to protect frame, finish to match hardware set. Provide dustproof strikes for foot bolts, except where special threshold construction provides nonrecessed strike for bolts.

- E. Lock Throw:
 - 1. Provide 3/4-inch minimum throw of latch and 1-inch minimum for deadbolt.
 - 2. Flush Bolt Heads: Minimum of 1/2-inch diameter rods of brass, bronze or stainless steel, with minimum 12-inches long rod for doors up to 7-feet in height; minimum 42-inches long rod for doors up to 9'-6" in height.
- F. Provide locksets, latches, and cylinders equal in all respects to those specified in the Hardware Groups. All thumb turns shall conform to ADAAG Section 309.4.

2.06 PANIC EXIT DEVICES

- A. General: Panic exit devices shall conform to ANSI/BHMA A156.3 and the requirements of this section. Exit device vertical rods shall be one-piece construction. No splicing will be allowed. Provide recessed floor strikes.
- B. All exit devices shall be heavy duty push rail and cast chassis construction. Mounting rails shall be formed from a solid single piece of stainless steel. Push rails shall be constructed of stainless steel. Painted or anodized aluminum finish will not be acceptable.
- C. Exit devices shall have freewheeling outside levers on all exterior doors. The freewheeling lever design shall allow the lever to swing freely up to 70 degrees, when the door is locked.
- D. Where panic hardware is to be installed on hollow metal or FRP doors, they shall be mounted with theft resistant through bolts.

2.07 CLOSERS AND DOOR CONTROL DEVICES

- A. General: Closers shall conform to ANSI/BHMA A156.4, ADAAG Section 404.2.8 and Section 404.2.9 and the requirements of this specification.
- B. Size of Units: Comply with manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather, and anticipated frequency of use. Where parallel arm closers are installed, provide closer unit one size larger than recommended for use with standard arms.
- C. Maximum effort to operate doors shall not exceed 8.5 pounds for exterior doors, such pull or push effort being applied at right angles to hinged doors. Compensating devices or automatic door operators may be utilized to meet the above standards.
- D. Provide parallel arm or regular arm closer as required to mount closer on door face least exposed to public traffic.
- E. Closers shall have brass adjustment operating valves for closing speed, latching speed, and backcheck control as a standard feature.
- F. Closer covers shall be rectangular, full cover type, high impact non-corrosive, and flame retardant.
- G. Closer shall not require removal for adjustments to be made.

2.08 WEATHERSTRIPPING AND DOOR SEALS

- A. Provide noncorrosive fasteners as recommended by manufacturer for application indicated.
- B. Weatherstrip: ANSI/BHMA A156.22, except where furnished as part of an entrance door package or as otherwise indicated, provide continuous weatherstripping at each edge of every exterior door leaf.
- C. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.
- D. Thresholds: Provide all thresholds as indicated on the door schedule conforming to ANSI/BHMA A156.21 and ADAAG Section 404.2.5.

2.09 FINISHES

- A. Finishes: Identified in schedule at end of section.
 - 1. Designations used are those listed in ANSI/BHMA A156.18 "Materials and Finishes", including coordination with traditional U.S. finishes shown by certain manufacturers for their products.
 - 2. If no BHMA finish is established, match specified product.
- B. Provide matching finishes for hardware units at each door or opening to greatest extent possible, except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where base metal or metal forming process is different for individual units of hardware exposed at same door or opening.
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified for applicable units of hardware by referenced standards.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Pre-Installation Meeting: Before start of work under this contract, the Contractor, hardware installer, hardware manufacturer's representative or supplier and the Project Contact Person shall meet to review the hardware installation instructions and installation conditions.
- B. Verify that doors and frames are ready to receive Work and dimensions are as indicated.

3.02 INSTALLATION

- A. Install each hardware item in compliance with manufacturer's instructions and recommendations.

- B. Mount hardware units at height indicated in ANSI/SDI A250.8, "Recommended Specification for Standard Steel Doors and Frames", except:
 - 1. As otherwise indicated or as required to comply with governing regulations and ADAAG Section 404.2.7.
- C. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work. Do not install surface mounted items until finishes have been completed on the substrate.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- F. Set metal thresholds for exterior doors in full bed of butyl rubber, polyisobutylene mastic sealant, or preformed butyl-polyisobutylene sealant tape as specified under SECTION 07920 - SEALANTS.
- G. Fit face of all mortise parts snug and flush.
- H. Operating parts shall move freely and smoothly without binding, sticking or excessive clearance.
- I. Protect hardware from damage or marring of finish during construction. Use strippable coatings, removable tapes or other accepted means.
- J. Ensure that hardware displays no evidence of finish paint after building cleanup with exception of prime coated hardware installed for finish painting. The Contractor may achieve this by sequencing installation, removing after fittings, and reinstalling after painting is completed, providing protection, cleaning original hardware finish, or other accepted means.
- K. Latch and Bolt: Install latch and bolt to automatically engage in keeper, whether activated by closer or manual push. In no case shall additional manual pressure be required to engage latch or bolt in keeper.
- L. Closers:
 - 1. Do not mount closers on corridor side of door except at exterior doors.
 - 2. Carefully adjust closers to operate noiselessly and evenly and to conform to ADAAG Section 404.2.8 and Section 404.2.9.
 - 3. Have manufacturer's representative regulate closers prior to Project Contact Persons acceptance of work.

3.03 FIELD QUALITY CONTROL

- A. Required certified Architectural Hardware Consultant from door hardware supplier to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.
- B. The manufacturer's representative shall instruct the user's staff on the hardware's maintenance procedures (type of lubricant needed and frequency of maintenance).

3.04 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace items which cannot be adjusted to operate freely and smoothly as intended for application made.
- B. Clean adjacent surface soiled by hardware installation.
- C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the Work during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area.
 - 1. Clean operating items as necessary to restore proper function and finish of hardware and doors.
 - 2. Adjust door control devices to conform to ADAAG Section 404.2.8 and Section 404.2.9 requirements.
 - 3. Lubricate bearings surface of moving parts and adjust latching and holding devices for proper function.
 - 4. Test keys in every lock for proper operation and conformance with keying system.

3.05 HARDWARE GROUPS

MANUFACTURER LIST

<u>CATEGORY</u>	<u>VENDOR NAME</u>	<u>MFG</u>
HINGE	BY MCKINNEY PRODUCTS COMPANY	MCK
DOOR BOTTOM	BY PEMKO	PEM
DOOR SEAL	BY PEMKO	PEM
SPLIT ASTRAGAL	BY PEMKO	PEM
THRESHOLD	BY PEMKO	PEM
KICKPLATE	BY ROCKWOOD MANUFACTURING CO.	ROC
WALL STOP (CONVEX)	BY ROCKWOOD MANUFACTURING CO.	ROC
DOOR CLOSER	BY SARGENT MANUFACTURING COMPANY	SAR
MORTISE CYLINDER	BY SARGENT MANUFACTURING COMPANY	SAR
RIM EXIT DEVICE	BY SARGENT MANUFACTURING COMPANY	SAR
SURF VERT ROD EXIT	BY SARGENT MANUFACTURING COMPANY	SAR

HW GROUP - 001

2.0 EA MORTISE CYLINDER	41 US26D	SAR
	VERIFY CYLINDER TYPE AND FINISH	
	BALANCE OF HARDWARE BY DOOR	
	MANUFACTURER	

HW GROUP - 002

3.0 EA HINGE	T4A3386 4.5 X 4.5 US26D-NRP	MCK
1.0 EA RIM EXIT DEVICE	HC8843 ETL US32D	SAR
1.0 EA DOOR CLOSER	351 P9 EN	SAR
1.0 EA DOOR SEAL	S773D17	PEM
1.0 EA WALL STOP (CONVEX)	406 626	ROC
1.0 EA KICKPLATE	K1050 10" X 2" LDW 630	ROC
1.0 EA DOOR BOTTOM	211AV 36"	PEM
1.0 EA THRESHOLD	158A 36"	PEM
	VERIFY THRESHOLD TYPE PER	
	EXIST SILL	

HW GROUP - 003

1.0 EA MORTISE CYLINDER	41 US26D	SAR
	VERIFY CYLINDER TYPE AND FINISH	
	BALANCE OF HARDWARE BY DOOR	
	MANUFACTURER	

HW GROUP - 004

6.0 EA HINGE	T4A3386 4.5 X 4.5 US26D-NRP	MCK
2.0 EA SURF VERT ROD EXIT	HC-14-8743 ETL US32D	SAR
2.0 EA DOOR CLOSER	351 CPS EN	SAR
1.0 EA DOOR SEAL	S773D25	PEM
2.0 EA KICKPLATE	K1050 10" X 2" LDW 630	ROC
2.0 EA DOOR BOTTOM	211AV 36"	PEM
2.0 EA SPLIT ASTRAGAL	29310CV 84"	PEM
	VERIFY THRESHOLD TYPE PER	
	EXIST SILL	

END OF SECTION

SECTION 08800 - GLAZING

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide all hurricane rated glass and glazing materials to complete all glazing work as shown and as specified herein.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Manufacturer's Data: Submit copies of manufacturer's product specifications, and instructions for handling, storing, installing, cleaning, and protecting each type of glass and glazing material. Provide data indicating structural and physical characteristics of each type of glass and glazing.
- C. Samples: Submit 4 each minimum 4-inch x 4-inch samples of each type and thickness of glass, except for clear monolithic glass, and minimum of 4-inch long samples of each color required, except black, for each type of sealant and gasket exposed to view, for acceptance prior to ordering.
- D. Installation Specifications: Submit manufacturer's and referenced glass and glazing manual, etc. for installation of field installed glazing.
- E. Warranty: Submit warranty as stipulated in item entitled "WARRANTY FOR INSULATED GLASS UNITS" hereinbelow.

1.03 QUALITY ASSURANCE

- A. Glass Standards: All glass, except as noted otherwise, shall comply with ASTM C 1036, "Flat Glass". Tempered glass shall comply with ASTM C 1048, "Heat-Strengthened and Fully Tempered Flat Glass". Laminated glass shall comply with ASTM C 1172, "Laminated Architectural Flat Glass".
- B. Safety Glass Standard: All glass indicated on the drawings or as required to be safety glass shall meet all the requirements of the "Safety Standard for Architectural Glazing Material", 16 CFR Part 1201 dated January 6, 1977 of the Consumer Product Safety Commission or ANSI Z97.1, "Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings", as applicable.
- C. Protected Openings: Glazing and glazing stops shall conform to impact resistance of current ICC IBC, as amended for large missile test of ASTM E 1996, "Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes", for glazed openings within 30-feet of grade.

- D. Exterior glass thickness and strengths (annealed or heat-treated) shall be as indicated but no less than required to withstand a 140 mph windloading pressure (positive and negative) acting normal to pane of glass as calculated in accordance with the ICC IBC, Exposure C, Importance Factor 1.15, and ASTM E 1300, "Determining Load Resistance of Glass in Buildings", and ASTM E 330, "Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference".
- E. Limit glass deflection to 1/200 flexure limit of glass with full recovery of glazing materials.
- F. Sealants for glazing shall conform to AAMA 800, "Voluntary Specifications and Test Methods for Sealants", and AAMA 850, "Fenestration Sealant Guide Manual".
- G. Sealed Insulating Glass Unit Surfaces and Coating Orientation:
 - 1. Surface 1: Exterior surface of outer pane (surface facing outdoors of outboard lite).
 - 2. Surface 2: Interior surface of outer pane (surface facing indoors of outboard lite).
 - 3. Surface 3: Exterior surface of inner pane (surface facing outdoors of inboard lite).
 - 4. Surface 4: Room side surface of inner pane (surface facing indoors of inboard lite).
- H. Insulated Glass: Insulated glass shall be certified through the Insulated Glass Certification Council (IGCC) to ASTM E 2190, "Standard Specification for Insulating Glass Unit Performance and Evaluation".

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the site in unopened containers, labeled plainly with manufacturers' names and brands. Store glass and setting materials in safe, dry locations and do not unpack until needed for installation.
- B. Comply with manufacturer's instructions for shipping, handling, storing, and protecting glass and glazing materials. Exercise exceptional care to prevent edge damage to glass.

1.05 LABELING

- A. Each piece of glass shall be of domestic manufacture and label, except as noted otherwise, showing the name of the manufacturer and the grade or quality thereof. The labels shall be intact before and after installations. When glass is not cut to size by the manufacturer, and is furnished unlabeled from local stock, the Contractor shall submit an affidavit stating the quality, thickness, type, and manufacturer of the glass furnished.

- B. All safety glass shall bear a marking as specified in ANSI Z97.1 on each separate glass panel that shall remain visible after installation as required by IBC Section 2403.1 and Section 2406.2 as applicable.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Provide ventilation to prevent condensation of moisture on glazing work during installation. Do not perform glazing work during damp or rainy weather.

1.07 WARRANTY FOR INSULATED GLASS UNITS

- A. Furnish warrant for insulation glass units against development of material obstruction to vision (such as dust or film formation on the inner glass surfaces) caused by failure of the hermetic seal, other than through glass breakage, for a minimum 5-year period, unless longer period is standard with the manufacturer, following acceptance of the work. Provide new units for any units failing to comply with terms of this warranty within 45 working days after receipt of notice from the State.
- B. The Surety shall not be held liable beyond 2 years from the project acceptance date.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Glass: All glass products shall be of the quality as manufactured by PPG Industries, Inc., Pilkington LOF, ASG Industries, CE Glass Company, Globe Amerada Glass Co., Guardian Industries, Interpane Glass Co., Sierracin/Sylmar, Viracon, Inc., or accepted equivalent. All glass shall have a "U" value of 0.29 BTU/h-sf-deg F with a shading coefficient of 0.2.
 - 1. Laminated Glass Type B (Safety Glass): ASTM C 1172, two pieces of Type I, Class 1, Quality q3 glass laminated together with a clear 0.090-inch thick polyvinyl butyral interlayer under pressure or alternatives such as resin laminates conforming to requirements of 16 CFR 1201 or ASTM C 1172. Total thickness shall be not less than nominal 9/16-inch.
 - 2. Insulated Glazing: Insulating glass shall be Class A preassembled units of dual-seal construction consisting of two lites of glass with low-e coating for reducing heat gain for warm climates as specified, separated by a dark bronze spacer with desiccant and dehydrated space hermetically sealed. The insulating glass units shall be free of parallax or optical distortions. Glass shall be heat treated as recommended by the coating manufacturer. Dimensional tolerances shall be as specified in the Insulating Glass Manufacturers Alliance (IGMA) TR-1200, "Commercial Insulating Glass Dimensional Tolerances".
 - a. Glass Type A: 1/4-inch tempered exterior glass, 3/8-inch air space, and 2 sheets of 3/16-inch annealed glass with 0.090-inch thick polyvinyl butyral interlayer for total thickness of 1-1/16 inch.
 - b. Glass Type C: 1/4-inch heat strengthened exterior glass, 1/2-inch air space, and 2 sheets of heat strengthened glass with 0.090-inch thick polyvinyl butyral interlayer for a total thickness of 1-5/16 inch.

- B. Glazing Compounds - Sealant for Exterior Glazing: One-Part silicone, medium modulus, ASTM C 920, Type S, Grade NS, Class 50, Use NT, M, G, A, and O, equivalent to Dow Corning 795 Silicone Building Sealant, General Electric Corp. SilGlaze II SCS 2800, or Tremco, Inc. Spectrum 2, Pecora 895NST, or accepted equivalent as recommended by the glass manufacturers.
- C. Miscellaneous Glazing Materials:
 - 1. Cleaners, Primers, and Sealers: Of type recommended by sealant manufacturer.
 - 2. Setting Blocks: Neoprene, EPDM, or 100 percent silicone, 80-90 Shore A durometer hardness as recommended by the glass manufacturer.
 - 3. Spacers: Neoprene or EPDM, 50-60 Shore A durometer hardness.

2.02 FABRICATION

- A. Fabricate glass to sizes required to comply with wind loads for glazed openings indicated with edge clearances, bite, and tolerances complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

PART 3 - EXECUTION

3.01 GENERAL

- A. Perform all glazing, bite on glass, minimum edge and face clearances, glazing material tolerances, and weep system in strict accordance with applicable provisions of the "Glazing Manual" and "Sealant Manual" published by the Glass Association of North America (GANA).
- B. Verify that openings for glazing are correctly sized, within tolerance, and glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.
- C. Insulated glass shall be installed in accordance with manufacturer's instructions and IGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units", and as herein specified.

3.02 INSTALLATION

- A. Glass shall be set true and tight by skilled glaziers. Glazing compound shall be neatly and cleanly run with corners carefully made, using putty knife for all work. Glazing stops shall be carefully handled and accurately secured in place.
- B. Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but with edge nearest corner not closer than 6-inches from corner, unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.

- C. Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- D. Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.
- E. Set units of glass in each series with uniformity of draw, bow, and similar characteristics.
- F. Provide compressible filler rods or equivalent back-up material, as recommended by sealant and glass manufacturers, to prevent sealant from extruding into glass channel weep systems and from adhering to joints back surface as well as to control depth of sealant for optimum performance, unless otherwise indicated.
- G. Force sealants into glazing channels to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- H. Tool exposed surfaces of sealants to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.
- I. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement.
- J. Miter cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacture to prevent pull away at corners; seal corner joints and butt joints with sealant recommended by gasket manufacturer.
- K. Glass where secured by glazing stops, shall unless shown on drawings or specified herein, be set in full bed of glazing compound. Then force glazing stop into glazing compound on both sides and strikeoff flush.
- L. Glass where required or recommended by glass frame manufacturer shall be set in extruded vinyl or neoprene glazing strips provided by others and shall be installed in strict accordance with manufacturer's instructions.
- M. Insulating Glass Units: Do not grind, nip, or cut edges or corners of units after the units have left the factory. Springing, forcing, or twisting of units during setting will not be permitted. Handle units so as not to strike frames or other objects. Installation shall conform to applicable recommendations of IGMA TM-3000.

3.03 PROTECTION AND REPLACEMENT

- A. Glass shall be immediately protected against damage. Glazed openings shall be identified with suitable warning tapes, cloth or paper flags, or other acceptable method that will not damage glazing or surrounding materials. At completion of work, imperfect glass which cannot be properly cleaned shall be replaced in kind. Broken, chipped, abraded, cracked or otherwise damaged glass must be replaced subject to the acceptance of the Project Contact Person.

3.04 CLEANING AND WASHING

- A. At the completion of construction, this Contractor shall clean and wash all of the glass provided by him, removing all labels, dirt, putty stains, paint, etc., and shall leave the glass perfectly cleaned and polished.
- B. Glass to be cleaned according to:
 - 1. GANA Glass Informational Bulletin GANA 01-0300 - Proper Procedures for Cleaning Architectural Glass Products.
 - 2. GANA Glass Informational Bulletin GANA TD-02-0402 - Heat-Treated Glass Surfaces Are Different.
- C. Do not use scrapers or other metal tools to clean glass.

END OF SECTION

DIVISION 9 - FINISHES

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.01 SUMMARY

- A. The work includes painting and finishing of exterior and interior items and surfaces throughout the project, whether scheduled or not, except as otherwise indicated. Painting shall include new work and existing new surfaces made bare or damaged during construction. Surface preparation, priming, and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of the work and is included in this section.
- B. "Paint" as used herein means all coating systems materials, including primers, enamels, sealers, stain, varnish, and fillers, and other applied materials whether used as prime, intermediate, or finish coats, except as specifically noted herein.
- C. Paint all exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint these the same as adjacent similar materials or areas. If color or finish is not designated, the Project Contact Person will select these from standard colors available for the materials systems specified.

1.02 PAINTING NOT INCLUDED

- A. The following categories of work are not included as part of the field-applied finish work, or are included in other sections of these specifications.
 - 1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for miscellaneous metal, hollow metal work, and similar items. Also, for fabricated components such as shop-fabricated or factory-built mechanical and electrical equipment or accessories.
 - 2. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items as (but not limited to) high performance organic coated metal and finished mechanical and electrical equipment, including light fixtures, switchgear, and distribution cabinets.
 - 3. Concealed Surfaces (Present and Future): Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, furred areas, and pipe spaces.
 - 4. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, and similar finished materials will not require finish painting, unless otherwise indicated.
 - 5. Labels: Do not paint over any code-required labels, such as Underwriters' Laboratories, or any equipment identification, performance rating, name, or nomenclature plates.

1.03 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Schedule of Finishes: Submit sets of the proposed painting finish schedule to the Project Contact Person for acceptance. The schedule shall indicate the wet film thickness (mils) at which the proposed paints/coatings will be applied that are necessary to achieve the final dry film thickness indicated on the Schedule of Finishes under item entitled "SCHEDULE OF FINISHES" hereinbelow.
- C. Color Samples: Submit the following to the Project Contact Person for acceptance.
 - 1. Sets of each color finish sample.
 - 2. After the color finish sample has been accepted, one set of color finish samples painted onto 8-1/2 inch x 11-inch cardboard shall be submitted. The cardboard shall be divided into three horizontal strips and painted as follows:
 - a. Prime 3 strips.
 - b. First coat bottom 2 strips.
 - c. Second coat bottom strip.
- D. Schedule of Operations: Before work on the project is commenced, submit complete sets of a work schedule showing Contractor's sequence of operations and dates.
- E. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.
- F. Certifications: Submit copies of asbestos-free, lead-free, zinc-chromate-free, strontium-chromate-free, cadmium-free, and mercury free paint certificates.
- G. Manufacturer's Product Data Sheets: Submit copies of the Manufacturer's Product Data Sheets for the primers, paints, coatings, solvents, sealing and patching materials, sealants and caulking, and other materials being used. Data sheets shall indicate thinning and mixing instructions, required film thickness (mil) and application instructions.
- H. Manufacturer's Material Safety Data Sheets (MSDS): Submit copies of the Manufacturer's Material Safety Data Sheets for coatings, solvents, and other hazardous materials.

1.04 ANALYZING AND TESTING

- A. All paints and their applied thickness shall be subject to testing whenever the Project Contact Person deems necessary to determine conformation to the requirements of these specifications. Should testing by a laboratory be required, the laboratory shall be selected by the State and the cost of testing shall be borne by the Contractor. However, should test results show that the paint is in compliance with this specifications, the cost will be borne by the State.

- B. All rejected material shall be removed from the job site immediately. Surfaces painted with the rejected material shall be redone at no additional cost to the State.
- C. Where the required paint thickness is deficient, the affected surface(s) shall be recoated as necessary to provide the required paint thickness at no additional cost to the State.

1.05 QUALITY ASSURANCE

- A. Painting Terminology: Refer to ASTM D 16, "Standard Terminology for Paint, Related Coatings, Materials, and Applications".
- B. Gloss/Sheen Levels: ASTM D 523, "Specular Gloss", as follows:

<u>Description</u>	<u>Units @ 60 degrees</u>	<u>Units @ 85 degrees</u>
Matte or Flat	0 to 5	10 max
Velvet	0 to 10	10 to 35
Eggshell	10 to 25	10 to 35
Satin	20 to 35	35 min
Semi-Gloss	35 to 70	
Gloss	70 to 85	
High Gloss	more than 85	

- C. Where the Contractor proposes to employ airless spraying, the applicator(s) shall have completed an accepted "Spray Applicator Certification Program" conducted by the Painting Industry of Hawaii.
- D. As a minimum, the certification shall include material and equipment selection, use and maintenance, hands-on application, and safety training.

1.06 WARRANTY

- A. The Contractor shall warrant that the work performed under this section conforms to the contract requirements and is free of any defect in the materials used and workmanship performed by the Contractor. Such warranty shall continue for a period of two years from the project acceptance date and the Contractor shall remedy any such defect which is discovered during that period at no cost to the State.
- B. The State will notify the Contractor in writing within a reasonable time after discovery of any failure or defect.
- C. Should the Contractor fail to remedy any failure or defect described in Paragraph A above within 10 working days after receipt of notice thereof, the State shall have the right to repair or otherwise remedy such failure or defect and charge the Contractor for the cost of same.

1.07 SPECIAL REQUIREMENTS

- A. Codes: The Contractor shall comply with the State OSHL (Occupational Safety and Health Law) and all pollution control regulations of the State Department of Health.

- B. Safety methods used during coating application shall comply with SSPC-PA Guide 3.
- C. Protection:
1. Persons:
 - a. The Contractor shall take all necessary precautions to protect public pedestrians, including tenants from injury.
 - b. The Contractor shall provide, erect, and maintain safety barricades around scaffolds, hoists, and wherever Contractor's operation create hazardous conditions in order to properly protect the public and workmen.
 2. Completed Work: The Contractor shall provide all necessary protection for wet paint surfaces.
 3. Protective Covering: The Contractor shall provide and install protective covering over equipment, floor, and other areas that are not scheduled for treatment. Protective covering shall be clean, sanitary drop cloth or plastic sheets. Paint applied to surfaces not scheduled for treatment shall be completely removed and surfaces shall be returned to original condition.
 4. Safeguarding of Property: The Contractor shall take whatever steps may be necessary to safeguard his work and also the property of the State and other individuals in the vicinity of the work area during the execution of this Contract. Contractor shall be responsible for and make good on any and all damages and for losses to work or property caused by his or his employee's negligence. Where the damaged property cannot be cleaned and restored to its original condition (i.e. prior to being damaged) it shall be replaced with a new product of equal quality. No proration or use of "used" products will be permitted.
 5. Fire Safety: The Contractor shall direct his employees not to smoke in the vicinity and to exercise precautions against fire at all times. Waste rags, plastic (polyester sheets), empty cans, etc., shall be removed from the site at the end of each day.
- D. Right of Rejection: The Project Contact Person will have the right to reject all work which is not in compliance with the plans and specifications. Rejected work will be redone at no additional cost to the State. In addition, the Project Contact Person will have the right to require the immediate removal of any paint applicator who demonstrates negligence, lack of competence or repeated non-compliance with the contract requirements.
- E. Sequence of Operations: The sequence of operations shall divide the surfaces into work areas and present a schedule for:
1. Surface preparation and spot prime.
 2. Prime coat.
 3. First finish coat.
 4. Second finish coat.

- F. Inspection and Acceptance: The Contractor shall obtain written acceptance from the Project Contact Person upon completion of each phase of work (phases of work are: surface preparation and spot prime; prime; first finish coat; second finish coat) before proceeding into the next phase of work. The Contractor shall give the Project Contact Person one day (24 hours minimum) advance notice of completion of any phase of work for a work area only when he deviates from the previously submitted work schedule. The Contractor shall provide necessary access to areas to be inspected. Failure to obtain acceptance of any phase of work for a work area may result in redoing the operation at no cost to the State.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver paint materials to the job site in original unopened containers with original labels intact.
- B. No paint material, empty cans and paint brushes and rollers, drop cloths and rags, may be stored in buildings, but shall be stored in separate storage facilities away from the buildings. Receiving, opening, and mixing of painting materials shall be done in this area.
- C. The Contractor may furnish a job site storage facility. Such facility shall comply with requirements of the local Fire Department. The storage area shall be kept clean and facility shall be locked when not in use or when no visual supervision is possible.
- D. Ensure the safe storage and use of paint materials and the safe storage or disposal of waste, at the end of each work day.
- E. Handle manufactured materials as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Asbestos Prohibition: All paint shall be asbestos-free.
- B. Lead Prohibition: All paint shall be lead-free.
- C. Mercury Prohibition: All paint shall be mercury-free.
- D. Chromate Prohibition: All paint shall be free of zinc-chromate and/or strontium-chromate.
- E. Cadmium Prohibition: All paint shall be cadmium-free.
- F. Material shall be equal in quality to that specified under the Schedule of Finishes and any given finish shall be as labeled by one manufacturer.
- G. All materials shall be delivered to the job site in undamaged original containers bearing the manufacturer's label and shall be stored in such a manner as to prevent damage. All rejected materials shall be removed from the job site immediately.

- H. Paints shall be as manufactured by Ace, Benjamin Moore, Cabot's, Carboline, Dupont, Dutch Boy, Fine Line Paint Corp., Henkel, Devoe, Devoe Coatings, Glidden, Glidden Professional, Martin Senour, General Polymers, Olympic Stain, Pervo, PPG Protective & Marine Coatings, Pittsburg, Porter Intl., Pratt & Lambert, Rust-Oleum, Sherwin-Williams, Smiland (Styletone), Spectra-Tone, Thoro Systems, Tnemec, United Paint and Coatings, or accepted equivalent.
- I. Thinning of paint shall be done using material recommended by the manufacturer. Mix proprietary products according to manufacturer's printed specifications. Compound thinner, mineral oil, kerosene, refined linseed oil, or gasoline shall not be used for thinning.
- J. Except for metal primers, all paint shall contain maximum amount of mildewcide per gallon of paint permitted by the mildewcide manufacturer without adversely affecting the quality of the paint.
- K. The supplier shall submit a signed certificate indicating the amounts of mildewcide added by both the paint manufacturer and the paint supplier. Mercurial fungicide shall not be used.

2.02 SCHEDULE OF FINISHES

- A. The Schedule of Finishes is made for the convenience of the Contractor and indicates the types and quality of finishes to be applied to the surfaces. Refer to Finish Schedule for symbols indicating location for various finishes. Provide additional systems for surfaces to be painted not listed hereinafter.
- B. All paints unless otherwise noted, are the products of Benjamin Moore and are so named to establish desired quality and standard of materials. Painting materials, equal to those mentioned by trade name under the various treatments may be used, provided they meet with the acceptance of the Project Contact Person. Paint sheens shall match existing.
- C. Treatments shall be applied on exposed surfaces of designated materials, in conformity with instructions of the paint product used.
- D. Exterior Painting: Spread rates are approximate.
 - 1. Concrete:
 - Prime Coat: N068 Super Spec Masonry Interior/Exterior Acrylic High Build Masonry Primer
1.2 mils DFT @ 425 sf/gal
 - 2nd and 3rd Coats: N448 Ultra Spec Ext Satin Finish
1.5 mils DFT @ 403 sf/gal/coat

2. Typical Coating System for Steel: Follow SSPC-SP-1 for solvent cleaning, for maximum protection follow SSPC-SP-10 near white metal blast.

<u>Producer</u>	<u>Coat</u>	<u>Products</u>	<u>DFT (mils)</u>	<u>Minimum Time to Recoat</u>	<u>Maximum Time to Recoat</u>
Corotech	1st	V175*	1.5-2.1	2 hours	2 weeks exterior 3 months interior
Corotech	2nd	V150	2.2-2.8	8 hours	4 weeks
Corotech	3rd	V500	2.3-3.3	8 hours	3 days

* for galvanized surfaces

- E. Interior Paints: Use low VOC/low odor paint to maximum extent possible. Spread rates are approximate.

1. Exposed Concrete:

Prime Coat: N372 Eco Spec WB Interior Latex Primer
1.2 mils DFT @ 577 sf/gal

2nd and
3rd Coats: N376 Eco Spec WB Interior Latex Semi-Gloss Finish
1.5 mils DFT @ 428 sf/gal/coat

2. Steel Doors: Paint with exterior paint.

2.03 COMPATIBILITY OF PAINTING SYSTEMS AND SUBSTRATES

- A. The Contractor shall ensure that painting systems specified are compatible with existing painted surfaces. Alkyd paints shall not be applied over existing latex coating. Alkyd paints shall not be used over cementitious surfaces. Latex paints shall not be applied directly over alkyd paints without proper conditioner and accepted by the Project Contact Person.
- B. Field Tests for Alkyd or Latex Paints: The Contractor shall perform the following field tests for compatibility of substrates to new paint systems prior to ordering paint:
 1. Latex films will dissolve when wiped with rubbing alcohol; alkyd films will not.
 2. When sanded, latex films will "clog" sandpaper; alkyd films will sand clean.
 3. Alkyds will soften after applying a 10 percent solution of Drano in water; latex films will not soften.
 4. Alkyds will burn when exposed to a flame; latex film will not burn.
 5. Paints which do not respond to two or more of these tests are probably epoxy, urethane, or other type of coating.
 6. Provide a packaged swab test in accordance with the package directions.

7. Existing paint identified or suspect of having lead-containing paint shall be tested in a manner that does not produce airborne or uncontrolled lead debris.
- C. Should there be any discrepancies between the specified Schedule of Finishes and the existing paint systems, the Contractor shall notify the Project Contact Person in writing of any incompatible systems specified and submit a revised Schedule of Finishes for acceptance when necessary. With the acceptance of the revised Schedule of Finishes, the Contractor shall make any corrections and/or revisions necessary to resolve the discrepancies and/or inconsistencies. The Contractor shall not proceed with any painting systems that are incompatible, although specified otherwise, until all incompatible conditions detrimental for the proper application and performance of the painting systems have been corrected. The failures due to the application of the incompatible paint systems shall be corrected at no additional cost to the State. Proceeding with the work shall imply acceptance of the specified Schedule of Finishes and the compatibility with the existing painted surfaces by the Contractor.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. General:
1. Surface preparation shall be in accordance with the Painting and Decorating Contractors of America, "Architectural Specification Manual", methods are applicable to all substrates.
 2. Scrub surfaces with stiff nylon bristle brush and T.S.P. solution at rate of 3/4 cup T.S.P. per gallon of warm water to remove accumulated film of wax, oil, grease, smoke, dust, dirt, chalky, or other foreign matter which would impair bond or bleeding through new finish. Thoroughly sponge wipe surfaces with clean water. Allow surfaces to thoroughly dry before priming, painting, caulking, or sealing. Following sponge wiping, the surfaces shall be allowed to dry for a minimum of 24 hours.
- B. The painting contractor shall be wholly responsible for the finish of his work and shall not commence any part of it until surfaces are in proper condition. If painting contractor considers any surfaces unsuitable for proper finish of his work, he shall notify the Project Contact Person of this fact in writing and he shall not apply any material until the unsuitable surfaces have been made satisfactory, or until the Project Contact Person has instructed him to proceed. Major defects shall be restored by the proper trades. In general, follow paint manufacturer's directions for surface preparation for the paint to be applied.
- C. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space or area, reinstall the removed items by workmen skilled in the trades involved.

- D. Puttying of nail holes, cracks, and blemishes shall be done after priming coat has become hard and dry and before second coat is applied.
- E. Surfaces adjacent to areas being finished shall be protected and left clean of paints, stains, etc. Clean drop cloths shall be used until completion of job.
- F. Unprimed galvanized metal shall be washed with a solution of chemical phosphoric metal etch and allowed to dry.
- G. Metal surfaces shall be made clean and free of any defects or condition that may produce unsatisfactory finish. Touch-up any chipped or abraded places on surfaces that have been shop coated with the proper primer.

3.02 PAINT APPLICATION

A. General:

1. Apply coating materials in accordance with SSPC-PA 1. SSPC-PA 1 methods are applicable to all substrates, except as modified herein. Thoroughly work coating materials into joints, crevices, and open spaces. Touch-up damaged coatings before applying subsequent coats.
2. Work shall be done in a workmanlike manner by skilled and experienced mechanics and shall conform to the best painting practices.
3. Materials shall be applied in accordance with the manufacturer's specifications and the finished surfaces shall be free from runs, sags, drips, ridges, waves, laps, streaks, brush marks, and variations in color, texture, and finish (glossy or dull). The coverage shall be complete and each coat shall be so applied as to produce a film of uniform thickness. No paint, varnish or enamel shall be applied until the preceding coat is thoroughly dry and acceptance.
4. No exterior painting of unprotected surfaces shall be done in rainy, damp weather. Coats shall be applied only to surfaces that are thoroughly dry.
5. Interior areas shall be broom clean and dust free before and during the application of coating material.
6. Mixing shall be done outside the building.

B. Application:

1. Paint application shall be by brush or roller, or combination thereof or as required by manufacturer. Airless spraying may be permitted only with the acceptance of the Project Contact Person for otherwise inaccessible areas.
2. Drying Time: Allow time between coats, as recommended by the coating manufacturer, to permit thorough drying. Provide each coat in specified condition to receive the next coat.

3. Primers and Intermediate Coats: Do not allow primers or intermediate coats to dry more than 30 days, or longer than recommended by the manufacturer, before applying subsequent coats. Follow manufacturer's recommendations for surface preparation if primers or intermediate coats are allowed to dry longer than recommended by manufacturers of subsequent coatings. Each coat shall cover the surface of the preceding coat or surface completely, and there shall be a visually perceptible difference in shades of successive coats.
 4. Finished Surfaces: Provide finished surfaces free from runs, drops, ridges, waves, laps, brush marks, and variations in selected colors.
- C. Colors: Each coat shall be tinted a different shade from the preceding coat. Colors shall match existing or as selected by the Project Contact Person.
- D. Finish Film Thickness: Apply primer, intermediate, and finish coats to not less than 1.5 mils dry film thickness, 4 mils wet unless recommended otherwise in writing by the manufacturer, for each coat and in accordance with the manufacturer's recommendations. Verify mil thickness by use of a suitable wet film gauge. Use a Tooke or other dry film gauge to test for total dry film thickness.

3.03 MISCELLANEOUS

- A. Installation of Removed Items: After completion of final paint coat, removed items shall be reinstalled.
- B. At the completion of other trades, touch up damaged surfaces.

3.04 CLEAN UP

- A. During the progress of the work, all debris, empty crates, waste, drippings, etc., shall be removed by the Contractor and the grounds about the areas to be painted shall be left clean and orderly at the end of each work day.
- B. Upon completion of the work, staging, scaffolding, containers, and all other debris shall be removed from the site. All paint, shellac, oil or stains splashed or spilled upon adjacent surfaces not requiring treatment (hardware, fixture, floor) shall be removed and the entire job left clean and acceptable.

END OF SECTION

DIVISION 10 - SPECIALTIES

SECTION 10200 - METAL WALL LOUVERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide wall louvers where scheduled and as specified herein.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Manufacturer's Data: Submit copies of manufacturer's product specifications and installation instructions along with shop drawings.
- C. Shop Drawings: Submit shop drawings for fabrication and erection. Include plans, elevations, sections, large scale details, materials, thicknesses, and anchorages.
- D. Certificates: Submit certificates indicating conformance with performance ratings.
- E. Samples: Submit 4 samples of color and finish for factory finished louvers for acceptance.

1.03 QUALITY ASSURANCE

- A. Performance Requirements: Where louvers are indicated to comply with specific performance requirements or are specified by model number, provide units whose performance ratings have been determined in compliance with Air Movement and Control Association (AMCA) Standard 500 and equal to the units specified.
- B. Thermal Movement: Fabricate exterior components from manufacturer's stock systems which have been designed to provide for expansion and contraction resulting from ambient temperature range of 120 degrees F.
- C. Protected Openings: Louvers protecting intake and exhaust ventilation ducts not assumed to be open shall conform to impact resistance of current ICC IBC, as amended for large missile test of ASTM E 1996, "Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes", for openings within 30-foot grade.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products to avoid any distortion or damage due to moisture, physical abuse or other cause. Louvers shall be free from nicks, scratches, and blemishes. Replace defective or damaged materials with new.
- B. Handle manufactured materials as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Extruded Aluminum: Aluminum extrusions shall conform with ASTM B 221 or ASTM B 221M, 6063-T5 or T52 alloy and temper.
- B. Fasteners: Fasteners shall be stainless steel. Do not use metals which are corrosive or incompatible with materials joined.
 - 1. Use types, gauges, and lengths to suit unit installation conditions.
 - 2. Use Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.
- C. Anchors and Inserts: Of type, size, and material required for type of loading and installation indicated. Use hardened aluminum or stainless steel anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.
- D. Bituminous Paint: SSPC-Paint 12 (cold-applied asphalt mastic).

2.02 FABRICATION, GENERAL

- A. General: Fabricate louvers to comply with requirements indicated for design, dimensions, materials, joinery, and performance with respect to water penetration, strength, durability, and uniform appearance.
- B. Size: Fabricate louvers in concrete and masonry walls to outside dimensions indicated, with allowance of 1/4-inch on all sides for sealant joints.
- C. Field Measurements: Verify size, location, and placement of louver units prior to fabrication.
- D. Preassemble louvers in shop to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- E. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- F. Fabricate frames, including integral sills, to fit in openings of size indicated with allowances made for fabrication and installation tolerances of louvers, adjoining construction, and perimeter sealant joints.
- G. Include supports, anchorages, and accessories required for complete assembly.
- H. Join frame members to one another and to fixed louver blades with fillet welds, concealed from view; or mechanical fasteners; or a combination of these methods; as standard with louver manufacturer, unless otherwise indicated, or size of louver assembly makes bolted connections between frame members necessary.

2.03 FIXED WALL LOUVERS

- A. For convenience and to establish standards of quality and design, the following items are manufactured by Ruskin Manufacturing. Equivalent products, accepted by the Project Contact Person, of the following manufacturers will be accepted:
 - 1. Aiolite Co.
 - 2. Construction Specialties, Inc.
 - 3. Greenheck
 - 4. Industrial Louvers, Inc.
- B. The products of other manufacturers are acceptable provided they meet or exceed the materials and construction requirements as specified.
- C. Fixed Blade Louvers: Frames and louver blades fabricated from metal of kind and in form specified below; complying with the following requirements:
 - 1. Drainable Louver: Ruskin Model ELF375DXD, 4-inch deep with 0.081-inch high performance drainable blade and 0.081-inch frame.

2.04 LOUVER SCREENS

- A. General: Provide each exterior wall louver with louver screens complying with the following requirements.
 - 1. Screen Location for Fixed Louvers: Interior face, unless otherwise indicated.
 - 2. Bird Screening: 1/2-inch mesh 0.063-inch diameter aluminum or stainless steel wire for all louvers.
- B. Secure screens to louver frames with stainless steel machine screws, spaced at each corner, and at 12-inch on center between.
- C. Louver Screen Frames: Fabricate screen frames with mitered corners to louver sizes indicated and to comply with the following requirements:
 - 1. Metal: Same kind and form of metal as indicated for louver frames to which screens are attached.
 - 2. Finish: Same finish as louver frames to which louver screens are attached.
 - 3. Type: Rewireable frames with a driven spline or insert for securing screen mesh.

2.05 FINISHES

- A. All exposed aluminum surfaces shall be free of scratches and other blemishes. Provide dark bronze finish conforming to Aluminum Association Standard AA DAF-45, "Designation System for Aluminum Finishes", AA-M12-C22-A42, Architectural Class I, (0.7 mil or greater) for all exposed surfaces, including fasteners and hardware.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages which are to be embedded in concrete construction. Coordinate delivery of such items to project site.

3.02 INSTALLATION

- A. Louvers shall be installed in accordance with manufacturer's directions, accepted shop drawings and as shown. Provide all necessary fastenings and anchors required for a complete installation.
- B. Locate and place louver units plumb, level, and in proper alignment with adjacent work.
- C. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- D. Form closely fitted joints with exposed connections accurately located and secured.
- E. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated. Provide closed cell PVC compression gaskets between jambs and sill frame and surrounding construction.
- F. Repair finishes damaged by cutting, welding, soldering, and grinding operations required for fitting and jointing. Restore finishes so there is no evidence of corrective work. Return items which cannot be refinished in field to shop, make required alterations and refinish entire unit, or provide new units.
- G. Protect galvanized and nonferrous metal surfaces from corrosion or galvanic action by application of a heavy coating of bituminous paint on surfaces which will be in contact with concrete or dissimilar metals.

3.03 ADJUSTING AND PROTECTION

- A. Protect louvers from damage of any kind during construction period, including use of temporary protective coverings where needed and approved by louver manufacturer. Remove protective covering at time of Substantial Completion.
- B. Restore louvers damaged during installation and construction period, so that no evidence remains of correction work. If results of restoration are unsuccessful, as judged by the Project Contact Person, remove damaged units and replace with new units.
- C. Touch-up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

3.04 CLEANING

- A. Periodically clean exposed surfaces of louvers which are not protected by temporary covering, to remove fingerprints and soil during construction period; do not let soil accumulate until final cleaning.

- B. Before final inspection, clean exposed surfaces with water and with a mild soap or detergent not harmful to finishes.
- C. Clean and maintain aluminum surfaces in accordance with AAMA 609 & 610, "Cleaning and Maintenance Guide for Architecturally Finished Aluminum".

END OF SECTION

DIVISION 13 – SPECIAL CONSTRUCTION

SECTION 13280 – REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIAL

PART 1 - GENERAL

1.01 SUMMARY

- A. Removal and disposal of asbestos-containing material prior to planned renovation activities.

1.02 PRELIMINARY

- A. In performing this asbestos abatement project, all possible safeguards, precautions, and protective measures should be utilized to prevent exposure of any individual to asbestos fibers.

1.03 PATENTED DEVICES, MATERIALS AND PROCESSES

- A. The Contractor's use of any patented devices, materials or process in the performance of the work under this contract is governed by the General Conditions as amended.

1.04 WORK SPECIFIED IN THIS SECTION

- A. Contractor is responsible for coordinating all work within this Section with contract drawings, contract specifications, and contract documents.
- B. All asbestos-containing material (ACM) as identified in SECTION 01715 – EXISTING CONDITIONS – ASBESTOS/ LEAD / HAZARDOUS MATERIAL SURVEY, and/or any asbestos survey report included as part of the contract documents, and which will be impacted/disturbed by planned renovation activity described in the Contract Documents are included as part of the asbestos related work under this Section even if not identified in this Section.
- C. Furnish all labor, materials, and equipment necessary to carry out the safe removal of asbestos-containing material in compliance with all applicable laws and regulations, from all surfaces/areas, including all incidental and pertinent operations to safely complete this project.
- D. Contractor shall assume all materials within the project area that are similar in appearance to ACM identified in the provided asbestos survey reports, as positive for ACM, unless proven otherwise, and is included as work under this Section as required to safely complete this project.
- E. The asbestos work shall generally include the removal and disposal, as asbestos-containing material, of the following
 1. 2nd Floor – all gray caulking generally located at the interior and exterior sides of perimeter store front doors and windows and window frames (Contractor responsible for verifying all locations), as required to safely complete this project.

- F. Suspect ACM not previously tested or identified shall be treated as ACM unless proven otherwise. The contractor shall be responsible for all cost associated with additional asbestos testing.
- G. Post-removal encapsulation work shall include the coating of all surfaces in the asbestos regulated area as well as on other surfaces designated on the plans and specifications.
- H. Cleaning shall include all work within the complex affected by the removal project.
- I. In general, the principal items of work shall be as follows:
 - 1. Protection of all on-site personnel and visitors.
 - 2. Preparation of work area.
 - 3. Removal and disposal of asbestos-containing material as specified.
 - 4. Encapsulation of surfaces noted.
 - 5. Cleaning.
 - 6. Removal of temporary plastic coverings.
- J. Changes to SECTION 13280 - REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIAL of the specifications are not permitted except by the Certified Asbestos Project Designer who designed the project.
- K. All work specified in this Section shall be performed by individual(s) who are State of Hawaii – Department of Health certified and registered asbestos workers and/or supervisors. All training and registration must be current and each individual must possess current and valid asbestos ID at all times at the project site. Individuals without a current asbestos ID card onsite shall not be permitted to perform any work relating to this Section.

1.05 COORDINATION WITH OTHER SECTIONS

- A. Prior to commencement of work, an annotated description of all existing damaged and missing items shall be submitted to the Project Contact Person. It will be the Contractor's responsibility to repair and/or replace to the Project Contact Person's satisfaction all items identified as damaged and/or missing that cannot be proven to have been in this condition prior to the commencement of this project.

1.06 SUBMITTALS

- A. Submit in accordance with SECTION 01330 – SUBMITTAL PROCEDURES. Submittals shall be submitted in the order listed herein. Failure to do so will result in automatic rejection of submittals.
- B. Furnish Contractor certification that the Contractor is experienced with the EPA, OSHA and HIOSH regulations related to asbestos, application, removal, disposal and treatment.

- C. Detailed Asbestos Work Schedule: 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 and include working hours. The schedule shall be updated weekly and 6 copies submitted to the Project Contact Person.
- D. Notices: Prior to commencement of work but no later than 20 working days before commencement of any on-site project activity, send a written "courtesy" notification" of the proposed asbestos abatement work with copies to the Project Contact Person and to the following agency:
- State Department of Health. Indoor and Radiological Health Branch. Asbestos Abatement Office, 591 Ala Moana Boulevard, 1st Floor, Honolulu, Hawaii 96813.
- E. Permits: Submit six copies of all permits and arrangements for transportation and disposal of asbestos-containing or contaminated materials.
- F. Manufacturer's Data: Submit six 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, including other data as may be required to show compliance with these specifications and proposed uses. Indicate the application rate for encapsulant as specified herein. Indicate by transmittal form that a copy of each installation instruction has been distributed to the installer.
- G. Samples: Submit samples of the following items for approval prior to ordering materials:
1. Asbestos Encapsulant(s): Six 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: Six copies of manufacturer's literature including all laboratory data, MSDS, mixing and application instructions.
 4. Tapes and Adhesives: Six copies of manufacturer's literature including all laboratory data.
 5. Warning Labels and Signs: Six copies of examples of all required signage.
 6. Protective Clothing: Six copies of manufacturer's literature on all protective clothing and one sample of each item (which will be returned to the Contractor).
 7. Respirator Equipment: Six copies of manufacturer's literature on all respirator equipment and one sample of each item which will be returned to the Contractor.

- H. Project Specific Descriptions and Drawings: Submit to the Project Contact Person six copies of shop drawings with the following items as a minimum:
1. Name and resume of Contractor's onsite Competent Person responsible for compliance with all Federal, State and Local regulations and plans and specifications. No work shall be performed unless the designated Competent Person is onsite.
 2. Descriptions of any equipment to be employed not discussed in this Section.
 3. Project specific work procedures (detailed plan of work procedures and methods) to be employed for this project.
 4. Location of regulated (control) work area boundaries and location of air purifying units.
 5. Location and construction of decontamination unit adjacent to the regulated work area.
- I. Documentation For Instruction: Furnish employee certification 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 Regulation 40 CFR 763, Appendix C to Subpart E, April 30, 1987 and Asbestos Model Accreditation Plan (MAP), and Hawaii Administrative Rules, Chapter 11-501, 11-502, 11-503, and 11-504.

Submit to the Project Contact Person 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, has had instruction on the hazards and health effects of asbestos exposure. Also submit to the Project Contact Person documentation that 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 Appendix C), Qualitative and Quantitative Fit Testing.

Procedures, on protective dress, on use of showers, 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 in 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 an acknowledgment and an assumption of the potential risk of exposure by that individual and a release of liability of the State, Consultant, and Project Contact Person for any such exposure. The Contractor shall be responsible for keeping the documentation up to date and subsequent submittals to the Project Contact Person before any additional employee or individual, not currently on this list, is allowed within the project site.

- J. Documentation From Physician: Submit to the Project Contact Person documentation from a physician that all employees or agents who may be exposed to airborne asbestos have been provided with an opportunity to be medically 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 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 impact on the employee's ability to perform work activities. The Contractor shall keep and make available to all affected individuals a record and the results of such examinations.
- K. Medical Surveillance Program: Submit to the Project Contact Person a copy of the Contractor's medical surveillance program prepared in accordance with all applicable laws, and all medical examination documentation for all employees to be used on this project.
- L. Respiratory Protection Program: Submit to the Project Contact Person a copy of the Contractor's respiratory protection program prepared in accordance with all applicable laws. The Contractor shall also submit fit test data on all employees to be used on this project.
- M. Hazard Communication Program: Submit to the Project Contact Person a copy of the Contractor's hazard communication program prepared in accordance with all applicable laws.
- N. Site Emergency Action Plan: Submit to the Project Contact Person a copy of the Contractor's site emergency action plan prepared in accordance with all applicable laws.
- O. HEPA Vacuums: Submit manufacturer's certification that vacuums conform to ANSI Z9.2-79.
- P. Respirators: Submit notarized certifications respirators meet all requirements of NIOSH and EPA. Document NIOSH approval of all respiratory protective devices utilized on site. Include manufacturer's certification of HEPA filtration capabilities for all cartridges and filters.
- Q. Rental Equipment: When rental equipment is to be used in abatement areas or to transport asbestos-contaminated waste, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the Project Contact Person.
- R. Entry Log: Maintain a log of all personnel other than the Contractor's employees and agents who enter the work area while asbestos abatement operations are in progress until after final clearance is received that the work area is asbestos free. The log shall contain the following information as a minimum and certified copies shall be submitted to the Project Contact Person weekly:
 - 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 contractor.
- S. 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, i.e., equipment failures, accidents.
 4. Air monitoring tests and test results.
 5. Documentation of 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. Contractor's inspections prior to encapsulation of the substrate from which such materials have been removed.
 - d. Removal of waste materials from work area.
 - e. Decontamination of equipment (list items).
 - f. Contractor's daily inspection for visual dust and debris.
 - g. Daily certification by the Contractor's onsite competent person that all work has been performed in accordance with all applicable laws, specifications and approved work plan.
- T. 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.
- U. Pressure Differential Measurements: Submit to the Project Contact Person documentation that minimum pressure differential of -0.04 column inches of water pressure differential was maintained as evidenced by manometric measurements during abatement of flooring material.
- V. Air Monitoring Testing Laboratory: Submit name, address and telephone number of air monitoring testing laboratory selected for HIOSH/OSHA sample analyses

and reporting of airborne fiber concentrations along with evidence that the air monitoring testing laboratory is a successful participant in the Proficiency Analytical Testing (PAT) program.

1.07 PRODUCT HANDLING

- A. **Delivery and Storage of Materials:** Deliver materials to the site in original packages, containers or bags fully identified with manufacturer's name, brand and lot number. Store materials in a dry well-ventilated space, under cover, off the ground and away from surfaces subject to dampness or condensation as approved by the Project Contact Person. Material that becomes contaminated with asbestos shall be disposed of in accordance with applicable regulations. Replacement materials shall be stored outside the contaminated work area until abatement is completed.

1.08 PROTECTION

- A. **Site Security:** The work area is to be restricted only to authorized, trained, and protected personnel. These may include the Contractor's employees, employees of Subcontractors, the Project Contact Person and his representatives, State and local inspectors, responding emergency personnel and any other designated individuals. A list of authorized personnel shall be established prior to job start.
 - 1. Entry to the work area by unauthorized individuals shall not be permitted without the express approval of the Project Contact Person and any such entry shall be reported immediately to the Project Contact Person by the Contractor.
 - 2. A Visitor's Log shall be maintained.
 - 3. The Contractor shall have control, subject to approval of the Project Contact Person, of security in the work area and in proximity of Contractor's equipment and materials.
- B. **Site Protection and Safety:** As a minimum, follow the requirements of EPA, HIOSH (State of Hawaii), OSHA and NIOSH. Take all necessary precaution to ensure there is no asbestos contamination to those areas not included in the work schedule.
- C. **Protective Covering:** The Contractor shall provide and install additional protective covering to protect the project on an "as required" or "upon request" by the Project Contact Person basis. Protective covering shall be clean plastic sheets.
- D. **Safeguarding of Property:** The Contractor shall take whatever steps necessary to safeguard his work and also the property of the State and other individuals in the vicinity of his work area during the execution of this Contract. He shall be responsible for and make good on any and all damages by his employees' negligence. Do not load structure with weight that will endanger the structure.
- E. **Completed Work:** The Contractor shall provide all necessary protection for surfaces encapsulated under this section.

1.09 ABBREVIATIONS

- A. **ANSI:** American National Standards Institute, Inc.

- B. CFR: Code of Federal Regulations.
- C. HIOSH: Hawaii Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii.
- D. EPA: U.S. Environmental Protection Agency.
- E. NESHAPS: National Emission Standards for Hazardous Air Pollutants.
- F. MAP: Asbestos Model Accreditation Plan.
- G. NIOSH: National Institute for Occupational Safety and Health.
- H. OSHA: Occupational Safety and Health Administration.

1.10 GENERAL REQUIREMENTS

- A. Furnish Contractor certification, within ten consecutive calendar days from award, that the Contractor is experienced with the EPA, OSHA and HIOSH regulations related to asbestos, application, removal, disposal, and treatment.
- B. Furnish employee certification, within ten consecutive 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 Regulation 40 CFR 763, Appendix C to Subpart E, April 30, 1987 and asbestos Model Accreditation Plan (MAP), and Hawaii Administrative Rules, Chapter 11-501 and 11-504.
- C. Contractor shall examine and have at all times in his possession at his office (one copy) and in view and readily available at each jobsite (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. Title 29, Code of Federal Regulations, Part 1926.1101 Construction Industry, Occupational Safety and Health Administration (OSHA), U.S. Department of Labor.
 3. State of Hawaii: Occupational Safety and Health Standards, Title 12, Subtitle 8, Part 1.
 4. State of Hawaii: Occupational Safety and Health Standards, Title 12, Chapter 203 - Hazard Communication.
 5. Title 40, Code of Federal Regulations, Part 61, Subparts A and M, National Emission Standards for Hazardous Air Pollutants, U.S. Environmental Protection Agency (EPA).
 6. Guidance for Controlling Asbestos-Containing Materials in Buildings (purple book), U.S. Environmental Protection Agency (EPA).
 7. Title 34, Code of Federal Regulations, Part 231, Appendix C, Procedures for Containing and Removing Building Materials Containing Asbestos, EPA.

8. ANSI Z88.2-80 Practice for Respiratory Protection.
 9. EPA, Final Response to the Asbestos Hazard Emergency Response Act (AHERA), 40 CFR, Part 763, Subpart E.
 10. EPA, Model Accreditation Plan, 40 CFR Part 763 Subpart E, Appendix C.
 11. State of Hawaii, Asbestos Requirements, Title 11, Chapter 501 – 504.
 12. Project plans and specifications and approved Work Plan.
- D. The Contractor shall comply with the above requirements and any applicable State and County regulations. Where conflict or any inconsistency among requirements, this specification exists, and approved work plan exists the more stringent requirements shall apply. Ignorance of the above requirements and any applicable State and County regulations resulting in additional cost to the Contractor shall not be paid by State.
- E. All regulations shall govern over these specifications, except that any more stringent specification (including approved work plan) or specification providing greater protection against asbestos exposure, injury, loss or liability shall control to the extent permitted by regulation. Any question regarding conflict or inconsistency between specifications and/or regulations should be directed to the Project Contact Person.
- F. The Contractor shall give, at a minimum, seven (7) working days notification to the Project Contact Persons' Designated Person (Air Monitoring Consultant) prior to the start of any asbestos related work.
- G. The Contractor shall not begin with any work without the Project Contact Person's Inspector / Air Monitoring Consultant present onsite.
- H. **WHENEVER APPROVAL OF THE PROJECT CONTACT PERSON IS REQUIRED PRIOR TO PROCEEDING WITH OTHER WORK, THE FOLLOWING SHALL BE COMPLIED WITH:**
1. The Contractor shall allow the Project Contact Person 24 hours from notification to respond to the request for inspection.
 2. 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 Project Contact Person prior to commencing with 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 and rooms to be inspected.
 - c. Work phase of inspection, as specified.

1.11 DEFINITIONS

- A. **Abatement:** Procedure to control fiber release from asbestos containing building materials.
 - 1. **Removal:** All herein specified procedures necessary to remove 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 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 period of time.
- C. **Amended Water:** Water to which a surfactant has been added to reduce water surface tension and thereby provide a more rapid penetration.
- D. **Authorized Visitor:** The Project Contact Person, his representatives, air monitoring personnel, or a representative of any regulatory or other agency having jurisdiction over the project.
- E. **Holding Area:** A secure area used for the storage of double bagged asbestos-containing material before removal from the project site to an approved disposal site.
- F. **Fixed Object:** A unit of equipment or furniture in the work area which cannot be removed from the work area without dismantling.
- G. **Friable Asbestos:** Asbestos-containing material which can be crumbled to dust, when dry, under hand pressure.
- H. **HEPA Filter:** A High Efficiency Particulate Air filter capable of trapping and retaining 99.97 percent of monodispersed particles 0.3 micrometers or greater in diameter.
- I. **HEPA Vacuum Equipment:** Vacuuming equipment that utilizes a High Efficiency Particulate Air (HEPA) filter.
- J. **Post-Removal Encapsulation:** A liquid material which can be applied 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).
- K. **Surfactant:** A chemical-wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

PART 2 - PRODUCTS

2.01 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. Silver cloth duct tape, minimum 2 inches 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 1 ounce, or more as needed, of surfactant to 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 (R 1980), "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 (separate 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 regulation 29 CFR 29 CFR 1926.1101 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 as approved by the Project Contact Person.
- H. **Protective Clothing:** As specified hereinafter. The Contractor is cautioned that during the summer and fall, there is usually a tremendous shortage of coveralls due to the consumption of these items by mainland contractors for summer abatement projects. The Contractor shall have all the required sets of coveralls required for this project on island 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.

2.02 TOOLS AND EQUIPMENT

- 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. Air Purifying Unit: Air filtration system equipped with HEPA filter.
- E. Paint/Encapsulant Sprayer: Airless type.
 - 1. Scaffolding and Shoring: As required to accomplish the work and meet all applicable safety regulations.
 - 2. No power driven tools or equipment shall be permitted for removal of asbestos-containing materials.
- F. Other tools and equipment as necessary.

2.03 PERSONNEL PROTECTION REQUIREMENTS

- A. The Contractor acknowledges he alone is responsible for instruction and enforcement of personnel protection requirements and that these specifications provide only a minimum acceptable standard.

The Contractor acknowledges that all person(s) within the regulated work area shall not remove respiratory protection. Any person(s) observed removing respiratory protection within the regulated area on more than one occasion will not be permitted to continue any work on the project.

- B. Provide workers with personally-issued and marked respiratory equipment approved by NIOSH.
 - 1. All removal work related to the removal and bagging of asbestos material shall be performed in air purifying respirators equipped with cartridges approved for asbestos.
- C. Loading and Unloading of Double-Bags or Drums at the Project Site and Landfill: Half-face dual-cartridge respirators equipped with cartridges 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 Project Contact Person, the Contractor shall stop work and determine the causes of the excessive levels. Should the action level continue to be exceeded, the contractor shall stop work. Work will not be resumed until approval is received from the Project Contact Person.
- E. Beards: Bearded persons will not be permitted in the regulated work area.
- 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 Contractor has received acceptance of the asbestos-containing material removal and post-removal encapsulation work.

All persons conducting any work within the regulated work area shall remain fully suited (dressed) with protective clothing at all times. Any persons(s) observed partially suited while conducting work within the regulated area on more than one occasion will be required to be removed from performing any work on the project.

- G. No visitors shall be allowed in work areas, except as authorized by the Project Contact Person and specified herein. Provide authorized visitors with suitable respirators with fresh cartridges. 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.

The Contractor shall include in his Bid the expense of a total of four changes of clothing and respirators per day for each day of asbestos abatement work for visitor's use. The quantity shall accumulate and may be used at any time during asbestos abatement work at the discretion of the Project Contact Person.

- H. All electrical systems used for asbestos abatement operations shall as a minimum be protected with "Ground Fault Circuit Interrupters" selected and installed in strict accordance with the manufacturer's instructions, the National Electric Code and all other pertinent codes. All GFCI inside the regulated work area must be of waterproof type.
- 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.

PART 3 - EXECUTION

3.01 WORK AREA PREPARATION

- A. Work by the Asbestos Abatement Contractor: Step 1
 - 1. Posting of Caution Signs: Post caution signs in and around the work area to comply with 29 CFR 1910.1001, HIOSH regulation 12-145 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.

2. **Critical Seals (barriers):** Seal all windows, doors, and openings to the regulated work area with plastic sheeting. Plastic sheeting is to remain in place for the duration of the asbestos abatement or until specified by the Project Contact Person or Project Designer.
 3. **Install another barrier or isolation method** which prevents the migration of airborne asbestos and debris from the regulated work area.
 4. **Inspect the Building Openings:** At the beginning of each work day, the Contractor shall inspect and ensure that all doors, windows and other openings of affected building(s) and all surrounding buildings are closed or sealed.
- B. Work by the Asbestos Abatement Contractor: Step 2**
1. **Temporary utility services** are also generally specified under the General Specifications. Requirements specified herein amplify the General Specifications as they apply to the asbestos abatement operations.
 2. **Temporary Electricity and Lighting:**
 - a. Existing electrical service to the building may be used for temporary electrical power during abatement and replacement work; however, the electrical power to the work areas will be shut down during abatement work.
 - b. The Contractor shall verify the location(s) of available electrical service outside the work areas and shall tie into the existing system at a location approved by the Project Contact Person.
 - c. 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.
 3. **Temporary Water:**
 - a. Existing domestic water service to the building may be used for temporary water during construction. Location of tie-in shall be approved by the Project Contact Person.
 - b. Install branch piping with taps as necessary throughout the construction area.
 4. **Temporary Sanitation Facilities:**
 - a. Existing toilet facilities may be used by the Contractor's personnel during asbestos abatement work. Personnel must be in a decontaminated state before using temporary toilet facility.
 - b. Maintain toilet facility in a clean and sanitary condition in compliance with applicable codes and ordinances.
 5. **Temporary Fire Protection:**
 - a. Provide and maintain temporary fire protection equipment during the asbestos abatement operations.

- b. Equipment shall be of the appropriate type to fight fires associated with the existing building materials and those material used during the construction operations.
- C. Work by the Asbestos Abatement Contractor: Step 3
Cover All Ceiling and Wall Penetrations: Cover all ceiling and wall vents, air-conditioning equipment, exhaust hoods, windows, louvered and screened openings, and doors with a single layer of 10-mil polyethylene sheeting or two layers of 6-mil polyethylene sheeting.
- 1. Work by the Asbestos Abatement Contractor: Step 4

AFTER STEP 3 IS COMPLETED, NOTIFY THE PROJECT CONTACT PERSON AND GET HIS APPROVAL PRIOR TO PROCEEDING WITH REMOVAL WORK AS SPECIFIED HEREINAFTER.

Commencement of work shall not start until:

- 1. Pre-abatement submissions, notifications, postings and permits have been provided and are satisfactory to the Project Contact Person.
- 2. All equipment for abatement, clean-up and disposal are on hand.
- 3. All worker training (and certification) is completed.
- 4. Contractor receives written permission from the Project Contact Person to commence abatement.

3.02 ASBESTOS FIBER CONCENTRATIONS IN THE WORK AREA

- A. The maximum permissible exposure to airborne concentrations of asbestos fibers within the work area shall be 0.05 f/cc. The work shall stop whenever these limits are exceeded and the Contractor shall remedy the condition prior to commencing the work. The expenses resulting from the delays shall be the Contractor's responsibility and shall not be paid by the State.

3.03 PRIOR TO ASBESTOS REMOVAL

- A. Initial Cleaning – HEPA vacuum and wet-clean all floor and horizontal surfaces. HEPA vacuum, wet wipe, and remove all movable objects from within the regulated work area(s). Objects that cannot be moved will be thoroughly vacuumed, wet wiped, and covered with 2 layers of 6-mil polyethylene sheeting.
- B. Install critical barriers.
- C. Isolate removal work area with plastic barriers or other isolation methods which prevent the migration of any debris from the work area.
- D. Install air purifying unit(s).
- E. Install Decontamination Unit adjacent to work area.
- F. Ensure, prior to the start of work, a minimum of -0.04 column inches of water pressure differential, relative to the outside pressure can be obtained.

3.04 REMOVAL OF ASBESTOS-CONTAINING MATERIAL

- A. The asbestos-containing material shall be saturated with amended water containing a wetting agent (surfactant) before removal. Wet methods shall be used at all times during the removal and disposal of materials. No dry or mechanical method of removal is permitted. The material shall be carefully removed, whole and intact to the extent possible, and carefully carried for bagging and disposal. Drilling, breaking, pulverizing, or crushing of material shall be avoided as it may increase the possibility of fiber release. Application of a lock down on surfaces where ACM was removed is required.
- B. The asbestos material shall be removed in phases. First the debris shall be packed into leak tight double 6-mil plastic bags and sealed air tight. The bagged debris shall be handled and carried so that the polyethylene wrapping is not torn or punctured. The maximum number of material shall be bagged and shall be limited to what can easily be lifted by one person.
- C. It shall be the responsibility of the Contractor, prior to the submission of his bid, to verify the quantity and thickness of the material and satisfy himself as to the complexity of the total work and/or effort to remove said material and complete work as specified. No additional payment will be considered by the State to the bidder because of lack of such examination or knowledge.
- D. All existing surfaces to remain shall be protected from amended water. Surfactants will cause oxidation and blistering.
- E. Entry to Work Area: Require that any time a worker enters the Work Area the following procedure is followed:

Access to the work area shall be through the decontamination unit located as approved by the Project Contact Person. All other means of access (doors, stairways, hallways, etc.) shall be blocked or locked so as to prevent non-emergency entry to or exit from the work area. The only exception is the waste load-out airlock which shall remain sealed except during loading out of containerized asbestos containing waste from the work area, and emergency exits in case of fire or accident. Emergency exits shall not be locked from the inside, however, they shall be sealed with polyethylene sheeting and taped until needed, locked so as to prevent entry from the outside if possible and shall be clearly marked on the non-work area side to warn of the asbestos abatement proceeding within.

3.05 DECONTAMINATION PROCEDURES

- A. A three (3) stage decontamination unit adjacent to each work area must be of sufficient size to accommodate cleaning of equipment and removal of personal protective equipment (PPE), showering and dressing without spreading contamination beyond this area.
- B. Require all Workers to adhere to the following personal decontamination procedures whenever they leave the work area and at the end of work shift:
 - 1. Before leaving the work area, require the worker to remove all gross contamination and debris from overalls and feet.

2. The worker then proceeds to the equipment room and removes all clothing except respiratory protection equipment. Disposable coveralls are placed in a bag for disposal with other contaminated material.
3. The worker then proceeds to the shower. After showering, the worker moves to the change room and dresses in either new coveralls for re-entry of the work area or street clothes if leaving.

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

- A. As the work progresses and waste is generated, the Contractor shall transport all waste generated each day to the authorized disposal site, unless specifically approved by the Project Contact Person to delay the disposal operation. Transport all waste to the pre-designated disposal site in accordance with EPA regulations.

Asbestos-containing material, asbestos contaminated material and PPE shall be double-bagged in leak tight bags with OSHA label prescribed by the HIOSH regulations referenced in these specifications. Label shall state:

**DANGER
ASBESTOS DUST HAZARD
CANCER AND LUNG DISEASE HAZARD**

Asbestos-containing material waste material to be transported off the facility site, shall be labeled with the name of the wastes generator and the location at which the waste was generated, as prescribed by EPA regulation 40CFR61.150 (NESHAPS). Additionally, label bags in accordance with OSHA requirement 29 CFR 1926.1101, HIOSH regulation 12-145.

- B. 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 on the floor (bed). If allowed by HIOSH, waste materials, except those with sharp edges (metal lath, screws, nails, metal suspension system, etc.), properly double-bagged or wrapped may be transported to the disposal site without being placed in drums if the transporting vehicle is prepared as specified above in addition to any more stringent requirements by HIOSH. The compartments shall be thoroughly wet-cleaned and/or HEPA vacuumed following the disposal of each load at the disposal sites at an approved location with electrical power as required. 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 in order to eliminate all debris.
- C. The Contractor shall mark vehicles used to transport asbestos-containing waste material during the loading and unloading of waste so that signs are visible, and displayed in such a manner and location that a person can easily read the legend.

The legend shall state:

**DANGER
ASBESTOS DUST HAZARD
CANCER AND LUNG DISEASE HAZARD
Authorized Personnel Only**

Additionally, the legend shall conform to the NESHAP requirement specified in 40 CFR Part 61.149(d)(1)(iii).

- D. Workers unloading bags at the disposal sites shall be dressed in full-body protective clothing and dual-cartridge respirators.
- E. 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 Project Contact Person with copies submitted to the Project Contact Person the next working day after each trip.

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

- F. Bags must be placed in the 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.
- G. Liquid waste shall not be disposed into the sanitary sewer system, filtered or unfiltered, without appropriate County permit(s).
- H. The Contractor shall pay the waste disposal charge for use of the landfills. All expenses for landfills shall be the complete responsibility of the Contractor. The Contractor shall provide the required advance notice of all deliveries to the landfill(s). Delivery time shall be as directed by the landfill operator.

3.07 CLEANING OF THE WORK AREA

- A. Should the contractor fail to commence work to clean-up and make the work area asbestos free within one working day after the clean-up has been requested by the State, the Project Contact Person may without further notice and without termination of contract, do the clean-up and deduct the cost thereof from the contract price.
- B. Surfaces to be encapsulated shall be wet-wiped and/or HEPA vacuumed just prior to the application of encapsulant.
- C. Post-removal encapsulation of affected areas shall begin as specified hereinafter when approved by the Project Contact Person.

3.08 POST-REMOVAL ENCAPSULATION OF AFFECTED AREAS

- A. An approved encapsulant diluted to a maximum of 1/3 strength of the manufacturer's normal application rate for the intended substrate shall be applied using airless spray equipment to all areas of the project where asbestos-containing materials have been removed.

3.09 FINAL CLEAN-UP

- A. Final clean-up may not proceed until aggressive type final air clearance monitoring, is performed by the State's Inspector / Air Monitoring Consultant.
 - 1. Sample analyses shall be performed by Phase Contrast Microscopy (PCM) and the airborne fiber concentrations of each of the five, inside work area samples, is less than or equal to 0.01 fibers per cubic centimeter for non-friable ACM.
- B. Remove signage required by the asbestos removal and encapsulation work. Signage applicable to job site safety and the performance of the remaining portions of the work shall remain as applicable.
- C. Completely remove all temporary materials. Clean and repair damage caused by temporary installations or use of temporary facilities. Restore existing facilities to their original condition as approved by the Project Contact Person.

END OF SECTION

SECTION 13283 - DISTURBANCE OF LEAD-CONTAINING MATERIAL

PART 1 - GENERAL

1.01 SUMMARY

- A. Disturbance of lead-containing materials during renovation activities.
- B. All paint shall be considered to contain lead until proven otherwise.

1.02 DESCRIPTION OF WORK

- A. Whenever lead paint is being disturbed, this Section shall take precedence over others.
- B. The preparation and treatment of existing lead-containing material on various surfaces. Lead paint removal work shall be selective and only where existing paint is peeling, blistering and/or flaking. This section is being implemented so that the planned work can be accomplished in a safe manner.
- C. All preparation of lead paint shall be identified in advance so that the preparation/treatment of surfaces will be one continuous operation.
- D. Demolition of lead painted surfaces. Lead painted surfaces shall be identified in advance so that the demolition of lead-containing materials will be one continuous operation.

1.03 WORK SPECIFIED IN THIS SECTION

- A. Furnish all labor, materials and equipment necessary to carry out the safe preparation and treatment of lead-containing paint in compliance with all applicable laws and regulations from all surfaces, including all incidental and pertinent operations to safely complete this project. All paint shall be considered lead-containing until tested negative.

1.04 COORDINATION WITH OTHER SECTIONS

- A. It will be the Contractor's responsibility to repair and/or replace, to the State's satisfaction, all items identified as damaged and/or missing in connection with this work that cannot be proven to have been in this condition prior to the commencement of this project. It is the Contractor's responsibility to bring to the attention of the Project Contact Person, any discrepancies in the plans and specifications prior to starting any work.

1.05 CONTRACTOR USE OF PREMISES

- A. General: The Contractor shall cooperate fully with the State, during the project execution to minimize conflicts.
- B. Pollution Control: The Contractor shall not contaminate the air, water, soil or other items with hazardous materials such as cleaning solutions, lead-containing paint debris and waste, etc. The Contractor shall immediately clean the contaminated area and dispose of the waste at his own expense if determined by the Project Contact Person to be contaminated. The Project Contact Person shall have the authority to immediately stop the work and order the Contractor to clean the contaminated site.

- C. Use of the Site:
 - 1. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while at the project site.
 - 2. Do not unreasonably encumber the site with materials or equipment. Confine stock-piling of materials and location of storage to the areas authorized by the Project Contact Person.

1.06 COMMENCEMENT OF WORK

- A. The Contractor shall not commence work unless the following requirements have been met. These requirements must be met each time work that calls for the disturbance of lead-containing paint is to begin in a new work area.
- B. Submittals: All pre-treatment submittals, notifications, posting and permits have been provided and are satisfactory to the Project Contact Person.
- C. Equipment: All equipment for preparation, clean-up and disposal are on hand.

1.07 SUBMITTALS

- A. Submit in accordance with SECTION 01330 – SUBMITTAL PROCEDURES.
- B. Submittals shall be submitted in the order listed herein. Failure to do so will result in automatic rejection of submittals.
- C. General: All submittals shall be made to the Project Contact Person no later than ten (10) consecutive calendar days from award date unless specified otherwise.
- D. Detailed Lead-Containing Paint Disturbance Schedule: The Contractor shall submit a project schedule indicating the actual start and completion dates for each phase of the work. The Contractor shall also provide detailed information concerning:
 - 1. Name of Contractor's onsite Competent Person responsible for compliance with all Federal, State and Local regulations and plans and specifications.
 - 2. Preparation of the work area.
 - 3. Any personal protective equipment including respiratory protection and protective clothing approved by the Project Contact Person.
 - 4. Employees who will participate in the project, including delineation of experience, training, and assigned responsibilities during the project.
 - 5. Decontamination procedures for the personnel, work area and equipment.
 - 6. Work methods and procedures to be used during the removal of loose, peeling, flaking and/or blistering paint and during demolition of surfaces containing lead paint including methods to suppress dust emissions during the disturbance of lead-containing paint.

7. Required air monitoring procedures and sampling protocols when the likelihood of airborne exposure of lead-containing dust and fumes are probable.
 8. Procedures for handling and transporting waste materials.
 9. Procedures for final decontamination and clean-up.
 10. A sequence of work and performance schedule in coordination with other trades.
 11. Emergency procedures.
- E. Samples: The Contractor shall submit samples for approval prior to ordering materials.
1. Six (6) copies and samples for each manufacturer supplied items shall include manufacturer's name, trade name, catalog number, size, specification reference, applicable federal and military specification references, and all other information necessary to establish contract compliance.
 2. Liquid sanders, encapsulants and any other materials brought on-site that are considered as hazardous materials under 29 CFR 1910.1200, shall include Materials Safety Data Sheets.
- F. The Project Contact Person with the Contractor may inspect the work area wherein all associated activities will occur and submit a statement signed by both, agreeing on building and fixture condition prior to the commencement of work.
- G. Documentation for Instructions:
1. Submit documentation satisfactory to the Project Contact Person that the Contractor's employees, including foreman, supervisors and any other company personnel or agents who may be exposed to airborne lead dust or who may be responsible for any aspects of lead-containing paint removal activities, have received training in accordance with the Hawaii Department of Occupational Safety and Health's (HIOSH) lead standard (12-148).
 2. Submit to the Project Contact Person, a written respiratory protection program meeting the requirements of 29 CFR 1910.134 (b) (d) (e) and (f), documentation that all employees using respirators have received the training specified in this Section and documentation of respirator fit-testing for all Contractor employees and agents who must wear negative pressure respirators.
- H. Documentation From Physician: The Contractor shall submit documentation from a physician that all employees or agents who may be exposed to airborne lead-containing dust or fumes have been medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. In addition, the Contractor shall document that his personnel have received medical monitoring as required in the HIOSH lead standard (12-148).

1. Before exposure to lead dust or fumes, the Contractor will provide workers with a comprehensive medical examination as required by Part 8, Section 12-148, June 1993 of the HIOSH standards; Federal Register/Volume 55, No. 189; and 29 CFR 1926.62 or whichever is stricter for the operation being performed. This examination will not be required if adequate records show the employees have been examined as required by the aforementioned regulations within the last year.
2. The Contractor shall provide information to the examining physician about unusual conditions in the work place environment that may impact on the employee's ability to perform work activities; a copy of 29 CFR 1910. 1025; HIOSH Section 12-148; Federal Register/Volume 55, No. 189; a description of the affected employee's duties as they relate to the employee' s exposure; the employee's representative exposure level or anticipated exposure level; and description of any personal protective and respiratory equipment used or to be used; and information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

1.08 GENERAL REQUIREMENTS

- A. The work specified herein shall include the preparation of work area, preparation and/or other special treatment procedures, demolition, and transportation and disposal procedures as required of lead-containing materials by persons trained, knowledgeable and qualified in the techniques of handling and disposing of lead-containing and lead-contaminated materials, and the subsequent cleaning of contaminated areas. This work shall be performed in compliance with all applicable federal, state and local regulations.
- B. The Contractor shall submit documentation within 10 consecutive calendar days of award, that employees have had instructions on the dangers of lead exposure on respirator use and decontamination.
- C. Applicable Standards and Guidelines: All work under this contract, and any other trade work conducted with the project, shall be performed in strict accordance with all applicable federal, state and local regulations, standards and codes governing lead-containing paint preparation, removal, disposal, treatment, transportation and disposal of lead materials.
 1. The most recent edition of any relevant regulation, standard, document code shall be in effect.
 2. The Contractor shall have copies of all standards, regulations, codes and other applicable documents available at the work site in an area assigned to the Contractor throughout the execution of this project.
- D. Specific Statutory and Regulatory Requirements:
 1. The Department of Labor and Industrial Relations: State of Hawaii; Occupational Safety and Health Standards; Part 8, Section 12-148, June 1993 (HIOSH) Lead Exposure in Construction.
 2. Office of Public and Indian Housing, Department of Housing and Urban Development: Lead Paint Guidelines dated June 1995.

3. Title 29 Code of Federal Regulations Part 1926.62, Safety and Health Standards (Lead Exposure in Construction, May 1993).
4. Title 29 Code of Federal Regulations Part 1910.134, Respiratory Protection.
5. Title 40 Code of Federal Regulations Part 261, Identification and Listing of Hazardous Waste.
6. Title 40 Code of Federal Regulations Part 262, Standards Applicable to Generators of Hazardous Waste.
7. Title 40 Code of Federal Regulations Part 263, Regulations Hazardous Waste Transporters.
8. Federal Register/Vol. 54, No. 131; Tuesday, July 11, 1989. Department of Labor, Occupational Safety and Health Administration; 29 CFR Parts 1910, 1915, 1917 and 1918; Occupational Exposure to Lead; Statement of Reasons; Final Rule.

E. Alternative Procedures:

1. Requests for Alternative Procedures: Procedures described in this specification are to be used at all times. However, if specified procedures cannot be used, a request must be made in writing to the Project Contact Person providing details of the problem encountered and recommended alternatives.
2. Requirements for Alternative Procedures: Alternative procedures shall provide equivalent or greater protection than the procedures that they replace.
3. Approval of Alternative Procedures: Any alternative procedure must be approved in writing by the Project Contact Person before implementation.

1.09 DEFINITIONS

- A. Abatement: Procedure to control lead dust release from lead-containing paint.
- B. Removal: All herein specified procedures necessary to remove peeling, flaking and blistering lead-containing paint in an acceptable manner.
- C. Action Level (AL): Employee exposure averaged over an 8-hour period, without regard to the use of respirators, to a particular airborne concentration. OSHA requirements become effective at this level. Lead: 30 micrograms/cubic meter.
- D. Air Monitoring: The process of measuring the content of a specific, known, volume of air in a stated period of time. For this project, NIOSH 7082 method for lead monitoring.
- E. Authorized Visitor: The Project Contact Person, their representatives, air monitoring personnel, or representative of any regulatory or other agency having jurisdiction over the project.

- F. Contaminated Area: An area where unwanted toxic or harmful substances have been introduced.
- G. Fixed Object: A unit of equipment or furniture in the area which cannot be removed from the work area without dismantling.
- H. HEPA Filter: A High Efficiency Particulate Absolute filter capable of trapping and retaining 99.97% of particulate greater than 0.3 micron in length.
- I. HEPA Vacuum Equipment: Vacuuming equipment that utilizes a High Efficiency Particulate Absolute (HEPA) filter.
- J. Holding Area: A secure area used for the storage of properly contained lead-containing material before removal from the project site to an approved disposal site.
- K. Lead: Metallic lead, all inorganic lead compounds, and inorganic lead soaps. Excluded are all other organic lead compounds.
- L. Lead Control Area: An Area where lead-containing paint removal, treatment and preparation operations are performed which is isolated by physical boundaries to prevent unauthorized entry of personnel and to prevent the spread of lead dust, paint chips or debris.
- M. Lead Paint: Lead-containing paint and/or lead-based paint.
- N. Lead-containing Paint: Lead-containing paint and/or lead-based paint.
- O. Permissible Exposure Limit (PEL): The employer shall ensure that no employee is exposed to concentrations greater than the PEL as determined from an 8-hour time weighted average. Lead: 50 micrograms/cubic meter.
- P. Personal Monitoring: Sampling of lead paint dust concentrations within the breathing zone of an employee to determine the 8-hour time weighted average. The samples shall be representative of the employee's work tasks. The breathing zone shall be considered an area within 12 inches of the nose or mouth of an employee.
- Q. Plasticizing: Procedures necessary to use polyethylene sheeting, adhesives and (or) taping.

1.10 ABBREVIATIONS

- A. ANSI - American National Standards Institute, Inc.
- B. CFR - Code of Federal Regulations
- C. EPA - U.S. Environmental Protection Agency
- D. HIOSH - Department of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii
- E. NIOSH - National Institute for Occupational Safety and Health

- F. OSHA - Occupational Safety and health Administration
- G. NESHAPS - National Emissions Standards for Hazardous Air Pollutants
- H. LBP - Lead-Based Paint

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Plastic Sheetting: Minimum thickness is 6-mil polyethylene film.
- B. 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. Silver cloth duct tape, minimum 2 inches wide; red or NATO orange tape, minimum 2 inches wide for exit arrows; and double faced foam tapes, by Nashua 3-M, Arno, or approved equal.
- C. Adhesives: Adhesives shall be capable of sealing joints of adjacent sheets of polyethylene and for attachment 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.
- D. Warning Labels and Signs: As required by HIOSH regulation 12-148.
- E. Protective Clothing: The 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.
- F. Liquid Sanders: Product shall be specifically designed for the preparation of paint where dry sanding is not allowed or not appropriate. Liquid sanders are not to be used to remove paint.
- G. Other Materials: Provide all other materials which may be required to prepare properly and complete this project.

2.02 TOOLS AND EQUIPMENT

- A. General: Provide and fabricate suitable tools for the lead treatment/preparation procedures.
- B. Other tools and equipment as necessary to accomplish the specified work.

2.03 PERSONNEL PROTECTION REQUIREMENTS

- A. The Contractor acknowledges that he alone is responsible for the instruction and for enforcing personnel protection requirements, and that these specifications provide only a minimum acceptable standard. If other potentially hazardous materials are used, the Contractor shall comply with all applicable regulations that exist for that particular hazardous material and to ensure worker safety and health.

- B. Respiratory Protection: The Contractor shall provide all respiratory protection to workers in accordance with the submitted written respiratory protection program, which includes all items in 29CFR1910.134(b)(I-II).
- C. Protective Clothing:
 - 1. Clothing: The Contractor shall provide clothing including head, hands, foot and full body protection consisting of material impenetrable by bulk material in sufficient quantities and adequate sized for all workers and Authorized Visitors. Disposable or reusable clothing are acceptable, however, disposable clothing shall be disposed of in accordance with all federal, state and local regulations.
 - 2. Miscellaneous safety equipment: The Contractor shall provide hard hats (meeting the requirements of ANSI Standard Z89.1-1981), protective eyewear (meeting the requirements of ANSI Standard Z87.1-1979), and disposable gloves to all workers. Safety shoes (meeting the requirements of ANSI Standard Z41.1-1987) may be required for some activities.
 - 3. Footwear: The Contractor shall require appropriate footwear for all workers.

PART 3 - EXECUTION

3.01 POTENTIAL LEAD HAZARD

- A. The disturbance or dislocation of lead-containing materials may cause lead-containing dust to be released into the atmosphere, thereby creating a potential health hazard to workmen, building occupants, and neighboring residences. Apprise all workers supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the hazard and of proper work procedures which must be followed.
- B. Where in the performance of the work, workers, supervisory personnel, subcontractors or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified lead-containing materials, take appropriate continuous measures as necessary to protect all building occupants from the potential hazard of exposure to respirable airborne lead dust and ingestible lead-containing materials. Such measures shall include at the minimum, the procedures and methods described herein, and compliance with regulations of applicable federal, state and local agencies.

3.02 LEAD-CONTAINING MATERIALS

- A. Lead-containing painted components known to be present based on testing conducted.
 - 1. This Section applies to lead-containing painted components that will be disturbed during surface preparation and treatment, demolition, and other activities and as described herein. It does not apply to painted components that do not contain lead, nor lead-containing paint that will not be disturbed in any manner during the work to be performed under this contract. The Project Contact Person shall have the authority to require special engineering controls described under this Section of any lead painted components that are disturbed.

3.03 WORK AREA PREPARATION

- A. Posting of Caution Signs: The Contractor shall post caution signs in accordance with HUD lead paint guidelines at any location and approaches to a location where airborne concentrations of lead may exceed ambient background levels. The Contractor shall post signs at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of work place barriers.
- B. Isolation Barriers: Isolation barriers shall be installed in accordance with the contractor's approved work plan wherever it is necessary to protect the public, employees of the facility and non-working personnel from leaded dust. The isolation barriers shall provide sufficient protection from contaminating the exterior of the work area.
- C. Inspect the Building Openings: At the beginning of each work day, the Contractor shall inspect and ensure that all doors, windows and other openings of affected building(s) and all surrounding buildings are closed or sealed.

3.04 LEAD-CONTAINING PAINT TREATMENT/PREPARATION PROCEDURES

- A. General:
 - 1. Provide temporary utilities, security, safety, worker protection, clean-up and disposal of waste materials as described in this section and elsewhere in these specifications.
 - 2. Isolating the work area: The Contractor shall isolate work area, with barricades and signs to prevent un-authorized persons from entering into the work area.

The Contractor shall post signs at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of work place barriers.
 - 3. The Contractor shall at all times suppress dust emissions while disturbing any material containing lead paint. No visible emissions will be permitted.
 - 4. Re-establishment of the work area shall only occur when clean-up procedures have been completed, all repairs necessitated by paint treatment activities have been performed, no visible lead paint debris is present.
 - 5. Ground contamination of lead-containing paint and other paint preparatory materials shall be cleaned before leaving the premises.
- B. Paint Removal: Paint removal shall only be allowed in locations where paint is peeling, blistering, cracking and/or flaking.
- C. Paint Stripping:
 - 1. Work included under this sub-section includes the furnishing of all labor, materials and equipment required to remove lead-containing paint by scraping and/or brushing after the paint has been softened by the application of a chemical stripping agent.

2. Chemical removers shall contain no methylene chloride products. Chemical removers shall be compatible with, and not harmful to the substrate to which they are applied. Chemical removers used for interior surfaces shall not raise or discolor the surface being abated.
 3. Chemical stripping agent neutralizers may be used on exterior surfaces only. Neutralizers shall be compatible with and not harmful to the substrate that they are applied to. Neutralizers shall be compatible with the stripping agent that has been applied to the surface substrate.
 4. Chemical stripping agents and neutralizers shall be applied in accordance with the recommendations of the manufacturer. Care must be taken to adhere to all MSDS, health/safety code and other specification section requirements. Stripping agents shall not be allowed to penetrate wood or other fibrous substrates.
 5. Apply paint strippers in accordance with the manufacturer's printed instructions by spray equipment or trowel to a minimum thickness of 1/8 inch. Cover past with fibrous rubbing gently to remove air and pierce remaining air bubbles with knife. Leave on for period of not less than 24 hours or longer according to test patch findings.
 6. Neutralize area: Rinse off the residue with water into an approved collection-filtration system and neutralize the area in accordance with the manufacturer's recommendations.
 7. Protective clothing: All workers shall be protected by rubber or polyethylene full body coverage suits, boots, gloves, face shield and protective head gear. Avoid contact with eyes and skin.
- D. Abrasive Removers Machine Sander:
1. Work included under this sub-section includes the furnishing of all labor, materials, and equipment required to remove lead-containing paint by machine sanding using a high efficiency dust Particulate Accumulator (HEPA) vacuum system, as called out in these specifications.
 2. Sanders shall be of the dual action, rotary action, orbital or straight line system type, capable of being fitted with a (HEPA) dust pick-up system.
 3. Wet sanding shall be conducted by hand or pneumatic driven sanders. Electric powered sanders shall not be used for wet sanding.
 4. Dry sanding shall only be done on flat surfaces which allow the HEPA dust collection system come into tight contact with the surface being sanded. Surfaces to be sanded shall be wide enough to allow maximum efficiency of the HEPA dust collection system.
 5. All lead-containing paint shall be removed down to the bare substrate surface. In cases that some pigment may remain embedded in wood grain and similar porous substrate, care shall be taken to avoid damage to the

substrate with the sanding machine. If the pigment cannot be removed without damaging the substrate, the Contractor shall notify the Project Contact Person for further instructions.

E. Paint Preparation:

1. Work included under this Sub-Section includes the furnishing of all labor, materials and equipment required to prepare lead-containing painted components by non-abrasive or wet abrasive techniques.
2. Application:
 - a. Protective clothing shall be worn at all times during the work. Tyvek suits or coveralls shall be worn with protective shoes and gloves.
 - b. Plastic drop cloths shall cover the floor and other areas not being repainted.
 - c. Remove from surface to be repainted all foreign matter such as tape and gum.
 - d. Where existing finish remains clean, tight and firm, prepare surface by using a commercial paint preparation solution (liquid sandpaper) or wet sandpaper to remove the glossy coat.
 - e. Completely wipe or wash all surfaces with mineral spirits, T.S.P. (tri-sodium phosphate), or other appropriate solution as required to remove any accumulated film of wax, oil, grease, smoke, dust, dirt, chalky or other foreign matter which would impair bond of, or bleed through new finish.
 - f. Immediately, spot prime with specified primer, areas where bare metal is exposed.
 - g. Dispose of waste, gloves, suits, plastic, and disposable equipment in accordance with 40 CFR 261 and specifications herein.
3. Ground contamination of lead-containing paint and other paint preparatory materials shall be cleaned before leaving the premises.

3.05 LEAD PAINT - DEMOLITION PROCEDURES

A. General:

1. Provide temporary utilities, security, safety, worker protection, clean-up and disposal of waste materials as described in this Section and elsewhere in these specifications.
2. Isolating the work area: The Contractor shall isolate work area, with barricades and signs to prevent un-authorized persons from entering into the work area.

The Contractor shall post signs at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of work place barriers.

3. The Contractor shall at all times suppress dust emissions while disturbing any material containing lead paint. No visible emissions will be permitted.
4. Re-establishment of the work area shall only occur when clean-up procedures have been completed, all repairs necessitated by paint treatment activities have been performed, no visible lead paint debris is present.
5. Ground contamination of lead-containing paint and other paint preparatory/demolition materials shall be cleaned before leaving the premises.

3.06 STORAGE AND DISPOSAL REQUIREMENTS

- A. Storage Requirements: The Contractor shall store Non-Hazardous and Hazardous Waste Material within the Contractor's trailer or secured storage area.
 1. Bagged waste material: If bagged waste material is to be stored, the Contractor shall use dumpsters for this purpose. The dumpsters shall have doors and tops that can be closed and locked to prevent vandalism, wind dispersion of lead dust, or other disturbance of the bagged debris. The Contractor shall not store unbagged lead-containing waste, liquid waste or non-lead-containing waste in these dumpsters. The Contractor also shall ensure that the bags in the dumpsters are not damaged. The Contractor shall post warning signs on the dumpsters as specified in OSHA requirement 29 CFR 1926.62.
 2. Drummed waste material: If waste material is to be stored in drums, the Contractor shall use a secured storage area for this purpose. This storage area shall have doors that can be closed and locked to prevent vandalism. The Contractor shall only store waste material contained in drums or dumpsters in the secured area. The Contractor shall ensure that the drums in this secured storage area are not damaged. The Contractor shall post warning signs outside the secured storage area as specified in the OSHA requirement 29 CFR 1926.62.
 3. Dumpster waste material: If waste material is to be stored in dumpster, the Contractor shall use a secured storage area for this purpose. Dumpster shall have doors that can be closed and locked to prevent vandalism. The Contractor shall only store non-hazardous waste material in the dumpster(s). The Contractor shall ensure that the dumpsters are not damaged. The Contractor shall post warning signs outside the secured storage area as required by OSHA, DOT and any other applicable Federal, State and Local regulations.
- B. Waste Disposal and Landfill Requirements:
 1. Representative samples, of paint chips debris and demolition debris, for lead leachability (TCLP) testing shall be collected and paid for by the Contractor. If results are below the EPA limit, the materials shall be disposed of at a landfill approved for such purposes. The Contractor shall submit to the State, documentation that the lead-containing waste material removed from the work area has been accepted by the landfill owner.

2. If lead leachability results are above the EPA limit, the materials shall be disposed of at an approved facility for receiving hazardous materials. The Contractor shall be responsible for all disposal costs including all transportation fees. The Contractor shall submit to the State, documentation that the lead-containing waste material removed from the work area has been accepted by the hazardous materials approved landfill owner.
- C. Disposal of Non-Hazardous Lead-Containing Waste:
1. Notifying landfill operator: If required by the landfill or its agents, the Contractor shall advise the landfill operator with sufficient time prior to transportation of the quantity of material to be delivered.
 2. Unloading: upon reaching the landfill, the Contractor's trucks are to approach the dump location as close as possible for unloading the Lead-Containing Waste Material.
 - a. The Contractor shall inspect containers as they are unloaded at the disposal site. Material in damaged containers shall be repacked in empty containers, as necessary.
 - b. The Contractor shall carefully place waste containers on the ground at the disposal site, not push or throw the containers out of the trucks.
 3. Clean-up procedures:
 - a. If containers are broken or damaged, the Contractor shall leave the containers in the truck and clean the entire truck and its contents using HEPA vacuums and wet cleaning methods, until no visible residue is observed.
 - b. Following the removal of all contaminated waste, the Contractor shall decontaminate the truck cargo area using HEPA Vacuums and/or wet cleaning methods until no visible residue is observed. Polyethylene sheeting shall be removed and discarded as Lead-Contaminated Waste Material, along with contaminated cleaning materials and protective clothing, in containers at the disposal site.
- D. Recycling of Non-Hazardous Lead-Containing Waste:
1. The Contractor is responsible for all cost relating to materials with lead painted surfaces to be recycled. It is the responsibility of the Contractor to determine which materials may or may not be re-cycled.
 2. The Contractor is to perform all testing, at his own cost, to ensure the material to be recycled may be accepted and recycled in accordance the recyclers permit conditions.
 3. If the material cannot be recycled, the Contractor shall be responsible for the proper disposal of the debris at his own cost.

3.07 TESTING/AIR MONITORING

A. Contractor Responsibilities:

1. The Contractor shall provide the personal monitoring and necessary records for all of the Contractor's employees as required by OSHA (29 CFR 1926.62), Hawaii State Law HIOSH (12-148) and all other applicable law.

2. Area air/dust monitoring and testing which becomes necessary in order to follow up on work by the Contractor that has been rejected as not conforming to the requirements shall be the responsibility of the Contractor. The full cost of additional monitoring and testing shall be borne by the Contractor, and shall be deducted from the final contract payment in the event of working double shifts to meet deadlines, working longer hours than stated in the accepted proposal, for working beyond the scheduled completion date, violating regulations, not conforming to specifications and plans, or for failing clearance test requirements.

END OF SECTION

SECTION 13288 - TESTING / AIR MONITORING

PART 1 - GENERAL

1.01 SUMMARY

- A. Testing/air monitoring requirements during asbestos related activities.

1.02 ASBESTOS INSPECTION BY PROJECT CONTRACT PERSON

- A. Daily air monitoring and testing shall be supplied by the Project Contract Person for the purpose of:
 1. Verifying compliance with the specifications listed in SECTION 13280 - REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIAL;
 2. Insuring that the State's legally required documentation is collected;
 3. Providing engineering control during the project.

1.03 COORDINATION WITH OTHER SECTIONS

- A. The testing/air monitoring requirements included in the scope of work for any testing/air monitoring consultants or inspectors, and all applicable Federal, State, and local regulations shall be coordinated with this section.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

3.01 ABATEMENT CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall be responsible for providing the personal monitoring and maintaining necessary records for all of the Contractor's employees as required by OSHA (29 CFR 1926.1101), Hawaii State Law (12-145) and all other applicable law.
- B. The Contractor shall obtain the legally required reports for air monitoring as part of the contract.
- C. Monitoring information developed by the Inspector's activities while under the contract with the State shall be for the use of the Project Contract Person. The information will be available and offered to the Contractor when developed, but not thereafter, and shall not waive the Contractor's obligations stated elsewhere in this section.
- D. Air monitoring and testing which becomes necessary in order to follow up on work by the Contractor which is rejected as not conforming to the requirements shall be the responsibility of the Project Contract Person. However, the full cost of such additional monitoring and testing shall be borne by the Contractor, and shall be paid directly to the State's Air Monitoring Consultant no later than prior to the final contract payment.

- E. Personal air monitoring that is part of the Inspector's (Testing/Air Monitoring Consultant) scope of work shall be accommodated by the Contractor and shall not be assumed to be the monitoring required of the Contractor by law or regulation.
- F. The Contractor shall Contract in writing, the State's Air Monitoring Consultant and DAGS Construction Management within ten (10) days of Award. The Contractor shall also forward a copy of the State of Hawaii, Department of Health notification to the DAGS Construction Management no later than 10 days from mobilization.
- G. The Contractor shall give, at a minimum, seven (7) working days notification to the State's Inspector / Air Monitoring Consultant prior to the start of any asbestos related work.

3.02 TESTING/AIR MONITORING INSPECTOR (AIR MONITORING CONSULTANT)

- A. The Inspector (Testing/Air Monitoring Consultant) will insure that the applicable specifications are being followed using the methods and requirements of the applicable scope of work.
- B. The Inspector (Testing/Air Monitoring Consultant) shall have the authority to instigate engineering control measures during the project and stop work if deemed necessary.
- C. Air monitoring shall be performed to detect airborne fiber concentrations inside and outside the work area for the duration of the project.
- D. Environmental air monitoring shall be performed by the Inspector/Air Monitoring Consultant. Payment to the Inspector/Air Monitoring Consultant shall be by the State. Any testing initiated by the Contractor shall be paid for by the Contractor and shall be included in the contract amount.
- E. Throughout the entire disturbance and cleaning operations, air monitoring shall be conducted to ensure that the Contractor is complying with this specification, EPA, OSHA, HIOSH, and any applicable State and local government regulations.

END OF SECTION