STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

AIRPORTS

SPECIAL PROVISIONS, SPECIFICATIONS, AND PROPOSAL FOR CONTINENTAL BUILDING RENOVATIONS DANIEL K. INOUYE INTERNATIONAL AIRPORT HONOLULU, OAHU, HAWAII

STATE PROJECT NO. CO1543-33

2025

NOTICE TO BIDDERS

Hawaii Revised Statutes (HRS),
Chapter 103D

The receiving of bids for **CONTINENTAL BUILDING RENOVATIONS, DANIEL K. INOUYE INTERNATIONAL AIRPORT, HONOLULU, OAHU, HAWAII, PROJECT NO. CO1543-33**, will begin as of the HIePRO Release Date. Bidders shall register and submit complete bids through HIePRO only. Refer to the following HIePRO link for important information on Vendor Registration: https://hiepro.ehawaii.gov/welcome.html.

The solicitation plans, specifications, proposal, and additional documents designated or incorporated by reference shall be available in HIePRO.

HIePRO OFFER DUE DATE & TIME is June 16, 2025, at 2:00 p.m., Hawaii Standard Time (HST). **Bidders shall submit and upload the complete proposal to HIePRO prior to the offer due date and time. Proposals received after said due date and time shall not be considered. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HIePRO. Bidders shall not include confidential and/or proprietary documents as part of their proposal. The record of each bidder and their respective proposal shall be open to public inspection. FAILURE TO UPLOAD THE PROPOSAL TO HIePRO SHALL BE GROUNDS FOR REJECTION**.

The scope of work consists of renovations of the Continental Building at the Daniel K. Inouye International Airport. This includes demolition and removal work, sitework and drainage improvements, concrete topping, structural framing, exterior enclosure, waterproofing, painting and coating, mechanical and electrical work. The estimated cost of construction is between $5,000,000.00 and $6,500,000.00.

To be eligible for award, bidders shall possess a valid State of Hawaii General

Engineering "A" or General Building "B" license **at the time of bidding**.

The Hawaii Department of Transportation, Air and Water Transportation Facilities Division, 2016 GENERAL PROVISIONS FOR CONSTRUCTION PROJECTS, applicable to this project are available on the internet at: http://hidot.hawaii.gov/administration/con/.

A pre-bid conference is scheduled for May 28, 2025, at 9:00 a.m., HST, at the Department of Transportation, Airport Office, Daniel K. Inouye International Airport, Terminal 1 – 7th Floor, 400 Rodgers Blvd. Suite 700, Conference Room C, Honolulu, HI 96819. Persons needing special accommodations at the pre-bid conference due to a disability may contact Benton Ho, Project Manager, by phone at (808) 838-8804, or email at benton.ho@hawaii.gov, no later than two working days prior to the scheduled pre-bid conference. All prospective bidders and/or their respective representatives are encouraged to attend, however, attendance is not mandatory. All information presented at the pre-bid conference shall be provided for clarification and information only. Any amendments to the solicitation shall be made by formal addendum and posted in HIePRO.

All Request for Information (RFI) questions and Substitution Requests shall be submitted in HIePRO **no later than June 2, 2025, at 2:00 p.m., HST**. RFI questions received after the stated deadline shall not be addressed. Substitution Requests received after the stated deadline shall not be considered. Verbal RFI(s) shall not receive a response. All responses to RFI questions shall be provided for clarification and information only and issued by formal addendum. Any amendments to the solicitation shall be made by formal addendum and posted in HIePRO.

If there is a conflict between the solicitation and information stated in the pre-bid conference, the meeting minutes, and/or the responses to RFI questions, the solicitation shall govern and control, unless as amended by formal addendum.

Apprenticeship Preference. A five percent bid adjustment for bidders that are party to apprenticeship agreements pursuant to HRS § 103-55.6 is applicable to this project.

Employment of State Residents on Construction Procurement Contracts. Compliance with HRS § 103B-3 is a requirement for this project whereby a minimum of 80 percent of the bidder's work force on this project shall consist of Hawaii residents.

Campaign contributions by State and County Contractors. Contractors are hereby notified of the applicability of HRS § 11-355 which states that campaign contributions are prohibited from specified State or County government contractors during the term of the contract if the contractors are paid with funds appropriated by a legislative body. For more information, contact the Campaign Spending Commission at (808) 586-0285.

Protests. Any protest of this solicitation shall be submitted in writing to the Director of Transportation, in accordance with HRS § 103D-701 and Hawaii Administrative Rules § 3-126.

The Equal Employment Opportunity Regulations of the Secretary of Labor implementing Executive Order 11246, as amended, shall be complied with on this project.

The U.S. Department of Transportation Regulation entitled "Nondiscrimination in Federally Assisted Programs of the U.S. Department of Transportation," Title 49, Code of Federal Regulations (CFR), Part 21, is applicable to this project. Bidders are hereby notified that the Department of Transportation shall affirmatively ensure that the contract entered into pursuant to this advertisement shall be awarded to the lowest responsible bidder without discrimination on the grounds of race, color, national origin, or sex (as directed by 23 CFR Part 200).

For additional information, contact Benton Ho, Project Manager, by phone at (808) 838-8804 or by email at benton.ho@hawaii.gov.

The State reserves the right to reject any or all proposals and to waive any defects in said proposals in the best interest of the public.

CURT T. OTAGURO
Deputy Director of Transportation for Airports

HIePRO RELEASE DATE: May 23, 2025

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The State reserves the right to reject any or all proposals and to waive any defects in said proposals in the best interest of the public.

CURT T. OTAGURO
Deputy Director of Transportation and Airports

HIePRO RELEASE DATE:

INSTRUCTIONS FOR CONTRACTOR'S LICENSING

"A" general engineering contractors and "B" general building contractors are reminded that due to the Hawaii Supreme Court's January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply et al., 97 Haw. 450 (2002), they are prohibited from undertaking any work, solely or as part of a larger project, which would require the general contractor to act as a specialty contractor in any area where the general contractor has no license. Although the "A" or "B" contractor may still bid on and act as the "prime" contractor on an "A" or "B" project (*See HRS § 444-7 for the definitions of an "A" and "B" project.*), respectively, the "A" and "B" contractor may only perform work in the areas in which they have the appropriate contractor's license (*An "A" or "B" contractor obtains "C" specialty contractor's licenses either on its own, or automatically under HAR § 16-77-32.*). The remaining work must be performed by appropriately licensed entities. It is the sole responsibility of the contractor to review the requirements of this project and determine the appropriate licenses that are required to complete the project.

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

AIRPORTS

SPECIAL PROVISIONS

SPECIAL PROVISIONS

The following additional amendments to the General Provisions are applicable to this project:

1.3 DEFINITIONS is amended as follows:

1. The following definition shall be deleted in its entirety and replaced with the following:

"Subcontractor – An individual, partnership, firm, corporation, or joint venture, or other legal entity, as licensed or required to be licensed under Chapter 444, Hawaii Revised Statutes, as amended, which enters into an agreement with the Contractor to perform a portion of the work."

2. Add the following to 1.3 DEFINITIONS:

"HAWAII ePROCUREMENT SYSTEM (HIePRO) - The State of Hawaii eProcurement System for issuing solicitations, receiving proposals and responses, and issuing notices of award."

3. The definition for "Bid" is amended by deleting it and replacing in with the following:

"Bid – The offer of a Bidder, on the prescribed HDOT form, to perform the work required by the proposed contract documents, for the price quoted, and within the time allotted."

2.7 REQUEST FOR SUBSTITUTION OF SPECIFIED MATERIALS AND EQUIPMENT BEFORE BID OPENING is amended as follows:

1. The last sentence in the first paragraph (line 147 to 152) shall be replaced with the following:

"Where a bidder intends to use a material or equipment of an unspecified brand, make, or model, the bidder must submit a request to the Department for review and approval at the earliest date possible. Requests shall be submitted via email to the Contact person listed in HIePRO for the solicitation and also posted as a question in HIePRO under the question/answer tab referencing the email with the request. The request must be posted in HIePRO no later than fourteen (14) calendar days before the bid opening date."

2. The first sentence in the second paragraph (line 154 to 156) shall be replaced with the following:

"It shall be the responsibility of the bidder to submit sufficient evidence based upon which a determination can be made by the Department that the alternate brand is a qualified equivalent."

2.8 PREPARATION AND DELIVERY OF BID is amended as follows:

Last Paragraph (line 189 to 192) shall be replaced with the following:

"**Bidders shall submit and upload the complete proposal to HIePRO prior to the**

bid opening date and time. Proposals received after said due date and time shall not be considered. Any additional support documents explicitly designated as <u>confidential and/or proprietary</u> shall be uploaded as a <u>separate file</u> to HIePRO. Do not include confidential and/or proprietary documents with the proposal. The record of each bidder and respective bid shall be open to public inspection. Original (wet ink, hard copy) proposal documents are not required to be submitted. **Contract award shall be based on evaluation of proposals submitted and uploaded to HIePRO.**

<u>FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HIePRO SHALL BE GROUNDS FOR REJECTION OF THE BID.</u>

If there is a conflict between the specification document and the HIePRO solicitation, the specifications shall govern and control, unless otherwise specified."

<u>2.11 BID SECURITY</u> is amended by deleting (a) and replacing it with:

"(a) Unless directed otherwise in the invitation for bids, each bid shall be accompanied by bid security which is intended to protect the Department against the failure or refusal of a bidder to execute the contract for the work bid or to supply the required performance and payment bonds. Bid security shall be in an amount equal to at least five percent of the base bid and additive alternates. Bid security shall be in one of the following forms:

(1) A deposit of legal tender;

(2) A valid surety bid bond, underwritten by a company licensed to issue bonds in the State of Hawaii, in the form and composed, substantially, with the same language as provided herewith and signed by both parties;; or

(3) A certificate of deposit; credit union share certificate; or cashier's, treasurer's, teller's, or official check drawn by or a certified check accepted by a bank, savings institution, or credit union insured by the Federal Deposit Insurance Corporation (FDIC) or the National Credit Union Administration (NCUA) and payable at sight or unconditionally assigned to the Department. These instruments may be utilized only to a maximum of one hundred thousand dollars ($100,000.00). If the required amount totals over one hundred thousand dollars ($100,000.00), more than one instrument not exceeding one hundred thousand dollars ($100,000.00) each and issued by different financial institutions shall be accepted.

"**If bidder elects options (1) or (3) above for its bid security, said bid security shall be in its <u>original form</u> and shall be <u>submitted before the bid deadline</u> to the Contract Office, Department of Transportation, Aliiaimoku Hale, 869 Punchbowl Street, Room 105, Honolulu, Hawaii 96813. Original surety bid bonds do <u>not</u> need to be submitted to the Contracts Office. Bidders are reminded that a copy of its surety bid bond shall be <u>included with its bid</u> submitted and uploaded to HIePRO.**"

2.12 PRE-OPENING MODIFICATION OR WITHDRAWAL OF BIDS is amended by deleting 2.12 PRE-OPENING MODIFICATION OR WITHDRAWAL OF BIDS in its entirety and replacing with the following:

"2.12 PRE-OPENING MODIFICATION OF WITHDRAWAL OF BIDS. Bids may be modified or withdrawn prior to the bid opening date and time. Withdrawal or revision of proposal shall be completed, and submitted and uploaded to HIePRO prior to the bid opening date and time."

2.14 PUBLIC OPENING OF BIDS is amended by deleting 2.14 PUBLIC OPENING OF BIDS in its entirety.

4.12 UTILITIES AND SERVICES is amended as follows:

Add the following after the last paragraph:

"(e) Repairs and Outages.

(1) The Contractor shall have available on 24-hour call sufficient specialty contractors, such as electrical and plumbing contractors, to repair any damage to existing facilities that might occur as a result of construction operations regardless of when the damage might occur.

(2) Outage: Written requests for power outage, communication changes, and water and sewer connection outages shall be submitted to the Engineer at least seven (7) days in advance or as specified in other sections of these specifications. Outages will be restricted to non-peak operational hours between midnight and 6:00 a.m."

5.16 SUBCONTRACTING is amended as follows:

Add the following after the last paragraph:

"(e) The Specialty Items of work for this project are as follows:

Roofing (C-42)
Roof Coating (C-42g)
Sheet Metal (C-44)"

7.21 PUBLIC CONVENIENCE AND SAFETY is hereby added to Article VII - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC of the General Provisions:

"It shall be especially noted by the Contractor that the area directly adjacent to the existing in use runways and taxiways, is an extremely hazardous area and that very strict controls will apply throughout the entire period required to complete all work within 500 feet from the edge of an in use runway and 180 feet from the edge of an in use taxiway.

The Contractor shall familiarize himself with the Airport Certification Manual available for review at the Airport Manager's Office and shall comply with its requirements.

The Contractor is responsible for the security of access points to the Airport Operational Area that are located within the limits of construction and will be fined one thousand dollars ($1,000) per incident for any breach of security at these locations. All gates leading into the AOA shall be kept locked and if required to be open, the Contractor shall provide professional security guards to attend gates. The guards must be approved by the Director and shall be required to attend a training session conducted by the Airport Manager prior to gate assignment."

8.20 LIMITATION OF OPERATIONS is hereby added to ARTICLE VIII – PROSECUTION AND PROGRESS of the General Provisions:

"The following limitations shall be observed by the Contractor when operating within 75 feet from the edge of any taxiway.

General - The Contractor shall schedule his operations to minimize interference with the movement of aircraft or passengers as may be required by the Engineer. The Contractor shall be responsible to alert all of his personnel to the location of power and signal cables installed for the operation of the airport. The Contractor shall control his operations in a manner to preclude any possible damage to those cables. Utility companies shall be notified by the Contractor one week before commencement of work. The Contractor shall give notice to the Engineer in writing, at least 168 hours before operating within 75 feet from the edge of any taxiway and the Engineer will assure himself that the Airport Management personnel are notified in sufficient time to publish the warning (NOTAM). The Contractor shall immediately repair any damages to the existing perimeter fence to prevent inadvertent entry to the Airport Operation Area (AOA).

Work in Vicinity of Runways and Taxiways in Use - Under the terms of this contract, it is intended that work shall be completed without disturbing the paved surface of existing runways and taxiways, unless shown otherwise on the plans. Aircraft traffic shall not be interrupted. The Contractor shall schedule to work within 75 feet of the taxiway as directed by the Airport Management. No ruts, holes, or open trenches of 3 inches or more in depth and no objects or material 3 inches or more in height shall be permitted within the safety area when the airfield is in operation in conformance to Federal Aviation Regulation Part 139. The Contractor is also informed that Airport Zoning Regulations dictate that a 'clear zone' be maintained 500 feet on each side of an active runway, to be known as a hazardous area. The Contractor shall comply with all regulations governing ground operations within hazardous areas. The following FAA Advisory Circulars or later versions and FAA Regulations specify these requirements:

AC 150/5210-5C	Painting, Marking, and Lighting Vehicles Used on an Airport, dated August 2007
AC 150/5340-1J	Standards for Airport Markings
AC 150/5370-2E	Operational Safety on Airports During Construction, dated 1/17/03
FAA Regulations	Objects Affecting Navigable Airspace Part 77

The Contractor shall keep all personnel and equipment off the areas not

specifically designated for work under this Contract. At all times when the Contractor's equipment is not in use, the equipment shall be moved outside the hazardous areas to an area designated by the Engineer. Under no condition shall equipment be parked or material stored within the hazardous areas.

Failure on the part of the Contractor to abide by the above will result in suspension of work.

Authority of Control Tower Personnel - With the exception of actual construction methods, the airport control tower personnel will have full authority to control the Contractor's movements within the existing taxiway. When required, the Contractor shall maintain a constant radio vigil within all work areas and in addition shall keep at least one flagman on duty with the radio man. When notified by the control tower to temporarily halt operations, it shall be the duty of the flagman, through the use of appropriate methods (lighted flares shall not be used under any circumstances), to notify all operators of equipment and other personnel to cease work and move men and equipment off of hazardous areas.

Contractor shall provide, at his own expense, the necessary radio and equipment including a radio equipped mobile vehicle to maintain contact with control tower personnel at all times during job performance. A transceiver operating at a frequency designated by the Engineer to communicate with the Control Tower.

Marking of Hazardous Areas - The Engineer will designate areas that are hazardous for aircraft. The Contractor shall provide red blinker lights spaced not more than 50 feet apart around all hazardous areas and areas of work within 75 feet of any taxiway. Such systems shall be subject to approval by the Engineer. The Contractor shall have personnel on call 24 hours per day for the emergency maintenance of hazard markings.

The Contractor shall provide red flags not less than 20 inches square in addition to the red blinker lights. When danger flags are made of fabric, a wire stiffener shall be used to hold the flags in an extended position. Flags shall be so mounted that they do not produce a hazard. The red danger flags shall be spaced not more than 50 feet apart around all areas of work within 75 feet of any taxiway.

All systems proposed by the Contractor for lighting and barricading shall be submitted to the Engineer for review prior to installation. The Contractor shall install all flags, lighting and barricades as required by the Engineer. Such systems shall be subject to approval by the Engineer.

Storage of Equipment and Materials - At the end of each working shift, all of the Contractor's equipment shall be withdrawn to an area designated by the Engineer. The Contractor shall park all equipment in an orderly fashion and place a sufficient number of red flasher lights to identify these areas. Materials stored within the airport shall be so placed and the work shall, at all times, be so conducted as to cause no greater obstruction to the air and ground traffic than is considered necessary by the Engineer. No runways, taxiways or roadways shall be closed or opened, except by permission of the Engineer.

Blasting Operations - The Contractor shall notify the Engineer at least three (3) days before performing blasting operations as to the extent and timing of such

operations, so that the Control Tower and other concerned parties can be informed.

Utilities - The Contractor shall provide for the protection of all utilities from damages in areas to be traversed by his vehicles and equipment. If required, buried cables and utility lines shall be protected by mounding earth over the cables or by any other method approved by the Engineer.

The Contractor shall notify representatives of the owner, agencies, and other affected organizations at least 48 hours prior to working in any area containing the facilities of these organizations.

Failure to notify the owning organization will prevent authorization to work in a specific area.

Archaeological Features - Any archaeological features such as petroglyphs, burial sites, and artifacts discovered or unearthed during the performance of the work shall immediately be brought to the attention of the Engineer and all work that would damage or destroy these features shall be discontinued. The Engineer will decide, after proper investigation, to salvage or abandon such artifacts."

8.21 OPERATION OF CONTRACTOR'S MOTOR VEHICLE AND PERSONNEL IN RESTRICTED AIR OPERATIONS AND MOVEMENT AREAS is hereby added to ARTICLE VIII – PROSECUTION AND PROGRESS of the General Provisions:

"The Contractor shall conform with all the sections of the "State of Hawaii, Department of Transportation, Airports, Contractor's Training Guide" pertaining to access and operation in the Airport Operation Area (AOA) hereinafter described as follows:

A. Motor Vehicles in Airport Operation Area

For safety reasons, the operation of motor vehicles in the AOA must conform with all applicable State Airport rules and regulations.

B. Motor Vehicle Access Permit

Each motor vehicle operated in the AOA is required to:

1. Meet all State licensing registration and safety requirements and be specifically licensed for operation in the AOA.

2. Meet all insurance requirements.

3. Be restricted to operation by those persons qualified to drive the vehicle and in possession of a current Ramp Driver's License and applicable Motor Vehicle Operator's License.

C. The operators of motor vehicles in the AOA shall be responsible for meeting the following insurance requirements.

1. Licensed Vehicles

As a condition for authorization to enter the AOA, the Contractor shall

provide evidence of vehicle liability insurance in the form of a Certificate of Insurance issued by an authorized insurance carrier. Automobile Liability and general Liability (combined single limit, Bodily Injury and Property Damage, per occurrence) shall be required in the applicable minimum limits specified below:

a. Daniel K. Inouye International Airport

(1) Standard AOA clearance.... $5,000,000

(2) Limited AOA clearance..... $1,000,000
Limited AOA clearance is defined as operations restricted to Diamond head and Ewa Concourses second level roadways and connecting third level main terminal roadway only, with entry and exit via Security Access Point "C" (Primary) and Access Point "A" (Secondary)

b. Other Airports

Standard AOA clearance.....$1,000,000

Standard AOA clearance is defined as any portion of a public Airport from which the public is restricted by fences or appropriate signs and not leased or demised to anyone for exclusive use and shall include runways, taxiways, all ramp and apron areas, aircraft parking and storage areas, fuel storage areas, maintenance areas, and any other area of a public Airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft or used for embarkation or debarkation of passengers.

2. Unlicensed Vehicles

Airport Liability (or General Liability) shall be required in the applicable minimum limits specified below:

a. Daniel K. Inouye International Airport, Kahului Airport and Kona International Airport at Keahole

AOA clearance..... $5,000,000

b. All other Airports

AOA clearance..... $1,000,000

3. Specifically name the State of Hawaii as additionally insured.

4. Indicate that the Airport Engineer will be provided with a 30-day written prior notice of policy cancellation or material change in coverage or conditions.

D. Operator's Permit

1. No person shall operate a motor vehicle on the AOA unless he holds and carries on his person a current Airport Motor Vehicle operator's permit issued by the State of Hawaii, Department of Transportation, Airports .

2. Operator's permits will only be issued to persons who apply through the Airport District Security Office and pass a written exam covering those portions of the Airport Rules and Regulation relating to the operation of vehicles in Airport Operations Areas.

E. Authorized Vehicles

1. Only vehicles considered operationally safe and necessary for the performance of this contract may be allowed to operate in the AOA.

2. All motor vehicles must be painted in such a manner so as to be easily identifiable and must carry the Contractor's name on each side. These signs may be of a temporary nature applied to the side windows or doors.

   The lettering shall be in bold characters of a minimum of four (4) inches in height and one and one-half (1-1/2) inches in widths, the height of logos should be a minimum of six (6) inches.

3. The Contractor's operations on, over, across, and/or immediately adjacent to any runway and/or taxiway at a towered airport shall require the use of two-way radio communication. The Contractor shall obtain the necessary equipment at his own expense.

4. No person shall operate a motor vehicle on the AOA unless he holds and carries on his person a current Motor Vehicle Operator's Permit issued by the Airport Manager.

   a. The Motor Vehicle Operator's Permit will be issued only to persons who apply through the Airport Security Section and pass a written exam covering those portions of the Airport Rules and Regulations relating to the operation of vehicles in the AOA.

   b. Permits issued may be suspended or revoked for cause at any time by the Airports .

F. Airport Operation Area Construction Pass

1. Issuance of Airport Operation Area (AOA) Construction Passes shall be limited to contractors, subcontractors, companies, organizations, individuals engaged in authorized and approved construction activity which requires a continuing need for entry into the AOA or Airfield Movement Areas. Request letters for such passes must be made to the Airport District Manager's Office in accordance with the Contractors Training Guide or applicable District requirements.

2. As a condition for security area clearance, applicants must comply with

Transportation Security Regulation 1542 which requires a ten-year background Criminal History Records Check for those individuals employed under this contract.

G. Access to Movement Areas

1. Movement areas shall mean all of the runways and taxiways of the Airport which are utilized for taxiing, takeoff, and landing of aircraft.
   a. Any vehicle which requires access to the movement area shall be equipped with operational radio equipment capable of positive two-way contact with Tower/Ground Control.

   b. Operators of vehicles in movement areas must possess knowledge and familiarity with restricted and airfield movement areas, operational rules, regulations, and procedures, or be under direct escort by individuals meeting all of the above requirements.

2. Vehicle Operations on Movement Areas

   a. No vehicle shall proceed across any runway unless specifically cleared by Tower/Ground Control.

   b. The operator of a vehicle in the movement area shall not leave his vehicle unless continuous radio contact is maintained with the Tower/ Ground Control while he is away from his vehicle.

   c. Any vehicle proceeding onto the movement area between the hours of sunset and sunrise shall be equipped with an overhead flashing light which is visible for one (1) mile, unless such vehicle is being escorted by another vehicle so equipped.

   d. All vehicles operated on the movement area between sunrise and sunset except those being escorted, shall operate an overhead amber or red flashing beacon visible for at least one (1) mile; or display a flag at least three (3) feet square with orange and white checkered squares of not less than one (1) foot on each side.

H. Runway and Taxiway Closure

1. Requests for runway or taxiway closures, or for any work which affect operational conditions at the airport must be made in writing through the Airport Engineering Branch.

2. Temporarily closed runways require placement of yellow "X" markings (constructed of material such as fabric or plywood or other acceptable material) on top of the runway identification numerals at both ends of the closed runway.

3. Taxiway closures require placement of barricades with alternate orange and white markings at each end of the closed taxiway segment. Barricades must be supplemented with flashing red lights. The intensity of the lights and spacing for barricades, and lights must

adequately define and delineate the hazardous area.

I. Gate Guards Furnished by Contractors

1. If a contractor is permitted by the airport to maintain operational control of an AOA Access Gate, entry through such gate shall be controlled by the posting of a gate guard.

   a. Written instruction will be provided, outlining the guard's duties to enforce those requirements and provisions prescribed by the airport's security program to include all personnel and vehicle entry and access requirements.

   b. Procedures will be established to identify the actions which will be undertaken by the guard in calling for assistance.

   c. An approved emergency communications procedure will be established.

J. Compliance

1. The contractor shall comply with all regulations and rules governing the Air Operations Areas during construction, as specified in the following or later versions:

   a. Hawaii Revised Statutes, Title 19, Administrative Rules for Public Airports.
   b. Federal Aviation Administration Advisory Circular AC 150/5340 1J
   c. Marking of Paved Areas on Airport; AC 150/5370-2E, Operational Safety on Airports During Constructions.

K. Enforcement Authorization

Act 21, Section 1, Section 261-17(a), HRS; Federal Aviation Administration Regulations, Part 139, Part 107.

L. Right of Rejection or Revocation

The State of Hawaii, Airports, reserves the right to withhold, deny or revoke any airport security clearance, licenses or permits to any individual or organization who fails to meet the prescribed or required access area clearance criteria to include background investigation information, or fails to observe or comply with established rules, regulations, and directives.

It should be clearly understood that such denial or revocation is based solely on airport security or safety considerations and does not in any way constitute a determination by the State with regard to private employment by any individual or organization."

END OF SECTION

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

AIRPORTS

SPECIFICATIONS

PART I

GENERAL PROVISIONS

The Hawaii Department of Transportation AIR and WATER Transportation Facilities Division General Provisions for Construction Projects dated 2016 is not physically included in these specifications. The General Provisions are available at

http://hidot.hawaii.gov/administration/con/

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

AIRPORTS

SPECIFICATIONS

PART II

TECHNICAL PROVISIONS

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01010 – DESCRIPTION OF WORK

PART I – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

A. Description of Work: renovations of the Continental Bulding, including demolition and removal work, sitework and drainage improvements, concrete topping, structural framing, exterior enclosure, waterproofing, painting and coating, mechanical and electrical work.

B. Section Includes:

1. Location of the work
2. Hours of work
3. Safety
4. Operation of airport facilities during construction
5. Construction stakes, lines and grades.

C. Special project requirements

1.03 VEHICLE PARKING

Parking passes may be purchased at a monthly rate of $175.00 plus a one-time fee of $25.00 for parking access card. These passes are subject to approval by the Airport Manager and availability of parking spaces. All costs associated with obtaining parking passes shall be the responsibility of the Contractor.

1.04 PROVISIONS FOR FIELD OFFICE/STORAGE SPACE

Pending the availability of space on airport property, the State will issue Revocable Permit(s) to the Contractor for the use of the space, assessed at a monthly fee of $25 for each Revocable Permit issued. The Contractor shall be responsible for paying for any associated County fees, inclusive of property taxes, and must notify the State Property Management Office at least 30 days in advance before vacating the premises. The space(s) may be used for a field office, staging of materials and equipment, vehicle parking or other uses subject to the approval of the State. All spaces shall be subject to the requirements of Section 01561 - CONSTRUCTION SITE POLLUTION CONTROLS.

Since space on airport property is extremely limited, the State does not guarantee that space(s) provided to the Contractor will be in close proximity to the project site. The State will make every effort to provide the Contractor with space on airport property, however, should the State determine that no space is available for such use(s), the responsibility shall then be on the Contractor to find space outside of airport property.

1.05 LOCATION OF THE WORK

A. The work to be performed under this contract is located at Daniel K. Inouye International Airport, Honolulu, Hawaii.

B. Conditions:

1. The Main Terminal and airport roadways shall remain operational at all times. Any damages to existing areas caused by the Contractor shall be repaired by the Contractor at no cost to the State.

2. Upon execution of the contract, the Contractor, at their cost, shall obtain all permits required for this project.

1.06 HOURS OF WORK

A. Work can be performed at the construction site at any time over a 24-hour period without considerable disruption to airport operations or other adjacent tenants. Noise, including demolition work, shall occur from 10:00 p.m. to 6:30 a.m., and water proofing shall be done from 1:30 p.m. to 10:00 p.m. Contractor shall coordinate other work activities with the Engineer for the hours between 6:30 a.m. to 1:30 p.m. Submit a proposed construction schedule to Engineer for review and approval within 14 calendar days prior to start of work. The Contrac tor shall coordinate their schedule with the Engineer if rescheduling of work or intermittent work is required, such work shall be performed at no extra cost to the State. If the Contractor elects to work overtime, compensation for State employees and for construction management consultant as authorized by the State shall be the Contractor's obligation to pay in accordance with Section 7.6 – “Overtime and Night Payment for State Inspection Services” of the General Provisions of Construction Projects (2016).

The Contractor acknowledges that certain construction activities may, in the opinion of the Engineer, significantly impact Airport operations. Accordingly, the Engineer reserves the absolute right to modify, restrict, or reschedule work hours, including requiring work during non-standard hours, nights, weekends, or holidays, as necessary to minimize disruption to Airport activities. Such adjustments shall be made at no additional cost to the State, and the Contractor expressly waives any claims for increased labor rates, overtime, loss of productivity, or other costs associated with changes to work hours.

The Contractor expressly agrees that the possibility of such adjustments has been factored into the Contractor’s pricing and schedule.

B. Contractor shall clean work areas at the end of each working shift. Rubbish, loose materials, etc. shall be disposed of daily. **Tools and equipment shall not be left unattended during work hours.** This includes tools left in unlocked vehicles, in the bed of pickup trucks, or in unlocked job sites. TSA citations may result in fines in excess of $13,000 per violation and the confiscation of AOA badges. Materials shall be safely secured and stored in an area designated by the Airport Manager.

C. Dependent on the type and location of work activity, the Contractor may be required to either alter the work hours and work activities, or suspend work during the Airline Operational Blackout Dates listed below.

1. Winter Break (Through the month of December to the second week of January)

2. The Dr. Martin Luther King, Jr. Day weekend (Holiday celebrated on the third Monday in January)

3. Spring Break (Varies, weeklong break, around the Easter Day weekend)

4. Golden Week (April 29 through the first week of May)

5. The Memorial Day weekend (Holiday celebrated on the last Monday in May)

6. Summer Vacation (June through August)

7. The Labor Day weekend (Holiday celebrated on the first Monday in September)

8. Silver Week (Varies; roughly around the third week of September)

9. Veterans' Day (Eleventh day in November)

10. The Thanksgiving Day weekend (Holiday celebrated on the fourth Thursday in November)

Schedule adjustments during the Airline Operational Blackout Dates shall not incur additional costs to the State of Hawaii.

D. Dependent on the type and location of nighttime work activity, the Contractor may be required to either alter the work hours and work activities, or suspend work during the Seabird Fallout Season, roughly September 15 – December 15, annually. Schedule adjustments during the Seabird Fallout Season dates shall not incur additional costs to the State of Hawaii.

1.07 SAFETY

A. The Contractor shall take the necessary precautions to protect his workers and other personnel from injuries. The rules and regulations promulgated by the Occupational Safety and Health Acts are applicable and made a part of these specifications.

B. Barricades and warning signs shall be erected by the Contractor in the work area to properly protect all personnel in the area.

C. During the progress of the work debris, empty crates, waste, material drippings, etc., shall be removed by the Contractor at the end of each workday, and the work area shall be left clean and orderly.

1.08 OPERATION OF AIRPORT FACILITIES DURING CONSTRUCTION

A. The Contractor shall coordinate the phases of work under this contract with the Engineer to minimize disruption to pedestrian and vehicular traffic and to permit the uninterrupted operation of existing Airport facilities which will be affected by the performance of this contract. The Engineer reserves the right to modify, add, or adjust the phasing of the work as necessary to accommodate Airport operations. Such changes in the sequencing, timing, or scope of phases shall not result in any additional cost, fee or claim by the Contractor. The Contractor expressly agrees that the possibility of phasing adjustments has been accounted for in its contract price and schedule.

B. Utility Maintenance: During the construction of this contract, existing utility services serving occupied or used facilities shall not be disrupted except where autho rized in writing by authorities having jurisdiction. Contractor shall provide temporary services during inter ruptions to existing utilities, as acceptable to the Engineer. Damages to the existing utility facilities by the Contractor will be repaired at the Contractors expense.

C. Outages for water, power, communications, air conditioning or any other utility, if necessary, shall be kept to a minimum and scheduled for off-peak hours, generally from 12:00 a.m. to 6:00 a.m. The Contractor shall submit written requests to the Engineer for such outages no later than fourteen (14) calendar days in advance. The request shall include a description of work and the duration of the outage. The Contractor shall not proceed with such outages until written approval is received from the State.

1.09 CONSTRUCTION STAKES, LINES AND GRADES

A. The Contractor shall perform all construction layout and reference staking necessary for the proper control and satisfac tory completion of all structures, grading, paving, drainage, sewer, water, and all other appurtenances required for the completion of the work.

B. Existing horizontal and vertical survey control points for the project are shown on the plans. The Contractor shall verify the location of all control points prior to the start of construc tion.

C. The Department will not be responsible for delays in setting stakes and marks.

D. All control points and stakes or marks which the Engineer may set shall be preserved by the Contrac tor. If such control points, stakes or marks are destroyed or disturbed by the Contractor, the cost of replacing such stakes or marks will be charged against the Contractor and deducted from payments due the Contractor.

E. The Contractor shall be responsible for the placement and preserva tion of adequate ties to all control points whether established by the Contractor or by the Engineer.

F. All original, additional or replacement stakes, marks, references and batter-boards which may be required for the construction operations, shall be furnished, set and properly referenced by the Contractor. The Contractor shall be solely and completely responsi ble for the accuracy of the line and grade of all features of the work. Any errors or apparent discrepancies found in previous surveys, the plans and specifications shall be called to the Engineer's attention by the Contractor for correc tion or interpreta tion prior to proceeding with the work.

G. Before construction is started on any structure which is referenced to an existing structure or topographical feature, the Contractor shall check the pertinent locations and grades of the existing structures or topographical features to determine whether the locations and grades shown on the plans are correct.

H. All construction staking shall be performed by qualified personnel under the direct supervision of a person with an engineering background who is experienced in the direction of such work and is acceptable to the Engineer.

I. All stakes and markers used for control staking shall be of the same quality as used by the Department for this purpose. For slope limits, pave ment edges, gutter lines, et cetera, where so called "working" stakes are commonly used, stakes of different quality may be acceptable.

J. The Department may check the Contractor's control of the work at any times as the work progresses. The Contractor will be informed of the results of these checks, but the Department by doing so will in no way relieve the Contractor of his responsibility for the accuracy of the layout work. The Contractor shall at his expense correct or replace any deficient or inaccurate layout and construc tion work. If, as a result of these deficiencies or inaccuracies, the Depart ment is required to make further studies, redesign, or both, all expenses incurred by the Department due to such deficien cies or inaccuracies, will be deducted from any payments due the Contractor.

K. The Contractor shall furnish all necessary person nel, engineering equipment and supplies, mater ials, and transportation incidental to the accurate and satisfactory completion of this work.

Unless otherwise provided, all requirements im posed by this section and performed by the Con tractor shall be considered incidental to the various contract items and not separate or additional payment will be made thereof.

1.10 SPECIAL PROJECT REQUIREMENTS

A. A.Upon receipt of the Contract, the Contractor shall process and return the Contract to the State' Contract Office within five (5) calendar days.

B. Downed seabirds. Downed seabirds found within the project site shall be reported to a local wildlife center according to protocols established by the Department of Land and

Natural Resources, Division of Forestry and
Wildlife: https://dlnr.hawaii.gov/wildlife/seabird-fallout-season/

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

A. All work specified in the contract plans and specifications shall be paid for at the contract LUMP SUM prices for bid Item No. 01010.1 except for work specified as part of other LUMP SUM pay items. The Contract Price shall be full compensation for all materials, labor, tools, equipment, and all other incidentals necessary to complete the work.

B. Work under this section will not be measured for payment but will be paid for at the contract LUMP SUM PRICE for item 01010.1 "Continental Building Renovations."

Item No.	**Item**	**Unit**
01010.1	Continental Building Renovations	Lump Sum

END OF SECTION

SECTION 01210 – ALLOWANCES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:

1. Lump-sum allowances.

1.03 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise the Contracting Officer of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. Purchase products and systems selected by the Contracting Officer from the designated supplier.

1.04 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.05 LUMP SUM ALLOWANCES

A. Use the lump sum allowance only as directed by the Contracting Officer for purpose scheduled in Part 3 below, and only by Change Orders that indicate amounts to be charged to the allowance.

1. Lump sum allowances to cover lump sum payments to another party shall not include contractor’s overhead, profit, and related costs. These costs include

delivery, installation, taxes, insurance, equipment rental, and similar costs. These shall be included in the Contract Sum.

2. Contractor's overhead, profit, and related costs for products and equipment ordered by State under the lump sum allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

3. At Project closeout, credit unused amounts remaining in the lump sum allowance to State by Change Order.

1.06 UNUSED MATERIALS

A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to the State, after installation has been completed and accepted.

1. If requested by the Contracting Officer, prepare unused material for storage by State when it is not economically practical to return the material for credit. If directed by the Contracting Officer, deliver unused material to State's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 EXAMINATION

Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.02 PREPARATION

Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

A. The allowances itemized below are estimates and the amount shall not exceed the maximum amount shown in the proposal schedule.

B. Payment will be made under:

Item No.	**Item**	**Unit**
01210.1	Unforeseen Conditions	Allowance (ALLOW)

END OF SECTION

SECTION 01300 – SUBMITTALS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this section.

1.02 PROJECT DOCUMENTATION

The contract will not be considered complete until required submittals have been received and accepted by the State.

At the discretion of the Project Manager, the number of copies to be submitted may differ from that specified in this Section.

1.03 DETAILED CONSTRUCTION SCHEDULE

A. The Contractor shall submit a detailed construction schedule to the Engineer for review, no later than 30 calendar days after execution of the contract. The detailed construction schedule shall be based on a detailed critical path analysis of construction activities and sequence of operations needed for the orderly performance and completion of any separable parts of any work and all work in accordance with the contract. The schedule shall be Critical Path Method (CPM) type in the form of an arrow diagram and activity listing or comprehensive bar graph. The network diagram shall show in detail and in orderly sequence all activities on a time scale, their descriptions, durations and dependencies, necessary and required to complete all work and any separable parts thereof. The schedule shall show in detail the following information for each activity:

1. Identification by code numbers and description;
2. Duration;
3. Craft and Equipment;
4. Earliest start and finish dates;
5. Latest start and finish dates;
6. Total and free float time; and
7. Highlighted Critical Path

B. The construction schedule shall be complete in all respects, covering in addition to activities at the site of work, off-site activities such as design, fabrication, and procurement of equipment; the scheduled delivery dates of such equipment; submittal and approval of shop drawings and samples; ordering and delivery of materials;

inspections; and testing. The schedule shall also include a manpower forecast by crafts. The detailed construction schedule shall be supplemented by a three-week schedule prepared by the Contractor and submitted to the Engineer on a weekly basis. The Contractor shall promptly inform the Engineer of any proposed change in the schedule and shall furnish the Engineer with a revised schedule and cash flow diagram within 15 calendar days after approval of such change.

The schedule shall be kept up to date, taking into account the actual progress of work and shall be updated, if necessary, every 30 calendar days. The updated schedule shall, as determined by the Engineer, be sufficient to meet the requirements for the completion of the separable parts of work and the entire projects as set forth in the contract.

Upon commencing work, the Contractor shall submit at the start of each week to the Engineer for review, a detailed three (3) week construction schedule.

C. If at any time during the progress of the Work, the Contractor's actual progress appears to the Engineer to be inadequate to meet the requirements of the contract, the Engineer will notify the Contractor of such imminent or actual noncompliance with the contract. The Contractor shall thereupon take such steps as may be necessary to improve his progress and the Engineer may require an increase in the labor force, the number of shifts, and/or overtime operations, days of work and/or the amount of construction plants all without additional cost to the State. Neither such notice by the Engineer nor the Engineer's failure to issue such notice shall relieve the Contractor from his obligation to achieve the quality of work and rate of progress required by the contract. Failure of the Contractor to comply with instructions of the Engineer under these provisions may be grounds for determination by the State that the Contractor is not prosecuting work with such diligence as will assure completion within the times specified. Upon such determination, the State may employ labor and equipment and charge the Contractor for the cost thereof, including depreciation for plant and equipment or may terminate the Contractor's right to proceed with the performance of the contract, or any separable part thereof, in accordance with the applicable provisions of the contract.

D. The Contractor shall submit to the Engineer one (1) reproducible and three (3) prints of the detailed construction schedule and of each revised schedule submitted thereafter.

1.04 SCHEDULE OF VALUES

A. The Contractor shall submit the Schedule of Values to the Engineer for review, no later than 30 calendar days after execution of the Contract.

B. Format and Content: Use Proposal Schedule and/or the Project Specifications table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section. Provide a breakdown of the contract sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principle work or subcontract amounts down into several smaller identifiable items of work.

C. Identification: Include the following Project identification on the schedule of values:

1. Project name and location

2. Project number

3. Contractor's name and address

4. Contract No.

5. Date of submittal

D. Arrange the Schedule of Values in tabular form with separate columns to indicate the following items listed:

1. Related Specification Section or Division

2. Description of work

3. Dollar value and percent complete

E. Correlate line items in the Schedule of Values with other required administrative schedules and forms including;

1. Construction Schedule

2. Application for Payment forms including continuation sheets

3. List of Subcontractors

4. List of principle suppliers and fabricators

5. Schedule of submittals

F. Round amount to nearest whole dollar; the total shall equal the contract sum.

G. Provide a separate line item in the Schedule of Values for each part of the work where Applications for Payment may include materials or equipment, purchased, fabricated or stored, but not yet installed.

H. Schedule Updating: Update and resubmit the Schedule of Values prior to the next Applications for Payment or when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.05 OTHER SUBMITTALS REQUIRED BEFORE CONSTRUCTION

The Contractor shall submit the following items prior to or at the pre-construction meeting or unless otherwise noted:

A. Name, residence phone number, addresses and scope of authority for the following persons:

1. Superintendent

2. Contractor's authorized representative to sign documents

3. Two (2) additional persons who can be contacted during non-working hours for emergencies.

4. Field Office location and phone numbers (cellular, pager, fax, etc.)

B. Name of Safety Officer

C. Notice of Materials to be furnished

D. Three (3) copies each of Certificates of Insurance. The State of Hawaii, Department of Transportation, Airports Division shall be named as additionally insured. The project number and project title shall be referenced in the Description of Operations/Locations/Vehicles. If canceled, 30 days written notice to the State of Hawaii must be given. If certificates are not correct, work cannot proceed.

E. Three (3) copies each Insurance and Tax Rates.

F. List of apprentices who will be working on the project supported with the Statement of Apprenticeship or copy of the Apprenticeship Agreements registered with the State Board, for each apprentice.

G. List of equipment to be used on the job. Designate maximum working height and capacity of equipment involved and their respective rental rates.

H. Three (3) copies of an expenditure (cash flow) plan consisting of an anticipated work completion graph plotting contract time and gross payment anticipated.

1.06 SHOP DRAWINGS, SAMPLES, CATALOG CUTS, AND CERTIFICATES

A. Submittal Schedule: Prior to the submission of any shop drawings or submittals, the Contractor shall submit to the Engineer for review, a submittal schedule. The schedule shall identify the subject matter of each submittal, the corresponding specification section number and the proposed date of submission. During the progress of work, the Contractor shall revise and resubmit the submittal schedule as directed by the Engineer.

B. The Contractor shall submit for review to the Engineer, or to a representative designated by the Engineer, six (6) copies of all shop drawings, samples, catalog cuts and certificates. Three (3) copies will be returned to the Contractor with information of review action. The Contractor shall submit additional quantities for their subcontractor's or supplier's use. Each shop drawing, certificate of compliance, sample, and equipment list shall be checked and certified correct by the Contractor

and shall be identified with the applicable information specified hereinafter under "Submittal Identification."

Items are to be reviewed prior to commencing fabrication or delivery of material to the job site.

C. Each copy of the drawings, certificates, catalog cuts, and lists reviewed by the Engineer will be stamped "REVIEW ACTION" with the appropriate action noted therein. The review of the Engineer shall not be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory. Acceptance of such drawings will not relieve the Contractor the responsibility of conforming to the contract drawings and specifications or for any error or omission which may exist as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work. Each shop drawing submitted for review shall have, in the lower right-hand corner just above title, a white space 4" x 4" in which the Engineer can place the stamp and indicate action taken. The Contractor shall also inform their subcontractors to provide this space in their preparation of shop drawings.

1.07 MAINTENANCE DATA AND OPERATING INSTRUCTIONS

Six (6) copies of maintenance data and operating instructions shall be submitted by the Contractor at the conclusion of the equipment installation. The manuals shall be assembled in one or more binders, each with a title page, typed table of contents, and heavy section dividers with numbered plastic index tabs. The binders shall be a minimum of 2 inches (50.8 mm) thick, three ring, "D slant" with hard covers. All data shall be punched for binding and composition and printing shall be arranged so that punching does not obliterate any data. The project number, project title, and Airport shall be inserted in the front and backbone binder cover.

The Contractor shall submit a draft to the Engineer for review prior to the submission of the final copies.

The manual shall include separate sections describing each equipment. Provide a general description of the equipment, instructions for operation, maintenance, recommended inspection points and periods for inspection, testing, adjustments, calibration procedures with illustrations, wiring diagrams, trouble shooting situations and solutions, and repair methods in a practical, complete, and comprehensive manner.

For each equipment, include information on detailed parts listings (part numbers and costs) with the manufacturer's name, address, contact person, e-mail address and phone/fax numbers. Provide the contact name, address, e-mail address and phone/fax numbers of the distributor in the State of Hawaii for each equipment.

Include a separate section on warranty information on all products and equipment. Provide this information in a tabular format with a listing on all products and equipments with warranty start and completion dates for each item.

Include separate sections on all approved submittals, test reports, certifications, etc.

All information shall be arranged in a logical, orderly sequence. Manuals submitted by the manufacturer will not be accepted.

1.08 TEST REPORTS

Six copies of test reports for any material used in this Contract shall be submitted when specified or required by the Engineer.

1.09 SUBMITTAL IDENTIFICATION

A. To avoid rejection and to clarify each submittal, the General Contractor shall have a rubber stamp made up in the following format:

B. _____
General Contractor's Name

PROJECT TITLE: _____
AIRPORT: _____
STATE PROJECT NO: _____
AIP PROJECT NO: _____
THIS SUBMITTAL HAS BEEN CHECKED BY THIS GENERAL CONTRACTOR AND IS CERTIFIED CORRECT AND IN COMPLIANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.
ITEM NO. _____
SUBMITTAL NUMBER _____
DATE RECEIVED _____
SPECIFICATION SECTION #_____
SPECIFICATION PARAGRAPH #_____
DRAWING NUMBER_____
SUBCONTRACTOR NAME_____
SUPPLIER NAME _____
MANUFACTURER NAME _____

CERTIFIED BY (Contractor's Signature, Date)

_____
(Contractor's Name and Title)

C. This stamp "filled in" should appear on each reproducible shop drawing, on the cover sheet of copies of test and mill reports, certificates of compliance, catalog cuts, brochures, etc. The stamp should be placed on a heavy stock paper merchandise (approximately 3" x 6") and one tag tied to each sample submitted for approval. The tag on the samples should state what the sample is, so that if the tag is accidentally separated from the sample, they can be matched up again. The back of this tag will be used by the Engineer for receipt, approval, and log stamp for any comments that relates to the sample.

D. Submission Number: Each submission is to be sequentially numbered in the space provided in the Contractor's stamp. Correspondence and transmittal will refer to this number.

E. The Contractor shall ensure that all submittals, including shop drawings, are complete and in conformance to the requirements of the Contract specifications prior to submission to the State for review and acceptance. Incomplete submittals will not be processed by the State and returned to the Contractor for correction. Any cost impacts and delays in the Project schedule as a result of incomplete submittals shall be the responsibility of the Contractor.

1.10 AS-BUILT DRAWINGS

As-built drawings shall conform to the requirements of Section 5.8 - "Coordination Between the Contractor and the State" of the General Provisions for Construction Projects (2016), and the following requirements:

The Contractor shall maintain on the job site a set of full-size contract drawings, marking them in red to show all variations between the construction actually provided and that indicated or specified in the contract documents, including buried or concealed construction. (Section 5.8 (a) Drawings and Special Provisions of the General Provisions for Construction Projects.)

Where a choice of material or method is permitted herein or where variations in scope of character of work from that of the original contract or authorized, the drawings shall be marked to define the construction actually provided. Where equipment installation is involved, the size, manufacturer's name, model number, power input or output characteristics as applicable shall be shown on the as-built drawings.

The representation of such changes shall conform to standard drafting practice and shall include such supplementary notes, legends, and details as necessary to clearly portray the as-built construction.

The drawings shall be maintained and updated on a daily basis. The Contractor shall stamp, sign, and date each sheet with the following stamp:

AS-BUILT DRAWINGS/SPECIFICATIONS

This certifies that the dimensions and details shown on this sheet reflect the dimensions and details, and specifications as constructed in the field.

_____

CONTRACTOR'S NAME

_____

Signature Date

Monthly and final payments to the Contractor shall be subject to prior approval of the drawings. On completion of the work, both sets of marked-up drawings shall be delivered to the Engineer and shall be subject to approval before acceptance.

1.11 GUARANTEES

Guarantee periods shall start at time of acceptance in writing by the State.

All guarantees and warranties shall be made out to the "State of Hawaii." Supplier and subcontractor guarantees shall be co-signed by the Contractor.

The Contractor is solely responsible for coincidence or non-coincidence of factory warranties or equipment guarantees, and the Contractor's own warranties and guarantees as required by the contract. The Contractor is solely responsible for scheduling and coordinating the installation of equipment and materials so as to take maximum advantage of factory warranties.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 01310 – PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

A. Section Includes:

1. Coordination and project conditions.
2. Pre-demolition meetings.
3. Pre-testing meetings.
4. Pre-installation meetings.
5. Cutting and patching.

1.03 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of various sections of Specifications to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirements and coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, electrical equipment.

C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs. In finished areas, conceal pipes, ducts, and wiring within construction.

D. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.

E. After State occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize the disruption of State's activities.

1.04 PRE-DEMOLITION MEETINGS

A. When required in individual specification sections, convene pre- demolition meetings at Project site prior to commencing work of specific section.

B. Require attendance of parties directly affecting, or affected by, Work of specific section.

C. Notify Engineer seven (7) consecutive calendar days in advance of meeting date.

D. Prepare agenda and preside at meeting:

1. Review existing conditions.

2. Determine extent and nature of work and means, methods, techniques, sequences and procedures to be used.

3. Record existing conditions by taking photos of important project elements.

4. Review coordination with related work.

E. Record minutes and distribute copies within two (2) days after meeting to participants, with two (2) copies to Engineer, and those affected by decisions made.

1.05 PRE-TESTING MEETINGS

A. When required in individual specification sections, convene pre- testing meetings at Project site prior to commencing work of specific section for field testing.

B. Require attendance of parties directly affecting, or affected by, Work of specific section.

C. Notify Engineer seven (7) consecutive calendar days in advance of meeting date.

D. Prepare agenda and preside at meeting:

1. Review existing conditions of items to be tested.

2. Determine extent and nature of work and means, methods, techniques, sequences and procedures to be used.

3. Record existing conditions by taking photos of important project elements.

E. Record minutes and distribute copies within two (2) days after meeting to participants, with two (2) copies to Engineer, and those affected by decisions made.

1.06 PRE-INSTALLATION MEETINGS

A. When required in individual specification sections, convene pre- installation meetings at Project site prior to commencing work of specific section for field testing.

B. Require attendance of parties directly affecting, or affected by, Work of specific section.

C. Notify Engineer seven (7) consecutive calendar days in advance of meeting date.

D. Prepare agenda and preside at meeting:

1. Review conditions of installation, preparation and installation procedures.

2. Review coordination with related work.

E. Record minutes and distribute copies within two (2) days after meeting to participants, with two (2) copies to Engineer, and those affected by decisions made.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching.

B. Submit written request in advance of cutting or altering elements affecting:

1. Structural integrity of element.

2. Integrity of weather-exposed or moisture-resistant elements.

3. Efficiency, maintenance, or safety of element.

4. Visual qualities of sight exposed elements.

C. Execute cutting, fittings, and patching to complete Work, and to:

1. Fit the several parts together, to integrate with other Work.

2. Uncover Work to install or correct ill-timed Work.

3. Remove and replace defective and non-conforming Work.

4. Remove samples of uninstalled Work for testing.

5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.

E. Cut masonry and concrete materials using masonry saw or core drill.

F. Restore Work with new products in accordance with requirements of Contract Documents.

G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

I. Identify hazardous substances or conditions exposed during the Work to Engineer to decision or remedy.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this Section will not be measured nor paid for separately, but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 01330 – SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Engineer's responsive action.

B. Informational Submittals: Written information that does not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.03 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in or the relevant technical section(s) as applicable. Submit list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 30 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

E. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use CSI Form 12.1A or equal approved by the State Project Manager

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block and clearly indicate extent of revision.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Use only final submittals with mark indicating approval by Engineer.

1.04 CONTRACTOR'S USE OF ENGINEER'S CAD FILES

General: At Contractor's written request, copies of the CAD files will be provided to the Contractor for Contractor's use in connection with Project, subject to the following conditions:

CAD files shall only be used for this project.

PART 2 – PRODUCTS

2.01 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data is not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Manufacturer's catalog cuts.
    e. Compliance with specified referenced standards.
    f. Testing by recognized testing agency.

4. Number of Copies: Submit three copies of Product Data, unless otherwise indicated. Engineer will return two copies. Mark up and retain one returned copy as a Project Record Document.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Shopwork manufacturing instructions.
    f. Templates and patterns.
    g. Schedules.
    h. Notation of coordination requirements.
    i. Notation of dimensions established by field measurement.
    j. Relationship to adjoining construction clearly indicated.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (279.4 mm) but no larger than 30 by 40 inches (1016 mm).

3. Number of Copies: Submit two opaque (bond) copies of each submittal. Engineer will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.

E. Submittals Schedule: Comply with requirements specified in the relevant technical section(s) as applicable.

F. Application for Payment: Comply with requirements specified in the relevant technical section(s) as applicable.

G. Schedule of Values: Comply with requirements specified in the relevant technical section(s) as applicable.

2.02 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Engineer will not return copies.

2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

3. Test and Inspection Reports: Comply with requirements specified in the relevant technical section(s) as applicable.

B. Contractor's Construction Schedule: Comply with requirements specified in relevant technical section(s).

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names, and addresses of Engineers and owners, and other information specified.

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

K. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

L. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

M. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in the relevant technical section(s) as applicable.

O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturers.

Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of product.

2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

S. Construction Photographs: Comply with requirements specified in the relevant technical section(s) as applicable.

T. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Engineer.

1. Engineer will not review submittals that include MSDSs and will return them for resubmittal.

PART 3 – EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ENGINEER'S ACTION

A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.

C. Informational Submittals: Engineer will review each submittal and will not return it or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured or paid for separately but shall be considered incidental to and included in the price bid for various items of work in this project.

END OF SECTION

SECTION 01400 – CONTRACTOR QUALITY CONTROL PROGRAM

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 CONTRACTOR QUALITY CONTROL PROGRAM

A. GENERAL

The Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The intent of this section is to enable the Contractor to establish a necessary level of control that will:

1. Adequately provide for the production of acceptable quality materials.

2. Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements can be met.

3. Allow the Contractor as much latitude as possible to develop his or her own standard of control.

The Contractor shall be prepared to discuss and present, at the pre-construction conference, his/her understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed and approved by the Engineer and State Project Manager. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed and approved.

B. DESCRIPTION OF PROGRAM

1. General Description. The Contractor shall establish a Quality Control Program to perform inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable specifications and plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include

surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

2. Quality Control Program. The Contractor shall describe the Quality Control Program in a written document which shall be reviewed and approved by the Engineer and State Project Manager prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer for review no later than thirty (30) calendar days after execution of the Contract.

3. The Quality Control Program shall be organized to address, as a minimum, the following items:

   a. Quality control organization;
   b. Submittals schedule;
   c. Inspection requirements;
   d. Quality control testing plan;
   e. Documentation of quality control activities; and
   f. Requirements for corrective action when quality control and/or acceptance criteria are not met.
   g. A listing of the definable features of work for the project.

   The Contractor is encouraged to add any additional elements to the Quality Control Program that he/she deems necessary to adequately control all production and/or construction processes required by this contract.

C. QUALITY CONTROL ORGANIZATION

The Contractor's Quality Control Program shall be implemented by the establishment of a separate quality control organization that is not a part of the production organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel. The organizational chart shall identify all quality control staff by name and function and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work. At the top of the chart, an overall Contractor Quality Control System Manager, CQCSM, shall be named and his/her subordinates shall follow thereafter.

The quality control organization shall consist of the following minimum personnel:

1. Contractor Quality Control System Manager. The CQCSM shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The CQCSM shall have a minimum of 5 years of experience in airport and/or paving and building construction and shall have had prior quality control experience on a project of comparable size and scope as the contract. The CQCSM shall be on the project full time and shall have no production duties. The CQCSM shall NOT be the point of contact for the production organization.

The CQCSM shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract plans and technical specifications including authority to independently stop any work not in compliance with the contract. The CQCSM shall report directly to a responsible officer of the construction firm, such officer not being the project superintendent or foreman. The CQCSM may supervise the Quality Control Program on more than one project provided that person can be at the job site within 2 hours after being notified of a problem and a Quality Control Technician is present on the job site full time.

2. Quality Control Technicians. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be either engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate fields and shall have a minimum of 2 years of experience in their area of expertise.

   The quality control technicians shall report directly to the CQCSM and shall perform the following functions:

   a. Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Section 1.02E.
   b. Performance of all quality control tests as required by the technical specifications and Section 1.02F.

3. Staffing. The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program shall state where different technicians will be required for different work elements.

4. All personnel shown on the organizational chart shall have, in resume form, all information regarding their education, any licenses, their present position, previous work experience, etc. included in the Quality Control Program written documentation. These resumes shall be verified by the CQCSM.

D. SUBMITTALS SCHEDULE

The Contractor shall submit a detailed listing of all submittals (e.g., mix designs, material certifications, color samples) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

1. Specification item number:

2. Item description;

3. Description of submittal;

4. Specification paragraph requiring submittal; and

5. Scheduled date of submittal.

E. INSPECTION REQUIREMENTS

Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor.

Inspections shall be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work.

Before any definable feature of work is started, the CQCSM shall notify the Engineer and State Project Manager of such work at least 48 hours in advance. Upon notification, the Engineer or State Project Manager shall determine if a meeting shall be held to discuss the condition of the work area, material and equipment status, what is to be expected and any questions or possible problems. No definable feature work shall commence without the consent of the Engineer and State Project Manager.

F. QUALITY CONTROL TESTING PLAN

As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.

The testing plan can be developed in a spreadsheet fashion and shall, a minimum, include the following:

1. Specification item number;

2. Item description (e.g., concrete cylinder test);

3. Test type (e.g., concrete compressive strength);

4. Test standard (e.g., ASTM or AASHTO test number, as applicable);

5. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated);

6. Responsibility (e.g., plant technician, independent lab); and

7. Control requirements (e.g., target, permissible deviations).

The testing plan shall contain a statistically based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The Engineer and State Project Manager shall be provided the opportunity to witness quality control sampling and testing. The CQCSM shall make every effort to inform the Engineer and State Project Manager at least 24 hours, or more if stated in the specifications, before such testing occurs.

All quality control test results shall be documented by the Contractor as required by Section 1.02G.

G. DOCUMENTATION

The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the Engineer and State Project Manager daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCSM.

Specific Contractor quality control records required for the contract shall include, but are not necessarily limited to, the following records:

1. Daily Inspection Reports. Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and Subcontractor operations on a form acceptable to the Engineer and State Project Manager. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

    a. Technical specification item number and description and location of work performed;
    b. A comprehensive breakdown of the work force including the number of workers and total hours for each trade.
    c. Compliance with approved submittals;
    d. Proper storage of materials and equipment;
    e. Proper operation of all equipment;
    f. Adherence to plans and technical specifications;
    g. Review of quality control tests; and
    h. Safety inspection.

    The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

    The daily inspection reports shall be signed by the responsible quality control technician and the CQCSM. The Engineer and State Project Manager shall be provided at least one copy of each daily inspection report on the workday following the day of record.

2. Daily Test Reports. The Contractor shall be responsible for establishing a system which will record all quality control test results. Daily test reports shall document the following information:

   a. Technical specification item number and description;
   b. Test designation;
   c. Location;
   d. Date of test;
   e. Control requirements;
   f. Test results;
   g. Causes for rejection;
   h. Recommended remedial actions; and
   i. Retests.

   Test results from each day's work period shall be submitted to the Engineer and State Project Manager prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the CQCSM.

H. CORRECTIVE ACTION REQUIREMENTS

The Quality Control Program shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications.

The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

I. SURVEILLANCE BY THE ENGINEER AND STATE PROJECT MANAGER

All items of material and equipment shall be subject to surveillance by the Engineer or State Project Manager at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to surveillance by the Engineer or State Project Manager at the site for the same purpose.

Surveillance by the Engineer or State Project Manager does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

J. NONCOMPLIANCE

1. The Engineer or State Project Manager will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Engineer or State Project Manager or his/her authorized representative to the Contractor or his/her authorized representative at the site of the work, shall be considered sufficient notice.

2. In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the Contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer or State Project Manager, the Engineer or State Project Manager may:

   a. Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors in accordance with Section 8.4 – "Character and Proficiency of Workers" of the General Provisions for Construction Projects (2016).
   b. Order the Contractor to stop operations in accordance with Section 8.10 – "Suspension of Work" of the General Provisions for Construction Projects (2016).
   c. Determine work performed by the Contractor during periods of noncompliance to be unacceptable and subject to inspection, removal or non-payment in accordance with Section 5.12 – "Removal of Non-Conforming and Unauthorized Work: Performance of Corrective or Remedial Work" of the General Provisions for Construction Projects (2016).

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 01524 – CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

A. 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:

1. SECTION 01010 - DESCRIPTION OF WORK

2. SECTION 01300 – SUBMITTALS

3. SECTION 01560 – GENERAL ENVIRONMENTAL, HEALTH, AND SAFETY CONTROLS

1.03 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.

1.04 PERFORMANCE REQUIREMENTS

A. General: Achieve End-of-Project rates for salvage/recycling of 75 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following but not limited to:

1. Demolition Waste:

a. Asphaltic concrete paving
b. Concrete
c. Concrete reinforcing steel
d. Brick
e. Concrete masonry units
f. Wood studs
g. Wood joists
h. Plywood and oriented strand board
i. Wood paneling
j. Wood trim
k. Structural and miscellaneous steel
l. Rough hardware
m. Roofing
n. Insulation
o. Doors and frames
p. Door hardware
q. Windows
r. Glazing
s. Metal studs
t. Gypsum board
u. Acoustical tile and panels
v. Carpet
w. Carpet pad
x. Demountable partitions
y. Equipment
z. Cabinets
aa. Plumbing fixtures
bb. Piping
cc. Supports and hangers
dd. Valves
ee. Sprinklers
ff. Mechanical equipment
gg. Refrigerants
hh. Electrical conduit
ii. Copper wiring
jj. Lighting fixtures
kk. Lamps
ll. Ballasts
mm. Electrical devices

nn. Switchgear and panelboards
oo. Transformers

2. Construction Waste:

a. Site-clearing waste
b. Masonry and CMU
c. Lumber
d. Wood sheet materials
e. Wood trim
f. Metals
g. Roofing
h. Insulation
i. Carpet and pad
j. Gypsum board
k. Piping
l. Electrical conduit
m. Packaging, including uncontaminated materials as follows:
1) Paper
2) Cardboard
3) Boxes
4) Plastic sheet and film
5) Polystyrene packaging
6) Wood crates
7) Plastic pails

1.05 ACTION SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Waste Management Plan: Submit plan within 30 days of date established for the Notice of Award.

1.06 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use **Form CWM-7** for construction waste and **Form CWM-8** for demolition waste. Include the following information:

1. Material category

2. Generation point of waste.

3. Diversion/Recycler Hauler or Location

4. Total quantity of waste in tons.

5. Quantity of waste salvaged, both estimated and actual in tons.

6. Quantity of waste recycled, both estimated and actual in tons.

7. Total quantity of waste recovered (salvaged plus recycled) in tons.

8. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

E. 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.

F. 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.

G. LEED Submittal: LEED Submittal template for Credit MR 2, signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.

H. Qualification Data for waste management coordinator.

I. 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.

1.07 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: General Contractor shall hire a third party independent experienced firm, with a record of successful waste management coordination of Projects with similar requirements, as waste management coordinator.

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 the General Provisions of the contract. 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 trade.

1.08 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to ASTM E 1609 and requirements of this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Use **Form CWM-1** for construction waste and **Form CWM-2** for demolition waste. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Use **Form CWM-3** for construction waste and **Form CWM-4** for demolition waste. Include points of waste generation, potential recycling hauler or locations, 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.

D. Cost/Revenue Analysis: 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. Use **Form CWM-5** for construction waste and **Form CWM-6** for demolition waste. 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 in hauling and tipping fees by donating materials.

7. Savings in hauling and tipping fees that are avoided.

8. Handling and transportation costs. Include cost of collection containers for each type of waste.

9. Net additional cost or net savings from waste management plan.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. 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 01010 - DESCRIPTION OF WORK for operation, termination, and removal requirements.

B. Waste Management Coordinator: Waste management coordinator shall be responsible for implementing, monitoring, and reporting status of waste management work plan.

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.

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 01560 – GENERAL ENVIRONMENTAL, HEALTH, AND SAFETY CONTROLS for controlling dust and dirt, environmental protection, and noise control.

3.02 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 Contractor.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

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 according to approved construction waste management plan.

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. 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 Owner's property and transport to recycling receiver or processor.

3.03 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Grind asphalt to maximum 1-1/2-inch size.

B. Asphaltic Concrete Paving: Break up and transport paving to asphalt- recycling facility.

C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 1-1/2-inch size.

D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 3/4-inch size.

2. Clean and stack undamaged, whole masonry units on wood pallets.

E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

F. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.

2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

G. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.

H. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

I. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

J. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.

K. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

L. Conduit: Reduce conduit to straight lengths and store by type and size.

3.04 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. 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. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees

C. Wood Materials: Clean Cut-Offs of Lumber: Grind or chip into small pieces.

D. Gypsum Board: Stack large clean pieces on wood pallets or in container 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.

3.05 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 acceptable 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 on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

3.06 ATTACHMENTS

The following forms are appended to the end of this Section.

A. Form CWM-1 for construction waste identification.

B. Form CWM-2 for demolition waste identification.

C. Form CWM-3 for construction waste reduction work plan.

D. Form CWM-4 for demolition waste reduction work plan.

E. Form CWM-5 cost/revenue analysis of construction waste reduction work plan.

F. Form CWM-6 cost/revenue analysis of demolition waste reduction work plan.

G. Form CWM-7 for construction waste reduction progress report.

H. Form CWM-8 for demolition waste reduction progress report.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately, but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

FORM **CWM-1**: CONSTRUCTION WASTE IDENTIFICATION

MATERIAL CATEGORY	GENERATION POINT	EST. QUANTITY OF MATERIALS RECEIVED* (a)	EST. WASTE - % (b)	TOTAL EST. QUANTITY OF WASTE* (c=a X b)	EST. VOLUME cy (cm)	EST. WEIGHT tons	REMARKS AND ASSUMPTIONS

*Insert units of measure

FORM **CWM-2**: DEMOLITION WASTE IDENTIFICATION

MATERIAL CATEGORY, DESCRIPTION OF GENERATION POINT	EST. QUANTITY	EST. VOLUME cy (cm)	EST. WEIGHT tons	REMARKS AND ASSUMPTIONS

FORM **CWM-3**: CONSTRUCTION WASTE WORK PLAN

MATERIAL CATEGORY, DESCRIPTION OF GENERATION POINT	DIVERSION / RECYCLER HAULER OR LOCATION	TOTAL EST. QUANTITY OF WASTE tons (a)	DISPOSAL METHOD AND QUANTITY			HANDLING AND TRANSPORTATION PROCEDURES
			EST. AMOUNT SALVAGED tons	EST. AMOUNT RECYCLED tons	EST. AMOUNT DISPOSED TO LANDFILL tons	

FORM **CWM-4**: DEMOLITION WASTE REDUCTION WORK PLAN

MATERIAL CATEGORY, DESCRIPTION OF GENERATION POINT	DIVERSION / RECYCLER HAULER OR LOCATION	TOTAL EST. QUANTITY OF WASTE tons (a)	DISPOSAL METHOD AND QUANTITY			HANDLING AND TRANSPORTATION PROCEDURES
			EST. AMOUNT SALVAGED tons	EST. AMOUNT RECYCLED tons	EST. AMOUNT DISPOSED TO LANDFILL tons	

FORM **CWM-5**: COST/REVENUE ANALYSIS OF CONSTRUCTION WASTE REDUCTION WORK PLAN

MATERIALS	TOTAL QUANTITY OF MATERIALS (VOL. OR WEIGHT) (A)	EST. COST OF DISPOSAL (B)	TOTAL EST. COST OF DISPOSAL (C = A X B)	REVENUE FROM SALVAGED MATERIALS (D)	REVENUE FROM RECYCLED MATERIALS (E)	LANDFILL TIPPING FEES AVOIDED (F)	HANDLING AND TRANSPORTATION COSTS AVOIDED (G)	NET COST SAVINGS OF WORK PLAN (H=D+E+F+G)
Packaging: Cardboard								
Packaging: Boxes								
Packaging: Plastic Sheet or Film								
Packaging: Polystyrene								
Packaging: Pallets or Skids								
Packaging: Crates								
Packaging: Paint Cans								
Packaging: Plastic Pails								
Site Clearing Waste								
Masonry or CMU								
Lumber: Cut-Offs								
Lumber: Warped Pieces								
Plywood or OSB (scraps)								
Wood Forms								
Wood Waste Chutes								
Wood Trim (cut-offs)								
Metals								
Insulation								
Roofing								
Joint Sealant Tubes								
Gypsum Board (scraps)								
Carpet and Pad (scraps)								
Piping								
Electrical Conduit								
Other:								

FORM **CWM-6**: COST/REVENUE ANALYSIS OF DEMOLITION WASTE REDUCTION WORK PLAN

MATERIALS	TOTAL QUANTITY OF MATERIALS (VOL. OR WEIGHT) (A)	EST. COST OF DISPOSAL (B)	TOTAL EST. COST OF DISPOSAL (C = A X B)	REVENUE FROM SALVAGED MATERIALS (D)	REVENUE FROM RECYCLED MATERIALS (E)	LANDFILL TIPPING FEES AVOIDED (F)	HANDLING AND TRANSPORTATION COSTS AVOIDED (G)	NET COST SAVINGS OF WORK PLAN (H=D+E+F+G)
Asphaltic Concrete Paving								
Concrete								
Brick								
CMU								
Lumber								
Plywood or OSB								
Wood Paneling								
Wood Trim								
Miscellaneous Metals								
Structural Steel								
Rough Hardware								
Insulation								
Roofing								
Doors and Frames								
Door Hardware								
Windows								
Glazing								
Acoustical Tile								
Carpet								
Carpet Pad								
Demountable Partitions								
Equipment								
Cabinets								
Plumbing Fixtures								
Piping								
Supports and Hangars								
Valves								
Sprinklers								
Mech. Equipment								
Electrical Conduit								
Copper Wiring								
Light Fixtures								
Lamps								
Lighting Ballasts								
Electrical Devices								
Switchgear and Panels								
Transformers								
Other:								

FORM **CWM-7**: CONSTRUCTION WASTE REDUCTION PROGRESS REPORT

MATERIAL CATEGORY, DESCRIPTION OF GENERATION POINT	DIVERSION / RECYCLER HAULER OR LOCATION	TOTAL EST. QUANTITY OF WASTE tons (a)	QUANTITY OF WASTE SALVAGED		QUANTITY OF WASTE RECYCLED		TOTAL QUANTITY OF WASTE RECOVERED tons (d = b + c)	TOTAL QUANTITY OF WASTE RECOVERED % (d / a X 100)
			ESTIMATED tons	ACTUAL tons (b)	ESTIMATED tons	ACTUAL tons (c)		

FORM **CWM-8:** DEMOLITION WASTE REDUCTION PROGRESS REPORT

MATERIAL CATEGORY, DESCRIPTION OF GENERATION POINT	DIVERSION / RECYCLER HAULER OR LOCATION	TOTAL EST. QUANTITY OF WASTE tons (a)	QUANTITY OF WASTE SALVAGED		QUANTITY OF WASTE RECYCLED		TOTAL QUANTITY OF WASTE RECOVERED tons (d = b + c)	TOTAL QUANTITY OF WASTE RECOVERED % (d / a X 100)
			ESTIMATED tons	ACTUAL tons (b)	ESTIMATED tons	ACTUAL tons (c)		

SECTION 01533 – BARRICADES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 BARRICADES

A. The Contractor shall take precaution to protect people and property from injury and damage. He shall erect barricades to delineate his work areas and provide the appropriate signing, hazard lights, and temporary paint striping per the safety plan as approved by the Engineer, to aid public and airport pedestrian and vehicular traffic around his work areas. Barricades shall be traffic cones, delineators, blinker barricades, caution tape, sawhorses, plywood barricades or other barriers as approved by the Engineer to effectively provide proper protection.

B. The Contractor shall be responsible for his own security and protection of his property, including mobilization yard barricades.

C. Barricades, in general, shall be neat and in good condition, as required for protection. In areas frequented by the general public, the barricades shall be visually presentable and plywood partitions shall be painted. Where dust is a problem, the Contractor shall erect floor to ceiling dust proof partitions.

D. The Contractor shall coordinate and sequence this work with the Engineer to permit the continuing operation of the existing Airport facility. Barricades shall be removed upon the completion and acceptance of work and the premises left clean and operational.

E. The Contractor shall be responsible for securing access into and out of the barricaded areas.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 01560 – GENERAL ENVIRONMENTAL, HEALTH, & SAFETY CONTROLS

PART I – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION

This section addresses the prevention of environmental pollution as the result of construction operations under this contract. For the purpose of this specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare, unfavorably alter ecological balances of importance to human life, adversely affect other species of importance, or degrade the utilization of the environment for aesthetic and recreational purposes.

1.03 REFERENCES

All work shall conform to the most recent edition of the following Federal, State, and Local regulations, unless otherwise noted or specified on the drawings or in these specifications. Where conflicts among the requirements or with these specifications exists, the most stringent requirements shall apply.

A. DOTA Construction Site Runoff Control Program
http://hidot.hawaii.gov/airports/doing-business/engineering/environmental/construction-site-runoff-control-program

1. DOTA Construction Activities Best Management Practices (BMP) Field Manual.

B. Department of Health (DOH) Hazard Evaluation & Emergency Response (DOH HEER) https://health.hawaii.gov/heer/

C. State of Hawaii Administrative Rules, Title 11, Department of Health (DOH)

1. Chapter 46, Community Noise Control.

2. Chapter 59, Ambient Air Quality.

3. Chapter 60.1, Air Pollution Control.

4. Chapters 260.1, 261.1, 262.1, 263.1, 264.1, 265.1, 266.1, 268.1, 270.1, 271.1, 273.1, and 279.1, Hazardous Waste Management.

5. Chapter 451, State Contingency Plan.

6. Chapter 501, Asbestos Requirements.

D. CFR Title 40, Protection of the Environment, Chapter I, Environmental Protection Agency.

E. CFR Title 42, Public Health, Chapter I, Public Health Service, Department of Health and Human Services.

1.04 SUBMITTALS

A. The Contractor shall submit the following items as required:

1. Individual Wastewater System (IWS) Final Report: For projects involving the construction of an individual wastewater system, an IWS Final Report is required to be submitted to the DOTA Engineering Branch, Environmental Section (AIR-EE) for approval, prior to submitting to DOH Wastewater Branch and prior to project closeout.

2. Underground Injection Control (UIC) Well Final Report: For new drainage well construction and existing drainage well modification, a UIC Well Final Report is required to be submitted to AIR-EE for review and approval, prior to submitting to DOH Safe Drinking Water Branch (SDWB), and prior to project closeout. The Final Report shall also be submitted within the deadline specified on the UIC Approval to Construct. If a project involves abandoning an existing drainage well, written instructions shall be obtained from DOH SDWB and a copy provided to AIR-EE prior to backfilling the demolished well. All supporting documentation requested by DOH post demolition work shall be completed and provided to AIR-EE for review prior to submitting to DOH SDWB.

3. AST (Flammable/Combustible Liquid) Tank Installation: Provide signed record of Final Inspection issued by County Fire Department.

4. Waste Manifests: If a project will generate hazardous waste, the Contractor shall prepare waste manifests in accordance with HAR 11-262 and provide records to AIR-EE.

B. The Contractor shall comply with all applicable regulations and maintain records of permits, licenses, certificates, and other environmental regulatory requirement correspondence. Submit copies of permits, licenses, certifications, inspection reports, releases, notices, receipts for fee payments, correspondence, records, and similar documents, established for compliance with environmental regulations bearing on performance of the work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 AIR POLLUTION CONTROL

A. Emission: The Contractor shall not be allowed to operate equipment and vehicles that show excessive emissions of exhaust gases until corrective repairs or adjustments are made, as determined by the Engineer.

B. Dust: The Contractor, for the duration of the contract, shall maintain all excavations, embankments, haul roads, permanent access roads, plant sites, waste disposal areas, borrow areas, graded areas, staging and storage areas, and all other work areas within or outside the project limits free from dust that would cause a hazard or nuisance to the work or operations of other Contractors, or to persons or property. Industry-accepted methods, that meet requirements of DOTA Construction BMP Field Manual as noted in Specification 01561 and that meet stabilization suitable for the area or materials involved.

C. Burning on Airport property shall not be permitted.

3.02 SPILL CONTROL

A. The Contractor shall follow the DOTA Construction Site Runoff Program and relevant documents, such as the Construction BMP Field Manual to implement BMPs to prevent spills and leaks and report and cleanup spills and leaks immediately, as required.

3.03 DISPOSAL

A. All unusable debris and waste material shall be hauled away to an appropriate local landfill. Contractor shall control dust during loading operations.

B. Contractor shall consult with the landfill and conduct any required waste characterization to ensure that waste meets the landfill's requirements for size, type, etc.

C. No burying of debris or waste materials, except for materials that are specifically indicated elsewhere in these specifications as suitable for backfill, shall be permitted on the project site.

D. Contractor shall manage all construction materials, debris, and waste in a manner that prevents Foreign Object Debris (FOD) from reaching the airfield, where it could be an aircraft safety hazard.

3.04 HAZARDOUS MATERIALS CONTROL

Hazardous materials shall be properly stored and handled. The use of prohibited hazardous materials, e.g., asbestos, lead paint, and polychlorinated biphenyls (PCBs), in the construction of this project shall be strictly prohibited. Any corrective action to remove and replace hazardous material and contaminated work areas shall be at the sole expense of the Contractor.

3.05 OCCUPATIONAL HEALTH AND SAFETY

The Contractor shall at all times comply with all State of Hawaii and Federal rules and regulations related to occupational health and safety and develop and follow a Health and Safety Plan describing measures the Contractor will employ to protect the health and safety of their employees. Include measures required to protect the public from dangers associated with their work.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

All work specified in this Section shall not be measured nor paid for separately but shall be considered incidental to item 01561.1, Construction Site Pollution Controls.

END OF SECTION

SECTION 01561 – CONSTRUCTION SITE POLLUTION CONTROLS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION

A. This Section describes procedures for the proper application of management and engineering controls at State of Hawaii, Department of Transportation, Airports (DOTA) construction sites so that pollutants do not impact any storm drainage system, State water, soil, or groundwater.

B. The Contractor shall supply all labor, materials, and equipment necessary for the management of stormwater during construction and to carry out the work in accordance with these specifications, and all applicable Federal, State, and local regulations and latest amendments.

C. This Section also applies to construction support activities including concrete or asphalt batch plants, rock crushing plants, equipment staging yards/areas, material storage areas, excavated material disposal areas, borrow areas, waste management facilities, sanitary facilities, material storage areas, and temporary equipment fueling locations, regardless of their proximity to the Airport Property and State Right-of-Way. For areas serving multiple construction projects or operating beyond the completion of the construction project in which it supports, the Contractor shall be responsible for securing the necessary permits, clearances, and documents, and following the conditions of the permits and clearances, at no cost to the State.

D. The Contractor shall be responsible for all subcontractors, suppliers, and vendors, and shall ensure that the means and methods of construction activities of subcontractors, suppliers, and vendors are in full compliance with this Section.

E. The Contractor shall examine and be familiar with documents related to stormwater management at the airports and shall comply with related requirements for construction stormwater control. Should a requirement not be clearly described within the construction plans, specifications, permits and other applicable bid documents, notify the Engineer immediately for interpretation.

1.03 REFERENCES

All work shall conform to the most recent edition of the following, unless otherwise noted or specified on the drawings or in these specifications. Where conflicts among the requirements or with these specifications exists, the most stringent requirements shall apply.

A. DOTA Construction Site Runoff Control Program
http://hidot.hawaii.gov/airports/doing-business/engineering/environmental/construction-site-runoff-control-program

1. DOTA Construction Activities Best Management Practices (BMP) Field Manual.

2. DOTA Environmental Requirements for Construction Projects Standard Operating Procedures.

3. DOTA Stormwater Management Plans (SWMPs) for the Daniel K. Inouye International Airport (HNL) and Kahului Airport (OGG), as applicable.

4. DOTA Industrial SWPPPs for the HNL, OGG, and the Lihue Airport (LIH), as applicable.

B. State of Hawaii Administrative Rules, Title 11, Department of Health (DOH)
https://health.hawaii.gov/opppd/department-of-health-administrative-rules-title-11/

1. Chapter 54, Water Quality Standards

2. Chapter 55, Water Pollution Control

3. Chapter 451, State Contingency Plan

C. United States (U.S.) Code of Federal Regulations (CFR), Title 40, Chapter I: Environmental Protection Agency.

D. Hawaii Revised Statutes (HRS), Part I, Chapter 128D, “Environmental Response Law”.

PART 2 – PRODUCTS

2.01 MATERIALS

Comply with applicable materials described in the current DOTA Construction Activities BMP Field Manual. Refer to FAA Advisory Circulars and DOTA District Office, including Wildlife Hazard Management Plan, for additional guidance and conditions. In addition, materials shall comply with the following:

A. Grass: The FAA and USDA recommend the following grass species when requiring grass: “No-Mow” bermudagrass (“Green Velvet”) (Cynodon dactylon) or Seashore paspalum (Paspalum vaginatum). These species possess higher than average drought resistance, saline soil tolerances, and most importantly, do not produce seed heads attractive to the majority of hazardous avian species. Use stolons, sprigs, or plugs to avoid providing hazardous species with a readily available food source. The use of seeds is generally not allowed.

Alternative grass species shall only be applied with the approval by the Engineer

after consultation with United States Department of Agriculture (USDA) airport representative. This includes, but is not limited to, sodding, cuttings, and planting. Grass shall be a quick-growing species. Grass shall be suitable to the area and provide a temporary cover that will not compete later with permanent cover.

B. Irrigation: Any required irrigation shall be done after dark to reduce instances of water becoming a hazardous wildlife attractant.

PART 3 – EXECUTION

3.01 PRE-CONSTRUCTION REQUIREMENTS

Do not begin construction activities until all submittals detailed in this Subsection are completed, submitted to the Engineer, and accepted in writing by AIR-EE.

A. Water Pollution, Dust, Sediment, and Erosion Control Meeting: Schedule a water pollution, dust, sediment, and erosion control meeting with the Engineer after all documents required by AIR-EE are submitted to the Engineer and accepted in writing by AIR-EE. The meeting shall be scheduled a minimum of 14 calendar days prior to the Start Work Date. At a minimum, the meeting shall be attended by the Contractor, subcontractors whose work may provide an impact to stormwater or site environmental conditions, Engineer, AIR-EE, and any authorized representatives of the designated attendees. The meeting will discuss the sequence of work and plans and proposals for water pollution, dust, sediment, and erosion controls.

B. Land Disturbance Calculations: The Contractor is responsible for calculating the total land disturbance for the life of the project and complying with all environmental requirements associated with the total land disturbance calculated. Disturbance of land is defined by Hawaii Department of Health as "the penetration, turning, or moving of soil or resurfacing of pavement with exposure of the base course or the exposure of bare soil or ground surface, including the land surface exposed by construction roads, baseyards, staging areas, demolition, headquarters, and parking areas. It does not include grass or weed cutting, bush or tree trimming or felling that leaves soil or ground intact. It includes 'grubbing' in its normal meaning of the use of equipment to knock down and push vegetation out of the way, typically uprooting vegetation and disturbing the ground surface."

Land disturbing activities that shall be included in the disturbance area calculation shall follow the guidance provided in the Environmental Requirements for Construction Projects Standard Operating Procedures.

C. Site-Specific BMP (SSBMP) Plan or Stormwater Pollution Prevention Plan (SWPPP): The Contractor shall submit a SSBMP Plan (for projects disturbing less than one acre) or SWPPP (for projects disturbing one acre or more) using the latest DOTA template for acceptance by AIR-EE. If a SSBMP Plan or SWPPP was prepared by the Designer, the Contractor shall revise the plan using

the latest template to include additional information required of the Contractor and any changes the Contractor proposes. The SSBMP Plan or SWPPP shall include site-specific temporary BMPs following requirements and practices outlined in DOTA's "Construction Activities BMP Field Manual." All AIR-EE comments shall be resolved and the SSBMP Plan or SWPPP approved prior to the start of land-disturbing activities, including those activities that are needed for the implementation of the BMPs. Submission of the complete and acceptable SSBMP Plan or SWPPP is the sole responsibility of the Contractor, and additional contract time will not be issued for delays due to incompleteness.

D. SSBMP Plan/SWPPP Modifications: Modify, as necessary, and resubmit amended SSBMP Plan or SWPPP and construction schedules to the Engineer for acceptance by AIR-EE. Amendments to the SSBMP Plan or SWPPP shall be made under the following circumstances at a minimum:

1. Conditions that develop during construction that were unforeseen during the design and pre-construction stages that could impact stormwater, soil, or groundwater.

2. Changes to the Contractor's Means and Methods of Construction that could impact stormwater, soil, or groundwater.

3. Omitted conditions that should have been allowed for in the accepted documents.

4. A SSBMP Plan measure that replaces an accepted SSBMP Plan measure that was not satisfactorily performing.

5. Revised dates of installation and/or removal of SSBMP Plan measures.

SSBMP Plan/SWPPP modifications shall be submitted to the Engineer and accepted in writing by AIR-EE before implementing the revised site-specific BMPs in the field. Amendments to the SSBMP Plan or SWPPP shall be included with the original SSBMP Plan or SWPPP and documented in the Amendment Log.

E. Documentation: A copy of the accepted original or amended SSBMP Plan or SWPPP, with the signed certification by the authorized representative filed with DOH for SWPPPs, shall be kept on site or at an accessible location so that it can be made available at the time of an on-site inspection, or upon request by the Engineer, AIR-EE, DOTA's designated authorized representative, and/or DOH/EPA Representative.

F. NPDES Construction Permit: If the total land disturbance for the life of the project, including all construction support activity areas, is one acre or more, coverage under an NPDES Permit Authorizing Discharges of Storm Water Associated with Construction Activity (NPDES Construction Permit) authorizing stormwater discharges associated with construction activity is required from the Department of Health, Clean Water Branch (CWB).

1. Do not begin land-disturbing activities until the CWB has issued an Individual NPDES Permit or NGPC. Conduct land-disturbing activities in accordance with the conditions of the NPDES Permit and/or NGPC.

2. The Contractor shall submit a Notification of Start to CWB a minimum of seven calendar days before the start of construction and provide AIR-EE with a record of submittal.

3. Before construction begins, the Contractor shall assign one of their personnel as the Duly Authorized Representative, in accordance with Section 15 of Appendix A, Chapter 1155. The Duly Authorized Representative is responsible for compliance with the NPDES Construction Permit (i.e., operations of the construction project) and shall certify, sign, and date various documents, including the SWPPP and SWPPP inspection documents.

G. Solid Waste Disclosure: Submit the Solid Waste Disclosure Form for Construction Sites, if applicable, to the DOH Solid Waste Branch as specified on the form within 7 calendar days before the start of construction activities and provide a copy to the Engineer. Provide a copy of all the disposal receipts from the facility permitted by the Department of Health to receive solid waste to the Engineer. This shall also include documentation from any intermediary facility where solid waste is stored, handled or processed.

H. NPDES Hydrotesting Permit: If hydrotesting activities require effluent discharge into State waters or drainage systems, coverage under an NPDES Hydrotesting Waters Permit authorizing discharges associated with hydrotesting is required from the CWB. Do not begin hydrotesting activities until the CWB has issued an Individual NPDES Permit or NGPC for hydrotesting. Conduct Hydrotesting operations in accordance with the conditions of the NPDES Permit and/or NGPC.

I. NPDES Dewatering Permit: If dewatering activities require effluent discharge into State waters or drainage systems, coverage under an NPDES Dewatering Permit authorizing discharges associated with dewatering is required from the CWB. Do not begin dewatering activities until the CWB has issued an Individual NPDES Permit or NGPC for dewatering. Conduct dewatering operations in accordance with the conditions of the permit or NGPC.

J. Construction BMP Training: All Contractor’s and subcontractor’s employees on the project shall complete the DOTA Construction BMP Training prior to entering the construction site and every calendar year thereafter. All Contractor and subcontractor personnel involved with construction project responsibilities shall also be trained on the site-specific BMPs that are utilized during construction and spill response. Records of completion and/or training roster sign-in sheet shall be up to date and included in the SWPPP or SSBMP Plan. Additional training required by AIR-EE shall be at no additional time or cost to the project. There are two training options:

1. All Contractor and subcontractor employees involved with construction project responsibilities watch the DOTA Construction BMP Training Video located on the DOTA Construction Site Runoff Control Program webpage and complete the DOTA Construction BMP Training Survey with a passing score, or

2. The Contractor and subcontractor supervisors/managers watch the DOTA Construction BMP Training Video located on the DOTA Construction Site Runoff Control Program webpage, complete the DOTA Construction BMP Training Survey with a passing score, then train all employees involved with construction project responsibilities and submit a sign-in roster documenting all employees trained at the bottom of the DOTA Construction BMP Training Survey.

   DOTA Construction BMP Training Survey:
   https://hidot.hawaii.gov/airports/doing-business/engineering/environmental/construction-bmp-training-survey/

K. Construction Connection, Discharge, and Surface Runoff Permit: The Contractor shall complete the Contractor's section of the Construction Connection, Discharge, and Surface Runoff Permit and submit to AIR-EE for review. All AIR-EE comments shall be resolved prior to the start of land-disturbing activities.

3.02 CONSTRUCTION REQUIREMENTS

A. Construction Start: Do not expose or disturb surface area of earth material or initiate any land-disturbing activities until submittals detailed in Subsection 01561.3.01 – Pre-construction Requirements are completed, submitted to the Engineer and accepted in writing by AIR-EE. Once installation of BMPs is allowed, a Pre-construction BMP Inspection is conducted, and all deficiencies that are noted during the inspection shall be corrected prior to any other ground disturbance.

B. BMP Installation and Maintenance: Provide, install, maintain, monitor, repair and replace BMPs as needed to maintain efficacy. Address all inspection comments received from the Engineer, AIR-EE, and/or DOTA's designated authorized representative.

C. Protect temporarily or permanently disturbed soil surface from rainfall impact, runoff, and wind before the end of each work day. Coordinate and schedule the work to the maximum extent possible to minimize the amount of exposed or disturbed surface area of earth material.

D. Install and maintain stabilized construction entrances/exits, including any wheel washes, to minimize tracking of dirt and mud onto roadways, sidewalks, and other paved areas. Restrict traffic to stabilized construction entrance areas only. Clean dirt, mud, or other material tracked onto the road, sidewalk, or other paved area by the end of the same day in which the track-out occurs. If tracking is excessive or sediment is being transported farther along the pavement or

sidewalk by other vehicles traveling outside of the construction site, conduct cleaning and sweeping immediately. Modify stabilized construction entrances/exits, as needed, to prevent mud from being tracked onto road. Stabilize entire access roads if necessary.

E. Maintain all excavations, embankments, haul roads, permanent access roads, plant sites, waste disposal areas, borrow areas, and all other work areas within the project limits free from dust that would cause a hazard to the work, airport operations, operations of other contractors, or to persons or property. If chemicals are used as soil stabilizers for erosion and dust control, submit the manufacturer's product data sheets of the chemicals to the Project Manager for acceptance by AIR-EE. Oil treating shall not be used. Dust screens and fabrics are not allowed to be mounted on, or to inhibit the view of, the TSA and AOA Security Fences.

F. Cover exposed surfaces of materials completely with tarpaulin or a similar device when transporting aggregate, soil, excavated material, or other materials that may be a source of fugitive dust.

G. Protect ditches, channels, and other drainageways leading away from cuts and fills at all times by:

1. Hydromulching cuts and fills that may erode.

2. Installing check dams or other silt control devices.

3. Other methods acceptable to AIR-EE.

H. Clean up and remove any pollutant that is attributed to the Contractor. Care shall be taken to ensure that no petroleum/chemical products, bituminous materials, or other deleterious substances, including debris, are allowed to fall, flow, leach, or otherwise enter the sewage systems or storm drains. Deposition of solid waste or the discharge of liquid waste, such as fuels, lubricants, bituminous waste, untreated sewage and other pollutants that may contaminate stormwater, surface waters, soil, or groundwater shall not be permitted.

I. Disturbed Area Stabilization: Immediately initiate stabilization of exposed soil areas upon completion of land-disturbing activities for areas where disturbance has permanently or temporarily ceased on any portion of the site. Land-disturbing activities have permanently ceased when clearing and excavation within any area of the construction site that will not include permanent structures has been completed. Land-disturbing activities have temporarily ceased when clearing, grading, or excavation within any area of the site will not resume for a period of 14 or more calendar days, but such activities will resume in the future. The term "immediately" is used in this Section to define the deadline for initiating stabilization measures. "Immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the land-disturbing activities have temporarily or permanently ceased.

1. After the initiation of stabilization, stabilization activities shall be completed according to the following timeline:

    a. For projects with an NPDES Construction Permit:

        - For construction areas discharging into waters not impaired for nutrients or sediments, complete installation of stabilization measures within 14 calendar days after the temporary or permanent cessation of land-disturbing activities.

        - For construction areas discharging into nutrient or sediment impaired waters, complete installation of stabilization measures within 7 calendar days after the temporary or permanent cessation of land-disturbing activities.

    b. For projects without an NPDES Construction Permit, complete stabilization within 14 calendar days after the temporary or permanent cessation of land-disturbing activities.

J. Notice of Cessation: For projects with an NPDES Construction Permit, the Contractor shall submit a Notice of Cessation to CWB within seven calendar days after the end of the month that the project was completed and provide AIR-EE with a record of submittal.

K. Changes to Land-disturbing Activities: The Contractor shall be responsible to prepare a new SWPPP or SSBMP Plans or amend existing SWPPP or SSBMP Plans if changes to the project or to the Contractor's activities result in land-disturbing activities additional to those previously approved:

1. Land-disturbing activity outside of the approved limits is NOT allowed until approval and proper permits are received. Revised documents, including an updated SWPPP or SSBMP Plan, shall be submitted to and approved by AIR-EE prior to conducting additional land-disturbing activities.

2. If coverage under an NPDES Construction Permit is needed, no activity in the additional area may occur until the additional permit coverage is granted:

    a. If the project was already granted coverage under an NPDES Construction Permit, additional coverage shall be obtained from CWB for the additional area, either by adding the area to existing project documents, and applying for NPDES Construction Permit coverage for the entire project OR by creating new documents and obtaining separate NPDES Construction Permit coverage for the additional area.

    b. If the new disturbed area will result in the total disturbed area

equaling one (1.0) acre or more for a project without existing NPDES Construction Permit coverage, NPDES Construction Permit coverage shall be obtained from CWB that will cover all land-disturbing activities anticipated for the life of the project.

3.03 INSPECTIONS

Refer to the DOTA Construction Site Runoff Program for information pertaining to AIR-EE BMP inspections (pre-construction, routine, and final). Contractor self-inspections shall occur based on the frequency outlined in the SSBMP Plan and, if applicable, NPDES Permit (HAR 11-55) and SWPPP requirements.

A. Corrective Actions: The Contractor shall be responsible for the correction of all deficiencies identified during any of the above inspections.

1. If the Contractor fails to satisfactorily address inspection deficiencies, the DOTA reserves the right to employ outside assistance or use the State's own labor forces to provide necessary corrective measures. The Contractor will be fully responsible for all related cost and time. The State will charge the Contractor such incurred costs plus any associated project engineering costs and will make appropriate deductions from the Contractor's progress payment. Additionally, DOTA can issue liquidated damages for deficiencies not resolved to DOTA's satisfaction and for illicit discharges or contaminant discharges to soil, groundwater, surface water, or State waters (see Appendix A).

2. Failure to install or maintain site-specific BMP measures may result in the assessment of liquidated damages (Appendix A). Depending on the severity of the deficiencies, additional enforcement actions, such as suspension of work and/or termination of the contract (with the Contractor's Surety being fully responsible for all additional costs incurred by the State), can be conducted and assessed against the Contractor.

3. For all citations or fines received by the DOTA for non-compliance, including non-compliance with NPDES Permit conditions, the Contractor shall reimburse the State within 30 calendar days for the full amount of outstanding cost that the State has incurred. The State may deduct incurred costs from the Contractor's progress payments; however, the Contractor shall be responsible for reimbursing the State if the costs exceed remaining payments owed to the Contractor.

4. The Contractor shall be responsible for all citations, fines and penalties levied by DOH or EPA against the State due to the Contractor's failure to satisfactorily address site-specific BMP deficiencies and/or any Contractor's illicit discharges. The State may make the appropriate deductions from the Contractor's progress payment.; however, the Contractor shall be responsible for reimbursing the State if the costs of correction exceed remaining payments owed to the Contractor.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

The work specified in this Section will be paid for at the contract lump sum price. Payment shall be full compensation for work prescribed in this Section and contract documents, including but not limited to, all labor, materials, tools, equipment, and all incidentals necessary to install, maintain, monitor, repair, replace, modify, and remove site-specific BMP measures.

Item No.	Item	Unit
01561.1	Construction Site Pollution Controls	Lump Sum

Partial payments shall be paid in the Monthly Progress Payment as follows:

A. 20% of the line item price shall be paid upon the satisfactory completion of the Pre-construction BMP Inspection and associated corrective actions accepted by AIR-EE or their designated authorized representative, as described in Section 01561.3.03(A), above.

B. 70% of the line item price shall be paid in equal monthly payments over the duration of the contract. Failure to satisfactorily apply, maintain, or modify BMP measures and devices, and/or submittals shall result in the withholding of monthly progress payments for this line item.

For projects that will disturb one acre or more of land, or will be part of a larger common plan of development that will disturb one acre or more of land, payments shall be made only after Routine BMP Inspections described in Section 01561.3.03 above have been satisfactorily completed, and associated corrective actions accepted by AIR-EE or their designated authorized representative.

C. The remaining 10% of the line item price shall be paid after all temporary BMP measures have been satisfactorily removed.

Payment will be made only after the satisfactory completion of the Final BMP Inspection and associated corrective actions accepted by AIR-EE or their designated authorized representative, and acceptance of the Post-construction BMPs by AIR-EE or their designated authorized representative.

Liquidated Damages, up to $25,000 per day (Appendix A), shall be assessed for each non-compliance of the BMP requirements described in this Section. The Contractor shall not be entitled to recover any Liquidated Damages assessed, even after the deficiencies have been corrected.

The Liquidated Damages cited in Appendix A are in excess of reimbursement for any citations, fines, or penalties levied by any regulatory agency against the State due to the Contractor's violations of clean water regulations or standards.

Appendix A. Liquidated Damages Schedule for Non-Compliances

Non-Compliance	Amount
Failure to obtain coverage under an NPDES Construction Permit for construction activities associated with a project that will disturb one acre or more of land, or will be part of a larger common plan of development that will disturb one acre or more of land, as defined by DOH.	$1,000 per calendar day per violation.
Failure to obtain coverage under an NPDES Hydrotesting Permit for hydrotesting activities that will require effluent discharge into State waters or drainage systems.	$1,000 per calendar day per violation.
Failure to obtain coverage under an NPDES Dewatering Permit for dewatering activities that will require effluent discharge into State waters or drainage systems.	$1,000 per calendar day per violation.
Failure to comply with the conditions specified in an NPDES Permit, or any other applicable permit.	$1,000 per calendar day per violation.
Failure to schedule a Pre-construction BMP Inspection and receive acceptance of all associated corrective actions prior to conducting land-disturbing activities.	$1,000 per calendar day per violation.
Failure to provide corrective actions accepted by AIR-EE or their designated authorized representative by the deadlines identified in the BMP inspection report.	$1,000 per calendar day per violation.
Failure to have the accepted SSBMP Plan and amendments or the accepted SWPPP and amendments available at a project construction site.	$1,000 per calendar day per violation.
Failure to properly install or maintain a BMP specified by the SSBMP Plan, SWPPP, contract drawings and documents, or permit.	$2,000 per calendar day per violation.

Non-Compliance	Amount
Failure to have an accepted amendment to the SSBMP Plan or an accepted amendment to the SWPPP prior to implementing changes to previously accepted BMPs. Note: Advance review and acceptance can be provided to satisfy this non-compliance. However, for projects with an NGPC or NPDES permit, the written amendment shall still be formally submitted for certification and signature by the authorized representative identified in the NGPC or NDPES Permit.	$2,000 per calendar day per violation.
Failure to conduct required inspections.	$1,000 for each of the first ten violations, $2,500 for each of the next ten violations, $5,000 for each subsequent violation.
Failure to maintain required records such as BMP inspection reports, rain gauge data logs, etc.	$500 per calendar day for the first ten days of each violation, $1,000 per calendar day for the next ten days of each violation, $2,500 per calendar day for each subsequent day of violation.
Any violation resulting in a polluted discharge.	Up to $25,000 per calendar day per violation.
Note: Liquidated Damages shown in the Table shall be assessed at the discretion of the DOTA.	

Assessment of Liquidated Damages for Non-Compliance:

The Contractor may be assessed liquidated damages by issuance of an Enforcement Letter. The Enforcement Letter shall indicate the amount of liquidated damages that are assessed for the non-compliances which shall be deducted from the Contractor's next progress payment. The Enforcement Letter will be sent electronically via e-mail and a hard copy to the Contractor's designated representative(s), identified in Section 01561.3.01(2)(d), responsible for the Contractor's Construction Site Runoff Control Program. An Enforcement Letter may be issued with or without previous verbal notifications, written warnings, or official enforcement letters (i.e. Warning Letter or Notice of Violation (NOV).

Liquidated Damages may be assessed for the following:

- Non-compliances listed in the Table, herein, included in Appendix A.
- Non-compliances have not been corrected in the timeframes noted.
- Corrective actions are not completed after a verbal notification, written warning (email or formal letter), or NOV is issued.
- Contractors are non-responsive to DOTA's directives.
- Repeated non-compliance.
- A polluted discharge has occurred.

The number of days used for the liquidated damages calculations shall start on the day that the non-compliance was required to be corrected and shall end on the day that the non-compliance is corrected and accepted. If DOTA's personnel are not able to go out in the field to verify that the BMP deficiencies are corrected in the timeframe specified, the Contractor can send photographs showing the corrected deficiency via e-mail to the DOTA Engineer and AIR-EE along with documentation on how the deficiency was corrected. The DOTA Engineer and AIR-EE may visit the site to verify the corrective actions are acceptable. If the corrective actions are acceptable, then the clock stops on the day that the documentation was received.

The Contractor shall not be entitled for compensation for any liquidated damages or penalty, fine, or citations assessed and deducted from the Contractor's progress payments, even after corrective actions have been taken.

END OF SECTION

SECTION 01562 – MANAGEMENT OF CONTAMINATED MEDIA, SOIL DISPOSAL, AND SOIL REUSE

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION

A. This Section describes procedures for the management of known and/or unknown contaminated media (e.g., soil, sediment, groundwater, soil vapor, and building materials) and disposal and on-site reuse of either contaminated or uncontaminated soil/sediment (referred to herein as “soil”), that may be disturbed or generated during excavation or demolition activities, or other construction activities associated with this project.

B. All soil shall be treated as potentially contaminated until it is determined otherwise.

C. The Contractor shall supply all labor, materials, and equipment necessary for the removal, temporary storage, testing, handling, backfilling, and management of soil and contaminated media to carry out the work in accordance with these specifications and all applicable Federal, State, and local regulations and latest amendments.

D. The Contractor shall follow the State of Hawaii, Department of Transportation, Airports (DOTA) Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan (DOTA EHE-EHMP), a Construction- Environmental Hazard Management Plan (C-EHMP) Addendum or a Site-Specific C-EHMP, whichever applies to the project.

E. The Contractor and their Qualified Environmental Professional shall review any site-specific investigation reports (e.g., Phase II Environmental Site Assessment ESA or construction management plans, etc.) to understand the conditions that may affect work performance.

F. Qualified Environmental Professional: the Contractor shall employ a Qualified Environmental Professional (QEP) who possesses a minimum of five (5) years of experience providing environmental oversight for the management of contaminated media during construction activities, who shall assist in the preparation of the Contractor’s C-EHMP (Site-Specific or Addendum). The QEP shall be identified in the applicable EHMP document.

G. Should the Contractor deviate from the DOTA EHE-EHMP, C-EHMP Addendum, or Site-Specific EHMP, the Contractor shall be responsible to prepare or modify any existing Hawaii Department of Health (DOH) required C-EHMP (Site-Specific or Addendum). Any deviation from construction EHMPs will require approval by DOH and the DOTA Engineering Branch, Environmental Section (AIR-EE) prior to

implementation. The Contractor shall detail deviations from standard practices and explain how those deviations will be protective of human health and the environment.

H. The primary contaminant-related hazards addressed by the (DOTA) EHE-EHMP or a C-EHMP include, but are not limited to, the following Contaminants of Potential Concern (COPCs):

- Petroleum-related Hydrocarbons, e.g., TPH-g, TPH-d, TPH-o, BTEX, and PAHs
- Constituents of light distillate fuels and/or Chlorinated Solvents (together considered volatile organic compounds or VOCs)
- Polychlorinated Biphenyls (PCBs)
- Pesticides, e.g., Chlordane, Dieldrin
- Metals, e.g., Arsenic, Barium, Cadmium, Total Chromium, Lead, Mercury, Selenium, and Silver
- Per- and Polyfluoroalkyl Substances (PFAS)

In addition, free petroleum product (e.g., gasoline, aviation gasoline, diesel fuel, jet fuel, motor oils, lubricating oils) may be encountered in soil or groundwater in areas of previous petroleum releases.

Soil vapor may be present from volatile COPCs present in subsurface soil or groundwater.

Should changes in site conditions or additional site information identify contaminants or risks to human health and/or the environment not addressed by the DOTA EHE-EHMP or C-EHMP (Site-Specific or Addendum), the Contractor shall be responsible to revise, update, and finalize a C-EHMP (Site-Specific or Addendum), to be reviewed and approved by AIR-EE and the DOH Hazard Evaluation and Emergency Response (HEER) Office.

The Contractor shall coordinate with AIR-EE, as well as have any C-EHMP (Site-Specific or Addendum) approved by the HEER Office, prior to the start or continuation (in the case of an Addendum) of any related ground disturbing activities.

1.03 REFERENCES

All work shall conform to the latest edition of the following, unless otherwise noted or specified in these specifications. Where conflicts among the requirements or with these specifications exists, the most stringent requirements shall apply.

A. DOTA Construction Site Runoff Control Program
https://hidot.hawaii.gov/airports/doing-business/engineering/environmental/construction-site-runoff-control-program/

1. DOTA EHE-EHMP

2. DOTA Construction Best Management Practices (BMP) Field Manual

B. Department of Health (DOH) Hazard Evaluation & Emergency Response (DOH HEER) https://health.hawaii.gov/heer/

1. Technical Guidance Manual (TGM) for Implementation of the State Contingency Plan (including updates).

2. Guidance for Soil Stockpile Characterization and Evaluation of Imported and Exported Fill Material.

3. HEER Office Screening for Environmental Hazards at Sites with Contaminated Soil and Groundwater.

4. HEER Office Construction EHMP and EHMP Addendum Template

C. State of Hawaii Administrative Rules, Title 11, DOH https://health.hawaii.gov/opppd/department-of-health-administrative-rules-title-11/

1. Chapter 54 Water Quality Standards

2. Chapter 58.1 Solid Waste Management Control

3. Chapter 59 Ambient Air Quality Standards

4. Chapter 11-260.1-279.1 Hazardous Waste Management : General Provisions

5. Chapter 280.1 Underground Storage Tanks

6. Chapter 451 State Contingency Plan

D. The Hawaii Environmental Response Law (Hawaii Revised Statutes HRS Chapter 128D) and the State Contingency Plan (Hawaii Administration Rules HAR Title 11, Chapters 451-1 – 451-24).

E. American Petroleum Institute (API) RP 2219 https://www.api.org/oil-and-natural-gas/health-and-safety/refinery-and-plant-safety/occupational-safety/rp-2219

F. United States Code of Federal Regulations (CFR), Title 29: Labor https://www.ecfr.gov/current/title-29

G. CFR, Title 40: Protection of the Environment https://www.ecfr.gov/current/title-40

1. Part 50, “National Primary and Secondary Ambient Air Quality Standards A”.

2. Part 122, “EPA Administered Permit Program: The National Pollutant Discharge Elimination System”.

3. Part 261, “Identification and Listing of Hazardous Waste”.

4. Part 263, “Standards Applicable to Transporters of Hazardous Waste”.

5. Part 302, “Designation, Reportable Quantities, and Notification”.

H. CFR, Title 49 : Transportation
https://www.ecfr.gov/current/title-49

1. Part 171, ”General Information, Regulations, and Definitions”.

2. Part 172, “Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans”.

I. U.S. EPA Comprehensive Environmental Restoration, Compensation, and Liability Act (CERCLA), Section 107(1), exemption for cleanup of legally applied pesticide products.
https://www.epa.gov/enforcement/superfund-enforcement-authorities

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 GENERAL WORK PROCEDURES

A. Prior to beginning work, the Contractor, the Contractor’s Qualified Environmental Professional, and the Engineer or their representative shall review and discuss all available information pertaining to contamination or potential contamination at the work site.

B. It should be noted that, in some cases, the contamination (e.g., soil contaminated with metals, PCBs, pesticides, PFAS, etc.) may not be identifiable through visual and/or olfactory observation, and contaminant-specific field screening techniques may need to be implemented.

C. Potential or suspected contaminated media from separate locations or sources shall not be mixed or placed together without the approval of the Qualified Environmental Professional and AIR-EE.

D. The removal, transfer, or handling of explosive or flammable media shall be conducted using explosion-proof pumps and equipment. If a vacuum truck is used for removal of liquids or residues, the area of operation for the vacuum truck shall be vapor free. Discharge the vacuum pump exhaust gases through a hose of adequate size and length downwind of the truck and tank area. Vacuum truck operating and safety practices shall conform to API RP 2219. Collect tank residues in drums, tanks, or tank

trucks labeled according to 49 CFR171 and 49 CFR 172 and dispose of as required by regulation.

E. Follow Decontamination regulations and procedures as necessary.

F. Soil excavation, grading, and any disturbance of contaminated soil may cause a potential exposure to Contractor's employees and the public from the release of vapors and fugitive dust. The routes of exposure to dusts are by inhalation, ingestion, and dermal contact. The Contractor shall use engineering controls such as water spraying and wind barriers to control fugitive dust. The Contractor shall use engineering controls to mitigate the release and exposure to soil vapors.

G. The Contractor shall test excavated soil for the presence of COPC and managed in accordance with this Section and relevant guidance and regulations.

H. Report construction activities in areas with contaminated soil or groundwater by completing the appropriate forms in the DOTA EHE-EHMP, Appendix B.3 Construction Activities Release Response Plan. Submit the forms to the DOH Office of Hazard Evaluation and Emergency Response (HEER) Office and provide a copy of the forms to the Engineer and AIR-EE.

I. All correspondence with DOH and other regulatory agencies must include the Engineer and AIR-EE.

3.02 PRE-CONSTRUCTION REQUIREMENTS

A. Submit the following a minimum of thirty (30) calendar days prior to beginning any ground disturbing activities, for approval by AIR-EE.

1. The Contractor's revisions to the C-EHMP Addendum or Site-Specific C-EHMP completed in the design phase, or creation of a C-EHMP Addendum if deviating from the DOTA EHE-EHMP, that includes, but is not limited to:

    a. Procedures, engineering controls, and methods the Contractor will use during the excavation, soil stockpiling and segregation, temporary storage, testing, handling, treatment, backfilling, and disposal of contaminated media, work area isolation, construction barriers, dust control, decontamination, and emergency management.
    b. Names of the Contractor's and their subcontractors' qualified personnel who will be supervising or managing contaminated materials at the site. Include the personnel's phone number and qualifications.
    c. Name(s) of the Contractor's Qualified Environmental Professional, including their qualifications.
    d. Proposed schedule of work.
    e. Location map of temporary contaminated stockpiles and other contaminated media storage, including infrastructure such as pipes and appurtenances, if applicable.
    f. All documents required as part of the appendices to the DOTA EHE-EHMP (e.g., health and safety plan and completing the management plans in the

appendices) or C-EHMP (Site-Specific or Addendum) applicable appendices (e.g., health and safety plan, construction material documents, etc.).

3.03 CONSTRUCTION REQUIREMENTS

A. Soil Excavation and Stockpiling:

1. Notify the HDOH HEER Office at least 90 calendar days prior to disturbing contaminated soil at "HEER Sites" as defined by HI DOH e-Permitting System - Notification of Construction Activities (HEER Office). Version 1.7 or most recent version available. Obtain AIR-EE's review and concurrence prior to submittal to DOH.

2. The disturbance of contaminated media shall be performed in accordance with the DOTA EHE-EHMP or the Contractor's approved C-EHMP (Site-Specific or Addendum), where applicable. The HEER Office and AIR-EE shall be immediately notified if contaminated media not previously known or anticipated is encountered. The HEER Office will determine whether additional sampling is required. The Contractor shall provide a location map with Global Positioning System (GPS) coordinates and approximate depth below ground surface at which contaminated media were encountered to the Engineer and AIR-EE.

3. Any soil stockpile shall not exceed 100 cubic yards unless approved in the applicable C-EHMP document. If deviating from the plan, approval from DOH is required. Soils placed in watertight containers shall be covered with plastic sheeting or positioned under a roof when not in active use. Soil stockpiles and containers shall be located at least 50 feet (1524 cm) from drainage features, surface waters, and stormwater drainage paths.

4. Any liquid-phase oil or free product associated with the contaminated soil shall be drained prior to stockpiling. If feasible, the free product should be separated from the soil, properly stored, profiled, and disposed of at an approved recycling or disposal facility.

B. Soil Testing and Disposal:

The contractor shall test all soil generated during excavation, demolition, or other construction activities. Sampling and testing of stockpiles shall be, at a minimum, in accordance with the latest edition of the DOH's Guidance for Soil Stockpile Characterization and Evaluation of Imported and Exported Fill Material. The Contractor's QEP shall direct the soil sampling collection and testing methods in accordance with the most current guidelines. Stockpiles shall be tested using multi-increment (MI) sampling methodology in accordance with the TGM. Alternative sampling approaches, and appropriate decision unit (DU) volumes for large volume soil stockpiles, should be discussed with AIR-EE and may be utilized on a case-by-case basis when approved by the HEER Office.

Note that in accordance with DOTA policy, no soil from airport property shall be reused offsite, even if the soil appears acceptable for unrestricted reuse based on testing

conducted. Exceptions to this policy may only occur with the written approval of the Engineer and AIR-EE.

1. Offsite Soil Disposal

    a. The Contractor shall confirm the disposal facility's sampling requirements, as well as their standards for disposal.
    b. Soil that is a regulated hazardous waste shall be disposed at an approved United States Environmental Protection Agency (EPA) regulated facility.
    c. Soil that is above the Hawaii Department of Health (DOH) Tier 1 Environmental Action Levels (EAL) for unrestricted use but not a regulated hazardous waste shall be disposed of at a DOH or EPA permitted disposal facility (i.e., landfill) unless on-site reuse is approved by the Engineer and AIR-EE as described below.
    d. For any contaminated media removed from Airport property to an approved facility, the Contractor shall be responsible for its legal disposal.

2. On-site Soil Reuse

    a. The Contractor shell test all soils designated for on-site reuse. Soil that does not exceed applicable DOH Tier 1 Environmental Action Levels (EAL) for unrestricted use may be reused on-site (within construction site boundaries) with AIR-EE approval.
    b. Soil with contaminants that exceed DOH Tier 1 EALs may be approved for on-site (within construction site boundaries) reuse with written approval from AIR-EE and when the following conditions are met:
        1) Contaminated soil is reused within other contaminated areas in the proximity of its original location.
        2) Contaminated soil is reused no less than 164.04 yards (150 meters) from the nearest surface water or surface water inlet.
        3) Contaminated soil is reused at an elevation above the tidally influenced high water table, and at least one foot below the finished surface grade, with the most contaminated soil placed at the bottom of the excavation and cleanest soil toward the ground surface. A minimum of one (1) foot of clean soil shall comprise the top, final backfill layer, and unless waived by DOTA and DOH, an impervious layer shall cap this top layer.
        4) Contaminated soil is not reused within or beneath the footprint with a permanent building structure.
        5) Contaminated soil to be reused cannot contain free oil, oil sheens, oil stains, or total petroleum hydrocarbons (TPH) concentrations exceeding 5,000 milligrams per kilogram (mg/kg).

C. Groundwater Management: Groundwater may be contaminated by petroleum hydrocarbons, dissolved metals, PFAS, VOCs, and/or pesticides, and may be encountered during soil excavation or dewatering activities.

    1. If the contaminated groundwater is discovered at a previously unknown source or site on the project, the Contractor shall immediately notify the Engineer, AIR-EE, and HEER Office. Provide a location map with GPS coordinates and approximate

mean sea level depth of the groundwater at which the contamination was encountered.

2. The disturbance of contaminated groundwater shall be performed in accordance with the DOTA EHE-EHMP or C-EHMP (Site-Specific or Addendum), where applicable. The HEER Office will determine whether additional sampling is required.

3. If free product is present at the extracted groundwater, it shall be separated from the groundwater, profiled, and disposed of at a DOH-approved recycling/disposal facility. Free product shall not be moved from one excavation to another. Engineering measures shall be taken to prevent the transfer of the free product during dewatering. Water contaminated with free product shall not be discharged from a dewatering pit.

4. 4Releases of contaminated groundwater to surface water bodies or areas beyond the work area is prohibited.

5. Groundwater shall only be re-inflated in the ground with the prior approval of AIR-EE and HEER Office. Under circumstances where contaminated groundwater cannot be re-infiltrated, proper disposal at a licensed facility shall be conducted. Notification to the appropriate agencies and other pertinent information related to the discharge shall be conducted by copying the Engineer and AIR-EE on all correspondence and copies of correspondence provided upon request.

6. For Contractor is responsible for the legal disposal or discharge of groundwater that is not re-infiltrated and shall provide AIR-EE with copies of waste manifests.

7. For groundwater containerized and removed from Airport property, the Contractor shall have representative samples taken and tested in accordance with DOH guidelines, standards, and regulations. A copy of the groundwater test results shall be submitted to AIR-EE. The groundwater shall not be disposed offsite without the approval of the Engineer and a written approval from the DOH-permitted facility receiving the groundwater indicating that they acknowledge the groundwater test results and providing their approval to dispose the groundwater at their facility. Transport off site shall occur in DOT-approved containers or mobile tanks. Documentation for the removal of containerized groundwater is required in the Close-Out Report detailed in SECTION 3.04 – “POST-CONSTRUCTION REQUIREMENTS”.

8. With approval from AIR-EE and oversight from the QEP, small volumes of groundwater may be disposed via evaporation from a constructed (lined) pond or basin, with solid residuals properly tested and disposed in accordance with this specification.

9. Release Reporting: Encountering previously unknown contaminated soil or groundwater during subsurface construction activities is considered a release and shall be reported to the HEER Office. Copies of the DOH Release Report, DOH-issued Release Number, and email correspondence (if applicable), shall be

furnished to the Engineer and AIR-EE. The Contractor shall be responsible for release reporting and AIR-EE shall be included in all correspondence with the HEER Office.

10. Contractor shall comply with DOTA and HEER Office requirements. A written report shall be provided to the HEER Office. The Hawaii Hazardous Substance Written Follow-up Notification Form is provided in the DOTA EHE-EHMP, Appendix B.1. Photos shall be included to document the incident. The Contractor shall keep a copy of the completed Form B.1 and provide copies of the written report to the Engineer and AIR-EE.

11. Report all leaks and spills immediately to AIR-EE, DOTA personnel, and regulatory agencies in accordance with the airport-specific DOTA Spill Reporting Fact Sheet available via the DOTA Construction Site Runoff Control Program Webpage at

    https://hidot.hawaii.gov/airports/doing-business/engineering/environmental/construction-site-runoff-control-program/.

    Releases that occur during construction activites or releases due to unforeseen events (spills) shall be reported immediately.

D. Underground Storage Tanks (USTs) and Utility Pipes:

1. For any UST or pipeline, whether unexpectedly discovered or a planned removal, the nature of the UST or pipeline and whether they are inactive shall be determined prior to removal. Immediately notify the Engineer, AIR-EE and HEER Office of any unexpected encounter with a UST or buried piping.

2. The Contractor shall record field observations of the UST and pipelines. These observations shall include, but are not limited to, the following:

    a. Location relative to fixed landmarks, including GPS coordinates. Provide a location map that shows the UST and pipelines that were encountered. The map shall include North arrow and a scale.
    b. Depth, diameter, length, and type of piping. Describe the condition of the pipe.
    c. Volume and type of fuel or product, including analytical laboratory reports for the product recovered.
    d. Beginning and ending fluid levels, if applicable.
    e. Flow rates, if applicable.
    f. Direction of flow.
    g. Detailed photographs.
    h. Detailed description of actions taken during the discovery, such as cutting, product removal, and disposal.

3. Provide records of the field observations to the Engineer, AIR-EE, and HEER Office.

4. The removal of all USTs must comply with HAR §11-280.1, and all correspondence related to identification, removal, and documentation must be provided to the Engineer and AIR-EE. Only personnel knowledgeable and trained in pipeline and UST removal shall cut, drain, and remove USTs and pipelines. Hazardous conditions, particularly those created by explosive vapors and releases of product to the environment, shall be mitigated prior to removal activities. If any waste pipe or UST components are to be stored on-site prior to disposal, the area shall be lined with polyethylene plastic sheeting, 20 mil (0.508 mm) or thicker, and bermed to contain any free product. Provision shall be in place to contain viscous products that may liquify after exposure to atmospheric heating. The waste pipe segments should be drained of any residual product and stored on appropriate dunnage with the ends of the pipe sealed and covered to protect the interior of the pipe from contact with rainwater and wind.

5. All removed pipelines and USTs shall be properly disposed or recycled.

6. The Contractor shall prepare and submit a UST Removal Report, including the results of all sampling activities required under HAR §11-280.1, to the Engineer, AIR-EE, and the DOH SHWB (UST Program).

3.04 POST-CONSTRUCTION REQUIREMENTS

A. Submit a Project Close-out Report within 30 calendar days after work is completed. The Close-out Report shall contain the following applicable contents

1. A signed letter certifying that the removal and disposal of all contaminated materials were completed in accordance with the DOTA EHE-EHMP or Contractor's approved C-EHMP (Site-Specific or Addendum), and all applicable Federal, State, and local rules and regulations.

2. All approved DOTA EHE-EHMP deviation request forms. (Reference Appendix B of the DOTA EHE-EHMP.)

3. Any Site-Specific EHMP(s) or Long-term EHMP(s). For locations at an airport for which DOTA has already established a Site-Specific EHMP from previous projects, the DOTA's Site-Specific EHMP shall remain applicable, with any approved amendments resulting from a change in site conditions due to construction.

4. All testing and laboratory results, including chain of custody, for any soil/sediment, groundwater, soil vapor, or other media sampling and analysis.

5. Any results from air monitoring.

6. Record of Field Observations, including location map with GPS coordinates, limits, and depths of any contaminated media (soil, groundwater, etc.) that were encountered at a previously unknown source or sites on the project. Include a copy of the completed Hawaii Hazardous Substance Written Follow-up Notification form that was submitted to DOH and all other associated documents.

7. If contaminated soil was disposed off-site (off Airport Property), include the following:

    a. A copy of the signed agreement from the receiving facility acknowledging the sample test results and indicating acceptance of the soil.
    b. Documentation of the quantity of soil received by the facility.
    c. Copies of the test results of the soil sampling.
    d. All certifications, disposal forms, waste manifests, and summary logs.

8. If any soil was approved for reuse on-site (within the construction site boundaries), at a minimum, include the following:

    a. Copies of the test results of the soil sampling.
    b. The quantity of soil that was re-used on-site.
    c. Location map of the re-used soil. Include GPS coordinates of its emplaced limits.
    d. A brief description of the purpose of the reused soil (e.g., general fill, utility trench backfill material, etc.). Include the depth and thickness of its placement.
    e. Photos of the site after placement of the re-use soil has been completed.

9. Record of Field Observation of any unanticipated UST or pipeline discovered during construction activities, including a copy of the completed DOH Notice of Intent to Close Underground Storage Tanks form, UST Closure Report, and all other associated documents.

10. The Close-out Report may be distinct to each contaminated media type/source. For sites with multiple contaminated media types/sources, Close-out Reports for each contaminated media type can be submitted separately or combined into a project-wide compilation of reports.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work specified in this Section will be paid at the unit price measurement noted below:

Item No.	**Item**	**Unit**
01562.1	Management of Contaminated Media Soil Disposal, and Soil Reuse	Lump Sum
01562.2	Additional Management of Contaminated Media, Soil Disposal, and Soil Reuse	Allowance

Payment shall be full compensation for work prescribed in this Section and the contract documents and stipulated below.

Lump Sum items will be paid in accordance with the bid price upon approval of completed work under that line item by the Engineer. Should any unforeseen conditions arise, payment shall be made by an allowance, as directed by the Engineer.

For ALLOWANCE items in the Proposal Schedule, the allowance is an estimate and the amount shall not exceed the maximum amount shown in the Proposal Schedule. Payment shall be the actual cost as invoiced by the Contractor and approved by the DOTA Engineer. The Contractor shall be allowed to include overhead, profit, insurance and/or other mark-ups, as stipulated in Section 9.5 of the 2016 GENERAL PROVISIONS FOR CONSTRUCTION PROJECTS, Air and Water Transportation Facilities Divisions.

Should the DOTA receive reports of any illegal dumping of material, and if illegal dumping is confirmed to have occurred, the DOTA will assess a Liquidated Damages amount of $5,000 per truck per day until the illegally dumped material has been cleaned up or the incident has been remedied to the satisfaction of the Engineer with the DOH's concurrence. The Contractor shall not be entitled to recover any Liquidated Damages assessed, even after the non-compliance has been corrected.

The Contractor shall be responsible for reimbursing DOTA for all citations, fines, and penalties levied by DOH, EPA, Department of Labor and Industrial Relations, and any other regulatory agency against the State due to the Contractor's failure to properly manage contaminated medias, including non-compliance with the DOTA EHE-EHMP, DOTA Site-Specific EHMP, and/or Site-Specific C-EHMP or C-EHMP Addendum. The Contractor shall reimburse the State within thirty (30) calendar days for the full amount of any outstanding cost that the State has incurred. The State may deduct all incurred costs from the Contractor's monthly progress payments; however, the Contractor shall be responsible for reimbursing the State if the costs of correction exceed remaining payments owed to the Contractor.

If the Contractor fails to satisfactorily address the non-compliance item, DOTA reserves the right to employ outside assistance or use the State's own labor forces to provide necessary corrective measures. The Contractor shall be fully responsible for all costs and time. The State shall charge the contractor such incurred costs plus any associated project engineering costs and shall make appropriate deductions from the Contractor's monthly progress payment.

END OF SECTION

SECTION 01565 – SECURITY MEASURES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION

The Contractor shall incorporate the State's airport security measures as part of his work. The Contractor shall adhere to established and enhanced security procedures, as mandated by the State and FAA, throughout the course of this Contract.

1.03 SUBMITTALS

Submit a security plan that addresses the conditions set forth in this Contract. Said plan shall contain, at a minimum, a plan of the project scope with locations of construction barricades with secured entry/exits, identification of locations requiring guards, Contractor measures to ensure security of worksite and personnel and procedures to ensure the containment of the worksite from unauthorized personnel. This package shall be submitted within 14 calendar days after execution of Contract.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 SECURITY

A. Obtain airport security identification badges for all employees working on this project and Air Operations Area (AOA) decals for all vehicles entering the AOA area in accordance to the requirements stated in the Airports Division Supplement to the Special Provisions (ADS), Paragraph 8.17 – "Operation of Contractor's Motor Vehicle and Personnel in Restricted Air Operations and Movement Areas". All requests for badges and AOA decals shall be submitted in writing to the Airport District Manager through the Engineer within 14 calendar days after execution of Contract. Only authorized personnel working on this project shall be allowed to obtain badges. The Contractor shall be responsible to pay for all costs associated with complying with airport security requirements, including obtaining airport security identification badges.

Currently, the fee to obtain a new airport identification badge is $100.00, but due to the changing fee structure of these services, the Contractor shall inquire with the Daniel K. Inouye International Airport AOA badge and ramp license office at (808) 836-6548. For other Airport Districts cost inquiries should be made the District Manager's office.

If access is required to the Honolulu International Arrivals Building, inquiries shall be made to the Bureau of Customs and Border Patrol at (808) 861-8642 for additional bonding requirements.

B. The Contractor shall comply with all existing and proposed airport security initiative requirements. Contractor may be subject to civil penalties up to $35,000.00 for each security violation.

C. The Contractor shall protect work areas from theft, vandalism, and unauthorized entry. Ensure that proper methods are undertaken to secure tools, materials, and equipment from the public.

D. All vehicles entering the AOA through any of the Airport Access Check Points may be subject to search. The Contractor shall allow extra time for these inspections and be able to provide personnel, as required, to assist Airport security personnel during the inspections.

E. If required by the State, the Contractor will be responsible for the posting of guards at access points where the construction traffic may compromise the integrity of the airport security. Payment for posting of security guards required by the State shall be paid for as an allowance item in the Proposal Schedule. The Contractor shall submit the name and qualifications of the security company to the Engineer for review prior to hiring the security company. The security company shall have extensive experience in working on airports and knowledgeable in airport security procedures within the State of Hawaii.

PART 4 – MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

No measurement shall be made for the items in this Section.

4.02 BASIS OF PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 01580 – TEMPORARY FACILITIES AND UTILITIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this section.

1.02 DESCRIPTION

This item shall consist of arranging and maintaining all utilities including, but not limited to, water, electricity, sewage disposal and telephone communications in the work area which the Contractor and Engineer deems necessary to meet the requirements of the work under the contract.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 TEMPORARY UTILITIES DURING CONSTRUCTION

A. Water and Sanitation: The Contractor shall provide temporary drinking water and sanitary facilities for the field personnel. The facilities shall be in accordance with the applicable health regulations and shall be maintained clean and operable until the conclusion of the construction work.

B. Telephone: The Contractor shall a have a telephone available for the State's use for communications with field personnel. Cellular telephones are acceptable. The Contractor shall install the telephone immediately upon starting work and maintain service until the project is completed. All costs associated with obtaining and maintaining telephone service shall be borne by the Contractor.

C. Electricity: Contractor shall obtain or provide temporary electric power and shall pay for all connections and energy charges incurred during construction.

D. Metering: Water and electrical services shall be metered and payment for meters and services shall be borne by the Contractor. Temporary connections for water shall include installation of a meter and backflow preventer at the point of connection according to State standards at the Contractor's cost. The Contractor shall submit requests for temporary connections in writing to the Engineer 14 calendar days prior to the connection and shall include a description of work and a sketch of the proposed installation.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 01600 – PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 RELATED REQUIREMENTS

SECTION 01611 - VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS: Requirements for VOC-restricted product categories.

1.03 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

   1. Submit within 15 days after date of Agreement.

   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 – PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.

B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

B. Use of products having any of the following characteristics is not permitted:

1. Made using or containing CFC's or HCFC's.

2. Made of wood from newly cut old growth timber.

3. Containing lead, cadmium, or asbestos.

C. Where other criteria are met, Contractor shall give preference to products that:

1. If used on interior, have lower emissions, as defined in Section 016116.

2. If wet-applied, have lower VOC content, as defined in Section 016116.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 – EXECUTION

3.01 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.02 STORAGE AND PROTECTION

A. Provide protection of stored materials and products against theft, casualty, or deterioration.

B. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 017419.

1. Structural Loading Limitations: Handle and store products and materials so as not to exceed static and dynamic load-bearing capacities of project floor and roof areas.

C. Store and protect products in accordance with manufacturers' instructions.

D. Store with seals and labels intact and legible.

E. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

F. For exterior storage of fabricated products, place on sloped supports above ground.

G. Provide off-site storage and protection when site does not permit on-site storage or protection.

1. Execute a formal supplemental agreement between Owner and Contractor allowing off-site storage, for each occurrence.

H. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

I. Comply with manufacturer's warranty conditions, if any.

J. Do not store products directly on the ground.

K. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

L. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

M. Prevent contact with material that may cause corrosion, discoloration, or staining.

N. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

O. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 01611 – VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SECTION INCLUDES

A. Requirements for Indoor-Emissions-Restricted products.

B. Requirements for VOC-Content-Restricted products.

1.03 DEFINITIONS

A. Indoor-Emissions-Restricted Products: All products in the following product categories, whether specified or not:

1. Interior paints and coatings applied on site.

2. Interior adhesives and sealants applied on site, including flooring adhesives.

3. Flooring.

4. Composite wood.

5. Products making up wall and ceiling assemblies.

6. Thermal and acoustical insulation.

B. VOC-Content-Restricted Products: All products in the following product categories, whether specified or not:

1. Interior paints and coatings applied on site.

2. Interior adhesives and sealants applied on site, including flooring adhesives.

3. Wet-applied roofing and waterproofing.

C. Interior of Building: Anywhere inside the exterior weather barrier.

D. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.

E. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.

F. Inherently Non-Emitting Materials: Products composed wholly of minerals or metals, unless they include organic-based surface coatings, binders, or sealants; and specifically the following:

1. Stone.

2. Concrete.

3. Metals that are plated, anodized, or powder-coated.

4. Glass.

5. Ceramics.

1.04 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

B. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings; 2005 (Reapproved 2018).

C. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2020.

D. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

E. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.05 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements for submittal procedures.

B. Product Data: For each VOC-restricted product used in the project, submit evidence of compliance.

1.06 QUALITY ASSURANCE

A. VOC Content Test Method: 40 CFR 59, Subpart D (EPA Method 24), or ASTM D3960, unless otherwise indicated.

1. Evidence of Compliance: Acceptable types of evidence are:

a. Report of laboratory testing performed in accordance with requirements.
b. Published product data showing compliance with requirements.
c. Certification by manufacturer that product complies with requirements.

B. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

PART 2 – PRODUCTS

2.01 MATERIALS

A. VOC-Content-Restricted Products: VOC content not greater than required by the following:

1. Adhesives, Including Flooring Adhesives: SCAQMD 1168 Rule.

2. Joint Sealants: SCAQMD 1168 Rule.

3. Paints and Coatings: Each color; most stringent of the following:

   a. 40 CFR 59, Subpart D.
   b. SCAQMD 1113 Rule.
   c. CARB (SCM).

4. Wet-Applied Roofing and Waterproofing: Comply with requirements for paints and coatings.

PART 3 – EXECUTION

3.01 FIELD QUALITY CONTROL

A. Owner reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to Owner.

B. Additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Contractor.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 01700 – EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 RELATED REQUIREMENTS

SECTION 01300 – SUBMITTALS, Administrative Requirements: Submittals procedures, Electronic document submittal service.

1.03 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.

1. On request, submit documentation verifying accuracy of survey work.

2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.

3. Submit surveys and survey logs for the project record.

C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.

1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences. Include design drawings and calculations for bracing and shoring.

2. Identify demolition firm and submit qualifications.

3. Include a summary of safety procedures.

D. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:

1. Structural integrity of any element of Project.

2. Integrity of weather exposed or moisture resistant element.

3. Efficiency, maintenance, or safety of any operational element.

4. Visual qualities of sight exposed elements.

5. Work of Owner or separate Contractor.

6. Include in request:

    a. Identification of Project.
    b. Location and description of affected work.
    c. Necessity for cutting or alteration.
    d. Description of proposed work and products to be used.
    e. Effect on work of Owner or separate Contractor.
    f. Written permission of affected separate Contractor.
    g. Date and time work will be executed.

E. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 QUALIFICATIONS

A. For demolition work, employ a firm specializing in the type of work required.

B. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

C. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in the State in which the Project is located. Employ only individual(s) trained and experienced in establishing and maintaining horizontal and vertical control points necessary for laying out construction work on project of similar size, scope and/or complexity.

D. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.05 PROJECT CONDITIONS

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.

2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.

C. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

1. Minimize amount of bare soil exposed at one time.

2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.

3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

D. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

E. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 – PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in SECTION 01600 - PRODUCT REQUIREMENTS.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Utilize recognized engineering survey practices.

E. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.

2. Grid or axis for structures.

3. Building foundation, column locations, ground floor elevations.

F. Periodically verify layouts by same means.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.

1. Verify that construction and utility arrangements are as indicated.

2. Report discrepancies to Architect before disturbing existing installation.

3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.

2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

C. Remove existing work as indicated and as required to accomplish new work.

1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.

2. Remove items indicated on drawings.

3. Relocate items indicated on drawings.

4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.

5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.

1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.

2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.

3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.

a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
b. Provide temporary connections as required to maintain existing systems in service.

4. Verify that abandoned services serve only abandoned facilities.

5. Remove abandoned pipe, ducts, conduits, and equipment , including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

E. Protect existing work to remain.

1. Prevent movement of structure; provide shoring and bracing if necessary.

2. Perform cutting to accomplish removals neatly and as specified for cutting new work.

3. Repair adjacent construction and finishes damaged during removal work.

F. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.

2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

3. Where a change of plane of **1/4 inch (6.35 mm)** or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

G. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

H. Refinish existing surfaces as indicated:

1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

I. Clean existing systems and equipment.

J. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

K. Do not begin new construction in alterations areas before demolition is complete.

L. Comply with all other applicable requirements of this section.

3.06 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:

1. Complete the work.

2. Fit products together to integrate with other work.

3. Provide openings for penetration of mechanical, electrical, and other services.

4. Match work that has been cut to adjacent work.

5. Repair areas adjacent to cuts to required condition.

6. Repair new work damaged by subsequent work.

7. Remove samples of installed work for testing when requested.

8. Remove and replace defective and non-complying work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

G. Restore work with new products in accordance with requirements of Contract Documents.

H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 078400, to full thickness of the penetrated element.

J. Patching:

1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

2. Match color, texture, and appearance.

3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.07 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect and Owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.10 ADJUSTING

Adjust operating products and equipment to ensure smooth and unhindered operation.

3.11 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.12 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

1. Provide copies to Architect and Owner.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.

E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.13 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 01715 – EXISTING CONDITIONS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

This section includes the results of a survey for Asbestos, Lead, and / or other Hazardous materials and is provided for the Contractor's information.

1.03 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) included, even when no ACBM was found are for the Contractor's information. Suspect ACM not previously tested or identified shall be treated as ACM unless proven otherwise. Should suspect ACM that has not been previously tested be encountered within the Contract limits, the Contractor shall notify the Engineer who shall coordinate additional testing if deemed necessary. Contractor shall not test any suspect ACM previously tested or any suspect ACM not previously tested unless authorized by the Engineer.

   2. If there is ACBM outside of the Contract limits 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 Engineer. Based on the information contained in the additional survey(s), notify affected personnel per paragraph 1.02.B.

1.04 LEAD PAINT

A. Inform employees, subcontractors and all other persons engaged in the project that lead paint may be present in the existing building(s) and at the job site. Follow the requirements of 29 CFR 1926.62 and 29 CFR 1910.1025.

B. Review the attached reports which identify any locations paint with lead was found and/or tested and the painted surface tested lead concentration was below the lead in paint analyzer level of detection. Lead testing performed was for design purposes only, and the results do not satisfy any of the requirements of 29 CFR 1926.62.

C. All paint shall be considered to contain lead until proven otherwise.

D. Painted surfaces tested did not detect lead at concentrations at or above the lead paint x-ray fluorescence (ZRF) analyzer lower detection limit.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 SURVEY

A. The report listed below shall be used for informational purposes as it relates to the project limits as indicated in the Contract Plans and Specifications.

1. "Hazardous Materials Survey Report in Support of the State of Hawaii Department of Transportation-Airports Division Continental Building Renovations, 31 pages, dated October 2024, prepared by Kaimana Environmental Services, LLC.

B. Contractor shall retain the services of qualified environmental professionals to review the report referenced above and verify if any additional testing beyond the ones included in the report are necessary prior to commencement of any demolition or repairs.

C. Contractor shall identify areas for additional testing and obtain approval from the State Project Manager prior to testing of these additional areas. Testing, management, and disposal of all materials shall be in accordance with all applicable Federal, State, and local regulations.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices under Item 01562.1. Any additional work for areas not included in the above referenced project shall be paid under Allowance 01562.2.

END OF SECTION

Hazardous Materials Survey Report in Support of the State of Hawaii Department of Transportation-Airports Division Continental Building Renovations Daniel K. Inouye International Airport

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Figure 1: Project Location Map 2

Attachments

Attachment 1: Photo Log
Attachment 2: Laboratory Summary Tables
Attachment 3: Laboratory Analytical Data Reports

List Of Acronyms

%	percent
ACM	asbestos-containing materials
DOH	State of Hawaii Department of Health
EPA	United States Environmental Protection Agency
HIOSH	Hawaii Occupational Safety and Health
KES	Kaimana Environmental Solutions LLC
LBP	lead-based paint
LCP	lead-containing paint
NESHAP	National Emission Standard for Hazardous Pollutants
NIST	National Institute of Standards and Technologies
NVLAP	National Voluntary Laboratory Accreditation Program
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mg/cm^2	milligram per square centimeter
OSHA	United States Occupational Safety and Health Administration
TCLP	Toxicity Characteristic Leaching Procedure
US	United States

1. Introduction/Background

Kaimana Environmental Solutions LLC (KES) was retained by Oceanit Laboratories to collect samples of suspect hazardous materials in areas planned for disturbance as part of renovations at the Continental Building located at the Daniel K. Inouye International Airport, Honolulu, Oahu, Hawaii (Figure 1). Planned renovations include the following:

1. Building Envelop Improvements
    a. Replacement of Structural trusses at the top level parking
    b. Replacement of exterior soffit siding
2. Re-Roof Parking (Resurface with waterproofing)
    a. Provide stainless steel cap at all parapet walls
    b. Replace existing floor drains
    c. Replace existing gutters and downspouts
    d. Replace parking lighting
    e. Replace vents and mechanical equipment
3. Replace rusted exterior metal stairs
4. Loading dock repair

Suspect building components planned for disturbance were tested for the presence of asbestos fibers and lead paint. The following sections outline the investigation methodology, results and recommendations based on the data collected.

1.1. Asbestos Survey

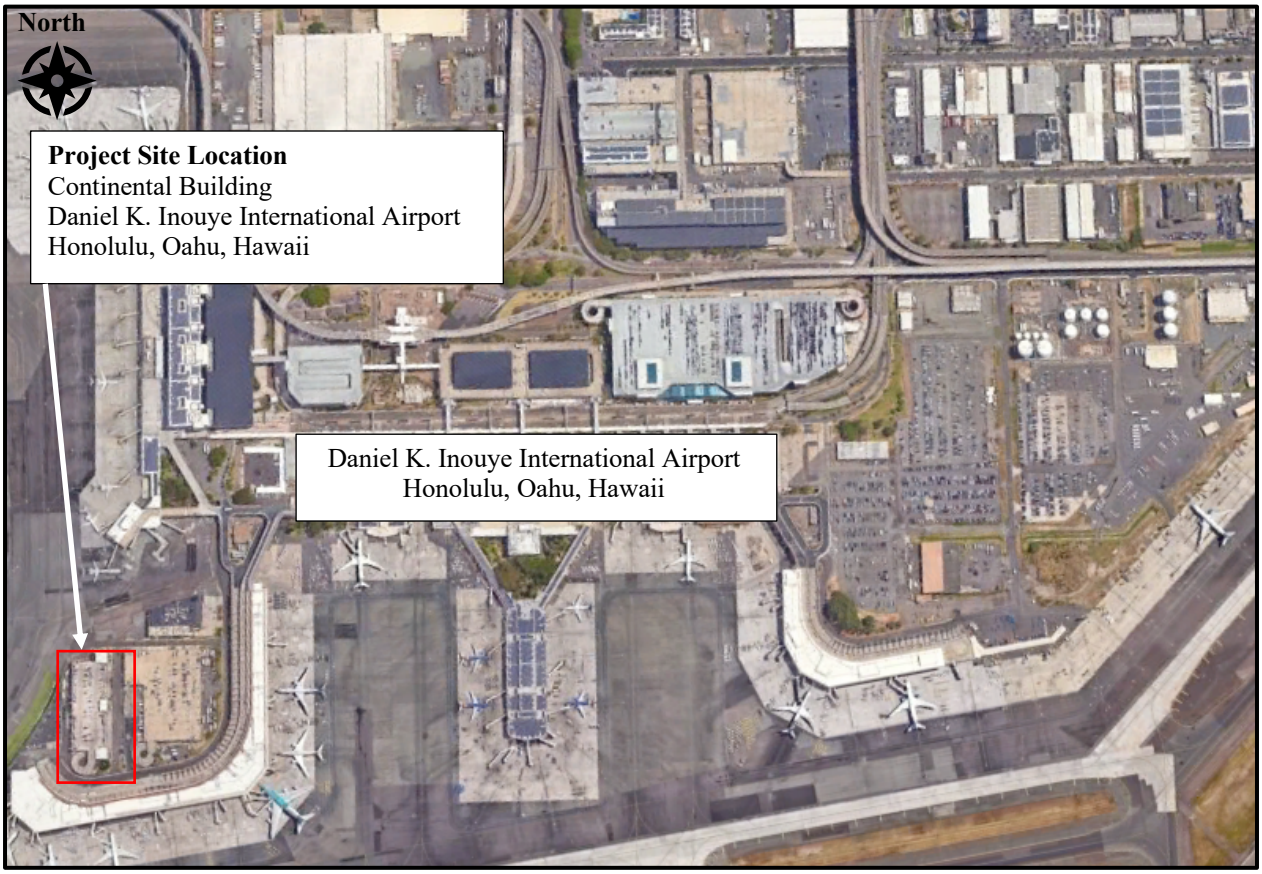
Regulatory Framework

The United States Environmental Protection Agency (EPA), under its National Emission Standard for Hazardous Pollutants (NESHAP) regulations (40 Code of Federal Regulations [CFR] 61 Subpart M), defines asbestos-containing materials (ACM) as those which contain greater than 1 percent (%) 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 can include asphalt roofing materials, resilient floor covering excluding linoleum (e.g., floor tiles), packings, and gaskets. Category II nonfriable materials are cementitious materials, such as stucco and asbestos cement board.

NESHAP has also established requirements and recommendations for controlling emissions of asbestos fibers during the demolition of buildings containing asbestos. When a building containing asbestos is to be demolished, NESHAP requires that the friable ACM and some types of nonfriable ACM be removed before demolition of the structure. Non-friable ACM must be assessed on a case-by-case basis to determine whether the materials will become friable during the demolition activities. In addition, the State of Hawai‘i Department of Health (DOH) institutes minimum requirements pertaining to the

processing, handling, and disposal of ACM. These requirements also minimize the release of asbestos fibers from facilities being demolished or renovated (Hawaii Administrative Rules [HAR] 11-501).

Figure 1: Project Location Map



Asbestos Sample Collection Methodology

KES provided a state certified asbestos Inspector (State of Hawaii Certification Number HIASB-3280) to conduct a survey of the suspect ACM building components at the project site planned for disturbance in accordance with DOH and EPA rules. The asbestos survey was conducted on October 23, 2024.

Sample collection followed the EPA publication, Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials. The sampling locations were selected to characterize suspected ACM scheduled to be disturbed during planned repair activities at the Site. A representative building component section was carefully cut and placed in a labeled, resealable plastic bag for each sample. The condition of the suspect ACM was noted. The samples were logged and recorded following strict chain-of-custody procedures and submitted to Hawaii Analytical Laboratory (Hawaii Analytical) for analysis by polarized-light microscopy using the method outlined in 40 CFR 763, Attachment A to subpart F, Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

Hawaii Analytical is accredited for bulk asbestos analysis through successful participation in the United States Department of Commerce, National Institute of Standards and Technologies (NIST), National Voluntary Laboratory Accreditation Program (NVLAP).

Asbestos Survey Results

Several of the suspect ACM samples collected at the project site contained asbestos fibers at or above the regulatory level of 1% asbestos. Therefore, special handling and disposal provisions are required for disturbance of the tested suspect ACM.

Attachment 1 includes photos of the sampled building components. Attachment 2 includes a summary table that details the components sampled and the asbestos laboratory analytical results, and Attachment 3 includes the laboratory analytical results reports.

Asbestos Conclusions and Recommendations

Based on the limited survey conducted, asbestos fibers were detected above the regulatory threshold of 1% in 8 of the 30 samples collected at the project site. Therefore, special handling and disposal provisions are required for disturbance of the identified ACM. The identified ACM building components identified in Attachments 1 and 2 must be properly abated by a State of Hawaii Licensed Asbestos Abatement Contractor in accordance with State and Federal rules prior to any disturbance, such as cutting, grinding, sanding or any action that creates dust. In addition, the services of a qualified consultant should be obtained to monitor and inspect the removal activities to ensure compliance with applicable EPA, Occupational Safety and Health Administration (OSHA), and Hawaii Occupational Safety and Health (HIOSH) regulations pertaining to the handling of ACM.

1.2. Lead Paint Survey

Regulatory Framework

The EPA and the Department of Housing and Urban Development (HUD) define LBP as paint or other surface coatings containing lead levels equal to or greater than 1.0 milligram per square centimeter (mg/cm^2) or 0.5% by weight (other equivalent units are: 5,000 micrograms per gram [µg/g], 5,000 milligrams per kilogram [mg/kg], 5,000 parts per million [ppm] by weight). Lead-containing paint (LCP) is paint containing lead at any level less than (<) 5,000 mg/kg. The EPA RCRA regulations set the limit of leachable lead in lead-containing waste at 5.0 milligrams per liter (mg/L). This level is established by an analytical method called Toxicity Characteristic Leaching Procedure (TCLP). Waste that contains leachable lead at concentrations ≥5.0 mg/L is defined as hazardous waste and must be transported to a hazardous waste treatment, storage, or disposal (TSD) facility. Lead-containing waste or potential waste shown to have a total lead content ≥100 mg/kg may exceed the RCRA TCLP standard for leachable lead, and must be analyzed by TCLP prior to disposal. Thus, while the EPA does not regard work performed on paint

containing <5,000 mg/kg to be a LBP activity, the waste from such activities may still be regarded as hazardous under RCRA.

Lead Paint Sample Collection Methodology

KES provided a State certified Lead-Based Paint Inspector (State of Hawaii Certification Number PB-0480) to collect paint chip samples from painted surfaces at the Site planned for disturbance in accordance with EPA guidelines and recommendations on October 23, 2024. A paint scraper was used to collect paint chip samples from the painted surfaces planned for disturbance during construction. Each sample was placed in a clean resealable plastic bag, labelled, catalogued and delivered to Hawaii Analytical for analysis of total lead under EPA Method 7082m.

Lead Paint Survey Results

No lead-based paint was detected in any of the samples collected from painted surfaces planned for disturbance at the project site. However, lead-containing paint was detected in two of the samples collected from painted surfaces at the project site. The identified lead-containing paint samples are detailed in Attachment 1 and Attachment 2.

Lead Paint Conclusions and Recommendations

Spot remove and dispose of all LCP that may be disturbed or become dislodged during renovation activities in accordance with applicable local, state, and federal regulations prior to disturbance. Note that all homogenous paints on the same types of surfaces where LCP was identified should also be considered LCP. Workers performing disturbance of LCP must take appropriate measures to comply with applicable OSHA and HIOSH regulations pertaining to the handling of lead containing materials, lead dust and worker protection. Note that OSHA and HIOSH regulate activities that disturb paint which contain any detectable concentration of lead. Note that detectable levels of lead in the paint were found at the project site (See Attachment 2). A qualified consultant should be retained to conduct air monitoring and inspection activities to ensure compliance with applicable state and federal regulations pertaining to the handling of lead paint.

1.3. Significant Assumptions

There is a possibility that even with the proper application of proper methodologies that there may be conditions that exist at the project site that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. KES believes that the information obtained from the investigation concerning the project site is reliable. However, KES cannot and does not warrant or guarantee that the information provided by these sources is accurate or complete. The methodologies of this assessment are not intended to produce all-inclusive or comprehensive results, but rather to provide the Client with reliable information relating to project site conditions within the context of the scope of work included in this investigation.

2. References

Hawaii Revised Statutes, Chapter 342P: Asbestos and Lead

Hawaii Administrative Rules 11-501: Asbestos Rules

Hawaii Administrative Rules 11-41: Lead-Based Paint Activities

Attachment 1: Photo Log

Photo Log



Asbestos detected in white/gray caulking around the Stairwell Roof Structures Louvers (Samples AC13-AC15)



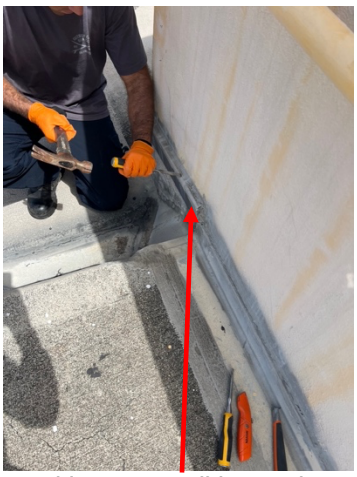
No asbestos detected in roof parking deck waterproofing or concrete



Asbestos detected in gray/black caulking at the roof floor joints (Samples AC22-AC24)



Lead-containing paint detected in concrete beige skim coat on the building and stair roof structure exterior siding
No asbestos detected



Asbestos detected in gray caulking at the roof floor joints (Samples AC25 & AC27)



No asbestos detected in roof drain inlet caulking

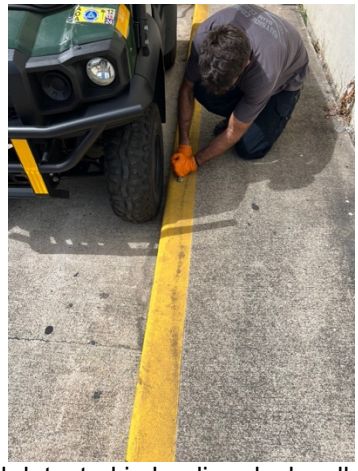
Photo Log



No asbestos detected in roof drain inlet caulking



Lead-containing paint detected in loading dock parking striping



No lead detected in loading dock yellow curb

Attachment 2: Laboratory Analytical Results Summary Tables

Asbestos Results Summary Table

Sample ID	***Substrate***	***Color***	***Condition***	***Location***	***Asbestos Content***
AC1	*Concrete with Waterproofing*	*Beige*	*Fair to Poor*	*Roof Parking Deck*	*ND*
AC2	*Concrete with Waterproofing*	*Beige*	*Fair to Poor*	*Roof Parking Deck*	*ND*
AC3	*Concrete with Waterproofing*	*Beige*	*Fair to Poor*	*Roof Parking Deck*	*ND*
AC4	*Concrete Skim Coat*	*Beige*	*Fair to Poor*	*Building and Stair Roof Structure Exterior Siding*	*ND*
AC5	*Concrete Skim Coat*	*Beige*	*Fair to Poor*	*Building and Stair Roof Structure Exterior Siding*	*ND*
AC6	*Concrete Skim Coat*	*Beige*	*Fair to Poor*	*Building and Stair Roof Structure Exterior Siding*	*ND*
AC7	*Caulking*	*White*	*Fair to Poor*	*Roof Vents*	*ND*
AC8	*Caulking*	*White*	*Fair to Poor*	*Roof Vents*	*ND*
AC9	*Caulking*	*White*	*Fair to Poor*	*Roof Vents*	*ND*
AC10	*Concrete Masonry Unit Block*	*Beige*	*Good to Poor*	*Southwest Roof Parapet Wall*	*ND*
AC11	*Concrete Masonry Unit Block*	*Beige*	*Good to Poor*	*Southwest Roof Parapet Wall*	*ND*
AC12	*Concrete Masonry Unit Block*	*Beige*	*Good to Poor*	*Southwest Roof Parapet Wall*	*ND*
AC13	***Caulking***	***White/Gray***	***Fair to Poor***	***Stairwell Roof Structures Louvers***	***7%***
AC14	***Caulking***	***White/Gray***	***Fair to Poor***	***Stairwell Roof Structures Louvers***	***7%***

Sample ID	Substrate	Color	Condition	Location	Asbestos Content
AC15	**Caulking**	**White/Gray**	**Fair to Poor**	**Stairwell Roof Structures Louvers**	**7%**
AC16	Concrete with Waterproofing	White	Fair	Northeast Roof Parapet Wall	ND
AC17	Concrete with Waterproofing	White	Fair	Northeast Roof Parapet Wall	ND
AC18	Concrete with Waterproofing	White	Fair	Northeast Roof Parapet Wall	ND
AC19	Caulking	Beige/Gray	Fair to Poor	Roof Drain Inlets	ND
AC20	Caulking	Beige/Gray	Fair to Poor	Roof Drain Inlets	ND
AC21	Caulking	Beige/Gray	Fair to Poor	Roof Drain Inlets	ND
AC22	**Caulking**	**Gray/Black**	**Fair to Poor**	**Roof Floor Joints**	**4%**
AC23	**Caulking**	**Gray/Black**	**Fair to Poor**	**Roof Floor Joints**	**4%**
AC24	**Caulking**	**Gray/Black**	**Fair to Poor**	**Roof Floor Joints**	**4%**
AC25	**Caulking**	**Gray**	**Fair to Poor**	**Roof Floor Joints**	**2%**
AC26	Caulking	Gray	Fair to Poor	Roof Floor Joints	ND
AC27	**Caulking**	**Gray**	**Fair to Poor**	**Roof Floor Joints**	**5%**
AC28	Pipe Insulation	Black	Fair	Roof	ND
AC29	Pipe Insulation	Black	Fair	Roof	ND
AC30	Pipe Insulation	Black	Fair	Roof	ND

Lead Paint Results Summary Table

Sample ID	***Substrate***	***Color***	***Condition***	***Location***	***Lead Content (mg/kg)***
LC1	*Concrete Skim Coat*	*Beige*	*Fair to Poor*	*Building and Stair Roof Structure Exterior Siding*	*44*
LC2	*Concrete with Waterproofing*	*Beige*	*Fair to Poor*	*Roof Parking Deck*	*ND*
LC3	*Concrete with Waterproofing*	*White*	*Fair*	*Northeast Roof Parapet Wall*	*ND*
LC4	*Concrete Masonry Unit Blocks*	*Beige*	*Fair to Poor*	*Southwest Roof Parapet Wall*	*ND*
LC5	*Roof Parking Deck*	*Black*	*Fair to Poor*	*Parking Striping*	*ND*
LC6	*1st Floor Loading Dock*	*Yellow*	*Fair to Good*	*Concrete Curb*	*ND*
LC7	*1st Floor Loading Dock*	*White*	*Fair to Poor*	*Parking Striping*	*49*

ND = lead not detected at or above the laboratory lower reporting limit

Attachment 3: Laboratory Analytical Data Reports

Hawaii Analytical Laboratory
ANALYTICAL REPORT

Wednesday, October 30, 2024

Mr. Max Solmssen
Kaimana Environmental Solutions
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Honolulu HI 96828

Phone Number: (808)341-3546
Facsimile:
Email: max@kaimanaenv.com

Lab Job No: 202410551
Date Submitted: 10/23/2024
Your Project: HNL Continental Bldg Repairs, 10/23/24

Bulk Asbestos Determination

Sample No.	Your Sample Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202473596	**AC1**		NONE DETECTED		Synthetic fibers (undulose)	**5**	Binder + calcite	10/25/2024
Layer	Gray waterproofing material / gray concrete							
Comments								
202473596	**AC1**		NONE DETECTED		None detected		Tar	10/25/2024
Layer	Tar							
Comments								
202473597	**AC2**		NONE DETECTED		Synthetic fibers (undulose)	**5**	Binder	10/25/2024
Layer	Beige waterproofing material							
Comments								
202473597	**AC2**		NONE DETECTED		None detected		Cementitious	10/25/2024
Layer	Gray concrete							
Comments								
202473597	**AC2**		NONE DETECTED		Synthetic fibers (undulose)	**5**	Binder	10/25/2024
Layer	Gray waterproofing material							
Comments								
202473598	**AC3**		NONE DETECTED		Synthetic fibers (undulose)	**5**	Binder	10/25/2024
Layer	Gray / beige waterproofing material							
Comments								

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Sample No.	Your Sample Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202473598	**AC3**		NONE DETECTED		None detected		Cementitious	10/25/2024
Layer	Gray concrete							
Comments								
202473598	**AC3**		NONE DETECTED		None detected		Binder	10/25/2024
Layer	Yellow mastic							
Comments								
202473599	**AC4**		NONE DETECTED		None detected		Quartz + calcite	10/25/2024
Layer	Beige skimcoat like material							
Comments								
202473599	**AC4**		NONE DETECTED		None detected		Cementitious	10/25/2024
Layer	Gray concrete							
Comments								
202473600	**AC5**		NONE DETECTED		None detected		Quartz + calcite	10/25/2024
Layer	Beige skimcoat like material							
Comments								
202473600	**AC5**		NONE DETECTED		None detected		Cementitious	10/25/2024
Layer	Gray concrete							
Comments								
202473601	**AC6**		NONE DETECTED		None detected		Quartz + calcite	10/25/2024
Layer	Beige skimcoat like material							
Comments								
202473601	**AC6**		NONE DETECTED		None detected		Cementitious	10/25/2024
Layer	Gray concrete							
Comments								

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Bulk Asbestos Determination

Sample No.	Your Sample Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202473602	**AC7**		NONE DETECTED		None detected		Binder + paint + calcite	10/25/2024
Layer	White caulking / paint							
Comments								
202473603	**AC8**		NONE DETECTED		None detected		Binder + paint + calcite	10/25/2024
Layer	White caulking / paint							
Comments								
202473604	**AC9**		NONE DETECTED		None detected		Binder + paint + calcite	10/25/2024
Layer	White caulking / paint							
Comments								
202473605	**AC10**		NONE DETECTED		None detected		Cementitious	10/29/2024
Layer	Beige concrete							
Comments								
202473605	**AC10**		NONE DETECTED		None detected		Paint + calcite + quartz	10/29/2024
Layer	Beige skimcoat like material / paint							
Comments								
202473605	**AC10**		NONE DETECTED		None detected		Cementitious	10/29/2024
Layer	Gray concrete							
Comments								
202473606	**AC11**		NONE DETECTED		None detected		Cementitious	10/29/2024
Layer	Beige concrete							
Comments								
202473606	**AC11**		NONE DETECTED		None detected		Paint + calcite + quartz	10/29/2024
Layer	Beige skimcoat like material / paint							
Comments								

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Sample No.	Your Sample Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202473606	**AC11**		NONE DETECTED		None detected		Cementitious	10/29/2024
Layer	Gray concrete							
Comments								
202473607	**AC12**		NONE DETECTED		None detected		Cementitious	10/29/2024
Layer	Beige concrete							
Comments								
202473607	**AC12**		NONE DETECTED		None detected		Paint + calcite + quartz	10/29/2024
Layer	Beige skimcoat like material / paint							
Comments								
202473607	**AC12**		NONE DETECTED		None detected		Cementitious	10/29/2024
Layer	Gray concrete							
Comments								
202473608	**AC13**	**Yes**	Chrysotile	**2**	None detected		Binder	10/29/2024
Layer	Beige / black material							
Comments								
202473608	**AC13**		NONE DETECTED		None detected		Binder + other	10/29/2024
Layer	Beige caulking							
Comments								
202473608	**AC13**	**Yes**	Chrysotile	**7**	None detected		Binder	10/29/2024
Layer	Gray caulking							
Comments								
202473608	**AC13**		NONE DETECTED		None detected		Binder + paint + calcite	10/29/2024
Layer	White caulking / paint							
Comments								

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Sample No.	Your Sample Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202473609	**AC14**		NONE DETECTED		None detected		Calcite + other	10/29/2024
Layer	Black material							
Comments								
202473609	**AC14**	**Yes**	Chrysotile	**7**	None detected		Binder	10/29/2024
Layer	Gray caulking							
Comments								
202473610	**AC15**	**Yes**	Chrysotile	**7**	None detected		Binder	10/29/2024
Layer	Gray caulking							
Comments								
202473611	**AC16**		NONE DETECTED		None detected		Cementitious	10/30/2024
Layer	Gray concrete							
Comments								
202473611	**AC16**		NONE DETECTED		None detected		Paint + binder	10/30/2024
Layer	Pink paint coat / gray rubbery material							
Comments								
202473612	**AC17**		NONE DETECTED		None detected		Cementitious	10/30/2024
Layer	Gray concrete							
Comments								
202473612	**AC17**		NONE DETECTED		None detected		Paint + binder	10/30/2024
Layer	Pink / white paint coat							
Comments								
202473613	**AC18**		NONE DETECTED		None detected		Cementitious	10/30/2024
Layer	Gray concrete							
Comments								

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Sample No.	Your Sample Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202473613	**AC18**		NONE DETECTED		None detected		Paint + quartz	10/30/2024
Layer	Gray textured paint							
Comments								
202473613	**AC18**		NONE DETECTED		None detected		Paint + binder	10/30/2024
Layer	Pink / white paint coat (lim)							
Comments								
202473614	**AC19**		NONE DETECTED		None detected		Binder + paint + quartz	10/30/2024
Layer	Gray caulking / beige textured paint							
Comments								
202473615	**AC20**		NONE DETECTED		None detected		Binder + paint + quartz	10/30/2024
Layer	Gray caulking / beige textured paint							
Comments								
202473615	**AC20**		NONE DETECTED		None detected		Binder + calcite	10/30/2024
Layer	White caulking							
Comments								
202473616	**AC21**		NONE DETECTED		None detected		Binder + paint + quartz	10/30/2024
Layer	Gray caulking / beige textured paint							
Comments								
202473617	**AC22**	**Yes**	Chrysotile	**4**	None detected		Binder	10/29/2024
Layer	Gray / black caulking							
Comments								
202473618	**AC23**		NONE DETECTED		None detected		Binder + other	10/29/2024
Layer	Black caulking							
Comments								

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Sample No.	Your Sample Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202473618	**AC23**	**Yes**	Chrysotile	**7**	None detected		Binder	10/29/2024
Layer	Gray caulking							
Comments								
202473619	**AC24**		NONE DETECTED		None detected		Binder + other	10/29/2024
Layer	Black caulking							
Comments								
202473619	**AC24**	**Yes**	Chrysotile	**7**	None detected		Binder	10/29/2024
Layer	Gray caulking							
Comments								
202473620	**AC25**	**Yes**	Chrysotile	**2**	None detected		Calcite + other	10/30/2024
Layer	Beige material							
Comments								
202473620	**AC25**		NONE DETECTED		Cellulose (undulose)	**15**	Tar	10/30/2024
Layer	Black tar							
Comments								
202473620	**AC25**		NONE DETECTED		Synthetic fibers (undulose)	**10**	Calcite + binder + other	10/30/2024
Layer	Gray material							
Comments								
202473621	**AC26**		NONE DETECTED		None detected		Binder + other	10/30/2024
Layer	Beige caulking							
Comments								
202473621	**AC26**		NONE DETECTED		Synthetic fibers (undulose)	**10**	Calcite + binder + other	10/30/2024
Layer	Gray material							
Comments								
202473622	**AC27**	**Yes**	Chrysotile	**5**	None detected		Binder	10/30/2024
Layer	Gray / beige caulking							
Comments								

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202473622	**AC27**		NONE DETECTED		None detected		Paint	10/30/2024
Layer	Silver paint							
Comments								
202473623	**AC28**		NONE DETECTED		None detected		Foam	10/29/2024
Layer	Black foam insulation							
Comments								
202473624	**AC29**		NONE DETECTED		None detected		Foam	10/29/2024
Layer	Black foam insulation							
Comments								
202473625	**AC30**		NONE DETECTED		None detected		Foam	10/29/2024
Layer	Black foam insulation							
Comments								

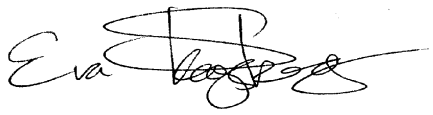
Mr. Max Solmssen
Kaimana Environmental Solutions
PO Box 11890
Honolulu HI 96828

Phone Number: (808)341-3546
Facsimile:
Email: max@kaimanaenv.com

Lab Job No: 202410551
Date Submitted: 10/23/2024
Your Project: HNL Continental Bldg Repairs, 10/23/24

General Comments
The bulk sample[s] analysis subject of this analytical report were conducted in general accordance with the procedures outlined in the United States Environmental Protection Agency's "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (EPA-600/M4-82-020, Dec. 1982) and / or "Method for Determination of Asbestos in bulk Building Materials" (EPA-600/R-93-116, July 1993). The analysis of each bulk sample relates only to the material examined, and may or may not represent the overall composition of its original source. Floor tile and other resinously bound materials, when analyzed by the EPA methods referenced above may yield false negative results because of limitations in separating closely bound fibers and in detecting fibers of small length and diameter. Gravimetric treatment, which HAL does not offer, may also be appropriate for certain NOB (non-friable organically bound) materials. Unless specifically requested by clients, NOB samples can be subcontracted to a NVLAP accredited lab, or else, they will be analyzed by HAL using regular PLM technique. In addition, alternative methods of identification, including Transmission Electron Microscopy (TEM) may or may not be applicable. We utilize calibrated visual area estimation on a routine basis and do not conduct point counting unless specifically requested to do so. Estimated error for the visual determinations presented are 75% relative (1 to 2%), 50% relative (3 to 5%); 25% relative (6 to 25%) and 20% (>26% v/v). We will not separate layers which in our opinion are not readily discernable. This report is not to be duplicated except in full without the expressed written permission of Hawaii Analytical Laboratory. This report must not be used by the client to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Governement. Unless otherwise indicated, the sample condition at the time of receipt was acceptable.

Results and Symbols Definitions
> This testing result is greater than the numerical value listed.
< This testing result is less than the numerical value listed.
None Detected = asbestos was not observed in the sample. If trace amount of asbestos was detected below our quantifiable limits of 1.0%, <1% (trace) would be indicated and the asbestos type listed. Point counting, where applicable, are recommended to improve accuracy.



Eva Skogsberg
Laboratory Supervisor

Hawaii Analytical Laboratory
ANALYTICAL REPORT

Wednesday, October 30, 2024

Mr. Max Solmssen
Kaimana Environmental Solutions
PO Box 11890
Honolulu HI 96828

Phone Number: (808)341-3546
Facsimile:
Email: max@kaimanaenv.com

Lab Job No: 202410551
Date Submitted: 10/23/2024
Your Project: HNL Continental Bldg Repairs, 10/23/24

Total Lead (paint chips)

NIOSH Method: 7082m LEAD by FAAS

Sample No.	Your Sample Description	Results	Units	Date Analyzed
202473626	**LC1**	44	mg/kg	10/29/2024
Comments				
202473627	**LC2**	< 40	mg/kg	10/29/2024
Comments				
202473628	**LC3**	< 40	mg/kg	10/29/2024
Comments				
202473629	**LC4**	< 40	mg/kg	10/29/2024
Comments				
202473630	**LC5**	< 40	mg/kg	10/29/2024
Comments				
202473631	**LC6**	< 40	mg/kg	10/29/2024
Comments				
202473632	**LC7**	49	mg/kg	10/29/2024
Comments				

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All Quality Control data are acceptable unless otherwise noted.
MRL for lead air is 5ug.
MRL for lead wipe is 10ug.
MRL for lead paint or soil is 40 mg/kg for a 0.25g sample.

General Comments
The sample[s] analysis subject of this analytical report were conducted in general accordance with the procedures associated with the "analytical method" referenced above. Modifications to this methodology may have been made based upon the analyst's professional judgment and / or sample matrix effects encountered. The analysis of sample relates only to the sample analyzed, and may or may not be representative of the original source of the material submitted for our analysis. All analysts participate in interlaboratory quality control testing to continuously document profiency. This report is not to be duplicated except in full without the expressed written permission of Hawaii Analytical Laboratory. This report should not be construed as an endorsement for a product or a service by the AIHA LAP, LLC or any affiliated organizations. Sample and associated sampling / collection data is reported as provided by client. TWA values have been calculated based on information supplied by the client that the laboratory has not independently verified. Results have not been corrected for blank determinations unless noted in remarks. Unless otherwise indicated the sample condition at the time of receipt was acceptable.

Results and Symbols Definitions
> This testing result is greater than the numerical value listed.
< This testing result is less than the numerical value listed.
# = Analytical methods marked with an "#" are not within our AIHA LAP, LLC Scope of Accreditation.
MRL = Method Reporting Limit.



Eva Skogsberg
Laboratory Supervisor

HAWAII ANALYTICAL LABORATORY, LLC

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

☐ New Client?

Report To*	Max Solmssen
Company	Kaimana Environmental Solutions LLC
Address*	PO Box 11890 Honolulu, HI 96828
Phone / Cell No.*	(808) 341-3546
Report results to	Max Solmssen
Email / Fax	max@kaimanaenv.com

Invoice To*	Judi Morris
Company	Oceanit Laboratories
Address*	828 Fort Street Mall, Ste 600 Honolulu, HI 96813
Phone / Cell No.*	(808) 531-3017
Purchase Order No.	
Email Invoice To	JMORRIS@oceanit.com

Need Results By*:
- ☑ 5 Working Days (WD)
- ☐ 4 WD
- ☐ 3 WD
- ☐ 2 WD
- ☐ 24 hours
- ☐ 6 hours or less
- ☐ 4 hours or less
- ☐ 1-2 hours

Site/Project Name: HNL Continental Bldg Repairs

Client Project No.:

Verbal results? ☐

Sampled By & Certif. # :

Special Instructions:

PLM POSITIVE STOP Instructions:
- ☐ + stop / SAMPLE
- ☐ + stop / LAYER

Lab Report No.: 202410551

	Sample ID	Sample Description*	Date Sampled* (mm/dd/yy)	Collection Medium	Sample Area / Air Volume	Analysis Requested*	Method Reference	Lab Sample(s) No.:
1	AC1	Concrete with Waterproofing	10/23/24	bulk	N/A	Asbestos		202473596
2	AC2	Concrete with Waterproofing						202473597
3	AC3	Concrete with Waterproofing						202473598
4	AC4	Stucco						202473599
5	AC5	Stucco						202473600
6	AC6	Stucco						202473601
7	AC7	Caulk						202473602
8	AC8	Caulk						202473603
9	AC9	Caulk						202473604
10	AC10	Concrete						202473605
11	AC11	Concrete						202473606
12	AC12	Concrete						202473607

Relinquished By (Print and Sign)	Date/Time	Received By (Print and Sign)	Date/Time
Max Solmssen Max R Sol	10/23/24 2:20pm	Haley Leavitt Haley Leavitt	10-23-24 P02:24 RCVD

*Sample description can be paint chips, concrete, specific sample collection location, etc...
If matrix is 'soil', please specify if it is a FOREIGN SOIL SAMPLE (outside Hawaii) in the comment section.
All samples submitted are subject to Hawaii Analytical Laboratory terms and conditions.
*Required fields, failure to complete these fields may result in a delay in your samples being processed.

☐ via HAC ☐ via USPS ☐ via drop box ☐ via FedEx ☐ via pick up
awb#: 173-.....

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- ☐ 3 WD
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Site/Project Name: HNL Continental Bldg Repairs

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- ☐ + stop / LAYER

Lab Report No.: 202410551

	Sample ID	Sample Description*	Date Sampled* (mm/dd/yy)	Collection Medium	Sample Area / Air Volume	Analysis Requested*	Method Reference	Lab Sample(s) No.:
1	AC13	Caulk	10/23/24	bulk	N/A	Asbestos		202473608
2	AC14	Caulk						202473609
3	AC15	Caulk						202473610
4	AC16	Concrete						202473611
5	AC17	Concrete						202473612
6	AC18	Concrete						202473613
7	AC19	Caulk						202473614
8	AC20	Caulk						202473615
9	AC21	Caulk						202473616
10	AC22	Caulk						202473617
11	AC23	Caulk						202473618
12	AC24	Caulk						202473619

Relinquished By (Print and Sign)	Date/Time	Received By (Print and Sign)	Date/Time
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Site/Project Name: HNL Continental Bldg Repairs

Client Project No.:

Verbal results? ☐

Sampled By & Certif. # :

Special Instructions:

PLM POSITIVE STOP Instructions:
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- ☐ + stop / LAYER

Lab Report No.: 202410551

	Sample ID	Sample Description*	Date Sampled* (mm/dd/yy)	Collection Medium	Sample Area / Air Volume	Analysis Requested*	Method Reference	Lab Sample(s) No.:
1	AC25	Caulk	10/23/24	bulk	N/A	Asbestos		202473620
2	AC26	Caulk						202473621
3	AC27	Caulk						202473622
4	AC28	Pipe Insultation						202473623
5	AC29	Pipe Insultation						202473624
6	AC30	Pipe Insultation						202473625
7	LC1	Yellow Stucco Paint		Paint chip	N/A	total Lead		202473626
8	LC2	Beige Decking Waterproofing						202473627
9	LC3	White Concrete Paint						202473628
10	LC4	Yellow Concrete Paint						202473629
11	LC5	Black Parking Striping						202473630
12	LC6	Yellow Concrete Paint						202473631

Relinquished By (Print and Sign)	Date/Time	Received By (Print and Sign)	Date/Time
Max Solmssen Max R Sol	10/23/24 2:20pm	Haley Leavitt Haley Leavitt	10-23-24P02:24 RCVD

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Site/Project Name: HNL Continental Bldg Repairs

Client Project No.:

Verbal results? ☐

Sampled By & Certif. # :

Special Instructions:

PLM POSITIVE STOP Instructions:
- ☐ + stop / SAMPLE
- ☐ + stop / LAYER

Lab Report No.: 202410551

	Sample ID	Sample Description*	Date Sampled* (mm/dd/yy)	Collection Medium	Sample Area / Air Volume	Analysis Requested*	Method Reference	***Lab Sample(s) No.:***
1	LC7	White Parking Striping	10/23/24	Paint chip	N/A	total Lead		202473632
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Relinquished By (Print and Sign)	Date/Time	Received By (Print and Sign)	Date/Time
Max Solmssen	10/23/24 2:20pm	Haley Leavitt	10-23-24P02:24 RCVD

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awb#: 173-.....

SECTION 01780 – CLOSEOUT SUBMITTALS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SECTION INCLUDES

A. Project record documents.

B. Operation and maintenance data.

C. Warranties and bonds.

1.03 RELATED REQUIREMENTS

A. SECTION 01300 – SUBMITTALS, Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

B. Individual Product Sections: Specific requirements for operation and maintenance data.

C. Individual Product Sections: Warranties required for specific products or Work.

1.04 SUBMITTALS

A. Project Record Documents: Submit documents to Owner with claim for final Application for Payment.

B. Operation and Maintenance Data:

1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.

2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.

3. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.

2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.

3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other modifications to the Contract.

5. Reviewed shop drawings, product data, and samples.

6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.

2. Product substitutions or alternates utilized.

3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:

1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

2. Field changes of dimension and detail.

3. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

B. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:

1. Product data, with catalog number, size, composition, and color and texture designations.

2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:

1. Description of unit or system, and component parts.

2. Identify function, normal operating characteristics, and limiting conditions.

3. Include performance curves, with engineering data and tests.

4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

D. Include color coded wiring diagrams as installed.

E. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

F. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

G. Provide servicing and lubrication schedule, and list of lubricants required.

H. Include manufacturer's printed operation and maintenance instructions.

I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; **2 inch (50.8 mm)** maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 01800 – SPECIAL REQUIREMENTS FOR CONTRACTORS ON THE AOA

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

A. Provide all materials, labor, equipment, and tools necessary to complete the Special Requirements for Contractors on the Air Operations Area (AOA).

B. The requirements of the Section are essential for ensuring public and worker safety on this project; hence, the Contractor shall comply with all requirements of this section when performing work on the AOA. Should the Contractor fail to comply with any requirement of this section; work may be delayed or temporarily suspended without contract time extensions. Liquidated damages or fines may result. All liquidated damages or fines resulting from violations due to improper activity, inattention, or failure to comply with required airport procedures; shall be borne by the Contractor.

1.03 PROJECT LIMITATIONS

The project normal working hours shall refer to SECTION 01010 – DESCRIPTION OF WORK. The Contractor shall work continuously during the project duration. No work shall be performed during State Holidays or when weather conditions restrict construction from occurring.

1.04 AOA SECURITY REQUIREMENTS

A. AOA Access Points: The Contractor will be assigned only one access point for each work phase, and shall ensure that all of their personnel, vehicles, and equipment enter and exit the AOA only through the assigned access point.

All vehicles entering the AOA through any of the Airport Access Check Points may be subject to search. The Contractor shall allow extra time for these inspections and be able to provide personnel, as required, to assist Airport security personnel during the inspection.

If the State deems an emergency situation has rendered the assigned access point unusable the Contractor will be assigned a temporary access point for the remaining workday. Should the original assigned access point remain unusable for a prolonged period, the Contractor will be assigned a new access point the following day and shall be responsible for all requirements at the new assigned access point.

B. The Contractor shall comply with all existing and proposed airport security initiative requirements. Contractor may be subject to civil penalties up to $35,000.00 for each security violation.

C. The Contractor shall protect work areas from theft, vandalism and unauthorized entry. Ensure that proper methods are undertaken to secure tools, materials and equipment from the public.

D. AOA Access Gates: Should the Contractor's assigned AOA access point be through an unguarded gate, the Contractor shall be responsible for the following:

1. Obtain the AOA access gate key(s) from the Airport Security Office (a $500.00 deposit is required per key).

2. Provide all gate guards required. Each gate guard shall possess the following expertise:

   a. Familiarity with all of the AOA security access clearance requirements.
   b. Knowledge related to AOA access badge, AOA vehicle decal, and airport vehicle operator requirements.
   c. A communication device and specific instructions to call for assistance whenever problems occur.

3. Proper control of the AOA access gate in accordance with all required airport security procedures.

4. Close the AOA access gate during prolonged periods of inactivity; and close and lock whenever the AOA access gate is not in use, or is unattended.

1.05 AOA OPERATIONAL SAFETY REQUIREMENTS

A. It is the explicit intent of this contract that the safety of aircraft, and all of the personnel and equipment under the Contractor's jurisdiction, be the highest priority; hence, the Contractor shall carefully plan the operations of all personnel and equipment under their jurisdiction to provide for the free and unobstructed movement of all aircraft on the AOA, and to provide for the uninterrupted operation of visual and electronic signals used to guide aircraft while all personnel and equipment under their jurisdiction traverses the AOA.

B. With the exception of actual construction methods, the Federal Aviation Administration (FAA), Airport Traffic Control Tower (ATCT) will have full authority to control the Contractor's movements within the existing movement area. If the FAA, ATCT notifies the Contractor to temporarily halt operations, the Contractor shall effectively notify all personnel and equipment under its jurisdiction, without using lighted flares, to cease all work and move all equipment and themselves away from hazardous areas.

C. The Contractor is responsible for all of their movements on the AOA. Should the State deem that an escort, flagman, or driver fails to perform their duties, that escort, flagman, or driver may be terminated, or suspended and required to undergo additional training.

1.06 AOA COMMUNICATION DEVICES: The Contractor shall have at least two (2) people on the AOA possessing and continuously monitoring the following fully charged communication devices:

A. A two-way radio capable of communicating on frequencies 118.90 (Tower) and 121.90 (Ground); with a spare charged battery and

B. A cellular telephone, with a listing of all required emergency contact numbers.

1.07 AOA TRAVEL ROUTE: The Contractor will be assigned only one (1) travel route per work phase, and shall ensure that all of their personnel, vehicles, and equipment traverses the AOA only along the assigned travel route.

Should the State deem that an emergency situation has caused the assigned travel route to become unusable the Contractor will be assigned a temporary travel route for the duration needed and shall be responsible for all requirements associated with the new assigned travel route.

1.08 AOA AUTHORIZED VEHICLES: Only vehicles considered safe, and required to complete the contracted work will be allowed to operate on the AOA. Each vehicle operating on the AOA shall be authorized, possessing:

A. An AOA vehicle decal obtained from the Airport Security Office and displayed on the driver's side front bumper (use of an AOA temporary vehicle permit is not allowed).

B. Insurance coverage as required by Article 7.1 of the General Provisions, and further amended by the Special Provisions.

1.09 VEHICLE AND EQUIPMENT REQUIREMENTS ON THE AOA: Each vehicle and driven piece of equipment shall possess the following when operating or staging on the AOA.

A. Operations occurring at night, or during periods of poor visibility, shall require a Flashing Amber Beacon mounted atop each vehicle /equipment's highest point.

B. Daylight operations with clear visibility, shall require a Checkered Orange and White Flag attached to a staff that is mounted to each vehicle and/or equipment in lieu of a Flashing Amber Beacon. The flag shall be at least a three-foot square with a checker pattern of international orange and white squares that are at least one- foot on each side.

C. Two placards shall be on both sides of each vehicle or equipment at all times to identify the vehicle or equipment owner. Placards shall contain the company name in letters at least four-inches (4") tall, or six-inch (6") minimum-sized company logo.

D. All additional equipment marking, lighting and positioning that may be required by the FAA.

1.10 AOA DRIVERS: All people operating a vehicle or any driven piece of equipment on the AOA shall possess the following license, permit and expertise:

A. Current and valid Hawaii State Driver's License.

B. Current and valid Airport Vehicle Operator's Permit.

C. Complete Airport Familiarization.

D. An understanding and ability to identify the following:

1. All RSA's (Runway Safety Area), TWSA's (Taxiway Safety Area).

2. All AOA Markings, Lighting, and Signing.

3. The Need for Control of FOD (Foreign Object Debris).

4. All AOA Equipment for Aircraft.

5. All AOA Critical Areas.

6. All AOA Travel Routes for the Various Work Places.

E. An understanding and ability to follow all ground vehicle operation and communication requirements while operating on the AOA.

F. Successful completion of all AOA driver training require by the Airport Operations Manager.

1.11 AIRPORT VEHICLE OPERATOR'S PERMIT: Airport vehicle operator's permit shall only be issued to people that apply through the Airport Security Office and pass a written exam covering portions of the Airport Rules and Regulations related to vehicle operations on the AOA.

1.12 AOA ESCORTS: While operating on the AOA, the Contractor shall provide at least one escort for every five (5) vehicles and/or equipment under their jurisdiction. The Airport Operations Manager shall approve all escorts prior to any work commencing; hence, each escort shall possess:

A. All AOA Driver Requirements.

B. Both AOA Communications Devices previously specified.

C. Knowledge about the assigned access points and travel routes for the project.

D. Successful completion of all AOA driver training required by the Airport Operations Manager. Each escort shall pass an exam given by the Airport Operations Manager, which demonstrates they possess an understanding and ability to follow all ground vehicle operation and communication requirements while operating on the AOA.

1.13 AOA TRAFFIC CONTROL: The Contractor shall furnish and provide the following traffic control devices to block off entrances of working area:

A. Runway Lighted X's: Wherever working within an RSA.

B. Low-Profile Barricades: Low-profile barricades shall be any one of the following: however, if option a or b is selected, the Contractor shall be responsible for water filling and emptying these types of barricades as part of their contracted work.

1. Neubert Aero Corporation's reusable Airport Low-Profile Barricade Model No. NAC-PC 2410 with at least one battery-powered red barricade light, or

2. Multi-Barrier Safety Barricade Model No. AR-10x96 with at least one Multi- Barrier 360 degree solar-powered light, or

3. Constructed barricades as indicated on plans.

4. All Low-profile barricades shall be spaced fifteen (15) feet on center, and used as follows:

a. Restrict aircraft from taxiing into work areas: Barricades shall extend across the full TWY/RWY width, with one (1) barricade places on the TWY/RWY centerline.
b. Channel aircraft around work areas: Barricades shall be placed ten (10) feet away from active RSAs/TWSAs.

C. Reflective Cones: Reflective cones shall be used to demarcate AOA travel routes and locations where vehicles shall yield to aircraft.

1.14 AOA FOD CONTROL: The Contractor shall keep all work areas, AOA Travel Routes, and all adjacent areas clean at all times. Unless otherwise stated in this contract, or otherwise directed by the Airport Manager, the Contractor shall properly haul and dispose all removed pavement materials and collected debris to a site off the airport. The state will require remedial cleaning from the Contractor whenever their FOD Control Operations are unsatisfactory. Upon receipt of notification, the Contractor shall be ready to start remedial cleaning at the jobsite within one-hour. Notification by telephone will be deemed as official.

1.15 AOA FLAG PERSONS: Should the plans require flag persons along the AOA Travel Route, each flag-person shall possess:

A. AOA Driver as state in Sections 1.05.E.3, 1.05.E.4, and 1.05.E.6.

B. Both AOA Communication Devices previously specified in Section 105.A.

C. A traffic directing LED (Light-Emitting Diode) Light Baton.

D. A broom and dustpan to assist in AOA FOD Control.

1.16 AIRPORT STAGING AREAS: The Contractor shall only stage its vehicles and equipment at State approved areas. No vehicle or equipment shall park within four (4) feet of a security fence. Demarcation of the staging area shall be as follows:

A. Weighted Lighted Barricades shall be placed around the staging area perimeter at a maximum of twenty feet (20') on center.

B. Yellow Barrier Tape with the words "CAUTION DO NOT ENTER" continuously printed on the tape shall be used with barricades to demarcate the staging area perimeter.

1.17 COORDINATION OF CONSTRUCTION ON THE AOA

A. Work on the AOA requires RWY and TWY closures that demand proper notification to numerous agencies responsible for public safety; thus, the Engineer shall receive the following sufficiently accurate information from the Contractor.

B. Maximum height equipment: Equipment height shall be submitted to the State at least thirty-five (35) consecutive calendar days prior to construction. Construction shall not commence until the State receives confirmation from the FAA. All reported heights shall be the maximum heights among all vehicles or equipment used to compete the contracted work, and includes proper notification to the State whenever the reported maximum heights are to be exceeded.

C. Detailed work schedule: See SECTION 01300 – SUBMITTALS.

D. Cancellations: The Contractor shall only cancel work through the Engineer, Airport Operations Manager, or Airport Duty Manager. Whenever a cancellation is not made and the Contractor is not at the assigned AOA Access Point within thirty (30) minutes of the start time; all Contractor closures for the remaining workweek will be cancelled. The Contractor shall reimburse the State six hundred dollars ($600.00) for every work cancellation the State deems unjustified. This reimbursement is to compensate the State for all unnecessary costs related to cancelling existing and coordinating new closures.

1.18 CONSTRUCTION LIGHTING REQUIREMENTS

Should any part of the work area lack sufficient sunlight; the Contractor shall provide sufficient artificial lighting to permit the work and inspection to be carried out efficiently, thoroughly, safely, and satisfactorily. Work and inspections shall not be performed with only flashlight and/or vehicle/equipment headlights. All lights shall be positioned so they do not blind aircraft pilots, or FAA-ATCT controllers. All wiring for electrical lights and power shall be properly installed, maintained, securely fastened and kept as far as possible from telephone and signal wires. The Contractor shall submit a lighting plan to the Engineer for all work phases that shall be subject to approval.

1.19 ENVIRONMETAL AND HEALTH REQUIREMENTS

A. The Contractor shall perform the following in accordance with all applicable federal, state, local, and airport rules and regulations related to environmental pollution control, abatement, and fire code.

B. Airport water: Airport water shall not be drawn from a top lacking a reverse pressure principal backflow prevention device. Water valves shall be opened and closed so that water hammers are not produced.

C. Waste Disposal: Waste disposal shall be performed properly. Materials shall not be burned, and construction wastes shall not be disposed into Airport storm water or sewer systems.

D. Restoration: Completely restore to an acceptable condition; staging area, work area, AOA travel routes, and areas adjacent to the aforementioned.

E. When the Contractor damages and existing Airport perimeter fence, the Contractor shall perform immediate repairs on the fence to prevent inadvertent entry and maintain Airport Security.

F. Vehicle/equipment leaks and material spills: Shall be handled by the following five-step process, and pertains to all fluids other than potable water:

1. All leaked or spilled fluids shall immediately be kept from entering the Airport storm water and sewer systems.

2. All fluid leaks or spills shall be respectively fixed or stopped, immediately after ensuring that the fluids are kept out of the Airport storm water and sewer systems.

3. All areas containing the leaks or spills shall be properly cleaned and restored.

4. Dispose all wastes per Section 1.08.B.

5. Submit proper documentation to the State showing that all leaks or spills were properly cleaned and disposed.

G. Erosion control: The Contractor shall provide any essential temporary drainage, dikes, and similar facilities to prevent erosion damage to the site. Run-off shall be controlled to prevent damage to the surrounding areas.

H. Dust control: The Contractor shall take positive measures to ensure that dust is properly controlled without chemicals and/or oil treatments.

I. Noise control: Noise control shall be within the levels that comply with all applicable regulations.

1.20 OTHER REQUIREMENTS

A. The Contractor shall also comply with the following requirements should they arise:

B. Any new TSA (Transportation Security Administration) security requirements.

C. Any additional operational safety requirement generated by the FAA.

D. Provide additional lights along AOA travel routes should the Engineer deem additional safety enhancements are needed.

E. Any new environmental and health requirements generated by the EPA (Environmental Protection Agency) or DOH (Department of Health).

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately, but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

DIVISION 2 - SITE CONSTRUCTION

SECTION 02300 – EARTHWORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION

A. This section includes, but is not limited to, furnishing all labor, materials, equipment, and services necessary to provide site excavation and grading, including shoring, backfilling and compacting work, as required for the installation of drainage structures and other work as shown in the plans and specified herein. Other work may include:

1. Temporary erosion control, siltation control, and dust control; and

2. Removal and legal disposal of cleared materials.

B. It shall be the responsibility of the Contractor to examine the project site and determine for himself the existing conditions.

C. Obvious conditions of the site existing of the date of the bid opening shall be accepted as part of the work, even though they may not be clearly indicated on the plans and/or described herein or may vary therefrom.

D. The Contractor shall obtain and pay for any necessary permits prior to commencement of work.

E. Related Sections:

1. SECTION 02401 – ASPHALT MIX PAVEMENT

1.03 GENERAL REQUIREMENTS

Unless otherwise noted or specified on the drawings or in these specifications, all work under this section shall conform to the latest edition of the “Hawaii Standard Specifications for Road and Bridge Construction” of the State Department of Transportation, Highways Division.

1.04 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Material Certifications: Provide affidavits from the manufacturers or suppliers of

all materials proposed to be furnished and installed under this Section, certifying that such material delivered to the project conforms to the requirements of these specifications.

C. Product Data: Provide material product data and material safety data for the materials proposed for use under this Section. Include test data and manufacturer/supplier certifications.

D. Shoring and Sheeting Plan: Describe materials of shoring system to be used. Indicate whether or not components will remain after filling or backfilling. Provide plans, sketches, or details along with calculations by a professional engineer registered in Hawaii. Indicate sequence and method of installation and removal.

A. Test Reports: Provide certifications and test results for all compaction work to the Engineer within three (3) days of the test.

PART 2 – PRODUCTS

2.01 BACKFILL

A. Unless otherwise modified herein, backfill material shall consist of the following:

1. Excavated Material: If suitable and available, for site grading as a source of general backfill provided that they are free of deleterious materials and are screened of particles greater than 3 inches in largest dimension.

2. Borrow Excavated Material: Shall be of quality suitable for intended purpose and free of deleterious materials.

B. Structural Backfill material shall be free of vegetable matter and other deleterious substance and shall conform to Table 1a - Structure Backfill Grading Requirements. Reclaimd asphalt pavement (RAP) shall not be used for structural backfill material A.

Table 1a – Structural Backfill Grading Requirements

Sieve Size	Percent Passing by Weight	
	Structural Backfill Material A	Structural Backfill Material B
3 Inch	100	100
No. 4	20-75	20-100
No. 200	0-15	-
Sand equivalent (SE) shall be tested in accordance with AASHTO T 176. Structural backfill material A shall have minimum SE of 20. Structural backfill material B shall have SE equal to or greater than SE of surrounding soil in area to be backfilled.		

C. Trench Backfill material shall be free of vegetable matter and other deleterious substance and shall consist of sand-silt mixture conforming to Table 1b - Trench Backfill Grading Requirements.

Table 1b – Trench Backfill Grading Requirements		
Sieve Size	**Percent Passing by Weight**	
	Structural Backfill Material A	**Structural Backfill Material B**
3 Inch	-	100
1 Inch	100	-
No. 4	75-100	20-100
No. 200	0-15	-

1. Trench Backfill Material A shall be sandy material classified as SW, SP, SM, SW-SM, or SP-SM in accordance with ASTM D 2487. SE value of trench backfill A, determined in accordance with AASTHO T 176, shall not be less than 20 and not less than SE value of surrounding soil in trench to be backfilled. RAP shall not be used for trench backfill material A.

2. Trench Backfill Material B. SE value of trench backfill B, determined in accordance with AASHTO T 176, shall be not less than SE value of surrounding soil in trench to be backfilled.

PART 3 – EXECUTION

3.01 PROTECTIVE MEASURES

A. All excavation shall be protected and guarded against danger to life, limb and property in accordance with applicable regulations.

B. Bracing the excavation and stabilizing the existing ground shall be required as necessary to preserve the excavations during construction. The Contractor is responsible for selecting, designing, and installing appropriate excavation support systems to meet OSHA requirements.

C. All excavations shall be kept free from standing water to the maximum extent possible. The Contractor shall do all pumping and draining that may be necessary to remove water to the extent required in carrying on work.

D. The Contractor shall conduct operations with minimum interference to streets, sidewalks, passageways, traffic, etc. The Contractor shall confine all work, equipment, materials and personnel as much as possible to the work area as indicated. When necessary and when directed, the Contractor shall provide and erect barriers with special attention to the protection of personnel.

E. The Contractor shall exercise every precaution to preserve and protect underground utility lines encountered during excavation. The existing structures or piping shall be properly supported with beams, struts, underpinnings or similar material as needed during excavation to protect from damage.

3.02 SITE PREPARATION

A. All water pollution, dust, and erosion control best management practices shall be in place and operation prior to any earthwork.

B. Prior to excavation work within existing paved areas, saw-cut and remove existing pavements to the minimum extent required.

3.03 DISPOSAL OF WASTE MATERIAL

The Contractor shall demolish and remove all pavements, sidewalks, curbs, pipelines and other structures and obstructions designated for removal. All waste material shall be properly disposed of off-site by the Contractor at his own expense in compliance with all regulatory agency requirements.

3.04 EXCAVATION

A. Excavate so as not to disturb material outside of limits of slopes or limits of grading. Excavation width at any point shall not be less than excavation width at any depth below such point.

B. Structure and trench excavation shall be dug to alignment and depth required, with sufficient width to provide adequate working space.

C. When excavation to finished grade results in subgrade or slopes of unsuitable material, the unsuitable material shall be removed and backfilled with acceptable material.

3.05 BACKFILL

A. Backfill for structure and trench excavation shall be placed in layers not exceeding loose thickness of 8”. Uniformly compact each layer of fill to minimum 90% of Modified Proctor Dry Density in accordance with ASTM D1557. The upper 2 feet below the road subgrade subjected to vehicular traffic shall be compacted to a minimum of 95% relative compaction. Each lift shall be moisture conditioned to above the optimum moisture content.

B. Backfill materials shall be placed by hand or by approved mechanical methods. The compaction of backfill material shall be done by tamping with hand tools or approved pneumatic tampers, by using vibratory compactors, or other suitable equipment.

C. Subgrade preparation shall be completed after backfilling and compacting earthwork. Remove rocks or lumps and fill voids with suitable materials.

Compact finish grade to relative compaction of 95% for depth of 6 inches immediately before placing subsequent material thereon. Finished subgrade upon which pavement structure is to be placed shall not vary more than 0.04-foot above or below theoretical grade.

3.06 RESTORATION

All disturbed work shall be restored to their original condition or better, unless otherwise noted.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 02401 – ASPHALT MIX PAVEMENT

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

A. This section includes, but is not limited to, furnishing all labor, material, equipment, tools, and services required for preparing the existing pavement surfaces for overlay, surface treatments, removal and processing of existing pavements, placing and compacting of pavement and other miscellaneous items as shown on the plans and as specified herein.

B. Related Sections:

1. SECTION 02300 – EARTHWORK

1.03 GENERAL REQUIREMENTS

Unless otherwise noted or specified on the drawings or in these specifications, all work under this section shall conform to the latest edition of the “Hawaii Standard Specifications for Road and Bridge Construction” of the State Department of Transportation, Highways Division.

1.04 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Material Certifications: Provide affidavits from the manufacturers or suppliers of all materials proposed to be furnished and installed under this Section, certifying that such material delivered to the project conforms to the requirements of these specifications.

C. Product Data: Provide material product data and material safety data for the materials proposed for use under this Section. Include test data and manufacturer/supplier certifications.

D. Design Mixes: Provide design data for asphalt pavement mixes.

PART 2 – PRODUCTS

2.01 AGGREGATES

A. Aggregate for Untreated Base

1. Aggregate for untreated base shall consist of crushed stone free of vegetable matter and other deleterious substances.

2. Crushing shall be regulated so that at least 80 percent, by weight, of material retained on No. 4 sieve is crushed and has at least one mechanically fractured face.

3. Aggregate for untreated base shall conform to Table 1a - Untreated Base Test Requirements and Table 1b - Untreated Base Grading Requirements.

Table 1a – Untreated Base Test Requirement		
Test	**Method**	**Requirements**
Los Angeles Abrasion	AASHTO T 96	40 Percent Maximum
Sand Equivalent	AASHTO T 176	30 Percent Minimum
Plasticity Index	AASHTO T 90	6 Maximum
Grading	AASHTO T 27	Refer to Table 1b

Table 1b – Untreated Base Grading Requirements			
Sieve Size	**Percent Passing by Weight**		
	2-1/2 Inch Maximum Nominal	**2-1/2 Inch Maximum Nominal**	**2-1/2 Inch Maximum Nominal**
3 Inch	100	-	-
2-1/2 Inch	90-100	-	-
2 Inch	-	100	-
1-1/2 Inch	65-90	90-100	-
1 Inch	-	-	100
3/4 Inch	45-70	50-90	90-100
No. 4	25-45	25-50	35-55
No. 200	3-9	3-9	3-9

B. Aggregate for Hox Mix Asphalt (HMA) Pavement

1. Aggregate for HMA pavement shall be crushed and screened basalt free of soft or disintegrated pieces, clay, dirt, and other deleterious substances.

2. At least 90 percent, by weight, of material retained on No. 4 sieve shall consist of crushed particles. At least 70 percent of material passing No. 4 sieve and retained on No. 8 sieve shall consist of crushed particles. A crushed particle is defined as particle having at least one mechanically fractured face.
3. The combined aggregate for HMA pavement shall conform to Table 2a - HMA Test Requirements and Table 2b – HMA Grading Requirements.

Table 2a – HMA Test Requirements

Test	Method	Requirements
Sand Equivalent	AASHTO T 176	45 Percent Minimum
Los Angeles Abrasion	AASHTO T 96	30 Percent Maximum
Stripping	AASHTO T 182	Above 95 Percent
K-factor	ASTM D 5148	Kc-2.0 Maximum Km-1.7 Maximum
Flat and elongated pieces (Length to thickness ratio of 3)	ASTM D 4791 (By Weight)	25 Percent Maximum
Grading	AASHTO T 11 AASHTO T 27	Job-mix formula based on Table 2b
Soundness	AASHTO T 104 (5 cycles using sodium sulfate)	9 Percent Maximum
Absorption	AASHTO T 84 AASHTO T 85	5 Percent Maximum

Table 2b – HMA Grading Requirements				
MIX NO.	**II**	**III**	**IV**	**V**
Sieve Sizes	**Combined Aggregate Percent Passing by Weight**			
1-1/4 Inch	100	-	-	-
1 Inch	85-100	100	-	-
3/4 Inch	-	90-100	100	-
1/2 Inch	60-85	70-90	90-100	100
3/8 Inch	-	-	72-90	80-100
No. 4	36-55	40-57	48-66	55-75
No. 8	26-41	30-47	32-48	35-52
No. 16	17-32	20-36	21-37	22-38
No. 30	12-25	16-28	15-27	14-26
No. 50	8-18	10-22	9-21	8-20
No. 100	5-14	8-17	6-16	6-15
No. 200	1-8	4-8	4-8	4-8

2.02 ASPHALT CEMENT (PG 64-16)

Performance-graded asphalt binder shall conform to AASHTO M 320.

2.03 EMULSIFIED ASPHALT

A. Anionic emulsified asphalt shall conform to AASHTO M 140, except penetration on residue for Type SS-1 and Type RS-1 shall be 50-120. Cationic emulsified asphalt shall conform to AASHTO M 208, except penetration on residue for Type CSS-1 and Type CRS-1 shall be 50-150.

B. Dilute emulsified asphalt with water at rate of one part emulsified asphalt to one part water by volume.

2.04 HYDRATED LINE

Hydrated lime shall conform to ASTM C 207, Type N.

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Aggregate Untreated Base Course

1. Add water uniformly to aggregate base, as necessary, to obtain moisture content within 2 percent above or below optimum moisture content for

compaction.

2. Immediately after spreading aggregate base, shape and compact each lift across full width using power roller. Roll in direction parallel to centerline of road. Compact each lift to produce uniform surface texture and to attain at least 95 percent of maximum density.

B. Hot Mix Asphalt (HMA) Pavement

1. Hot Mix Asphalt Pavement shall be in accordance with Section 401 – Hot Mix Asphalt Pavement of the "Hawaii Standard Specifications for Road and Bridge Construction" of the State Department of Transportation, Highways Division. All references to measurement and payment shall be deleted.

2. State Mix No. 4 shall be used for all general HMA paving and resurfacing work.

C. Tack Coat

1. Tack Coat shall be in accordance with Section 407 – Tack Coat of the "Hawaii Standard Specifications for Road and Bridge Construction" of the State Department of Transportation, Highways Division. All references to measurement and payment shall be deleted.

3.02 RESTORATION

A. Any existing asphalt pavement that has been damaged by construction activities or heavy equipment shall be repaired to the original condition and to the satisfaction of the Engineer.

B. All striping and pavement markings that have faded or deteriorated due to the construction work or caused by the abrasion of materials on the pavement surface, including dirt, mud and gravel shall be repainted as directed by the Engineer.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 02410 – SELECTIVE DEMOLITION

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. NFPA 1 - Fire Code; 2024, with Errata.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.02 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this section.

1.03 DESCRIPTION OF WORK

A. Extent of selective demolition work is indicated on drawings. Selective demolition work includes 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. Demolish and remove materials as indicated on the drawings and as required to perform work under this project. All debris of any kind accumulated from the work of this section shall be disposed of offsite. Burning of any debris on-site will not be permitted.

F. Carefully remove, salvage, and label existing items and store at project site at location as approved by the Engineer for re-installation in new work, including, but not limited to, electrical, security and mechanical equipment.

G. Temporarily disconnect and remove all existing overhead utilities on the roof if required during roofing work. Obtain State's written approval of all utility outages prior to performing work. Re-install and reconnect utility service when roofing work is completed.

H. Protect all existing conditions surrounding the work area, including, but not limited to, walkways, parking, landscaping, etc. at all times from damage.

I. Any damage as a result of demolition work and any neglect to provide protection shall be fixed new at Contractor's own expense.

J. Permits, Notice, Etc.: The Contractor shall procure and pay for all necessary permits, certificates, or approvals that may be required in connection with this work. The Contractor shall serve proper notice and consult with the State 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.

K. Carefully remove and store materials indicated for relocation or reinstallation. Record all deficiencies prior to removal and record with the State. All damage caused by the Contractor’s operations shall be repaired as accepted by the State at no additional cost to the State.

L. The Contractor shall review SECTION 01715 - EXISTING CONDITIONS.

1.04 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Schedule: Submit schedule indicating proposed methods and sequence of operations for selective demolition work for review prior to commencement of work. Include coordination of temporary shut off and continuation of utility services as required, together with details for weather protection, dust and noise control protection.

1.05 JOB CONDITIONS

A. The State assumes no responsibility for actual conditions of items or portions of structure to be demolished.

B. Conditions existing at the 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 the 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, staff, and residents from injury due to selective demolition.

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 become exposed during demolition operations.

3. Protect from damage existing walkways and sidewalks to remain.

4. Life safety procedures and provisions shall be in conformance with all applicable Federal, State, and City and County regulations, including HIOSH.

5. Provide accessibility around temporary structures conforming to ADAAG Section 201.

6. Remove protection, obstructions, and barricades at completion of work.

7. Where barriers are erected or placed to facilitate the work, barriers shall not affect or impact the fire exiting route(s) or alarm system(s).

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, walkways, and other adjacent occupied or used facilities. Do not close, block, or otherwise obstruct streets, walkways, and other occupied or used facilities without written permission from the State. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations, as directed by the State.

H. Explosives: Use of explosives will not be permitted.

I. Utility Services: The existence of utility lines other than those shown on the drawings is not definitely known and is based on available data. No guarantee is made as to the accuracy of existing information nor are there implied guarantees that other obstacles will not be encountered during the course of the work. Should any other utility lines that affect work be encountered, the Contractor shall immediately notify the State and follow the State's direction as to procedures. Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations. Do not interrupt existing utilities serving occupied buildings or facilities, except when authorized in writing by the State. Submit written notice of outages and interruptions at least fourteen (14) days in advance of intended outage. Report damage, however slight, immediately. Do not repair or reconstruct any pipe, conduit, or installation without authorization, except while performing immediate emergency repairs.

J. Dust Control:

1. Keep dust within acceptable levels at all times, including non-working hours, weekends, and holidays, as specified in SECTION 01560 – GENERAL ENVIRONMENTAL, HEALTH, & SAFETY CONTROLS in conformance with State Department of Health, Title 11, Administration Rules, Chapter 60.1 - Air Pollution Control, latest edition.

2. Only wet grinding or cutting of concrete will be allowed on exterior surfaces.

3. Mechanical dry sweeping not permitted. Vacuuming, wet mopping, approved limited dry hand, wet or damp sweeping is acceptable.

4. During loading operations, water down debris and waste materials to allay dust.

5. The method of dust control and all costs incurred thereof shall be the responsibility of the Contractor.

6. Enclosed chutes shall be used for removing debris from above the ground floor levels.

K. Noise Control: Noise control shall be within the level that comply with all applicable regulations, and as specified in SECTION 01560 – GENERAL ENVIRONMENTAL, HEALTH, & SAFETY CONTROLS.

L. Fire Safety: Fire safety during demolition shall comply with NFPA 241, “Standard for Safeguarding Construction, Alteration, and Demolition Operations,” and NFPA 1, “Fire Code,” as amended.

M. 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.

N. Other Controls:

1. Whenever 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 gutters 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 Used)

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 State prior to starting work.

B. Test all equipment that is to be relocated or reinstalled prior to disconnection. File a list of discrepancies with the State prior to disconnection and relocation. Allow the State five (5) working days to verify discrepancies prior to removal.

3.02 PREPARATION

A. Provide temporary security type weatherproof enclosures for exterior openings resulting from demolition work.

B. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.

C. Protect existing structures and other elements to remain in place and not removed.

1. Provide bracing and shoring.

2. Prevent movement or settlement of adjacent structures.

3. Stop work immediately if adjacent structures appear to be in danger.

3.03 BARRICADES AND ENCLOSURES

As specified in SECTION 01533 - BARRICADES.

3.04 SELECTIVE DEMOLITION

A. Perform selective demolition work indicated on 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 minimal 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. Services including, but not limited to, HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications: Remove existing systems and equipment as indicated.

1. Maintain existing active systems to remain in operation, and maintain access to equipment and operational components.

2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for services.

3. Verify that abandoned services serve only abandoned facilities before removal.

4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings. Remove back to source of supply where possible, otherwise cap stub and tag for identification.

C. 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 State in written, accurate detail. Pending receipt of directive from the State, 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.

B. Debris shall be removed from the site and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

C. 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.

D. Burning of removed materials is not permitted on project site.

3.06 REPAIR WORK

Where exposed existing work to remain is damaged or left unfinished by the removal work, the resultant exposed unfinished surfaces shall be repaired, patched, filled or finished to match the adjoining existing surfaces. Existing work at the completion of operations shall be left in a condition as good as existed before the new work started. Where the method of repair work is not indicated or specified, the Contractor shall perform the repair work in accordance with the best recognized workmanlike procedure for the surrounding construction involved.

3.07 CLEAN UP AND REPAIR

A. Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave area 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, top soiled, and then grassed with the same kind and type of materials as existing, in manner accepted by and to the satisfaction of the State.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 02577 – PAVEMENT MARKING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

This section includes, but is not limited to, furnishing all labor, material, equipment, tools, and services required for installing pavement striping as shown on the plans or as directed by the engineer.

PART 2 – PRODUCTS

2.01 MATERIALS

Materials shall conform to the latest editions and amendments of the “Manual on Uniform Traffic Control Devices for Streets and Highways”, and to Section 755 – Pavement Marking Materials of the “Hawaii Standard Specifications for Road and Bridge Construction” of the State Department of Transportation, Highways Division. All references to measurement and payment shall be deleted.

PART 3 – EXECUTION

3.01 CONSTRUCTION

Construction shall conform to the latest editions and amendments of the “Manual on Uniform Traffic Control Devices for Streets and Highways”, and to Section 629 – Pavement Markings of the “Hawaii Standard Specifications for Road and Bridge Construction” of the State Department of Transportation, Highways Division. All references to measurement and payment shall be deleted.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

DIVISION 3 - CONCRETE

SECTION 03100 - CONCRETE FORMS AND ACCESSORIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

A. Section includes:

1. Form-facing material for cast-in-place concrete.

2. Shoring, bracing, and anchoring.

1.03 DEFINITIONS

A. Form-Facing Material: Temporary structure or mold for the support of concrete while the concrete is setting and gaining sufficient strength to be self-supporting.

B. Formwork: The total system of support of freshly placed concrete, including the mold or sheathing that contacts the concrete, as well as supporting members, hardware, and necessary bracing.

1.04 SUBMITTALS

A. Product Data: For each of the following:

1. Exposed surface form-facing material.

2. Concealed surface form-facing material.

3. Form ties.

4. Form-release agent.

B. Field quality-control reports.

PART 2 – PRODUCTS

2.01 FORM-FACING MATERIALS

A. As-Cast Surface Form-Facing Material:

1. Provide continuous, true, and smooth concrete surfaces.

2. Furnish in largest practicable sizes to minimize number of joints.

3. Acceptable Materials: As required to comply with Surface Finish designations specified in SECTION 03300 CAST-IN-PLACE CONCRETE, and plywood, metal, or other approved panel materials.

B. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.

1. Provide lumber dressed on at least two edges and one side for tight fit.

2. Provide forms with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

2.02 RELATED MATERIALS

A. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

B. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces. Formulate form-release agent with rust inhibitor for steel form-facing materials.

C. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that leave no corrodible metal closer than one inch to the plane of exposed concrete surface.

2. Furnish ties that, when removed, leave holes no larger than one inch in diameter in concrete surface.

PART 3 – EXECUTION

3.01 INSTALLATION OF FORMWORK

A. Comply with ACI 301.

B. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated within tolerance limits of ACI 117 and to comply with the Surface Finish designations specified in SECTION 03300 CAST-IN-PLACE CONCRETE for as-cast finishes.

C. Limit concrete surface irregularities as follows:

1. Surface Finish-1.0: ACI 117 Class D, 1 inch.

2. Surface Finish-2.0: ACI 117 Class B, 1/4 inch.

3. Surface Finish-3.0: ACI 117 Class A, 1/8 inch.

D. Construction forms tight enough to prevent loss of concrete mortar.

1. Minimize joints.

2. Exposed Concrete: Symmetrically align joints in forms.

E. Construct removable forms for easy removal without hammering or prying against concrete surfaces.

1. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.

2. Provide top forms for inclined surfaces steeper than 1.5 horizontal to one vertical.

3. Install keyways, reglets, recesses, and other accessories, for easy removal.

F. Do not use rust-stained, steel, form-facing material.

G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.

1. Provide and secure units to support screed strips

2. Use strike-off templates or compacting-type screeds.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.

J. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.

1. Determine sizes and locations from trades providing such items.

2. Obtain written approval of Engineer prior to forming openings not indicated on Drawings.

K. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

L. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

M. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.02 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.

3. Clean embedded items immediately prior to concrete placement.

3.03 REMOVING AND REUSING FORMS

A. Formwork for sides of slabs, pedestals, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50-degree Fahrenheit for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

B. Clean and repair surfaces of forms to be reused in the Work.

1. Split, frayed, delaminated, or otherwise damaged form-facing material are unacceptable for exposed surfaces.

2. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.

1. Align and secure joints to avoid offsets.

2. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

3.04 FIELD QUALITY CONTROL

Inspections: Inspect formwork for shape, location, and dimensions of the concrete member being formed.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 03200 – CONCRETE REINFORCEMENT

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

Section includes steel reinforcement bars.

1.03 SUBMITTALS

A. Product Data:

1. Each type of steel reinforcement.

2. Bar supports.

3. Mechanical splice couplers.

B. Shop Drawings: Comply with ACI SP-066.

1. Include placing drawings that detail fabrication, bending, and placement.

2. Include bar sizes, lengths, materials, grades, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, location of splices, lengths of lap splices, details of mechanical splice couplers, details of welding splices, tie spacing, hoop spacing, and supports for concrete reinforcement.

3. Location of construction joints is subject to approval of the Engineer.

C. Construction Joint Layout: Indicate proposed construction joints required to build the structure.

D. Welding Certificates: Reinforcement To Be Welded: Welding procedure specification in accordance with AWS D1.4/D1.4M

E. Material test reports for steel reinforcement from a qualified testing agency. For reinforcement to be welded, mill test analysis for chemical composition and carbon equivalent of the steel in accordance with ASTM A706/A706M.

F. Minutes of preinstallation conference.

1.04 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

B. Review the following:

1. Special inspection and testing and inspecting agency procedures for field quality control.

2. Steel-reinforcement installation.

1.05 QUALITY ASSURANCE

Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.4/D1.4M.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Store reinforcement to avoid contact with earth.

PART 2 – PRODUCTS

2.01 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.

B. Low-Alloy Steel Reinforcing Bars: ASTM A706/A706M, deformed.

2.02 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A615/A615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place.

1. Manufacture bar supports from steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

a. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic bar supports, or CRSI Class 2 stainless steel bar supports.

C. Steel Tie Wire: ASTM A1064/A1064M, annealed steel, not less than **0.0508 inch (1.29 mm)** in diameter.

1. Finish: Plain.

D. Stainless Steel Tie Wire: ASTM A1022/A1022M, not less than **0.0508 inch (1.29 mm)** in diameter.

2.03 FABRICATING REINFORCEMENT

Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

PART 3 – EXECUTION

3.01 PREPARATION

Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

3.02 INSTALLATION OF STEEL REINFORCEMENT

A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.

B. Accurately position, support, and secure reinforcement against displacement.

1. Locate and support reinforcement with bar supports to maintain minimum concrete cover.

2. Do not tack weld crossing reinforcing bars.

C. Preserve clearance between bars of not less than **1 inch (25.4 mm)**, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.

D. Provide concrete coverage in accordance with ACI 318.

E. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

F. Splices: Lap splices as indicated on Drawings.

1. Bars indicated to be continuous, and all vertical bars shall be lapped not less than 36 bar diameters at splices, or **24 inches (609.6 mm)**, whichever is greater.

2. Stagger splices in accordance with ACI 318.

3. Weld reinforcing bars in accordance with AWS D1.4/D1.4M, where indicated on Drawings.

3.03 JOINTS

Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length, to prevent concrete bonding to one side of joint.

3.04 INSTALLATION TOLERANCES

Comply with ACI 117.

3.05 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Inspections:

1. Steel-reinforcement placement.

2. Steel-reinforcement welding.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 03300 – CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

Section includes cast-in-place concrete, including concrete materials, mixture design, placement procedures and finishes.

1.03 SUBMITTALS

A. Product Data: For each of the following.

1. Portland cement.
2. Fly ash.
3. Aggregates.
4. Admixtures: Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
5. Vapor retarders.
6. Curing materials.
7. Joint fillers.
8. Repair materials.

B. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.
2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum w/cm.
5. Slump limit.
6. Air content.

7. Nominal maximum aggregate size.

C. Qualification Data for the following:

1. Installer: Include copies of applicable ACI certificates.

2. Ready-mixed concrete manufacturer.

3. Testing agency: Qualification certificates.

D. Research Reports: For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.

E. Field quality-control reports.

F. Minutes of preinstallation conference.

1.04 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.05 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Concrete Subcontractor.
d. Officer-in-charge.

2. Review the following:

a. Special inspection and testing and inspecting agency procedures for field quality control.
b. Construction joints, control joints, isolation joints, and joint-filler strips.
c. Anchor rod and anchorage device installation tolerances.
d. Hot weather concreting procedures.
e. Concrete finishes and finishing.
f. Curing procedures.
g. Forms and form-removal limitations.
h. Concrete repair procedures.
i. Concrete protection.
j. Initial curing and field curing of field test cylinders (((ASTM C31/C31M)).)

k. Protection of field cured field test cylinders.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1.07 DELIVERY, STORAGE, AND HANDLING

Comply with ASTM C94/C94M and ACI 301.

1.08 FIELD CONDITIONS

A. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:

1. Maintain concrete temperature at time of discharge to not exceed 95-degree Fahrenheit.

2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 – PRODUCTS

2.01 CONCRETE, GENERAL

ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

2.02 CONCRETE MATERIALS

A. Source Limitations:

1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.

2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.

3. Obtain aggregate from single source.

4. Obtain each type of admixture from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, Type V.

2. Fly Ash: ASTM C618, Class C or F.

C. Normal-Weight Aggregates: ASTM C33/C33M, coarse aggregate or better, graded. Provide aggregates from a single source.

1. Alkali-Silica Reaction: Comply with one of the following:

a. Expansion Result of Aggregate: Not more than 0.04 percent at one-year when tested in accordance with ASTM C1293.
b. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567.
c. Alkali Content in Concrete: Not more than 4 pound per cubic yard for moderately reactive aggregate or 3 pound per cubic yard for highly reactive aggregate, when tested in accordance with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.

2. Maximum Coarse-Aggregate Size: 3/4-inch nominal.

3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Air-Entraining Admixture: ASTM C260/C260M.

E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride in steel-reinforced concrete.

1. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.

F. Water and Water Used to Make Ice: ASTM C94/C94M, potable

2.03 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.

1. Color:

a. Ambient Temperature Below 50-degree Fahrenheit: Black.

b. Ambient Temperature between 50-degree Fahrenheit and 85-degree Fahrenheit: Any color.
c. Ambient Temperature Above 85-degree Fahrenheit: White.

D. Curing Paper: Eight-feet-wide paper, consisting of 2 layers of fibered kraft paper laminated with double coating of asphalt.

E. Water: Potable or complying with ASTM C1602/C1602M.

F. Clear, Waterborne, Membrane-Forming, Curing Compound: ASTM C309, Type 1, Class B, 18 to 25 percent solids, non-dissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

2.04 RELATED MATERIALS

Bonding Agent: ASTM C1059/C1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

2.05 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.

1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash or Other Pozzolans: 25 percent by mass.

2. Total of Fly Ash or Other Pozzolans: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass.

C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.

1. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2. Use water-reducing admixture in concrete with a w/cm below 0.50.

2.06 CONCRETE MIXTURES

A. Normal-weight concrete

1. Exposure Class: ACI 318 C2.

2. Minimum Compressive Strength at 28 Days: **4000 psi (27579.04 kPa)** for footings and pedestals and **4500 psi (31026.42 kPa)** for slabs-on-grade.

3. Max aggregate size shall be ¾".

4. Slump Limit: **4 inches (101.6 mm)**, plus or minus one inch.

5. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

6. Air Content: Do not use an air-entraining admixture or allow total air content to exceed 3 percent for concrete used in trowel-finished floors.

7. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

2.07 CONCRETE MIXING

Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and furnish batch ticket information.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verification of Conditions:

1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.

2. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:

1. Daily access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.

4. Security and protection for test samples and for testing and inspection equipment at Project site.

3.03 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.

3.04 JOINTS

Construct joints true to line, with faces perpendicular to surface plane of concrete.

3.05 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.

1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.

2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.

B. Notify Engineer and testing and inspection agencies 24 hours prior to commencement of concrete placement.

C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer in writing, but not to exceed the amount indicated on the concrete delivery ticket.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.

1. If a section cannot be placed continuously, provide construction joints as indicated.

2. Deposit concrete to avoid segregation.

3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.

4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.

a. Do not use vibrators to transport concrete inside forms.
b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least **6 inches (152.4 mm)** into preceding layer.
c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.

d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for pedestals in a continuous operation, within limits of construction joints, until placement of a complete pedestal section is complete.

1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Maintain reinforcement in position on chairs during concrete placement.

3. Screed slab surfaces with a straightedge and strike off to correct elevations.

4. Level concrete, cut high areas, and fill low areas.

5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.

6. Do not further disturb slab surfaces before starting finishing operations.

3.06 FINISHING FORMED SURFACES

A. As-Cast Surface Finishes:

1. ACI 301 Surface Finish SF-1.0: As-cast concrete texture imparted by form-facing material.

a. Patch voids larger than **1-1/2 inches (38 mm)** wide or **1/2 inch (12.7 mm)** deep.
b. Remove projections larger than one inch.
c. Tie holes do not require patching.
d. Surface Tolerance: ACI 117 Class D.
e. Apply to concrete surfaces not exposed to public view.

2. ACI 301Surface Finish SF-2.0: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.

a. Patch voids larger than **3/4 inch (19.05 mm)** wide or **1/2 inch (12.7 mm)** deep.
b. Remove projections larger than **1/4 inch (6.35 mm)**.
c. Patch tie holes.
d. Surface Tolerance: ACI 117 Class B.
e. Locations: Apply to concrete surfaces exposed to public view.

3.07 CONCRETE CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.

2. Maintain moisture loss no more than 0.2 lb/sq. ft. x h before and during finishing operations.

B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:

1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.

2. If forms remain during curing period, moist cure after loosening forms.

3. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:

a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
b. Continuous Sprinkling: Maintain concrete surface continuously wet.
c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
d. Water-Retention Sheeting Materials: Cover exposed concrete surfaces with sheeting material, taping, or lapping seams.
e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
    1) Recoat areas subject to heavy rainfall within three hours after initial application.
    2) Maintain continuity of coating and repair damage during curing period.

C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:

1. Begin curing immediately after finishing concrete.

3.08 TOLERANCES

Conform to ACI 117.

3.09 FIELD QUALITY CONTROL

A. Special Inspections: Contractor will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.

B. Testing Agency: Contractor will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

1. Testing agency shall be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.

2. Testing agency shall immediately report to Engineer, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.

3. Testing agency shall report results of tests and inspections, in writing, to Owner, Engineer, Contractor, and concrete manufacturer within 48 hours of inspections and tests.

    a. Test reports shall include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
        1) Project name.
        2) Name of testing agency.
        3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
        4) Name of concrete manufacturer.
        5) Date and time of inspection, sampling, and field testing.
        6) Date and time of concrete placement.
        7) Location in Work of concrete represented by samples.
        8) Date and time sample was obtained.
        9) Truck and batch ticket numbers.
        10) Design compressive strength at 28 days.
        11) Concrete mixture designation, proportions, and materials.
        12) Field test results.
        13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
        14) Type of fracture and compressive break strengths at seven days and 28 days.

C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.

D. Inspections:

1. Verification of use of required design mixture.

2. Concrete placement, including conveying and depositing.

3. Curing procedures and maintenance of curing temperature.

4. Verification of concrete strength before removal of shores and forms from beams and slabs.

5. Batch Plant Inspections: On a random basis, as determined by Engineer.

E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C172/C172M shall be performed in accordance with the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

    a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C143/C143M:

    a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    b. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete.

    a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C1064/C1064M:

    a. One test hourly when air temperature is 40-degree Fahrenheit and below or 80-degree Fahrenheit and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C31/C31M:

    a. Cast and laboratory cure two sets of three 6-inch by 12-inch or 4-inch by 8-inch cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C39/C39M.

    a. Test one set of 2 laboratory-cured specimens at 7 days and one set of 2 specimens at 28 days.
    b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than **500 psi (3447.38 kPa)** if specified compressive strength is **4000 psi (27579.04 kPa)**, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 4000 psi.

8. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.

9. Additional Tests:

a. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.
b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer.
    1) Acceptance criteria for concrete strength shall be in accordance with ACI 301 section 1.6.6.3.

10. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

11. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

3.10 PROTECTION

A. Protect concrete surfaces as follows:

1. Protect from petroleum stains.

2. Diaper hydraulic equipment used over concrete surfaces.

3. Prohibit use of pipe-cutting machinery over concrete surfaces.

4. Prohibit placement of steel items on concrete surfaces.

5. Prohibit use of acids or acidic detergents over concrete surfaces.

6. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 03400 – PRECAST CONCRETE

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

A. This section includes, but is not limited to, furnishing all labor, materials, equipment, and services necessary to fabricate and install all precast concrete members (i.e., two (2) drain inlet boxes).

B. Related Sections:

1. SECTION 03300 – CAST-IN-PLACE CONCRETE

1.03 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Shop Drawings: Provide for review completely detailed shop drawings of all precast concrete members. Show all dimensions, details, reinforcing steel, inserts, connections, openings and lifting devices. Do not fabricate members before shop drawings are reviewed and accepted.

C. Should design requirements necessitate a modification or change in features or details, submit drawings of such modifications for review and make all such modifications without additional compensation.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Requirements set forth in SECTION 03300 - CAST-IN-PLACE CONCRETE apply to materials for precast members, except as otherwise specified herein.

B. Concrete: Shall have a nominal weight of 150 pounds per cubic foot and a minimum ultimate compressive strength of **4,000 psi (27579.04 kPa)** at 28 days.

C. Frame and Grate: Shall be cast iron conforming to ASTM A48/A48M, Class No. 30. Frame and grate shall be cleaned thoroughly and painted on all sides before leaving shop with one coat of high-grade asphalt conforming to ASTM A 849, Class M, Fully Coated.

D. Acceptable manufacturers for the two (2) drain inlet boxes shall be Jensen Precast, Walker Industries, or approved equal.

PART 3 – EXECUTION

3.01 FABRICATION

Requirements set forth in SECTION 03300 - CAST-IN-PLACE CONCRETE apply to fabrication of precast members, except as otherwise specified herein.

3.02 INSTALLATION

A. Contractor shall provide adequate strongbacks, straps, braces and pick-up points so that the precast panels can be erected and installed without damage. The Contractor shall provide any additional reinforcing required for erection stresses. No precast members shall be handled until the concrete has attained 75 percent of its specified ultimate compressive strength or until the concrete has cured a minimum of seven (7) days, whichever is longer.

B. Protect members during all lifting, transportation, and handling operations, against overstress, damage to surfaces, and excessive forces. Do not install cracked and damaged members; only minor surface patching will be permitted.

C. Install precast members in accordance with ACI 318-19 Building Code Requirements for Structural Concrete and best-accepted practices.

D. Set precast members in correct alignment and level as indicated on plans.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

DIVISION 4 – MASONRY

SECTION 04010 – MAINTENANCE OF MASONRY

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUBMITTALS

A. See SECTION 01300 - SUBMITTALS, Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on cleaning compounds.

PART 2 – PRODUCTS

2.01 CLEANING MATERIALS

Cleaning Agent: Detergent type.

PART 3 – EXECUTION

3.01 EXAMINATION

Verify that surfaces to be cleaned are ready for work of this section.

3.02 PREPARATION

A. Protect surrounding elements from damage due to restoration procedures.

B. Separate areas to be protected from restoration areas using means adequate to prevent damage.

C. Mask immediately adjacent surfaces with material that will withstand cleaning and restoration procedures.

D. Protect roof membrane and flashings from damage with **1/2 inch (12.7 mm)** plywood laid on roof surfaces over full extent of work area and traffic route.

E. Do not allow cleaning runoff to drain into sanitary or storm sewers.

3.03 REBUILDING

A. Cut away loose or unsound adjoining masonry to provide firm and solid bearing for new work.

B. Install built in masonry work to match and align with existing, with joints and coursing true and level, faces plumb and in line. Build in all openings, accessories and fittings.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

DIVISION 5 - METALS

SECTION 05120 – STRUCTURAL STEEL FRAMING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

A. Section Includes:

1. Structural steel.
2. Shear stud connectors.
3. Shrinkage-resistant grout.

1.03 SUBMITTALS

A. Product Data:

1. Structural-steel materials.
2. High-strength, bolt-nut-washer assemblies.
3. Shear stud connectors.
4. Anchor rods.
5. Threaded rods.
6. Shop primer.
7. Galvanized-steel primer.
8. Etching cleaner.
9. Galvanized repair paint.
10. Shrinkage-resistant grout.

B. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment Drawings.

3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.

4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.

5. Identify members and connections of the seismic-load-resisting system.

6. Indicate locations and dimensions of protected zones.

7. Identify demand-critical welds.

8. Identify members not to be shop primed.

C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide in accordance with AWS D1.1/D1.1M for each welded joint, including the following:

1. Power source (constant current or constant voltage).

2. Electrode manufacturer and trade name, for demand-critical welds.

D. Qualification Data: For Installer and fabricator.

E. Welding certificates.

F. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

G. Mill test reports for structural-steel materials, including chemical and physical properties.

H. Product Test Reports: For the following:

1. Bolts, nuts, and washers, including mechanical properties and chemical analysis.

2. Direct-tension indicators.

3. Tension-control, high-strength, bolt-nut-washer assemblies.

4. Shear stud connectors.

1.04 DEFINITIONS

A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in ANSI/AISC 303.

B. Seismic-Load-Resisting System: Elements of structural-steel frame designated as "SLRS" or along grid lines designated as "SLRS" on Drawings, including columns, beams, and braces and their connections.

C. Heavy Sections: Rolled and built-up sections as follows:

1. Shapes included in ASTM A6/A6M with flanges thicker than **1-1/2 inches (38 mm)**.

2. Welded built-up members with plates thicker than **2 inches (50.8 mm)**.

3. Column base plates thicker than **2 inches (50.8 mm)**.

D. Protected Zone: Structural members or portions of structural members indicated as "protected zone" on Drawings. Connections of structural and nonstructural elements to protected zones are limited.

E. Demand-Critical Welds: Those welds, the failure of which would result in significant degradation of the strength and stiffness of the seismic-load-resisting system, and which are indicated as "demand critical" or "seismic critical" on Drawings.

1.05 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.06 PREINSTALLATION MEETINGS

Preinstallation Conference: Conduct conference at Project site.

1.07 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU or is accredited by the IAS Fabricator Inspection Program for Structural Steel (Acceptance Criteria 172).

B. Installer Qualifications: A qualified Installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category ACSE.

C. Shop-Painting Applicators: Qualified in accordance with AISC's Sophisticated Paint Endorsement P1 or to SSPC-QP 3.

D. Welding Qualifications:

1. Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.

2. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8/D1.8M. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

B. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

C. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.

2. Clean and relubricate bolts and nuts that become dry or rusty before use.

3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F3125/F3125M, Grade F1852 bolt assemblies and for retesting bolt assemblies after lubrication.

PART 2 – PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Comply with applicable provisions of the following specifications and documents:

1. ANSI/AISC 303.

2. ANSI/AISC 341.

3. ANSI/AISC 360.

B. RCSC's "Specification for Structural Joints Using High-Strength Bolts."

C. Connection Design Information: Connection designs have been completed and connections indicated on the Drawings.

D. Moment Connections: Type FR, fully restrained.

E. Construction: Combined system of moment frame and shear walls.

2.02 STRUCTURAL-STEEL MATERIALS

A. W-Shapes: ASTM A992/A992M.

B. Channels, Angles: ASTM A36/A36M.

C. Plate and Bar: ASTM A36/A36M.

D. Cold-Formed Hollow Structural Sections: ASTM A500/A500M, Grade B structural tubing.

E. Steel Pipe: ASTM A53/A53M, Type E or Type S, Grade B.

F. Welding Electrodes: Comply with AWS requirements.

2.03 BOLTS AND CONNECTORS

A. High-Strength A325 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.

1. Direct-Tension Indicators: ASTM F959/F959M, Type 325-1, compressible-washer type with plain finish.

B. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F3125/F3125M, Grade F1852, Type 1, heavy-hex head assemblies, consisting of steel structural bolts with splined ends; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.

2.04 RODS

A. Unheaded Anchor Rods: ASTM F1554, Grade 36 or ASTM A36/A36M.

1. Configuration: Straight.

2. Nuts: ASTM A563 heavy-hex carbon steel.

3. Plate Washers: ASTM A36/A36M carbon steel.

4. Washers: ASTM F436, Type 1, hardened carbon steel.

5. Finish: Plain.

B. Headed Anchor Rods: ASTM F1554, Grade 36, straight.

1. Nuts: ASTM A563 heavy-hex carbon steel.

2. Plate Washers: ASTM A36/A36M carbon steel.

3. Washers: ASTM F436, Type 1, hardened carbon steel.

4. Finish: Plain.

C. Threaded Rods: ASTM A36/A36M.

1. Nuts: ASTM A63 heavy-hex carbon steel.

2. Washers: ASTM F436, Type 1, hardened carbon steel.

3. Finish: Plain.

2.05 PRIMER

A. Steel Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

B. Galvanized-Steel Primer: MPI#26.

1. Etching Cleaner: MPI#25, for galvanized steel.

2. Galvanizing Repair Paint: MPI#18, MPI#19, or SSPC-Paint 20 ASTM A780/A780M.

2.06 SHRINKAGE-RESISTANT GROUT

Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.07 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate in accordance with ANSI/AISC 303 and to ANSI/AISC 360.

1. Camber structural-steel members where indicated.

2. Fabricate beams with rolling camber up.

3. Identify high-strength structural steel in accordance with ASTM A6/A6M and maintain markings until structural-steel framing has been erected.

4. Mark and match-mark materials for field assembly.

5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting:

1. Perform thermal cutting by machine to greatest extent possible.

2. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted in accordance with SSPC-SP 1.

F. Shear Stud Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Weld using automatic end welding of headed-stud shear connectors in accordance with AWS D1.1/D1.1M and manufacturer's written instructions.

G. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.

2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.

3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.08 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

2.09 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel in accordance with ASTM A123/A123M.

1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.

2.10 SHOP PRIMING

A. Shop prime steel surfaces, except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of **2 inches (50.8 mm)**.

2. Surfaces to be field welded.

3. Surfaces of high-strength bolted, slip-critical connections.

4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).

5. Galvanized surfaces unless indicated to be painted.

B. Surface Preparation of Steel: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces in accordance with the following specifications and standards:

1. SSPC-SP 3.

C. Surface Preparation of Galvanized Steel: Prepare galvanized-steel surfaces for shop priming by thoroughly cleaning steel of grease, dirt, oil, flux, and other foreign matter, and treating with etching cleaner or in accordance with SSPC-SP 16.

D. Priming: Immediately after surface preparation, apply primer in accordance with manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of **1.5 mils (0.0381 mm)**. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.11 SOURCE QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and inspections.

1. Allow testing agency access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

2. Bolted Connections: Inspect shop-bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."

3. Welded Connections: Visually inspect shop-welded connections in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

a. Liquid Penetrant Inspection: ASTM E165/E165M.
b. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
c. Ultrasonic Inspection: ASTM E164.

d. Radiographic Inspection: ASTM E94/E94M.

4. In addition to visual inspection, test and inspect shop-welded shear stud connectors in accordance with requirements in AWS D1.1/D1.1M for stud welding and as follows:

   a. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear stud connector.
   b. Conduct tests in accordance with requirements in AWS D1.1/D1.1M on additional shear stud connectors if weld fracture occurs on shear stud connectors already tested.

5. Prepare test and inspection reports.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated on Drawings.

B. Do not remove temporary shoring supporting composite deck construction and structural-steel framing until cast-in-place concrete has attained its design compressive strength.

3.03 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and in accordance with ANSI/AISC 303 and ANSI/AISC 360.

B. Baseplates Bearing Plates and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials and roughen surfaces prior to setting plates. Clean bottom surface of plates.

   1. Set plates for structural members on wedges, shims, or setting nuts as required.

   2. Weld plate washers to top of baseplate.

3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.

4. Promptly pack shrinkage-resistant grout solidly between bearing surfaces and plates, so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for grouting.

C. Maintain erection tolerances of structural steel within ANSI/AISC 303.

D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure. Slope roof framing members to slopes indicated on Drawings.

2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

E. Splice members only where indicated.

F. Do not use thermal cutting during erection unless approved by Architect. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.

G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

3.04 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt and joint type specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with ANSI/AISC 303 and ANSI/AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.

3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

3.05 REPAIR

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing, and repair galvanizing to comply with ASTM A780/A780M.

B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing, and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

3.06 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector to perform the following special inspections:

1. Verify structural-steel materials and inspect steel frame joint details.

2. Verify weld materials and inspect welds.

3. Verify connection materials and inspect high strength bolted connections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

1. Bolted Connections: Inspect bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."

2. Welded Connections: Visually inspect field welds in accordance with AWS D1.1/D1.1M.

a. In addition to visual inspection, test and inspect field welds in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
   1) Liquid Penetrant Inspection: ASTM E165/E165M.
   2) Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
   3) Ultrasonic Inspection: ASTM E164.
   4) Radiographic Inspection: ASTM E94/E94M.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 05210 – STEEL JOIST FRAMING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

A. Section Includes:

1. LH-series long-span steel joists.

2. Steel joist accessories.

1.03 DEFINITIONS

SJI's "Specifications": Steel Joist Institute's "Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders."

1.04 SUBMITTALS

A. Product Data: For each type of joist, accessory, and product.

B. Shop Drawings:

1. Include layout, designation, number, type, location, and spacing of joists.

2. Include joining and anchorage details; bracing, bridging, and joist accessories; splice and connection locations and details; and attachments to other construction.

C. Qualification Data: For manufacturer.

D. Mill Certificates: For each type of bolt.

E. Field quality-control reports.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer certified by SJI to manufacture joists complying with applicable standard specifications and load tables in SJI's "Specifications

B. Welding Qualifications: Qualify field-welding procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle joists as recommended in SJI's "Specifications

B. Protect joists from corrosion, deformation, and other damage during delivery, storage, and handling.

PART 2 – PRODUCTS

2.01 STEEL JOISTS

A. Long-Span Steel Joist: Manufactured steel joists according to "Standard Specification for Longspan Steel Joists, LH-Series and Deep Longspan Steel Joists, DLH-Series" in SJI's "Specifications," with steel-angle top- and bottom-chord members; of joist type and end and top-chord arrangements as indicated on Drawings.

1. Top-Chord Arrangement: Parallel.

2. Camber long-span steel joists according to SJI's "Specifications.".

2.02 STEEL JOIST ACCESSORIES

A. Bridging:

1. Provide bridging anchors and number of rows of horizontal or diagonal bridging of material, size, and type required by SJI's "Specifications" for type of joist, chord size, spacing, and span. Furnish additional erection bridging if required for stability.

2. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C.

B. Welding Electrodes: Comply with AWS standards.

C. Galvanizing Repair Paint: MPI#18, MPI#19, or SSPC-Paint 20.

D. Furnish miscellaneous accessories including splice plates and bolts required by joist manufacturer to complete joist assembly.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine supporting substrates, embedded bearing plates, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Do not install joists until supporting construction is in place and secured.

B. Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Specifications joist manufacturer's written instructions, and requirements in this Section.

1. Space, adjust, and align joists accurately in location before permanently fastening.

2. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.

3. Delay rigidly connecting bottom-chord extensions to columns or supports until dead loads are applied.

C. Field weld joists to supporting steel bearing plates and framework. Coordinate welding sequence and procedure with placement of joists. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.

D. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

3.03 REPAIRS

A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

B. Touchup Painting:

1. Immediately after installation, clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted joists, bearing plates, abutting structural steel, and accessories.

a. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
b. Apply a compatible primer of same type as primer used on adjacent surfaces.

3.04 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Visually inspect field welds according to AWS D1.1/D1.1M.

C. Visually inspect bolted connections.

D. Prepare test and inspection reports.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 05310 - STEEL DECKING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

Section includes roof deck.

1.03 SUBMITTALS

A. Product Data: Roof deck.

B. Shop Drawings: Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

C. Product Certificates: For each type of steel deck.

D. Field Quality-Control Submittals: Field quality-control reports.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Store products in accordance with SDI MOC3. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 – PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck in accordance with AISI S100.

B. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from listings of another qualified testing agency.

2.02 ROOF DECK

A. Fabrication of Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with SDI RD and with the following:

1. Galvanized-Steel Sheet: ASTM A653/A653M, Structural Steel (SS),, G60 zinc coating.

2. Deck Profile: As indicated.

3. Profile Depth: As indicated.

4. Design Uncoated-Steel Thickness: As indicated.

5. Span Condition: Triple span or more.

6. Side Laps: Overlapped or interlocking seam at Contractor's option.

2.03 ACCESSORIES

A. Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Galvanizing Repair Paint: SSPC-Paint 20 or MIL-P-21035B, with dry film containing a minimum of 94 percent zinc dust by weight.

G. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

A. Install deck panels and accessories in accordance with SDI C, SDI NC, and SDI RD, as applicable; manufacturer's written instructions; and requirements in this Section.

B. Install temporary shoring before placing deck panels if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install in accordance with deck manufacturer's written instructions.

3.03 INSTALLATION OF ROOF DECK

A. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of one-half of the span or 18 inches, and as follows:

1. Mechanically fasten with self-drilling, No. 10 diameter or larger, carbon-steel screws.

2. Mechanically clinch or button punch.

B. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:

1. End Joints: Lapped 2 inches minimum.

C. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels in accordance with deck manufacturer's written instructions. mechanically fasten to substrate to provide a complete deck installation.

3.04 REPAIR

Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint in accordance with ASTM A780/A780M and manufacturer's written instructions.

3.05 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Tests and Inspections: Steel decking will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 05510 – METAL STAIRS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 RELATED REQUIREMENTS

SECTION 03300 - CAST-IN-PLACE CONCRETE: Concrete fill in stair pans; mesh reinforcement for landings.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

F. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2023).

1.04 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements, for submittal procedures.

B. Product Data: Provide information on accessories including abrasive nosings.

C. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.

D. Design Data, Seismic Performance: Submit documentation that stairs meet performance requirements specified.

E. Designer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Structural Designer Qualifications: Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located, or personnel under direct supervision of such an engineer.

B. Fabricator Qualifications:

1. A company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.

1.06 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design metal stairs, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance of Stairs: Metal stairs shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Uniform Load: 100 lbf/sq. ft.

2. Concentrated Load: 300 lbf applied on an area of 4 sq. in.

3. Uniform and concentrated loads need not be assumed to act concurrently.

4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.

5. Limit live load deflection of treads, platforms, and framing members to L/240 at preassembled steel stairs and L/360 at ornamental steel-framed stairs (or **1/4 inch (6.35 mm)**, whichever is less).

C. Structural Performance of Railings: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

D. Handrails and Top Rails of Guards:

1. Uniform load of 50 lbf/ ft. applied in any direction.

2. Concentrated load of 200 lbf applied in any direction.

3. Uniform and concentrated loads need not be assumed to act concurrently.

E. Infill of Guards - Pickets:

1. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.

2. Infill load and other loads need not be assumed to act concurrently.

F. Seismic Performance: Metal stairs shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Component Importance Factor is 1.5.

2. Provide evidence (i.e. testing reports) demonstrating no permanent inelastic deformation under movements equivalent to a minimum of X???X% interstory drift. (Insert necessary value)

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Unit Stair Towers:

1. Alfab, Inc: www.alfabinc.com/#sle.

2. American Stair, Inc: www.americanstair.com/#sle.

3. Construction Specialties, Inc; Modular Stair Systems: www.c-sgroup.com/#sle.

4. Pacific Stair Corporation: www.pacificstair.com/#sle.

2.02 METAL STAIRS - GENERAL

A. Metal Stairs: Provide stairs of the design specified, complete with landing platforms, vertical and horizontal supports, railings, and guards, fabricated accurately for anchorage to each other and to building structure.

1. Regulatory Requirements: Provide stairs and railings that comply with most stringent requirements of local, state, and federal regulations; where requirements of Contract Documents exceed those of regulations, comply with Contract Documents.

2. Handrails: Comply with applicable accessibility requirements of ADA Standards.

3. Structural Design: Provide complete stair and railing assemblies that comply with the applicable local code.

4. At exit stairwells, provide unit stair towers designed for stacking to height of building as a self-supporting structure.

5. Dimensions: As indicated on drawings.

6. Shop assemble components; disassemble into largest practical sections suitable for transport and access to site.

7. No sharp or rough areas on exposed travel surfaces and surfaces accessible to touch.

8. Separate dissimilar metals using paint or permanent tape.

B. Metal Jointing and Finish Quality Levels:

1. Architectural: All joints as inconspicuous as possible, whether welded or mechanical.

a. Welded Joints: Continuously welded and ground smooth and flush.
b. Mechanical Joints: Butted tight, flush, and hairline; concealed fastenings only.
c. Exposed Edges and Corners: Eased to small uniform radius.
d. Metal Surfaces to be Painted: Sanded or ground smooth, suitable for highest quality gloss finish.

C. Fasteners: Same material or compatible with materials being fastened; type consistent with design and specified quality level.

D. Anchors and Related Components: Same material and finish as item to be anchored, except where specifically indicated otherwise; provide all anchors and fasteners required.

2.03 PREFABRICATED STAIRS

A. Modular Egress and Access Stairs: Standardized, modular stair components designed with manufacturer's standard stair angle and height charts; to be field assembled with mechanical fasteners only.

1. Design Requirements: Comply with structural design criteria stated elsewhere in this section and applicable local code.

a. Comply with ADA Standards.

2. Materials: Manufacturer's standard steel tubes, plates, bars, shapes, sheets, wire and mesh that comply with requirements of MATERIALS article of this section.

a. Rails: Manufacturer's standard rails.
1) Guardrails: **48 inches (1219.2 mm)** high.
2) Handrails: **30 inches (762 mm)** to **38 inches (965.2 mm)** high.
3) Infill: Manufacturer's standard pickets.
b. Treads: Manufacturer's standard concrete pan.
c. Finish: Manufacturer's standard hot-dipped galvanizing; comply with ASTM A153/A153M.
d. Nosings: Provide abrasive finish and contrasting stripe at each stair and landing.

3. Assembly Option: Shipped unassembled.

2.04 SHOP FINISHING

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Galvanizing: Hot-dip galvanize to minimum requirements of ASTM A123/A123M. Provide zinc application equivalent in weight per unit area to G90 per ASTM A653/A653M.

1. Touch up abraded areas after fabrication using specified touch-up primer for galvanized surfaces.

PART 3 – EXECUTION

3.01 EXAMINATION

Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

When field welding is required, clean and strip primed steel items to bare metal.

3.03 INSTALLATION

A. Install components plumb and level, accurately fitted, free from distortion or defects.

B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Provide welded field joints where specifically indicated on drawings. Perform field welding in accordance with AWS D1.1/D1.1M.

D. Other field joints may be either welded or bolted provided the result complies with the limitations specified for jointing quality levels.

E. Obtain approval prior to site cutting or creating adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

3.04 TOLERANCES

A. Maximum Variation From Plumb: **1/4 inch (6.35 mm)** per story, non-cumulative.

B. Maximum Offset From True Alignment: **1/4 inch (6.35 mm)**.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 05521 – PIPE AND TUBE RAILINGS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.

B. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.

D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

E. ASTM B241/B241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube; 2022.

F. ASTM B429/B429M - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube; 2020.

G. ASTM B483/B483M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Tube and Drawn Pipe for General Purpose Applications; 2021.

H. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2021.

I. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2024.

J. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.

K. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

L. AISC 201 - AISC Certification Program for Structural Steel Fabricators, Standard for Steel Building Structures; 2006.

1.03 SUBMITTALS

A. See SECTION 01300 - SUBMITTALS, Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

C. Designer's Qualification Statement.

1.04 QUALITY ASSURANCE

A. Structural Designer Qualifications: Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located, or personnel under direct supervision of such an engineer.

B. Welder Qualifications: Welding processes and welding operators qualified within previous 12 months.

C. Fabricator Qualifications:

1. A qualified steel fabricator that is certified by the American Institute for Steel Construction (AISC) under AISC 201.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

Handrails and Railings:

2.02 RAILINGS - GENERAL REQUIREMENTS

A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of applicable local code.

B. Comply with ASTM E985.

C. Concentrated Loads: Design railing assembly, wall rails, and attachments to resist a concentrated force of 200 pounds applied at any point on the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935

D. Allow for expansion and contraction of members and building movement without damage to connections or members.

E. Dimensions: See drawings for configurations and heights.

1. Top Rails and Wall Rails: **1-1/2 inches (38 mm)** diameter, round.

2. Intermediate Rails: **1-1/2 inches (38 mm)** diameter, round.

3. Posts: **1-1/2 inches (38 mm)** diameter, round.

4. Balusters: **3/4 inch (19.05 mm)** round solid bar.

F. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.

G. Provide slip-on non-weld mechanical fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.03 ALUMINUM MATERIALS

A. Aluminum Pipe: Schedule 40; ASTM B429/B429M, ASTM B241/B241M, or ASTM B483/B483M.

B. Welding Fittings: No exposed fasteners; cast aluminum.

C. Straight Splice Connectors: Concealed spigot; cast aluminum.

D. Exposed Fasteners: No exposed bolts or screws.

2.04 STEEL RAILING SYSTEM

A. Steel Pipe: ASTM A53/A53M Grade B Schedule 80, black and galvanized finish, as indicated.

B. Non-Weld Mechanical Fittings: Slip-on, galvanized malleable iron castings, for Schedule 40 pipe, with flush setscrews for tightening by standard hex wrench, no bolts or screw fasteners.

C. Exposed Fasteners: No exposed bolts or screws.

D. Straight Splice Connectors: Steel concealed spigots.

E. Galvanizing: In accordance with requirements of ASTM A123/A123M.

1. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20 Type I - Inorganic.

F. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

2.05 FABRICATION

A. Accurately form components to suit specific project conditions and for proper connection to building structure.

B. Fit and shop assemble components in largest practical sizes for delivery to site.

C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

2.06 ALUMINUM FINISHES

A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than **0.7 mils (0.01778 mm)** thick.

B. Color: To be selected by Architect from manufacturer's standard line.

C. Touch-Up Materials: As recommended by coating manufacturer for field application.

PART 3 – EXECUTION

3.01 EXAMINATION

Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.

C. Apply one coat of bituminous paint to concealed aluminum surfaces that will be in contact with cementitious or dissimilar materials.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.

C. Install railings in compliance with ADA Standards for accessible design at applicable locations.

D. Anchor railings securely to structure.

3.04 TOLERANCES

A. Maximum Variation From Plumb: **1/4 inch (6.35 mm)** per floor level, non-cumulative.

B. Maximum Offset From True Alignment: **1/4 inch (6.35 mm)**.

C. Maximum Out-of-Position: **1/4 inch (6.35 mm)**.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project

END OF SECTION

DIVISION 6 – WOOD AND PLASTICS

SECTION 06100 – ROUGH CARPENTRY

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

B. AWPA U1 - Use Category System: User Specification for Treated Wood; 2024.

C. PS 20 - American Softwood Lumber Standard; 2025.

1.03 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements for submittal procedures.

B. Product Data: Provide technical data on wood products to be used.

1.04 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.

1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.

2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 ACCESSORIES

A. Fasteners and Anchors:

1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

2. Anchors: Expansion shield and lag bolt type for anchorage to solid masonry or concrete.

2.03 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped as required for UC3A and SBX preservative.

PART 3 – EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.02 BLOCKING, NAILERS, AND SUPPORTS

Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.03 ROOF-RELATED CARPENTRY

Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

SECTION 07180 – TRAFFIC COATINGS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions of the Contract, including General and Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARD

1.03 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS: Administrative Requirements for submittal procedures.

B. Product Data: Include product characteristics and limitations. Identify dissolving solvents, fuels, and potential destructive compounds.

C. Manufacturer's Installation Instructions: Include special field conditions required to install traffic membrane and potential incompatibilities with adjacent materials.

D. Manufacturer's qualification statement.

E. Applicator's qualification statement.

F. Maintenance Data: Include procedures for stain removal, repairing surface, and cleaning.

G. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than three years of documented experience.

B. Applicator Qualifications: Company specializing in performing installation of traffic membrane, with minimum three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Polyurethane Traffic Coating:

1. AVM Industries, Inc; System 620 Vehicular: www.avmindustries.com/.

2. Pecora Corporation; Pecora-Deck HB1000 Traffic Membrane with P-801-VOC Concrete and Interlaminary Primer and 802 FC-Fast Cure Base Coat: www.pecora.com/#sle.

3. Sika Corporation ; Sikalastic 720/745 Textured Traffic System: usa.sika.com.

2.02 TRAFFIC COATINGS

A. Vehicular Traffic Hybrid Polyurethane Waterproof Deck System: Fluid-applied polyurethane with slip-reducing aggregate surface.

1. Finished Coating Thickness: 49 mil, 0.49 inch, minimum.

PART 3 – EXECUTION

3.01 EXAMINATION

Verify that substrate is ready to receive work, surface is clean, dry and free of substances that could adversely effect bond.

3.02 PREPARATION

A. Clean substrate surface free of foreign matter.

B. Protect adjacent surfaces.

3.03 INSTALLATION

Apply system materials in accordance with manufacturer's instructions.

3.04 PROTECTION

Do not permit traffic over unprotected surfaces.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 07421 - METAL WALL PANELS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 RELATED REQUIREMENTS

SECTION 07920 - JOINT SEALANTS: Sealing joints between metal wall panel system and adjacent construction.

REFERENCE STANDARDS

ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

1.03 SUBMITTALS

A. Product Data - Wall System: Manufacturer's data sheets on each product to be used, including:

1. Physical characteristics of components shown on shop drawings.

2. Storage and handling requirements and recommendations.

3. Installation instructions and recommendations.

B. Shop Drawings: Indicate dimensions, layout, joints, construction details, support clips, and methods of anchorage.

C. Samples: Submit two samples of wall panel and soffit panel, **12 inches (304.8 mm)** by 12 inches in size illustrating finish color, sheen, and texture.

D. Manufacturer's qualification statement.

E. Installer's qualification statement.

F. Warranty Documentation for Installation of Building Rainscreen Assembly: Submit installer warranty and ensure that forms have been completed in Owner's name and registered with installer.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in installing products specified in this section with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B. Store prefinished material off the ground and protected from weather; prevent twisting, bending, or abrasion; provide ventilation; slope metal sheets to ensure proper drainage.

C. Prevent contact with materials that may cause discoloration or staining of products.

1.06 WARRANTY

A. See SECTION 017800 - CLOSEOUT SUBMITTALS for additional warranty requirements.

B. Finish Warranty: Provide 15-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Metal Wall Panels - Exposed Fasteners:

1. ASC Building Products; Delta Rib: www.ascbp.com.

2. Elevate; UNA-CLAD VR-Classic Omega: www.holcimelevate.com/#sle.

3. Petersen Aluminum Corporation; 7.2 Panel: www.pac-clad.com/#sle.

B. Metal Soffit Panels:

1. ASC Building Products; Delta Rib: www.ascbp.com.

2. Englert, Inc; B4000: www.englertinc.com/#sle.

3. Fabral; Posi-Lock Soffit: www.fabral.com/#sle.

4. Petersen Aluminum Corporation; PAC-750 Soffit: www.pac-clad.com/#sle.

2.02 METAL WALL PANEL SYSTEM

A. Wall Panel System: Factory fabricated prefinished metal panel system, site assembled.

1. Provide exterior wall panels, interior liner panels, soffit panels, retrofit wall panels, and subgirt framing assembly.

2. Design and size components to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.

3. Design Pressure:

   a. Positive Design Pressure: 26.7 psf
   b. Negative Design Pressure: 35 psf

4. Maximum Allowable Deflection of Panel: L/180 for length(L) of span.

5. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; and deflection of structural support framing.

6. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.

7. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths.

8. Corners: Factory-fabricated in one continuous piece with minimum 2-inch returns.

B. Exterior Wall Panels:

1. Profile: Vertical; style as indicated.

2. Side Seams: Double-interlocked, tight-fitting, sealed with continuous gaskets.

3. Material: Precoated galvanized steel sheet, 22 gauge, **0.0299 inch (0.76 mm)** minimum thickness.

4. Panel Width: **6, feet (182.88 cm)** **72 inches (1828.8 mm)**.

5. Color: As selected by Architect from manufacturer's full line.

C. Soffit Panels:

1. Profile: Style as indicated, with venting provided.

2. Material: Precoated galvanized steel sheet, 22 gauge, **0.0299 inch (0.76 mm)** minimum thickness.

3. Color: As selected by Architect from manufacturer's full line.

D. Internal and External Corners: Same material, thickness, and finish as exterior sheets; profile to suit system; shop cut and factory mitered to required angles.

E. Expansion Joints: Same material, thickness and finish as exterior sheets; 22 gauge, **0.0299 inch (0.76 mm)** thick; manufacturer's standard brake formed type, of profile to suit system.

F. Trim: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

G. Anchors: Galvanized steel.

2.03 MATERIALS

Precoated Steel Sheet: Hot-dipped galvanized steel sheet, ASTM A653/A653M, Structural Steel (SS) or Forming Steel (FS), with G90/Z275 coating; continuous coil-coated on exposed surfaces with specified finish coating and on panel back with specified panel back coating.

2.04 FINISHES

A. Exposed Surface Finish: Panel manufacturer's standard polyvinylidene fluoride (PVDF) coating, top coat over epoxy primer.

B. Panel Backside Finish: Panel manufacturer's standard siliconized polyester wash coat.

2.05 ACCESSORIES

A. Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant.

B. Concealed Sealants: Non-curing butyl sealant or tape sealant, see Section 079200

C. Fasteners: Manufacturer's standard type to suit application; with soft neoprene washers, steel, hot dip galvanized. Fastener cap same color as exterior panel.

1. Metal-to-Metal Fasteners: Self-drilling, self-tapping screws.

D. Field Touch-up Paint: As recommended by panel manufacturer.

PART 3 – EXECUTION

3.01 EXAMINATION

Verify that building framing and structural members are ready to receive panels.

3.02 PREPARATION

Protect surrounding areas and adjacent surfaces from damage during execution of this work.

3.03 INSTALLATION

A. Install panels on soffits and framing in accordance with manufacturer's instructions.

B. Fasten panels to structural supports; aligned, level, and plumb.

C. Locate joints over supports.

D. Lap panel ends **2 inches (50.8 mm)**, minimum.

E. Provide expansion and control joints.

F. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.04 CLEANING

A. Remove site cuttings from finish surfaces.

B. Remove protective material from wall panel surfaces.

3.05 PROTECTION

A. Protect metal wall panels until completion of project.

B. Touch-up, repair, or replace damaged wall panels or accessories before Date of Substantial Completion.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 07610 – SHEET METAL ROOFING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

D. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2021.

E. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2023.

F. ICC-ES AC188 - Acceptance Criteria for Roof Underlayments; 2023.

1.03 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements for submittal procedures.

B. Product Data: Provide data on metal types, finishes, characteristics.

C. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

D. Color Samples: Submit two samples 4 by **4 inches (101.6 mm)** in size illustrating metal finish color.

1.04 QUALITY ASSURANCE

Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 – PRODUCTS

2.01 SHEET MATERIALS

Pre-Finished Galvanized Steel Sheet: ASTM A653/A653M, with G90/Z275 zinc coating; 24-gauge, 0.0239-inch minimum base metal thickness, shop precoated with polyvinylidene fluoride (PVDF) coating; color as selected.

2.02 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects. Profile to match existing roofing.

B. Fabricate cleats of same material as sheet, thickness to match roofing sheet, and at least **4 inch (101.6 mm)** wide, interlockable with sheet.

C. Fabricate starter strips, interlockable with sheet.

D. Form pieces in longest practical lengths.

E. Hem exposed edges on underside **1/2 inch (12.7 mm)**; miter and seam corners.

F. Form material with standing seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

2.03 FINISHES

A. Polyvinylidene Fluoride (PVDF) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.

B. Color: As selected by Architect from manufacturer's full colors.

C. Primer Coat: On coated sheets, finish concealed side of sheet with primer compatible with finish system as recommended by finish system manufacturer.

2.04 ACCESSORIES

A. Fasteners: Concealed. Galvanized steel, with soft neoprene washers.

B. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for self adhered fastened roofing underlayment.

1. Minimum Requirements: Comply with requirements of ICC-ES AC188 for non-self-adhesive sheet.

2. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.

3. Ultraviolet Resistance and Weatherability: Approved in writing by manufacturer for exposure to weather for minimum of 12 months.

4. Water Vapor Permeance: Vapor retarder; maximum of 0.1 perm, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).

5. Fasteners: As specified by manufacturer and building code qualification report or approval, if any.

C. Concealed Sealants: Non-curing butyl sealant or butyl tape.

D. Exposed Sealants: ASTM C920 elastomeric sealant, with minimum movement capability as recommended by manufacturer for sealed substrates; color to match adjacent material.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Inspect roof deck to verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Back paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of **15 mil (0.381 mm)**, 0.015 inch.

3.03 INSTALLATION

A. Roofing:

1. Apply underlayment over entire roof area, as follows:

a. Apply in single layer, laid perpendicular to slope; weather lap edges **2 inches (50.8 mm)** and nail in place.

2. Apply slip sheet in one layer, laid loose.

3. Cleat and seam sheet metal roofing joints.

4. Use butyl tape to seal concealed joints between metal roofing surfaces.

5. Provide gutters and downspouts.

B. Standing Seam Roofing:

1. Lay sheets with long dimension perpendicular to eaves. Apply pans beginning at eaves.

2. Lock cleats into seams and flatten.

3. Stagger transverse joints of roofing sheets.

4. At eaves and gable ends, terminate roofing by hooking over edge strip.

5. Finish standing seams **1 inch (25.4 mm)** high on flat surfaces

6. Bend up one side edge **1-1/2 inches (38 mm)** and other edge **1-3/4 inches (44 mm)**.

7. Make first fold 1/4-inch wide single fold and second fold **1/2 inch (12.7 mm)** wide, providing locked portion of standing seam, five plies in thickness.

8. Fold lower ends of seams at eaves over at 45 degree angle.

3.04 PROTECTION

Do not permit traffic over unprotected roof surface.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 07620 – SHEET METAL FLASHING AND TRIM

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).

E. CDA A4050 - Copper in Architecture - Handbook; current edition.

F. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.03 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples: Submit two samples, 4 by **4 inches (101.6 mm)** in size, illustrating metal finish color.

1.04 QUALITY ASSURANCE

Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

1.05 DELIVERY, STORAGE, AND HANDLING

A. See SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT for packaging waste requirements.

B. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials that could cause discoloration or staining.

PART 2 – PRODUCTS

2.01 SHEET MATERIALS

A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24-gauge, 0.0239-inch thick base metal, shop pre-coated with PVDF coating.

1. Polyvinylidene Fluoride (PVDF) Coating: Superior performing organic powder coating, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.

2. Color: As selected by Architect from manufacturer's full colors.

2.02 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside **1/2 inch (12.7 mm)**; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18-inch long legs; seam for rigidity, seal with sealant.

2.03 GUTTERS AND DOWNSPOUTS

A. Gutters: SMACNA (ASMM) Rectangular profile.

B. Downspouts: Rectangular profile.

C. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of **1 inch (25.4 mm)** 10 years in accordance with SMACNA (ASMM).

D. Gutters and Downspouts: Size indicated.

E. Accessories: Profiled to suit gutters and downspouts.

1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.

2. Gutter Supports: Brackets.

3. Downspout Supports: Brackets.

F. Splash Pads: Precast concrete type, of size and profiles indicated; minimum **3,000 psi (20684.28 kPa)** at 28 days, with minimum 5 percent air entrainment.

G. Downspout Boots: Cast iron.

H. Downspout Extenders: Same material and finish as downspouts.

I. Seal metal joints.

2.04 FLASHING

Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.

2.05 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Primer Type: Zinc chromate.

C. Concealed Sealants: Non-curing butyl sealant.

D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

1. Products:

a. Franklin International, Inc; Titebond WeatherMaster Metal Roof Sealant: www.titebond.com/#sle.

E. Fenestration Perimeter Flashing Attachments: Two-piece flashing receiver and clip of extruded aluminum, at least **0.045 inch (1.14 mm)** thick, for attaching flashing at perimeter of exterior wall fenestration openings.

1. Provide flashing receiver profile appropriate for flashing applications.

2. Products:

a. York Manufacturing, Inc; AirSill Flashing Receivers: www.yorkmfg.com/#sle.

F. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of **15 mil (0.381 mm)**, 0.015 inch.

3.03 INSTALLATION

A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

B. Apply plastic cement compound between metal flashings and felt flashings.

C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Exterior Flashing Receivers: Install in accordance with manufacturer's recommendations, and in proper relationship with adjacent construction, and as follows:

E. Secure gutters and downspouts in place with concealed fasteners.

F. Slope gutters **1/4 inch (6.35 mm)** per **10 feet (304.8 cm)**, minimum.

G. Connect downspouts to downspout boots, and grout connection watertight.

H. Set splash pads under downspouts.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 07920 – JOINT SEALANTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).

B. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

D. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.

E. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).

F. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2022.

G. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.

H. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.03 SUBMITTALS

A. See SECTION 01300 - SUBMITTALS, Administrative Requirements for submittal procedures.

B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:

1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.

2. List of backing materials approved for use with the specific product.

3. Backing material recommended by sealant manufacturer.

4. Substrates that product is known to satisfactorily adhere to and with which it is compatible.

5. Substrates the product should not be used on.

6. Installation instructions, including precautions, limitations, and recommended backing materials and tools.

7. Sample product warranty.

C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

1.04 QUALITY ASSURANCE

A. Maintain one copy of each referenced document covering installation requirements on site.

B. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.

1. Adhesion Testing: In accordance with ASTM C794.

2. Compatibility Testing: In accordance with ASTM C1087.

3. Allow sufficient time for testing to avoid delaying the work.

4. Deliver sufficient samples to manufacturer for testing.

5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.

1.05 WARRANTY

A. See SECTION 01780 - CLOSEOUT SUBMITTALS for additional warranty requirements.

B. Manufacturer Warranty: Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.

C. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.

PART 2 – PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:

1. Exterior Joints:

a. Seal open joints except open joints indicated on drawings as not sealed.
b. Seal the following joints:
1) Joints between doors, windows, and other frames or adjacent construction.
2) Joints between different exposed materials.
3) Provide sealant as required for complete installation of roofing, rooftop parking, metal exterior soffit, parapet, handrails and guardrails,and gutter systems.

2. Interior Joints:

a. Seal open joints except specific open joints indicated on drawings as not sealed.

B. Exterior Joints: Use nonsag nonstaining silicone sealant, unless otherwise indicated.

C. Interior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.

2.02 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

B. Colors: To match adjacent finished surface.

2.03 NONSAG JOINT SEALANTS

A. Nonstaining Silicone Sealant: ASTM C920, Grade NS, Uses M, A, G, and O; not expected to withstand continuous water immersion or traffic.

1. Movement Capability: Plus and minus 25 percent, minimum.

2. Nonstaining to Porous Stone: Nonstaining to light-colored natural stone when tested in accordance with ASTM C1248.

3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.

4. Color: Match adjacent finished surfaces.

5. Service Temperature Range: 50 to **180 degrees Fahrenheit (82.22 degrees Celsius)**.

B. Polymer Sealant: ASTM C920; single component, cured sealant is paintable and mold/mildew resistant, low odor and VOC, and ultraviolet (UV) resistant.

1. Color: Match adjacent finished surface.

C. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.

1. Movement Capability: Plus and minus 12.5 percent, minimum.

2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.

3. Color: Match adjacent finished surfaces.

4. Service Temperature Range: 50 to **180 degrees Fahrenheit (82.22 degrees Celsius)**.

D. Type T - Nonsag Traffic-Grade Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion and traffic without the necessity to recess sealant below traffic surface.

1. Movement Capability: Plus and minus 12-1/2 percent, minimum.

2. Hardness Range: 20 to 30, Shore A, when tested in accordance with ASTM C661.

3. Color: Match adjacent finished surfaces.

2.04 ACCESSORIES

A. Sealant Backing Materials, General: Materials placed in joint before applying sealants; assists sealant performance and service life by developing optimum sealant profile and preventing three-sided adhesion; type and size recommended by sealant manufacturer for compatibility with sealant, substrate, and application.

B. Sealant Backing Rod, Closed-Cell Type:

1. Cylindrical flexible sealant backings complying with ASTM C1330 Type C.

2. Size: 25 to 50 percent larger in diameter than joint width.

C. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

D. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in an inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Provide joint sealant installations complying with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

H. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

C. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

3.05 POST-OCCUPANCY

Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width, i.e., at low temperature in thermal cycle. Report failures immediately and repair them.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 07951 – EXPANSION JOINT COVER ASSEMBLIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

B. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

C. ASTM B308/B308M - Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles; 2020.

1.03 ADMINISTRATIVE REQUIREMENTS

Installation Templates: For frames and anchors to be embedded in concrete or masonry, furnish templates to relevant installers; include installation instructions and tolerances.

1.04 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements for submittal procedures.

B. Product Data: Provide joint assembly profiles, profile dimensions, anchorage devices and available colors and finish.

C. Shop Drawings: Indicate joint and splice locations, miters, layout of the work, affected adjacent construction and anchorage locations.

D. Manufacturer's Installation Instructions: Indicate rough-in sizes and required tolerances for item placement.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See SECTION 01600 for ADDITIONAL PROVISIONS.

PART 2 – PRODUCTS

2.01 EXPANSION JOINT COVER ASSEMBLY APPLICATIONS

Parking/Traffic Deck Joints Subject to Seismic Movement:

2.02 EXPANSION JOINT COVER ASSEMBLIES

A. Expansion Joint Cover Assemblies - General: Factory-fabricated and assembled; designed to completely fill joint openings, sealed to prevent passage of air, dust, water, smoke; suitable for traffic expected.

1. Joint Dimensions and Configurations: As indicated on drawings.

2. Joint Cover Sizes: Selected to suit joint width and configuration, based on manufacturer's published recommendations and limitations.

3. Joint Cover Styles: As indicated on drawings.

4. Joint Movement Capability: If not indicated, provide minimum plus/minus 25 percent joint movement capability.

5. Lengths: Provide covers in full lengths required; avoid splicing wherever possible.

6. Anchors, Fasteners, and Fittings: Provided by cover manufacturer.

2.03 MATERIALS

A. Extruded Aluminum: ASTM B221 (((ASTM B221M))), 6063 alloy, T6 temper; or ASTM B308/B308M, 6061 alloy, T6 temper.

1. Exposed Finish Outdoors: Natural anodized.

B. Resilient Seals:

1. For Vehicular Traffic Applications: EPDM rubber, Neoprene, or Santoprene; no PVC; Shore A hardness of 40 to 50 Durometer.

2. Color: Black.

C. Anchors and Fasteners: As recommended by cover manufacturer.

D. Backing Paint for Aluminum Components in Contact with Cementitious Materials: Asphaltic type.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that joint preparation and dimensions are acceptable and in accordance with manufacturer's requirements.

B. Verify that frames and anchors installed by others are in correct locations and suitable for installation of remainder of assembly.

3.02 INSTALLATION

A. Install components and accessories in accordance with manufacturer's instructions.

B. Align work plumb and level, flush with adjacent surfaces.

C. Rigidly anchor to substrate to prevent misalignment.

3.03 PROTECTION

A. Do not permit traffic over unprotected floor joint surfaces.

B. Provide strippable coating to protect finish surface.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

DIVISION 8 – DOORS AND WINDOWS

SECTION 08910 – LOUVERS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. AMCA 511 - Certified Ratings Program Product Rating Manual for Air Control Devices; 2021, with Editorial Revision (2022).

C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

1.03 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements for submittal procedures.

B. Product Data: Provide data describing design characteristics, maximum recommended air velocity, design free area, materials and finishes.

C. Samples: Submit two samples 2 by **2 inches (50.8 mm)** in size illustrating finish and color of exterior and interior surfaces.

D. Test Reports: Independent agency reports showing compliance with specified performance criteria.

E. Maintenance Data: Include lubrication schedules, adjustment requirements.

1.04 WARRANTY

A. See SECTION 01780 - CLOSEOUT SUBMITTALS for additional warranty requirements.

B. Provide five year manufacturer's warranty against distortion, metal degradation, and connection failures of louver components.

1. Finish: Include twenty year coverage against degradation of exterior finish.

PART 2 – PRODUCTS

2.01 LOUVERS

A. Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.

1. Wind Load Resistance: Design to resist positive and negative wind load as required by code without damage or permanent deformation.

2. Drainable Blades: Continuous rain stop at front or rear of blade aligned with vertical gutter recessed into both jambs of frame.

3. Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.

B. Stationary Louvers, Inverted "V" blade, hot-rolled steel construction.

1. Blades: V-shaped, **3 inch (76.2 mm)** by 3 inch legs, sight-proof.

2. Frame: **8 inches (203.2 mm)** deep, angle profile; corner joints mitered.

a. Mounting Flanges: At head/sill and jambs, welded construction.

3. Steel Thickness, Galvanized: Frame **1/4 inch (6.35 mm)** minimum base metal; blades 1/4 inch minimum base metal.

4. Steel Finish: Primed.

2.02 MATERIALS

Extruded Aluminum: ASTM B221 (((ASTM B221M))).

2.03 FINISHES

A. Superior Performing Organic Coatings System: Polyvinylidene fluoride (PVDF) multi-coat superior performing organic coatings system complying with AAMA 2605, including at least 70 percent PVDF resin, and at least 80 percent of aluminum extrusion and panels surfaces having minimum total dry film thickness (DFT) of **1.2 mils (0.03048 mm)**, **0.0012 inch (0.03 mm)**.

B. Primer: Zinc chromate, alkyd type.

C. Color: As selected from manufacturer's standard colors.

PART 3 – EXECUTION

3.01 EXAMINATION

Verify that prepared openings and flashings are ready to receive this work and opening dimensions are as indicated on shop drawings.

3.02 INSTALLATION

A. Install louver assembly in accordance with manufacturer's instructions.

B. Install louvers level and plumb.

C. Align louver assembly to ensure moisture shed from flashings and diversion of moisture to exterior.

D. Secure louver frames in openings with concealed fasteners.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

DIVISION 9 - FINISHES

SECTION 09240 – CEMENT PLASTERING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.

B. ASTM C897 - Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters; 2015 (Reapproved 2020).

C. ASTM C926 - Standard Specification for Application of Portland Cement-Based Plaster; 2023a.

D. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.

E. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements for submittals procedures.

B. Product Data: Provide data on plaster materials and trim accessories.

PART 2 – PRODUCTS

2.01 CEMENT PLASTER APPLICATIONS

A. Lath Plaster Base: Metal lath.

1. Plaster Type: Jobsite mixed plaster.

2. Number of Coats: Three.

3. First Coat: Apply to a nominal thickness of **3/8 inch (9.52 mm)**.

4. Second Coat: Apply to a nominal thickness of **3/8 inch (9.52 mm)**.

5. Finish Coat: Apply to a nominal thickness of **1/8 inch (3.18 mm)**.

2.02 JOBSITE MIXED CEMENT PLASTER

A. Fire Resistance Rating: Determined in accordance with test procedures in ASTM E119 and complying with:

1. ICC (IBC),.

B. Materials:

1. Portland Cement: ASTM C150/C150M, Type I.

a. Finish Coat: White color.

2. Sand: Clean, well graded, and complying with ASTM C897.

3. Water: Clean, fresh, potable, and free of mineral or organic matter that could adversely affect plaster.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify existing conditions are acceptable prior to starting this work.

B. Verify concrete surfaces are flat, honeycombs are filled flush, and surfaces are ready to receive work of this section, and that there are no existing bituminous, water repellent, or form release agent coatings on concrete surfaces that may be detrimental to plaster bond.

C. Verify lath is flat, secured to substrate, and joint and surface perimeter accessories are properly in place.

3.02 PREPARATION

A. Clean concrete surfaces of foreign matter using approved acid solutions, solvents, or detergents, and then rinse surfaces thoroughly with clean water.

B. Roughen smooth concrete surfaces and apply bonding compound in accordance with manufacturer's written installation instructions.

3.03 MIXING

A. Mix only as much plaster as can be used prior to initial set.

B. Mix materials dry, to uniform color and consistency, before adding water.

C. Protect mixtures from frost or freezing temperatures, contamination, and excessive evaporation.

3.04 APPLICATION

Apply plaster in accordance with manufacturer's written instructions and comply with ASTM C926.

3.05 TOLERANCES

Maximum Variation from True Flatness: **1/4 inch (6.35 mm)** in **10 feet (304.8 cm)**.

3.06 REPAIR

Patching: Remove loose, damaged or defective plaster and replace with plaster of same composition; finish to match surrounding area.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 09510 – ACOUSTICAL CEILINGS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 RELATED REQUIREMENTS

SECTION 01611 – VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS.

1.03 REFERENCE STANDARDS

A. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

C. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

D. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.

E. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2022.

F. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate grid layout and related dimensioning.

C. Product Data: Provide data on suspension system components and acoustical units.

D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See SECTION 01600 - PRODUCT REQUIREMENTS, for additional provisions.

2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.06 QUALITY ASSURANCE

Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 FIELD CONDITIONS

Maintain uniform temperature of minimum **60 degrees Fahrenheit (15.56 degrees Celsius)**, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Acoustic Tiles/Panels:

1. Armstrong World Industries, Inc: www.armstrongceilings.com/#sle.

B. Suspension Systems:

1. Same as for acoustical units.

2. Armstrong World Industries, Inc: www.armstrongceilings.com/#sle.

2.02 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Ceiling systems designed to withstand the effects of earthquake motions determined according to ASCE 7 for Seismic Design Category D, E, or F and complying with the following:

1. Local authorities having jurisdiction.

2.03 ACOUSTICAL UNITS

A. Acoustical Units - General: ASTM E1264, Class A.

1. VOC Content: As specified in Section 016116.

2. VOC Content: Certified as Low Emission by one of the following:

B. Acoustical Tiles: Painted mineral fiber, with the following characteristics:

1. Classification: ASTM E1264 Type III.

2. Size: 24 by **48 inches (1219.2 mm)**.

3. Thickness: **3/4 inch (19.05 mm)**.

4. Tile Edge: Square.

a. Joint: Kerfed and rabbeted.

5. Color: White.

6. Suspension System: Concealed.

2.04 SUSPENSION SYSTEM(S)

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

1. Materials:

a. Aluminum Grid: Aluminum sheet, ASTM B209/B209M.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

A. Install after major above-ceiling work is complete.

B. Coordinate the location of hangers with other work.

3.03 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

D. Seismic Suspension System, Seismic Design Categories D, E, F: Hang suspension system with grid ends attached to the perimeter molding on two adjacent walls; on opposite walls, maintain a **3/4 inch (19.05 mm)** clearance between grid ends and wall.

E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

G. Support fixture loads using supplementary hangers located within **6 inches (152.4 mm)** of each corner, or support components independently.

H. Do not eccentrically load system or induce rotation of runners.

3.04 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:

1. Make field cut edges of same profile as factory edges.

3.05 CLEANING

A. See SECTION 01700 – EXECUTION AND CLOSEOUT REQUIREMENTS for additional requirements.

B. Clean surfaces.

C. Replace damaged or abraded components.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 09911 – EXTERIOR PAINTING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 RELATED REQUIREMENTS

SECTION 01611 - VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS.

1.03 REFERENCE STANDARDS

A. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials; 2020.

B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

C. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

D. SSPC-SP 2 - Hand Tool Cleaning; 2024.

E. SSPC-SP 6/NACE No.3 - Commercial Blast Cleaning; 2006.

1.04 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").

2. MPI product number (e.g. MPI #47).

3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by **11 inches (279.4 mm)** in size, illustrating range of colors available for each finishing product specified.

1. Where sheen is specified, submit samples in only that sheen.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of **45 degrees Fahrenheit (7.22 degrees Celsius)** and a maximum of **90 degrees Fahrenheit (32.22 degrees Celsius)**, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the paint product manufacturer's temperature ranges.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: **50 degrees Fahrenheit (10 degrees Celsius)** for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Paints:

1. Behr Paint Company: www.behr.com/#sle.

2. Pittsburgh Paints: www.ppgpaints.com/#sle.

3. Sherwin-Williams Company: www.sherwin-williams.com/#sle.

C. Primer Sealers: Same manufacturer as top coats.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.

1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.

2. Supply each paint material in quantity required to complete entire project's work from a single production run.

3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content: Comply with Section 016116.

2.03 PAINT SYSTEMS - EXTERIOR

A. Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete, concrete masonry units, brick, fiber cement siding, primed wood, and primed metal.

1. Two top coats and one coat primer.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:

1. Exterior Plaster and Stucco: 12 percent.

2. Masonry, Concrete, and Concrete Masonry Units: 12 percent.

3. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

4. Concrete Floors and Traffic Surfaces: 8 percent.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Concrete:

G. Masonry:

H. Exterior Plaster: Fill hairline cracks, small holes, and imperfections with exterior patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

I. Concrete Floors and Traffic Surfaces: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

J. Galvanized Surfaces:

1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

2. Prepare surface according to SSPC-SP 2.

K. Ferrous Metal:

1. Solvent clean according to SSPC-SP 1.

2. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning in accordance with SSPC-SP 6/NACE No.3. Protect from corrosion until coated.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

C. Apply each coat to uniform appearance.

D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

See SECTION 01400 – CONTRACTOR QUALITY CONTROL PROGRAM, quality requirements, for general requirements for field inspection.

3.05 CLEANING

Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 09912 – INTERIOR PAINTING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCE STANDARDS

A. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

B. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

C. SSPC-SP 2 - Hand Tool Cleaning; 2024.

D. SSPC-SP 6/NACE No.3 - Commercial Blast Cleaning; 2006.

1.03 SUBMITTALS

A. See SECTION 01300 – SUBMITTALS, Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").

2. Cross-reference to specified paint system products to be used in project; include description of each system.

C. Samples: Submit two painted samples, illustrating selected colors for each color and system selected with specified coats cascaded. Submit on card stock, 4 x **4 inch (101.6 mm)** in size.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See SECTION 01600 - PRODUCT REQUIREMENTS, for additional provisions.

2. Extra Paint and Finish Materials: 1 gal of each color; from the same product run, store where directed.

3. Label each container with color in addition to the manufacturer's label.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of **45 degrees Fahrenheit (7.22 degrees Celsius)** and a maximum of **90 degrees Fahrenheit (32.22 degrees Celsius)**, in ventilated area, and as required by manufacturer's instructions.

1.05 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Provide lighting level of 80 fc measured mid-height at substrate surface.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.

B. Paints:

1. Behr Paint Company: www.behr.com/#sle.

2. Pittsburgh Paints: www.ppgpaints.com/#sle.

3. Sherwin-Williams Company: www.sherwin-williams.com/#sle.

C. Primer Sealers: Same manufacturer as top coats.

D. Substitutions: See Section 016000 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.

1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.

2. Supply each paint material in quantity required to complete entire project's work from a single production run.

3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Colors: As indicated on drawings.

2.03 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete, concrete masonry units, brick, wood, plaster, uncoated steel, shop primed steel, galvanized steel, aluminum, and acoustical ceilings.

1. Two top coats and one coat primer.

2. Top Coat(s): High Performance Architectural Interior Latex.

3. Top Coat Sheen:

a. Eggshell: MPI gloss level 3; use this sheen at interior walls within conditioned spaces.
b. Semi-Gloss: MPI gloss level 5; use this sheen at unconditioned spaces, trim, doors, and frames.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Concrete:

1. Clean surfaces with pressurized water. Use pressure range of 1,500 to **4,000 psi (27579.04 kPa)** at 6 to **12 inches (304.8 mm)**. Allow to dry.

F. Masonry:

1. Remove efflorescence and chalk. Do not coat surfaces if moisture content, alkalinity of surfaces, or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.

2. Clean surfaces with pressurized water. Use pressure range of 600 to **1,500 psi (10342.14 kPa)** at 6 to **12 inches (304.8 mm)**. Allow to dry.

G. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

H. Galvanized Surfaces:

1. Prepare surface according to SSPC-SP 2.

I. Ferrous Metal:

1. Solvent clean according to SSPC-SP 1.

2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning in accordance with SSPC-SP 6/NACE No.3. Protect from corrosion until coated.

J. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

C. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

D. Sand wood and metal surfaces lightly between coats to achieve required finish.

E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

DIVISION 15 - MECHANICAL

SECTION 15011 - GENERAL MECHANICAL PROVISIONS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects, Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

A. The section applies to all sections of DIVISION 15 – MECHANICAL.

B. Scope of work shall be as described in the technical sections of DIVISION 15 – MECHANICAL.

1.03 SUBMITTALS

A. Submittals required in this and other sections of DIVISION 15 - MECHANICAL, shall conform to the General Provision and Special Provisions and the following additional requirements. Submittals shall include the manufacturer's name, trade name, place of manufacture, catalog model or number, nameplate data, size, layout dimension, capacity, project specification and paragraph reference, applicable industry, and technical society reference standards, years of satisfactory service, and other information necessary to establish contract compliance of each item the Contractor proposes to provide. Photographs of existing installations are unacceptable and will be returned without approval. Submittals for each section of DIVISION 15 - MECHANICAL, shall be complete. Incomplete submittals will be returned without review.

1. Manufacturer's Catalog Data: Submittals for each manufactured item shall be current manufacturer's descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves, and catalog cuts. Each submittal shall clearly identify equipment to be provided. Information not pertaining to equipment shall be deleted or crossed out.

2. Shop Drawings:

a. Provide at least six sets of shop drawings for each Section of DIVISION 15 - MECHANICAL. Shop Drawings shall use a minimum scale of 1/4 inch per foot on drawing sheets the same size as contract drawings. Include floor plans, sectional views, wiring diagrams, and installation details of submitted equipment, and equipment spaces identifying and indicating proposed location, layout and arrangement of items of equipment, control panels, accessories, piping, ductwork, and other items that must be shown to ensure a coordinated installation. Wiring diagrams shall identify circuit terminals, and indicate the internal wiring for

each item of equipment and the interconnection between each item of equipment. Drawings shall indicate adequate clearance for operation, maintenance, and replacement of operating equipment devices. If equipment is disapproved, drawings shall be revised to show accepted equipment and resubmitted.

b. At least one set of shop drawings shall be produced on Department of Transportation, Airports Division standard 22" x 34" mylar sheets. These drawings shall include all revisions to the shop drawings. The contractor shall submit the original mylar shop drawings when submitting "AS-BUILT DRAWINGS".

c. When shop drawings have substantial changes from the design to the point that compliance with "AS-BUILT DRAWINGS" of this Section become impractical, the approved shop drawing shall be substituted for the contract drawing and the intent of "AS BUILT DRAWINGS" paragraph implemented using the approved shop drawings.

3. Manufacturer's Instructions: Where installation procedures or part of installation procedures are required to be in accordance with the manufacturer's instructions, submit printed copies of those instructions with product submittals. All products or items that carry manufacturer's warranty shall be installed in accordance with manufacturer's instructions. Installation of the item shall not proceed until the manufacturer's instructions are received. Failure to submit shall be cause for rejection of the equipment or material. When manufacturer's instructions and these specifications have different requirements, the more stringent requirement shall prevail. However, if the requirements are conflicting, it is the Contractor's responsibility to notify the Architect and Engineer in writing prior to procurement and installation.

   All but not limited to, the following items shall be installed in accordance with the manufacturer's instructions and these bid documents.

   Fans Volume Damper

4. Certificates of Compliance: Submit a certificate of compliance from the manufacturer for approval for products, finishes, and equipment as specified in the technical sections whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance. The certificates shall identify the manufacturer, the products, equipment, or materials, and the referenced standard and shall simply state that the manufacturer certifies that the product conforms to the requirements specified.

5. Reference Standards Compliance: Where equipment for materials are specified to conform to industry and technical society reference standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), American Society of Mechanical Engineers (ASME), American Gas Association (AGA),

American Refrigeration Institute (ARI), and Underwriters Laboratories (UL), submit proof of such conformance. If an organization uses a label or listing to indicate compliance with a particular reference standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections.

6. Independent Testing Organization Certificate: In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing and approved by the Officer-in-Charge.

7. Operation and Maintenance Manuals: When specified in subsequent Sections of DIVISION 15 - MECHANICAL, the Contractor shall submit six complete sets of operating and maintenance manual on all equipment and the system as a whole. Each set shall be permanently bound with table of contents and shall have a hard cover. One complete set shall be furnished at the time the test procedure is submitted, and the remaining sets shall be furnished before the contract is completed. The following identification shall be inscribed on the covers: the words "OPERATING AND MAINTENANCE MANUALS," the project name, location of the building, name of the Contractor, telephone number, and date. Flysheet shall be provided for piece of equipment and each subject. The instruction sheets shall be approximately 8-1/2 by 11 inches, with large sheets of drawings folded in. The instructions shall include, but shall not be limited to the following:

    a. Identify each equipment with tag number, manufacturer's name, model, serial number, capacity, location, and area or rooms served.
    b. Manufacturer's Data
        1) Approved equipment submittal.
        2) Manufacturer's wiring and control diagrams, with data to explain the detailed operation and control of each component.
        3) Manufacturer's operating and maintenance manuals for each piece of equipment, including lubrication instructions.
        4) Parts lists and recommended spare parts.
        5) Manufacturer's bulletins, cuts and descriptive data. Applicable data shall be indicated by highlight, arrows, or underlining. Non-applicable data shall be crossed-out.
    c. System layout showing equipment and controls.
    d. Source of service and replacement parts.
    e. A control sequence describing startup, operation, shutdown, restarting after power failure.

8. Operating Instructions: Submit text of posted operating instructions for each system and principal item of equipment as specified in the technical sections.

9. As-Built Drawings:

a. The Contractor shall maintain at the job site one (1) set of full size contract drawings, marking them in red to show all variations between the construction actually provided and that indicated or specified in the contract documents, including buried or concealed construction.

b. Where a choice of material or method is permitted herein or where variations in scope or character of work from that of the original contract is authorized, the drawings shall be marked to define the construction actually provided.

c. Where equipment installation is involved, the size, manufacturer's name, model number, power input or characteristic as applicable shall be shown on the as-built drawings.

d. The representation of such changes shall conform to standard drafting practice and shall include such supplementary notes, legends, and details as necessary to clearly portray the as-built construction.

e. The drawings shall be maintained and updated on a daily basis. The Contractor shall sign, and date each sheet to certify that the dimensions and details shown on the drawings reflect the dimensions and details, and specifications as constructed in the field.

f. The drawings shall show existing conditions and new work shown on the design drawings. Except that the new work shown shall be the as-built condition. Drawings shall include the equipment schedules with the installed equipment data.

g. Submit the following to the Engineer for review and approval:

1) Job site marked-up drawings.

2) Incorporate into electronic drawing files all construction variations and information required by subparagraph a through e above, and submit final as-built drawings plotted with ink on 4- mil double matted mylar.

3) Electronic files of as-built drawings in AutoCAD 2000 or later DWG format on compact disc. Electronic files shall be vector graphics, scanned raster images are not acceptable.

10. Welders Qualifications: All welders shall be certified, by an independent testing laboratory and certificates shall be submitted to the Engineer for approval. Testing of welders shall be in accordance with the welding section of ANSI B-31.09 "Building Services Piping".

1.04 QUALITY ASSURANCE

A. Material and Equipment Qualifications: Provide materials and equipment that are standard products of manufacturers regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. Standard products shall have been in satisfactory commercial or industrial use for two-years prior to bid opening. The two-year use shall include applications of equipment and materials under similar circumstances and of similar size. The product shall have been for sale on the commercial market through

advertisements, manufacturer's catalogs, or brochures during the two-year period.

B. Alternative Qualifications: Products having less than a two-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturer's factory or laboratory tests, can be shown.

C. Manufacturer's Nameplate: Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

D. Modification of References: In each of the publications referred to herein, consider the advisory provisions to be mandatory, as though the word, "shall" had been substituted for "should" wherever it appears. Interpret references in these publications to the "authority having jurisdiction," or words of similar meaning, to mean the Design Engineer, or State Building Officials.

1.05 SUBSTITUTION OF EQUIPMENT

A. Substitution shall be in accordance with General Requirements.

B. The Contractor shall assume full responsibility for proper fit, performance and additional work relating to other sections of the specifications.

1.06 VERIFICATION OF DIMENSIONS

The Contractor shall be responsible for the coordination and proper relation of his work to the building structure and to the work of all trades. The Contractor shall visit the premises and thoroughly familiarize himself with all details of the work and working conditions, to verify all dimensions in the field, and to advise the Officer-in-Charge of any discrepancy before performing any work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle, store, and protect equipment and materials to prevent damage before and during installation in accordance with the manufacturer's recommendations, and as approved by the Officer-in-Charge. Replace damaged or defective items. Rusted pipe, fittings, and accessories delivered or installed at the job site will be rejected.

B. Materials and equipment shall be stored in weather protected locations and covered to prevent dust or moisture damage. Damage to materials or equipment due to contractor's neglect shall be repaired or replace to the satisfaction of the architect by and at the expense of the Contractor.

1.08 INSTRUCTION TO PERSONNEL

When specified in other sections, furnish the services of competent instructors to give full instruction to the designated personnel in the adjustment, operation, and

maintenance, including pertinent safety requirements, of the specified equipment or system. Instructors shall be thoroughly familiar with all parts of the installation and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given during the first regular work week after the equipment or system has been accepted and turned over for regular operation. The number of man-days (8 hours per day) of instruction furnished shall be as specified in the individual section. When more than 4 man-days of instruction are specified, use approximately half of the time for classroom instruction. Use other time for instruction with the equipment or system. When significant changes or modifications in the equipment or system are made under the terms of the contract, provide additional instruction to acquaint the operating personnel with the changes or modifications.

1.09 POSTED OPERATING INSTRUCTIONS

A. Provide for each system and principal item of equipment as specified in the technical sections for the use of the operation and maintenance personnel. The operating instructions shall include the following:

1. System Descriptive Information: Wiring diagrams, control diagrams, piping diagrams, control sequence and operating points for each principal system and item of equipment. Post instructions where directed.

2. Equipment Instructions: Attach to or post adjacent to each principal item of equipment and include directions.

a. Start up, proper adjustment, operating, lubrications, and shutdown procedures.
b. Safety precautions, procedure in the event of equipment failure.
c. Other areas as recommended by the manufacturer of each system or item of equipment.
d. Print or engrave, and frame under glass or in approved laminated plastic. Operating instructions exposed to the weather shall be made of weatherproof materials or enclosed to be weather protected. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

1.10 SAFETY REQUIREMENTS

Fully enclose or properly guard belts, pulleys, chains, gears, couplings, projecting setscrews, keys, rotating parts, and other power transmission apparatus, located where persons can come in close proximity thereto. Provide positive means of locking out equipment so that equipment cannot be accidentally started during maintenance procedures. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be properly guarded or covered with insulation of the type specified. Ensure that access openings leading to equipment are large enough to carry through routine maintenance items such as filters and tools.

1.11 ELECTRICAL REQUIREMENTS

A. Provide electrical components of mechanical equipment and systems such as motors, controllers, contactors and disconnects under DIVISION 15 - MECHANICAL, specified herein, and as necessary for complete and operable systems. These components shall meet the minimum requirements as specified in DIVISION 16 - ELECTRICAL, and all additional requirements specified in the section covering the associated mechanical equipment. Provide interconnecting wiring for components of packaged equipment as an integral part of the equipment. Interconnecting power wiring and conduit for field erected equipment shall be as specified in DIVISION 16 - ELECTRICAL. Control wiring and conduit shall be as specified in DIVISION 15 - MECHANICAL.

B. Motor control equipment forming part of motor control centers or switchgear assemblies, the conduit and wiring connecting such centers, assemblies, or other power sources to mechanical equipment shall conform to DIVISION 16 - ELECTRICAL.

1.12 SEISMIC RESTRAINTS

Provide seismic restraints for mechanical systems in accordance with the Building Code.

1.13 GUARANTEE

All materials and equipment provided and/or installed under this section of the specifications shall be guaranteed for a period of one year from the date of final acceptance of the work by the State. Should any trouble develop during this period due to defective materials or faulty workmanship, the Contractor shall furnish all necessary labor and materials to correct the trouble without any cost to the State. Any defective materials or inferior workmanship noticed at time of installation and/or during the guarantee period shall be corrected immediately to the satisfaction of the State.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Asbestos Prohibition: No asbestos containing materials shall be used under this section. The Contractor shall ensure that all materials incorporated in the project are asbestos-free.

B. Materials and equipment shall conform to the requirements of applicable technical sections, publications specified therein and shall be as shown. Materials and equipment shall be new and shall be the products of manufacturers regularly engaged in the manufacture of such products. All items shall essentially duplicate materials and equipment that have been in satisfactory use at least two (2) years prior to bid opening and shall be supported by a service organization that is, in the opinion of the Officer-in-Charge, reasonably convenient to the site of installation.

2.02 SIMILAR PRODUCTS

Shall be of the same manufacturer.

2.03 AMERICAN PRODUCTS PREFERENCE

Preference shall be given to American products, materials, and supplies. Foreign products may be used when it can be clearly shown to be superior.

PART 3 – EXECUTION

3.01 QUALITY CONTROL

The work shall be performed by workmen skilled in the type of work involved, under experienced supervision. Where methods of application or installation are specified by commercial standards in the Technical Sections, no departures will be permitted except as specified or as directed by the Officer-in-Charge.

3.02 INSPECTION AND TESTS

The Contractor shall give the Officer-in-Charge notice one week in advance when the work is ready for inspection and test. The tests shall be performed as required in the Technical Sections. All work rejected by the Officer-in-Charge shall be repaired or replaced by the Contractor at no additional cost to the State.

3.03 PROTECTION OF WORK IN PROGRESS

Pipe and duct openings shall be closed with caps or plugs until connections are made. Equipment shall be securely covered for protection against physical or chemical damage. In areas exposed to weather, materials unused at the end of each day's work shall be stored in weather-protected locations. Damage to materials or equipment due to the Contractor's neglect shall be repaired or replaced to the satisfaction of the Officer-in-Charge by, and at the expense of the Contractor. Ductwork openings shall be covered and protected from dust and moisture daily. No equipment, ductwork, piping, or insulation should be installed if contaminated by dust or moisture. Objects should be cleaned or dried before installation.

3.04 PROGRESS OF WORK AND COORDINATION

The work shall be coordinated with the work of other Contractors and other trades to avoid interference, preserve headroom and operating clearances, and to expedite completion of the project.

3.05 INSTALLATION OF EQUIPMENT

Installation and adjustments shall be in accordance with the equipment supplier's written instructions. All accessories required shall be properly installed and connected. Supports shall be adequately anchored and vibration isolation shall be installed where required.

3.06 PERMITS, LICENSES AND INSPECTIONS

The Contractor shall obtain all permits and licenses required to perform the work, and pay all the fees therefore, and shall cooperate with all inspection required by authorities having jurisdiction. Inspection specified in the Technical Sections shall be permitted without interference. Corrections to work as a result of inspection shall be made promptly.

3.07 FIELD TESTS

The Contractor shall be responsible for test of the installed work, and shall provide all labor, equipment and instruments and shall conduct pressure tests and operating tests on the piping systems and equipment. During pressure tests, all items in piping systems not designed for test pressures shall be removed from, or isolated from the system and shall be reconnected or unblocked after tests are completed. Should operating tests require the presence of manufacturer's representatives, the Contractor shall cooperate with them and shall place at their disposal all assistance, materials and service required to perform such tests. Testing shall be as specified in technical sections of these specifications.

3.08 PAINTING

Painting shall be done under SECTION 09911 – EXTERIOR PAINTING and SECTION 09912 – INTERIOR PAINTING of these specifications. Factory finishes damaged during shipment or construction shall be touched up to provide a finish to match surrounding surfaces by the installing contractor.

3.09 CODES AND STANDARDS

The entire installation shall comply with the applicable requirements of the Building Code, Plumbing Code and Fire Code of the City and County of Honolulu, the Health Department Regulations, and applicable NFPA Standards.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately, but shall be considered incidental to and included in the lump sum bids for the respective line items in the Proposal Schedule.

END OF SECTION

SECTION 15400 – PLUMBING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

A. This section covers the furnishing, fabrication, delivery and installation of the plumbing system complete as shown, including but not limited to the following:

1. Removal and replacement of existing roof drains, overflow drain piping, and pipe lining work as indicated on drawings.

2. Shop drawings and record drawings.

3. Inspection, testing and guarantee.

1.03 ELECTRICAL WORK

Electrical motor driven equipment specified herein shall be provided complete with motors, motor starters, and controls. Electric equipment and wiring shall be in accordance with DIVISION 16 - ELECTRICAL. Electrical characteristics shall be as indicated. Motor starters shall be provided complete with properly sized thermal overload protection and other appurtenances necessary for the motor control. Each motor shall be of sufficient capacity to drive the rating of the motor. Manual or automatic control and protective or signal devices required but not shown on the electrical plans, shall be provided under this section of the specifications.

1.04 CODES, ORDINANCES AND PERMITS

A. Codes and Ordinances: The work shall be in accordance with the governing State and Local Ordinances, Codes and Regulations, including NFPA Regulations and Factory Mutual, all of which are hereby made a part of these requirements. However, when these requirements and/or drawings call for or describe materials, workmanship or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these requirements and/or drawings shall take precedence over the requirements of the said rules and regulations. The Contractor shall furnish, without any extra charge, any additional material or labor, or both, required for compliance with these rules and regulations, although not mentioned in these requirements nor indicated on the contract drawings.

B. Permits: The Contractor shall secure and pay for all permits, inspections and certificates of any inspection of any governmental body having jurisdiction over all or any part of the work included under this section, and/or such inspections, etc., required by these requirements.

1.05 CONTRACT DRAWINGS

A. Contract drawings are essentially diagrammatic, indicating general layout and approximate locations towards establishing the scope for uniform estimating basis for all bidders; they are not intended to be detailed construction working drawings. Reasonable modifications to indicated locations and arrangement to suit job conditions shall not be construed as basis for requesting of additional funds from the State.

B. Where apparatus and equipment have been indicated on the drawings, dimensions have been taken from typical equipment of the class indicated. The shop drawings shall show the details of construction and installation of the particular equipment furnished; they shall be fully dimensioned to show that the equipment and connections thereto fit the space provided with adequate maintenance space. If equipment is disapproved, drawings shall be revised to show acceptable equipment and resubmitted.

C. Coordinate with the various trades. Where items must fit spaces previously constructed, verify measurements at the site. Coordinate with other work to insure that all required inserts, sleeves, and attachments are properly set and that adequate provision is made for installing this work.

D. Capacities of all equipment and materials shall be not less than those indicated.

1.06 SHOP DRAWINGS

Shop drawings shall be submitted in accordance with SECTION 15011 - GENERAL MECHANICAL PROVISIONS.

1.07 MATERIAL AND EQUIPMENT SUBMITTALS

A. Material and equipment submittals shall be in accordance with SECTION 15011 - GENERAL MECHANICAL PROVISIONS. Material or equipment brochures shall be submitted for the following items at one time in order to demonstrate that these items of equipment have been properly coordinated and will function properly with each other:

Roof Drain	Overflow Drain
Equipment Supports	Cured in place pipe liner

B. If departures from the contract drawings are deemed necessary by the Contractor, details of such departures, including changes in related portions of the project and the reasons thereof, shall be submitted with the shop drawings. Approved departures shall be made at no additional cost to the State.

C. Submittals shall be complete. Piecemeal submittals will be returned without review. Each submittal shall clearly identify equipment to be provided. Information not pertaining to equipment to be provided shall be deleted or crossed out.

1.08 AS-BUILT DRAWINGS

As-built drawings shall be provided in accordance with SECTION 15011 - GENERAL MECHANICAL PROVISIONS.

1.09 WORKMANSHIP

All materials and equipment shall be installed in accordance with the Building and Fire Codes of the City & County of Honolulu to conform with the contract documents. The system shall be installed by an experienced firm regularly engaged in the design and installation of plumbing systems in accordance with the Building and Plumbing Codes of the City and County of Honolulu. The Officer in Charge may reject any proposed installer who cannot show evidence of such qualifications. Officer in Charge approval will not relieve the Contractor from his responsibilities to perform all work in accordance with specifications to contract terms.

1.10 INSTRUCTIONS TO OWNER

The Contractor shall provide the State with the necessary information concerning the care, operation and maintenance of all systems, equipment, fixtures, etc.

1.11 CONFORMANCE TO AGENCY REQUIREMENTS

Where materials or equipment are specified to be approved by the Underwriters' Laboratories, Inc., the Contractor shall submit proof that the items furnished under this section of the specifications conform to such requirements. The label of or listing in the Underwriters' Laboratories, Inc., Building Materials List, or the Electrical Appliance and Utilization Equipment List will be acceptable as sufficient evidence that items conform to Underwriters' Laboratories, Inc., requirements.

1.12 NAMEPLATES

Each major component of equipment shall be provided with a nameplate engraved with the manufacturer's name, address, and catalog or model number, serial number, and electrical data on a metal plate securely attached to the item of equipment. Vinyl sticker nameplates are not acceptable. When exposed to weather, all information on the manufacturer’s nameplate shall be duplicated onto an engraved brass tag, minimum 3” diameter or square, secured to an accessible interior panel of the unit.

1.13 VERIFICATION OF DIMENSIONS

A. The Contractor shall be responsible for the coordination and proper relation of his work to the building structure and to the work of all trades.

B. The Contractor shall visit the premises and thoroughly familiarize himself with all details of the work and working conditions, to verify all dimensions in the field, and to advise the Officer in Charge of any discrepancy before performing any work.

1.14 OMISSIONS

It is the intent of the plans and specifications to provide a complete installation. Should there be omissions, the Contractor shall call the attention of the Officer in Charge to such omissions in fifteen (15) days advance of the date of bid openings so that the necessary corrections can be made. Otherwise the Contractor shall furnish and install the omissions or discrepancies as if the same were specified and provided for.

1.15 SUBSTITUTIONS OF EQUIPMENT

A. Substitution shall be in accordance with General Requirements.

B. The Contractor shall assume full responsibility for proper fit, performance and additional work relating to other sections of the specifications.

1.16 WELDERS QUALIFICATIONS

Welders shall be qualified in accordance with SECTION 15011 - GENERAL MECHANICAL PROVISIONS.

1.17 PRODUCT DELIVERY AND STORAGE

Furnish new equipment, fixtures, materials and accessories bearing the manufacturer's identification. Coordinate deliveries to avoid interference or construction delays. Protect products during delivery, storage, installation, and the remainder of the construction period after installation.

1.18 CLEANING EQUIPMENT AND PREMISES

A. During the process of the work, the premises shall be kept reasonably free of all debris and waste materials resulting from the work performed under the various sections of the General Contract. All such debris and rubbish shall be removed from the site.

B. Upon completion and before final acceptance of the work, all debris, rubbish, left over materials, tools and equipment shall be removed from the site. Plumbing equipment and fixtures shall be cleaned with an approved cleansing compound.

1.19 GUARANTEE

The entire plumbing installation described herein shall be guaranteed in writing as a complete working unit for a period of one year from the date of acceptance in accordance with SECTION 15011 - GENERAL MECHANICAL PROVISIONS.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Asbestos Prohibition: No asbestos containing materials shall be used under this section. The Contractor shall ensure that all materials incorporated in the project are asbestos-free.

B. Foreign Products: Shall not be allowed on this project unless specifically approved by the Design Engineer and is clearly shown to be superior to the American product.

C. All products that convey water for human consumption shall comply with lead free regulations NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water. – whether explicitly designated or not.

2.02 SOIL, WASTE AND VENT PIPE

A. Soil, waste and vent service weight cast iron, hub and spigot soil pipe and fittings, double asphalt coated, ASTM A74 and CISPI HSN with ASTM C564 rubber compression gasket.

B. Above grade cast iron soil, waste and vent piping in enclosed pipe shafts, concealed ceiling spaces or enclosed under floor spaces may be No-Hub systems, Tyler No-Hub pipe and fittings or equal, conform to Cast Iron Soil Pipe Institute Standard 301-90 with Cast Iron Soil Pipe Institute Standard 310 coupling joint.

2.03 CURED-IN-PLACE-PIPE LINER

A. General: This specification addresses the procedures for the rehabilitation of existing drainpipes.

B. Site work and preparations

1. Pre-video inspection prior to installation: The Contractor is to perform a pre-video inspection of the pipe to be lined. This inspection will be performed to determine the condition of the pipe and accurately identify the type, size, location and length of the pipe.

2. Cleaning: When specified, the Contractor shall furnish all labor, materials and equipment to clean the existing pipe in preparation of lining.

3. Obstruction removal: When specified, high pressure water equipment with the necessary cutters or scrappers and brushes will be used to remove obstructions from the pipe. If the obstructions can’t be removed by conventional methods, then the Contractor shall remove the obstructions by excavation or demolition. Such excavation or demolition shall be considered as separate time and material costs and must be approved by the Office-in-charge prior to commencement.

4. Prior to commencing work: The contractor shall provide the following Certifications and Testing information to the Officer-in-charge.

    a. IAPMO Certification
    b. Complies with NSF 14 Standards
    c. Complies with the International Plumbing Code
    d. Meets or Exceeds ASTM F1216 Standard for the Rehabilitation of Existing Pipelines and Conduits

5. Safety: The Contractor shall conform to all work safety requirements of the pertinent regulatory agencies, and shall secure the site for the working condition in compliance with the same. The Contractor shall erect signs and other devices for the safety of the work site. The Contractor shall also perform all work in accordance with applicable OSHA standards. Emphasis is placed upon the requirements for confined space and lock-out tag-out procedures.

C. Component Materials

1. Liner: The liner shall consist of one or more layers of flexible or semi-flexible strengthening textiles.

2. Membrane: The liner shall have a membrane coating or jacket on one or both sides.

3. Resins and epoxies: A premium quality thermosetting resin or epoxy will be specifically formulated as a component of the liner for use in lining the existing pipe.

4. Catalyst: Catalyst shall be compatible with the resin and other materials used as components of the liner. The resins shall be catalyzed by the addition of a sufficient catalyst to produce the required physical properties of the finished pipe liner.

5. Finished and cured liner properties: The lining material shall be capable of carrying resin, be able to withstand installation pressure and curing temperatures, and be compatible with other lining material components. The resin system shall be compatible with the application and pipe environment and shall be able to cure in the presence or absence of water. Liner products must be installed by a trained and certified liner installer.

6. Pipe lining system shall conform to the minimal standards as follows: ASTM F1216 The cured-in-place-pipe lining of Existing Pipelines by the curing of a resin-Impregnated liner.

7. Standard Cured-In-Place-Pipe Liner exceeds the minimum strength requirements demonstrated in the following ASTM standards:

a.	Tensile Strength Yield:	**3,000 psi**	D-638
b.	Flexural Strength:	**4,500 psi**	D-790
c.	Flex Modulus:	**250,000 psi**	D-790

D. Cured-in-place-pipe liner: The Contractor shall furnish, prior to the use of the lining materials, a certificate of completion from Liner product stating that the Contractor has been trained and certified in the installation of pipe lining products and systems.

1. Resin and liner acceptance: At the time of resin impregnation, the entire liner shall be inspected for defects. The resin shall not contain fillers, except those required for viscosity control, fire retardant, extension of pot life, heat resistance or strengthening. Thixotropic agents that do not interfere with visual inspection may

be added for viscosity control. Resins may contain pigments, dyes, or colors which do not interfere with visual inspection of the CIPP liner or its required properties. Additives may be incorporated that enhance the physical and/or chemical resistance. The liner shall be transported to and stored at the site in such a manner it will not be damaged, exposed to direct sunlight, or result in and danger to public safety.

2. Inspection:

   a. The Contractor shall arrange a freely accessible place and means so that all equipment to be used during the installation, including manifolds, gauge stations, boiler equipment, winches, etc., can be inspected by Officer-in-charge. The contractor shall inspect all necessary equipment prior to mobilizing to the project site. The Contractor shall also provide all necessary tools and spare parts as may be required for the most frequently damaged equipment, and shall make sure that said tools and spare parts are available at the site.
   b. Supporting equipment such as pumps and generators shall be provided at the site in the event there is a fluid surge and pumping is required on an emergency basis. The contractor shall also prepare and make operable all necessary communication equipment for his field crew.

3. Inspection of liner: The contractor shall designate a location where the un-cured resin in the original containers and un-impregnated liner will be impregnated prior to installation. The contractor shall allow the Officer-in-charge to inspect the materials and resin impregnation procedure. The quantities of the liquid thermal-setting materials shall be as per liner product standards and requirements.

E. Installation procedure

1. Cleaning: Pipes shall be cleaned of all debris and other materials that would block proper installation of the cured-in-place-pipe liner.

2. Pre-Video inspection: Video inspections of the pipe shall be performed by experienced personnel trained in locating defects, breaks and obstacles in the pipe per this specification. The interior of the pipe shall be carefully inspected to determine the location of any conditions that may prevent proper installation of liner into the pipe, and shall be noted so these conditions can be corrected. A video recording and suitable log shall be kept for later reference.

3. Resin impregnation: The contractor shall designate a location where the liner shall be impregnated or “wet-out” with resin, using liner calibration rollers and vacuum system to thoroughly saturate the liners fiber prior to installation. The impregnated liner shall be free of pinholes, resin voids and other defects after impregnation is complete.

4. Installation of the liner: The wet-out CIPP liner shall be loaded inside the pressure apparatus above ground. Air or water pressure, supplied to the pressure apparatus shall be used to invert the wet-out liner through the pipe. The inversion pressure will be adjusted to be sufficient pressure to cause the impregnated liner

to invert completely in the pipe. Care shall be taken during the curing process so as not to overstress the liner. If no access is available on one end of the installation, a calibration tube will be similarly inverted into the liner in order to hold pressure and maintain a close fit during the cure process.

5. Curing: In most circumstances, an accelerated ambient curing resin system will be utilized, however if a heat cure is required, the installer shall supply suitable heat source equipment. The requirement shall be determined by the curing charts. Initial cure shall be deemed to be complete when inspection of the exposed portion of the liner appear to be hard and sound and a liner plate sample indicates that the temperature is of the magnitude to realize an exothermal.

6. Cool down: The contractor shall cool the hardened CIPP liner to a temperature below 100°F before relieving the pressure in the liner. Cool-down may be accomplished by the introduction of cool water or ambient air into the CIPP liner. Care should be taken to maintain pressure throughout the cure and cool-down period.

7. Finish: The finished CIPP liner shall be free of resin dry spots and de-lamination. A wrinkle deflection of 5-10% is acceptable; this varies depending on the condition of the host pipe and radius of any bends or fittings that may be in the host pipe. The CIPP liner shall not inhibit the post video inspection of the finished pipe.

8. Post video inspection: After the work is completed, the contractor shall provide the Officer-in-charge with a post-video showing the completed pipe lining.

2.04 PLUMBING FIXTURE

As specified in SECTION 15410 – PLUMBING FIXTURES.

PART 3 – EXECUTION

3.01 PIPE INSTALLATION

A. Openings in pipes, drains, fittings, apparatus and equipment shall be sealed or securely plugged during erection, to prevent accumulating obstructions in same.

B. Piping except where specifically shown otherwise, shall be concealed in walls, utility chases, partitions, ceiling spaces and roof spaces. Piping shall be installed to maintain headroom and keep passageways and access openings clear. Where necessary, piping shall offset to maintain the required clearances to coincide with structural features of building.

C. Verify fixture rough-in height and location with architectural drawings.

3.02 PIPE SUPPORTS, HANGERS, INSERTS

A. Install hangers and supports for all pipe work to provide for expansion and contraction, prevent vibration and maintain required grading by proper adjustment. Supports,

hangers, bolts, nuts, and washers shall be galvanized unless otherwise specified. Supports for copper pipe shall be additionally coated with plastic.

B. Support vertical pipes at base of the pipe on every floor and at 10' intervals maximum with galvanized steel pipe clamps, special cast iron pipe rests, base fittings, or by other approved methods suitable for type of building construction.

3.03 SLEEVES

Contractor shall, unless otherwise specified elsewhere, furnish and install pipe sleeves for all pipes which pass through foundations, walls, partitions, floors, ceilings or roofs, in accordance with the following:

A. Sleeves for piping, tubing, etc., unless otherwise modified or specified, shall be of standard schedule 40 black steel pipe with ends cut square and reamed and of sufficient length to flush with finished surfaces at both ends of sleeves.

B. Sleeves for piping which pass through foundations and are below the ground shall be cast iron or ductile iron pipe. Space between pipe and sleeves (both ends) shall be thoroughly caulked with packed tarred oakum and lead wool or packed tarred oakum and poured lead to make a waterproof installation.

C. Spaces between pipe and floor sleeves shall be sealed with U.L. listed fire stopping material for the full depth of the floor.

D. No cutting or drilling of any structural members will not be permitted without the approval from the Architect.

3.04 VENT PIPE FLASHING

A. All pipes through roof shall be flashed and counter-flashed to provide a water tight installation with a four-pound sheet lead, with base extending out 4” on roof all around pipe and at least 6” high into a counterflashing sleeve on the pipe or returned 1” down into pipe. Sheet lead shall be seamless or burned in with pure lead, solder will not be permitted. Work shall be performed in coordination with roofing work, as approved by the Architect.

B. Copper water piping shall be isolated from ferrous material such as metal studs, hanger or clamps by wrapping the pipe with plastic electrician's tape.

3.05 OVERFLOW ROOF DRAINS

Each fixture shall be installed at the exact height and location shown on architectural drawings, or as directed.

3.06 TESTING AND ADJUSTING

A. All work completely installed and tested as required by this section and the applicable plumbing ordinances, and proven leak tight before inspection is required. Providing of all required equipment and labor to make the test and repeating of the tests to the

satisfaction of those making the inspection is within the scope of this section of the specifications.

Any work concealed without the required test and approval shall be uncovered and tested at the Contractor's expense.

B. Procedure:

1. Soil, waste and vent piping: Filled with water to the highest point in each system, and left filled for eight hours with no noticeable change in water level; after approval, remove the test plugs and flush the line.

2. Water Piping: At **150 psi (1034.21 kPa)** and left for an eight hour period without loss of pressure; and left under line pressure for the balance of the construction period.

3. Gas Piping: **60 psi (413.69 kPa)** air pressure test for a period of 24 hours. After test, all gas piping shall be purged of all gas.

4. Plumbing Fixtures: Filled with water and checked for leaks and/or retarded flow.

5. All Valves: Adjusted and balanced to provide for the proper operation of the various systems. After disinfecting, strainer screens shall be removed, cleaned and reinstalled.

3.07 DISINFECTING

All domestic cold and hot water lines shall be thoroughly flushed and drained after installation. Sterilization shall be accomplished by opening taps at the end of all branches, and slowly filling the system adding liquid chlorine, or hypochlorite solution, to the water until water flowing from all branches indicates not less than 50 P.P.M. residual chlorine; the system allowed to stand for not less than twenty-four (24) hours, **<< 200 PPM for 3 hours; or None - N/A>>** with all valves opened and closed several times during this period; then drained and thoroughly flushed until all traces of chlorine are eliminated (less than 0.2 P.P.M.) Certificate shall be submitted to the Architect. The Contractor shall be responsible for the proper disposal of chlorinated water to safeguard public health and environment in accordance with applicable Department of Health requirements.

3.08 PAINTING

Painting shall be as specified in SECTION 09911 – EXTERIOR PAINTING and SECTION 09912 – INTERIOR PAINTING.

3.09 SPARE-PARTS DATA

After approval of materials and equipment and 2 months prior to the date of beneficial occupancy, the Contractor shall furnish a complete list of parts and supplies, with current source of supply.

3.10 PIPE PENETRATION

A. Where pipes penetrate fire rated walls and floors the space between the pipe and pipe sleeve shall be sealed with fireproof sealant.

B. Installation shall be in accordance with manufacturers instructions.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately, but shall be considered incidental to and included in the lump sum bids for the respective line items in the Proposal Schedule.

END OF SECTION

SECTION 15410 – PLUMBING FIXTURES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects, Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

Replacement of roof drain and overflow drain.

1.03 SUBMITTALS

A. Manufacturer's Data: Submit manufacturer's technical data for all materials.

B. Operation and Maintenance Data: Submit operation and maintenance data including maintenance schedules, spare parts requirements, and procedures.

1.04 QUALITY ASSURANCE

A. Single Source: Provide similar plumbing fixtures and trim from a single manufacturer.

B. All work shall conform to the current edition of the Uniform Plumbing Code.

1.05 RELATED WORK

SECTION 15400 - PLUMBING

PART 2 – PRODUCTS

2.01 MATERIALS

A. Acceptable Manufactures:

1. Fixtures: Kohler, American Standard, Crane, Zurn, Josam or approved equal.

B. Where applicable, refer to the Index Creations cross reference "Blue Books". Fixtures, fittings, equipment or appliances listed as similar in the "Blue Books" shall be acceptable under this paragraph. Prequalification is not required.

C. All fixtures shall include accessories to comply with the energy conservation and water conservation requirements of the Building Code and Plumbing Code.

D. The following general description are given for quality only. Substitutes are acceptable if approved in writing by the Architect.

2.02 FIXTURE SCHEDULE

A. ROOF DRAIN (ROOF PARKING): Josam or approved equal. Josam 23710 Series coasted cast iron roof drain, round pedestrian grate set in square secured frame, non-puncturing flashing collar with weepholes for roof fill, medium sump with wide roof flange and bottom outlet. Drain shall comply with ANSI/ASME standard A112.6.3-2001 for heel-resistant strainers and the maximum grate slot size be 5/16”

B. OVERFLOW PIPE: Provide cast iron pipe with metal flashing for overflow pipe.

PART 3 – EXECUTION

3.01 FIXTURE INSTALLATION

A. Set all plumbing fixtures in an approved workmanlike manner. Point up edges against wall with approved sealant.

B. Flanges at wall penetrations shall be flush against wall and shall not spin when rotated by hand.

C. Adjust equipment and plumbing fixtures and trim to operate properly and clean all fixtures just prior to final inspection.

D. Rough outlets for all fixtures shall be set exactly to the measurements furnished by the manufacturer; fixtures in batteries with their rough outlets set in a straight line at equal spacing.

E. Verify fixture rough-in height and location with architectural drawings.

F. Each fixture shall be installed at the exact height and location shown on architectural drawings, or as directed.

G. Fixture supplies, trap and trap arm shall be set square with wall, in line with fixture outlets without any offsets, angles, or bends.

H. Each fixture shall be set level and in continuous contact with floor or wall; fixture in batteries shall be set on one line, at equal spacing.

I. Joints between fixtures and walls or floor shall be adequately sealed, forming a smooth, even watertight joint. China caps shall be securely sealed into place over floor flange bolts, entirely covering washer and bolt hole.

3.02 TESTING AND ADJUSTING

A. All work completely installed and tested as required by this section and the applicable plumbing ordinances, and proven leak tight before inspection is required. Providing of all required equipment and labor to make the test and repeating of the tests to the satisfaction of those making the inspection is within the scope of this section of the specifications.

B. Procedure:

1. Plumbing Fixtures: Filled with water and checked for leaks and/or retarded flow.

3.03 SPARE-PARTS DATA

After approval of materials and equipment and 2 months prior to the date of beneficial occupancy, the Contractor shall furnish a complete list of parts and supplies, with current source of supply.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 15600 – AIR CONDITIONING AND VENTILATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 RELATED REQUIREMENTS

A. SECTION 15011 - GENERAL MECHANICAL PROVISIONS

B. SECTION 09911 – EXTERIOR PAINTING

C. SECTION 09912 – INTERIOR PAINTING

1.03 DESCRIPTION OF WORK

A. This section covers the furnishing, fabrication, delivery and installation of the air conditioning and ventilation systems complete, including but not limited to the following:

B. Ventilation system.

C. Operation and maintenance instructions.

D. Manufacturer's literature, shop drawings, and record drawings.

E. Inspection, test, and guarantee.

F. One year maintenance service.

1.04 ELECTRICAL WORK

Electrical motor driven equipment specified herein shall be provided complete with motors, motor starters, and controls. Electric equipment and wiring shall be in accordance with DIVISION 16 - ELECTRICAL. Electrical characteristics shall be as indicated. Motor starters shall be provided complete with properly sized thermal overload protection and other appurtenances necessary for the motor control. Each motor shall be of sufficient capacity to drive the rating of the motor. Manual or automatic control and protective or signal devices required but not shown on the electrical plans, shall be provided under this section of the specifications.

1.05 CODES, ORDINANCES AND PERMITS

A. Codes and Ordinances: The work shall be in accordance with the governing State and Local Ordinances, Codes and Regulations, including NFPA Regulations and Factory Mutual, all of which are hereby made a part of these requirements. However, when these and/or drawings call for or describe materials, workmanship or construction of a

better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these requirements and/or drawings shall take precedence over the requirements of the said rules and regulations. The Contractor shall furnish, without any extra charge, any additional material or labor, or both, required for compliance with these rules and regulations, although not mentioned in these requirements nor indicated on the contract drawings.

B. Permits: The Contractor shall secure and pay for all permits, inspections and certificates of any inspection of any governmental body having jurisdiction over all or any part of the work included under this section, and/or such inspections, etc., required by these requirements.

1.06 CONTRACT DRAWINGS

A. Contract drawings are essentially diagrammatic, indicating general layout and approximate locations towards establishing the scope for uniform estimating basis for all bidders; they are not intended to be detailed construction working drawings. Reasonable modifications to indicated locations and arrangement to suit job conditions shall not constitute basis for requesting of additional funds from the State.

B. Where apparatus and equipment have been indicated on the drawings, dimensions have been taken from typical equipment of the class indicated. The shop drawings shall show the details of construction and installation of the particular equipment furnished; they shall be fully dimensioned to show that the equipment and connections thereto fit the space provided with adequate maintenance space.

C. Capacities of all equipment and materials shall be not less than those indicated.

1.07 SHOP DRAWINGS

Shop drawings shall be provided in accordance with SECTION 15011 - GENERAL MECHANICAL PROVISIONS.

1.08 MATERIAL AND EQUIPMENT

A. Material or equipment brochures shall be made in a single submittal for the following items in order to demonstrate that these items of material and equipment have been properly coordinated and will function properly with each other:

1. Fans

2. Equipment Supports

3. Motors

B. If departures from the contract drawings are deemed necessary by the Contractor, details of such departures, including changes in related portions of the project and the reasons therefore, shall be submitted with the shop drawings. Approved departures shall be made at no additional cost to the State.

C. Submittal shall be in accordance with SECTION 15011 - GENERAL MECHANICAL PROVISIONS.

1.09 AS-BUILT DRAWINGS

A. The Contractor shall maintain at the job site one (1) set of full size contract drawings, marking them in red to show all variations between the construction actually provided and that indicated or specified in the contract documents, including buried or concealed construction.

B. Where a choice of material or method is permitted herein or where variations in scope or character of work from that of the original contract or authorized, the drawings shall be marked to define the construction actually provided. Where equipment installation is involved, the size, manufacturer's name, model number, power input or characteristic as applicable shall be shown on the as-built drawings.

C. The representation of such changes shall conform to standard drafting practice and shall include such supplementary notes, legends, and details as necessary to clearly portray the as-built construction.

D. The drawings shall be maintained and updated on a daily basis. The Contractor shall sign, and date each sheet to certify that the dimensions and details shown on the drawings reflect the dimensions and details, and specifications as constructed in the field. As-built drawings shall be provided in accordance with Section 15011 - GENERAL MECHANICAL PROVISIONS.

1.10 CONFORMANCE TO AGENCY REQUIREMENTS

Where materials or equipment are specified to be approved by the Underwriters' Laboratories, Inc., the Contractor shall submit proof that the items furnished under this section of the specifications conform to such requirements. The label of or listing in the Underwriters' Laboratories, Inc., Building Materials List, or the Electrical Appliance and Utilization Equipment List will be acceptable as sufficient evidence that items conform to Underwriters' Laboratories, Inc., requirements.

1.11 NAMEPLATES

Each major component of equipment shall be provided with a nameplate engraved with the manufacturer's name, address, and catalog number, serial number and electrical data on a metal plate mechanically attached to the item of equipment.

1.12 VERIFICATION OF DIMENSIONS

The Contractor shall be responsible for the coordination and proper relation of his work to the building structure and to the work of all trades. The Contractor shall visit the premises and thoroughly familiarize himself with all details of the work and working conditions, to verify all dimensions in the field, and to advise the Officer-in-Charge of any discrepancy before performing any work. Fabrication of ductwork and piping shall be in accordance with field measurements.

1.13 OMISSIONS

It is the intent of the plans and specifications to provide a complete installation. Should there be omissions, the Contractor shall call the attention of the Officer-in-Charge to such omissions in fifteen (15) days advance of the date of bid openings so that the necessary corrections can be made.

1.14 SUBSTITUTIONS OF EQUIPMENT

A. Substitutions shall be in accordance with General Requirements.

B. The Contractor shall assume full responsibility for proper fit, performance and additional work relating to other sections of the specifications.

C. Redesign made necessary by the use of approved substitutions shall be the responsibility and at the expense of the Contractor.

1.15 WELDERS QUALIFICATIONS

All welders shall be certified, by an independent testing laboratory and certificates shall be submitted to the Architect for approval. Testing of welders shall be in accordance with the welding section of ANSI B-31.09 "Building Services Piping".

1.16 CLEANING EQUIPMENT AND PREMISES

A. During the process of the work, the premises shall be kept reasonably free of all debris and waste materials resulting from the work performed under the various sections of the General Contract. All such debris and rubbish shall be removed from the site.

B. Upon completion and before final acceptance of the work, all debris, rubbish, left over materials, tools and equipment shall be removed from the site.

1.17 GUARANTEE

The entire mechanical installation described herein shall be guaranteed in writing as a complete working unit for a period of one year starting only after 30 days of trouble free operation after the date of system acceptance. Other requirements shall be in accordance with SECTION 15011 - GENERAL MECHANICAL PROVISIONS.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Asbestos Prohibition: No asbestos containing materials shall be used under this section. The Contractor shall ensure that all materials incorporated in the project are asbestos-free.

B. Foreign Products shall not be allowed on this project unless specifically approved by the Design Engineer and is clearly shown to be superior to the American product.

2.02 CORROSION PROTECTION

Special protection for cabinets is not required for equipment that has a zinc coating conforming to ASTM A 386 or a duplex coating of zinc and paint. Equipment items shall be protected by the manufacturer with a corrosion-inhibiting coating or paint system that have been proven capable of satisfactorily withstanding the following tests: Test method shall be ASTM B117. Period of test shall be 125 hours for equipment intended for installation indoors; test period shall be 500 hours for equipment intended for installation outdoors or which will be otherwise subjected to marine atmosphere. Each specimen shall have a standard scratch as defined in ASTM D1654.

A. Cabinet and Exterior Surfaces: Unit cabinet shall be coated with Ameron PSX 700 Engineered Siloxane or “Thermoguard Casing Guard”. Metal preparation shall provide a surface profile that shall include degreasing and etching.

   1. The coating shall be applied to all interior and exterior surfaces. Coating thickness and application shall be applied in strict accordance with coating manufacturer's recommendations.

   2. After the coating has totally cured, the equipment shall be assembled using care not to damage the coating during assembly. Fasteners shall be stainless steel with bonderized rubber washer attached. Any touch up required shall be performed in accordance with the manufacturer's recommendations.

B. The coating shall be performed by a qualified and experienced factory certified applicator such as International A/C Coatings, Honolulu, Hawaii, Thermoguard Pacific, Inc. or an approved applicator.

2.03 FANS

Fans shall be sound and air tested and rated in accordance with the standards of the Air Movement and Control Association, Inc. Fans shall be directly connected to the motor shaft or indirectly connected to the motor by means of a V-belt drive as noted on equipment schedule. Where V-belt drives are used, motor sheaves shall be adjustable to provide not less than 20 percent speed variation. Sheaves shall be selected to drive the fan at such speed as to produce the specified capacity at field static pressure when set at the approximate midpoint of the sheave adjustment. Motors for V-belt drives shall be provided with adjustable rails or bases. Fans and motors shall be provided with vibration isolation supports or mountings. Each fan shall be selected to produce the capacity required at the fan total pressure indicated. Standard AMCA arrangement, rotation and discharge shall be as indicated on the drawing. Motor efficiency shall be as specified in paragraph "MOTORS". Fans shall be manufactured by Penn, Greenheck, ACME, Cook, Carnes or approved equal. When sound criteria is indicated on drawings, equipment shall be AMCA certified for Air and Sound. Otherwise equipment shall be AMCA certified for Air only.

A. Power Roof Ventilator - Centrifugal Type: Belt drive down blast roof exhaust fans shall be of the type, wheel size and capacity as shown. V-belt drives shall be designed for 50% overload and shall have adjustable pitch motor sheaves. Motors shall be NEMA Standard open drip-proof and mounted on heavy gauge plates with adjustable sliding

steel rods for positive belt tensioning. Fans shall be backwardly inclined aluminum wheel with non-overloading characteristics.

1. Housing shall be aluminum with backward inclined aluminum wheel. Curb cap with prepunched mounting holes, entire unit shall be vibration isolated on shock mount.

2. Fan drives shall have pre-lubricated flange type ball bearings.

3. Fan housing shall be easily removable for access to all parts of the unit. Fans shall bear UL/cUL 705 Power Ventilators.

4. Provide pre-wired motor disconnect switch in the fan housing.

5. Fan exterior finish shall be baked enamel with custom color to match roof.

2.04 MOTORS

A. All motors 1 horsepower and larger shall be energy efficient type. Efficiency rating shall be in accordance with NEMA Premium.

B. Motors shall have a 1.15 service factor.

C. Motors to be used with variable speed drives shall be provided with phase isolation, Class F insulation and a winding thermostat that will detect any motor overheat conditions.

D. Motor shall be designed to operate at full capacity with a voltage variation of plus or minus 10 percent of the motor voltage rating. Motor size shall be sufficient for the duty to be performed and shall not exceed its full load nameplate current rating when driven equipment is operated at specified capacity under the most severe conditions likely to be encountered. When motor size provided differs from the size indicated or specified, the Contractor shall make the necessary adjustments to the wiring, disconnect devices, and branch circuit protection to accommodate the equipment actually provided, at no cost to the Owner.

E. Provide a motor starter for each motor.

2.05 SAFETY SWITCHES AND STARTERS

Equipment motor safety switch and starter shall be provided under this section. Three phase motor shall have overload protection devices on each leg sized according to the nameplate rating of motor. Enclosures shall be NEMA type as required by the location installed except that switches located in areas with fire sprinklers shall have weatherproof or raintight NEMA type 3R enclosure. Allen-Bradley, Westinghouse, General Electric, or approved equal.

A. Safety Switches: Safety switches shall be general or normal duty. The cover shall be interlocked so that it cannot be opened when the switch is in the "on" position. However, voidable interlocks shall be provided in order to bypass this feature

when necessary. Switches shall be capable of being locked in the "off" position. Switches shall be fusible or non-fusible as indicated. Fusible switches shall be supplied with non-renewable fuses, sized as indicated. Where current limiting type or time-lag dual element fuses are indicated on the plans, switches shall be labeled to restrict fuses to the type indicated.

B. Magnetic Motor Starters: Starters shall be non-reversing, full-voltage type. Starters shall have three thermal overload protection heaters sized according to the nameplate ratings of the actual installed motor. Units shall have under-voltage protection when used with maintained contact control devices. The starter cover shall be equipped with push buttons or other control switches which are required for proper operation.

C. Voltage Monitor:

1. Provide a line voltage monitor for all equipment with motors 5 horsepower or larger. Power monitor shall de-energize equipment to prevent damaging equipment due to irregular power.

2. Power shall be monitored for Voltage unbalance, over/under voltage, phase loss, phase reversal, incorrect phase sequencing, faulty or degrading contacts, front side (source) fault, back side (load) fault, and rapid system recycling.

3. Light emitting diode display shall be provided for setup and diagnosis. Display shall indicate incoming line voltage, faults, and system setpoints.

4. System set points shall include:

a. Line voltage: 190-600 VAC
b. Voltage imbalance: 2-20%
c. Delay on break period: 0-10 minutes
d. Fault interrogation: 0-15 seconds
e. Over/under voltage: 2-25%
f. Reset modes Auto or 0-10 times
g. Control modes: on-off

PART 3 – EXECUTION

3.01 PROTECTION OF WORK IN PROGRESS

Pipe and duct openings shall be closed with caps or plugs until connections are made. Equipment shall be securely covered for protection against physical or chemical damage. In areas exposed to weather, materials unused at the end of each day's work shall be stored in weather-protected locations. Damage to materials or equipment due to the Contractor's neglect shall be repaired or replaced to the satisfaction of the Architect by, and at the expense of the Contractor. Ductwork openings shall be covered and protected from dust and moisture daily. No equipment, ductwork, piping, or insulation shall be installed if contaminated by dust or moisture. Objects shall be cleaned or dried before installation.

3.02 EQUIPMENT INSTALLATION

Necessary supports shall be provided for equipment, appurtenances and pipe, as required. These include frames or supports for air conditioners, and other similar type items requiring supports.

3.03 CLEANING AND ADJUSTING

A. Pipes shall be cleaned free of scale and thoroughly flushed of all foreign matter. Strainers and valves shall be thoroughly cleaned. Equipment shall be wiped clean, with all traces of oil, dust, dirt, or paint spots removed. Temporary filters shall be provided for all fans that are operated during construction, and after all construction dirt has been removed from the building, new filters shall be installed.

B. Bearings shall be properly lubricated with oil or grease as recommended by the manufacturer. Belts shall be tightened to proper tension. All control valves and other miscellaneous equipment requiring adjustment shall be adjusted to setting indicated or directed. Fans shall be adjusted to the speed indicated by the manufacturer to meet specified conditions. Clean all strainer screens 10 days after acceptance of this project.

3.04 TESTING, ADJUSTING AND BALANCING SYSTEMS

A. The Contractor shall obtain the services of an independent test and balance agency that specializes in and whose business is limited to the testing and balancing of air conditioning systems.

B. Testing, adjusting and balancing shall be performed in complete accordance with ASHRAE Testing, Adjusting and Balancing.

Recommendations by ASHRAE shall be considered mandatory. Adjustment of equipment and air outlet quantities to suit actual field conditions shall be within the scope of Testing, Adjusting and Balancing.

C. Instruments used for testing and balancing of air and hydronic systems must have been calibrated within a period of six months and checked for accuracy prior to start of work.

D. Six copies of the complete test report shall be submitted to the Architect prior to final acceptance of the project. Reports shall be submitted on standard SMACNA Forms.

E. Balancing:

1. Duct systems shall be balanced as follows:

a. System (or air moving device) to not less than design CFM. Adjusting shall include changing of sheaves to suit field static pressures.
b. Control zones or major duct branches to plus or minus 5%.
c. Registers and grilles, initially, to plus or minus 5%, thereafter, adjust to field conditions.

2. Test Data: The Contractor shall provide the Architect with typewritten schedules of readings taken during the balancing and testing operations indicating the required or specified reading, the first reading taken, and final balanced reading for the following items:

    a. Fans: Size, Type, speed in rpm, outlet velocity in fpm, static pressure in inches of water, air quantity in cfm, and motor load in amperes. Fan pulleys shall be changed or adjusted to meet system field static pressure requirement.
    b. Air outlets and inlets: Size, velocity in fpm, and air quantity in cfm.
    c. Ducts: Size, velocity in fpm, and air quantity in cfm.
    d. Fill out attached Operational Performance Test form.

3.05 PAINTING

Painting shall be as specified in SECTION 09911 – EXTERIOR PAINTING and SECTION 09912 – INTERIOR PAINTING.

3.06 SPARE-PARTS DATA

After approval of materials and equipment and 2 months prior to the date of beneficial occupancy, the Contractor shall furnish a complete list of parts and supplies, with current source of supply.

3.07 OPERATING AND MAINTENANCE MANUAL

Provide operating and maintenance manual on all equipment and the system in accordance with SECTION 15011- GENERAL MECHANICAL PROVISIONS.

3.08 FIELD INSTRUCTIONS

Upon completion of the work and at a time designated, the services of one or more qualified personnel shall be provided by the Contractor for a period of not less than 2 days to instruct the Officer-in-Charge in the operation and maintenance of the air conditioning system and ventilation system. These field instructions shall cover all the items contained in the bound instructions.

3.09 ONE YEAR GUARANTEE AND MAINTENANCE SERVICE CONTRACT

A. In addition to the Guarantee on material and workmanship, the installer shall submit seven (7) copies of the Maintenance Service Contract, countersigned by the General Contractor, that will validate said Guarantee.

B. The Guarantee and maintenance service shall extend for a period of one year commencing after 30 consecutive days of trouble-free operation after the Project Acceptance Date or the air conditioning equipment acceptance date, if earlier than the Project Acceptance Date, and shall include all labor, materials, equipment and parts necessary to service the complete system, in accordance with the attached Schedule of Maintenance Service, so as to assure proper operation and function of the

system. All costs for the periodic maintenance, including emergency calls, shall be borne by the Contractor. This maintenance period and the guarantee period shall run concurrently (same start and end dates).

C. Trouble-free operation is defined as a non-disabling condition or a non-recurring failure or disruption and the following:

1. The system shall be free of all discrepancies, contamination and debris which requires correction in excess to those described for the monthly service which is included in the Schedule of Maintenance Service.

2. The system is maintaining operational conditions and other parameters as measured during acceptance test.

D. The Contractor shall keep a separate log recording all regular and emergency maintenance calls to the project at his office. The log shall include at least the following information:

1. Name of person making service call.

2. Date of call.

3. Time in and out from project.

4. Nature of call; if emergency, who contacted service company.

5. Temperature and pressure readings from all available pressure gauges and thermometers. Readings from all other gauges, thermometers, level indicators, status indicators, sensors, Ambient temperature and humidity at the site.

6. The type and cost (labor, materials, parts and equipment) of repair work performed on the unit, if any.

7. All items indicated to be recorded in the Schedule of Maintenance Service.

8. Other data required.

9. In addition, the Contractor shall submit written reports of maintenance service performed within 5 working days of performance of service to the Officer-in-Charge. The maintenance service report shall include pertinent pages of the maintenance log.

E. The Installer shall include a listing of the following items along with the Maintenance Service Contract:

1. Name of the Servicing Contractor.

2. Ventilation system acceptance date.

3. Service contract expiration date. Service contract expiration date shall be amended after the completion of the 30 consecutive days of trouble free operation specified in paragraph B. above.

4. Monthly inspection schedule for the maintenance period.

5. Itemized listing of the equipment covered under the service contract, including a description of the equipment identified, its model and serial number(s) and manufacturer's name(s).

F. The Maintenance Service Contract shall be submitted along with the Operations and Maintenance Manual 30 days before the Project Acceptance Date.

G. Certification of Maintenance Work: All work done under this maintenance contract shall be certified by a responsible employee of the Contractor who is in charge of or who performs the maintenance work. Service reports shall be made out for all service periods, i.e., monthly, quarterly, semi-annual, annual, emergency, etc.. Certification of work by the Contractor shall be construed to mean that work has been performed in accordance with recommended and accepted maintenance procedures in conformance with the full intent of the service contract. Service reports shall include findings by the service personnel and description of work performed to maintain the systems in proper operating condition.

H. Work Schedule/Advance Notification:

1. All maintenance work shall be performed between the hours of 7:30 a.m. to 4:00 p.m., on normal working days, Monday through Friday, excluding State Holidays.

2. Contractor shall notify Officer-in-Charge prior to any maintenance work that will cause mechanical equipment outages or in any way affect the facility's user in the performance of their duties. Contractor shall inform the Officer-in-Charge a minimum of five 5 working days in advance of any work.

I. Trouble Calls: Emergency service and repairs required between regular service calls shall be rendered within 24 hours after the Contractor is notified, non-work days included.

The Contractor shall call Officer-in-Charge the next working day after being notified of the problem and report the status of repairs.

J. Maintenance Report/Checklist: The Contractor shall prepare and maintain a maintenance service report/checklist which shall include the following:

1. Date maintenance service was performed.

2. The name of the mechanic who performed said maintenance.

3. The type and cost (labor, materials, parts and equipment) of repair work performed on the unit, if any.

4. Documents and other data pertaining to the maintenance performed. It will be the responsibility of the Contractor to maintain the report/checklist by recording the above noted data after each scheduled maintenance and emergency repairs, and have the checklist available for inspection at the building site. The report shall be sufficiently detailed to properly reflect the past maintenance history of the equipment. Reports shall be certified by a representative of the facility being served and shall be submitted to the State at the completion of the Service Contract.

K. Cleanup and Work Practices: The Contractor shall keep the job site free of debris, litter, discarded parts, etc. and shall clean all oil drippings during the daily progress of work. The Contractor shall remove all tools, parts, and equipment from the service areas upon completion of the work.

L. The Contractor shall exercise caution during the progress of his maintenance and repair work to prevent damage to the ceilings, roofing and other building structure. The Contractor shall restore all damages, caused by his negligence, to its original condition, at his own expense.

M. All periodic maintenance services performed by the Contractor shall include applicable items listed but shall not be limited to the following maintenance tasks:

3.10 SCHEDULE OF MAINTENANCE SERVICE

A. VENTILATING FANS (Exhaust and Supply)

1. Quarterly Service

a. Check motor-controlled and back-draft dampers for proper operation; lubricate linkage for free movement. Correct, record and report all discrepancies and actions taken.
b. Lubricate fan motors and bearings. Correct, record and report all discrepancies and actions taken.
c. Check belt wear and tension and record findings; adjust or replace as needed. Correct, record and report all discrepancies and actions taken.
d. Check sheaves for wear and record findings. Replace as needed. Correct, record and report all discrepancies and actions taken.
e. Check fan collar, bearings, and shaft for wear. Correct, record and report all discrepancies and actions taken.
f. Replace air filters where installed; clean grilles, registers and diffusers. Correct, record and report all discrepancies and actions taken.
g. Read and record motor power supply voltage and amperes. Correct, record and report all discrepancies and actions taken.
h. Check two-speed motor for proper operation; check refrigerant sensor control of motor speed for proper operation. Correct, record and report all discrepancies and actions taken.
i. Certify performance of quarterly scheduled maintenance service and that all discrepancies have been reported and corrected.

2. Semi-Annual Service

a. Check and clean fan wheels and housings of dust, dirt, and grease. Correct, record and report all discrepancies and actions taken.
b. Remove and wash all intake grilles and dampers and repair or replace deteriorated bird screens. Correct, record and report all discrepancies and actions taken.
c. Certify performance of semi-annual scheduled maintenance service and that all discrepancies have been reported and corrected.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

PART 5 – ATTACHMENT

5.01 SERVICE MAINTENANCE REPORT FORM

SERVICE MAINTENANCE REPORT

DATE: _____ SHEET NO. _____

1. Name of Facility and Location: _____

2. Submitted By: _____

_____

3. Date of Service Call: _____

4. Name of Person(s) Making Call: _____

5. Time In; Time Out at Site: _____

6. Person(s) Contacted: _____

_____

7. Nature of Service Call: (Routine Maintenance, or Emergency Explain).

_____

_____

_____

_____

8. Equipment Readings and Maintenance Performed: (List all items serviced; identify - 8a, 8b, 8c...etc.)

_____

_____

_____

_____

_____

_____

_____

9. Remarks:

Signature of Person Making Report:

END OF SECTION

DIVISION 16 – ELECTRICAL

SECTION 16050 – ELECTRICAL WORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

A. The work covered by this section of the Specifications shall include furnishing all labor, materials, equipment and services to construct and install the complete electrical system shown on the accompanying Drawings and specified herein. This work shall include but is not necessarily limited to:

1. Power and light systems, including branch circuits, outlets, panelboards, light fixtures, wiring devices, equipment, and wiring.

2. Complete branch circuit wiring system for motors.

3. Power wiring for air conditioning and ventilation equipment including mounting of starters furnished by mechanical contractor.

4. Wiring, up to and including safety switches, for items described under other sections of these Specifications.

5. Wiring and connecting of all electrical equipment supplied for installation and use in this contract and not specifically listed as work by others, including the furnishing of disconnects for all motors.

6. Test the completed installation.

1.03 GENERAL REQUIREMENTS

A. It is the intent of the plans and specifications to provide a complete installation. Should there be omissions or discrepancies in the plans and specifications, the Contractor shall call the attention of the Contracting Officer to such omissions and discrepancies in advance of the date of bid opening so that the necessary corrections can be made. Otherwise the Contractor shall furnish and install the omissions or discrepancies as if the same were specified and provided for.

1. Before bidding on this work, carefully examine each of the drawings and the site. By submitting a proposal of the work included in this contract, the Contractor shall be deemed to have made such examination and to be familiar with and accept all conditions of the job site.

2. Standards:

   a. The entire installation shall be made in strict accordance with the latest rules and regulations of the National Electrical Code, the National Board of Fire Underwriters, NFPA, ANSI, NEMA, and IPCEA, and the local ordinances, rules and regulations of the State.
   b. The Electrical Contractor shall obtain and pay for the electrical permit as required by local laws and rules. All work shall be inspected by the proper local authorities as it progresses. The Electrical Contractor shall pay all inspection fees and shall deliver certificates of completion and inspection to the Contracting Officer before final payment will be made. Cost of permit and inspection fees shall be included in the Electrical Contractor's quoted price for the installation.

3. Drawings:

   a. Contract Drawings: These specifications are accompanied by floor plans of the building, and diagrammatic electrical layouts showing the approximate location of the outlets, switches, devices and other equipment.
   b. The wiring layouts and schedules show the approximate locations of all outlets, switch controls, service runs and other electrical apparatus. These locations are approximate and before installing, the Contractor shall study adjacent architectural details and make installation in most logical manner. Any device may be relocated within 10'-0" before installation at the direction of the Contracting Officer, whose decision shall be final.

4. Symbols: The standard electrical symbols together with special symbols, notes, and instructions shown on the drawings indicate the work and equipment required and are all to be included as a part of these specifications.

1.04 SUBMITTALS

A. Shop drawings, or catalog cuts, of the following equipment shall be submitted. Shop drawings and catalog cut submittals processed by the Contracting Officer are not Change Orders. The purpose of the submittals by the Contractor is to demonstrate to the Contracting Officer that he understands the design concept, that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use.

   1. Panelboard(s), circuit breakers, safety switches, manual motor starter(s).

   2. Wiring Devices (light switches, receptacles).

   3. Special wiring devices.

4. Conduit and wiring.

5. Light fixtures, including data on lamps and drivers.

B. As-Built Drawings: The Contractor shall keep at the job site a complete, neat and accurate record of all approved deviations from the contract drawings, shop drawings and specifications, indicating the work as actually installed. These changes shall be recorded on prints of the drawings affected and the shop drawings. Above reference to deviation shall not be construed to allow deviations without prior approval. As-builts shall be submitted prior to final acceptance to Contracting Officer.

C. Warranty.

1.05 QUALITY ASSURANCE

A. For actual fabrication, installation and testing of the work of this section, use only thoroughly trained and experienced workmen completely familiar with items required and with manufacturers' recommended methods of installation. In acceptance or rejection of installed work, no allowance will be made for lack of skill on part of workmen.

B. Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the installed work and materials of all other trades.

1.06 WARRANTY

A. All work and materials executed under this Section shall be under warranty to be free from defects of materials and workmanship for one (1) year from date of final acceptance of project as a whole, except lamps, which shall be warranted for 50% of the rated life as published by the manufacturer. All repair and replacement work required, including other work damaged by this work's defects shall be performed without cost to the State.

B. The Surety shall not be held liable beyond two (2) years of Project Acceptance.

PART 2 – PRODUCTS

2.01 GENERAL

A. All materials shall be new and of the best quality available in their respective kinds, free from all defects, comply with applicable provisions of ASTM Standards, NEC Articles 90.7 and 110.3 and those items listed by the Underwriters' Laboratories shall bear "UL" label of approval and shall be tested by a nationally recognized electrical testing laboratory and shall be of the make and types specified for approval.

B. Brand names and catalog numbers indicate standards of design and quality required. In case of obsolescence, supersedure, or error in catalog number, the associated description and intent implied by the application shall govern.

Substitute materials may be used if qualified by written permission from Contracting Officer. List of substitute materials together with qualifying data shall be submitted for approval.

Example:

Item	Manufacturer & Catalog No. Specified	Substitute Manufacturer & Catalog No.
Cable	Joe Doe - No. 3200	King - No. 3200

C. Qualifying data shall include cuts, shop drawings, and specifications to show equality with material specified herein and in drawings. The decision of the Contracting Officer shall govern as to what materials or equipment may be substituted for that specified. The burden of proof as to the equality of any proposed substitution shall be upon the Contractor.

D. Electrical equipment and luminaires to be supplied through the manufacturer's designated representative by a local distributor.

E. Furnish proof of compliance when shop drawings are submitted.

F. All electrical apparatus of the same manufacturer unless otherwise noted.

G. Where electrical apparatus is to be installed outdoors, NEMA 4X 316 SS housings shall be provided.

2.02 MATERIALS

A. Raceways:

1. Rigid metal conduit- Rigid steel, hot-dipped galvanized inside and outside, round bore for use with threaded fittings, 3/4 inch minimum diameter, except as noted. Other sizes to conform to NEC requirements, based on THW wires. Manufacture and install according to NEC Article 344. Aluminum conduits not allowed.

2. Flexible metallic tubing - Flexible, galvanized steel used in conjunction with factory approved fittings. 1/2 inch minimum diameter, except as noted. Manufacture and install according to NEC Article 360.

3. Electrical Metallic Tubing (EMT) - Zinc coated or galvanized, round bore, thin walled metal tubing, 1/2 inch minimum diameter except as noted. Manufacture and install according to NEC Article 358.

4. Liquid tight flexible metal conduit - Flexible steel, zinc-coated, jacketed with high density polyethylene or polyvinyl-chloride jacket. Use with factory approved fittings. Manufacture and install according to NEC Article 350.

B. Wires:

1. Conductors shall be copper, 600 volts, No. 12 AWG minimum. Conductors No. 10 and smaller, solid and round, or 7 or 19 strands, concentric. Conductor No. 8 and larger, 7 or 19 strands, concentric. All conductors No. 6 and smaller shall be NEC Type THWN, XHHW and THW. All conductors No.4 and larger shall be NEC Type XHHW or THWN.

2. Fixture wiring shall be NEC Type RHH or THHN. Exterior conductors shall be Type RHW-USE or cross-linked polyethylene, Style USE. Fire alarm conductors shall be Type THWN/THHN.

3. Color Code: Black-Phase "A", Red-Phase "B", Blue-Phase "C", White¬ Neutral, Green-Ground. (208Y/120V System) Color coding shall be maintained throughout entire system. Use other colors when more wires than above listed are contained on one raceway. Contracting Officer shall determine whether deviation from color coding will be permitted.

C. Disconnect Switch: Heavy duty non-fusible safety switch shall be horsepower rated when used as motor disconnect. Contacts shall be lever operated and spring loaded. When for use with fuses, conventional or of current limiting type, blades shall be rejection type. Enclosures to have provision for padlocking. Provide NEMA 1 enclosure for interior locations and NEMA 4X 316 stainless steel for exterior locations.

D. Circuit Breakers: Individual breakers shall be molded plastic case, with toggle operated mechanism thermal-magnetic overload trips. Inter-changeable trip shall be provided when available. Toggle positions "ON", "TRIPPED" and "OFF", engraved on body of toggle. Enclosed in NEMA style steel box Boxes shall be NEMA 1 for interior locations and NEMA 4X 316 stainless steel for exterior locations. Circuit breaker AIC rating and type to match existing.

E. Panelboards: Provide as shown on plans, unit circuit breaker panelboard as indicated. See plans for schedule.

1. Enclosures: Panelboard enclosures shall be corrosion resistant galvanized (zinc finished) sheet steel with removable end walls. Fronts shall be cold-rolled steel, coated with a phosphatized rust inhibitor and then finish coated with ANSI 61 light gray enamel.

2. Fronts: A four-piece front shall be furnished to provide ease of wiring access. A door shall be a one-piece bolt on front with a lockable hinged door over the protective devices. All door hinges shall be continuous piano hinges which are welded to the door and bolt on front. Door locks shall be provided. Provide 2 keys. All screw fasteners are zinc coated to retard corrosion.

3. Main and Branch Devices: Main and branch circuit breakers shall be quick-make, quick break, and trip indicating. All three-pole breakers with ampere ratings greater than 100 ampere shall have interchangeable trips when available. Interrupting rating of circuit breakers shall not be less

than the maximum short circuit current available at the incoming line terminals as shown on plans.

4. Interiors: Panelboard symmetrical interior shall be so designed and assembled that the circuit breakers are mounted onto the bus bar with positive gripping jaw assemblies and locked pressure connections. The circuit breaker shall be removed or replaced without disturbing adjacent protective devices and without removing the main bus or branch circuit connections. The interiors shall allow installation of molded-case circuit breakers in the panelboard. Insulation barriers shall be installed over the vertical bus behind the dead front shield to provide increased safety when field service is required.

5. Bus bars: Bus bars shall be copper, current density rated and meet UL67 temperature rise limits through actual tests. All bus bars shall be silver plated. Bus bar current density rating shall be 1000 amperes per square inch for copper. Bus bars shall be sequenced-phased, and rigidly supported by high impact resistant, insulated bus supporting assemblies to prevent vibration or short circuits. All solderless terminations shall be suitable for either copper or aluminum UL Listed wire or cable and shall be tested and listed in conjunction with appropriate UL standards.

   The neutral bar shall be fully rated and capable of being located in either corner of the enclosure at the line end to facilitate conductor termination.

   Ground wire terminations shall be provided as an option in kit form suitable for installation by the panelboard installer without voiding UL label.

6. Other: A panel directory, neatly typed on factory-card giving branch circuit "USE" and general location of outlets shall be provided.

7. Panelboard shall be listed and labeled by Underwriters Laboratories, Inc. in accordance with UL Standard 67, and shall conform to the latest requirements of the National Electric Code NEMA Standard PB.1. The panelboard shall meet service entrance requirements when required.

F. Nameplates: Nameplates for identification or instruction on equipment enclosures shall be engraved laminated phenolic plastic, screw mounted. Plates shall be three layered, black-white-black. Plates shall be engraved to show 3/8" high engraved white letters on black background. Provide nameplates for all feeder breakers, switches, panels, cabinets and large junction boxes.

Breakers and Switches:	By panels or loads served
Panels:	By source panel & circuit, designation, voltage, phase & wires
Cabinets:	By use (such as telephone, TV, etc.)
Boxes:	By use and voltages

G. Pullboxes: Pullboxes shall be provided where required by the NEC or Utility Company requirements. Boxes shall be code gauge steel with screw cover and raintight construction when installed in locations exposed to rain. For exterior locations provide in ground Handholes or Manholes as required.

H. Enclosures and Cabinets: Enclosures and cabinets for panelboards, breakers, and switches shall be NEMA type, fabricated from galvanized steel, prime painted and enamel finished according to NEMA specifications.

I. Outlet Boxes: Outlet boxes shall be of size and type best suited to particular use or location but in any case shall be of sufficient size to contain without crowding all conductor and connections which may be required in any outlet box. Manufacture and install according to NEC Article 314.

1. Boxes in interior locations shall be code gauge galvanized steel, not less than 14 gauge, not less than minimum size required by Code. Pressed galvanized steel boxes: In ceilings and dry walls, 4-11/16" square by 2-1/8" deep minimum. For mounting of single device such as a switch or receptacle, 2" by 3" by 2-1/8" deep minimum.

2. Exposed boxes and weather exposed boxes, recessed boxes, including lighting outlets on exterior shall be galvanized cast iron or alloyed aluminum with threaded hubs for conduit connections. Aluminum boxes shall be prime painted and enamel finished. Cast metal boxes: In exposed and wet locations, 4" square by 2-1/8" deep with threaded hubs, prime painted, gasketed covers.

J. Devices: Approved equal products manufactured by Arrow-Hart, Bryant, Cooper, Hubbell, Leviton, Pass & Seymour.

1. Switches: Single or double pole, 3 or 4 way as required, non-mercury quiet, 20 amperes, 120-277 volts, UL labeled AC type, silvered contacts, color as noted plastic body, tumbler switch with endurance of 10,000 make breaks. Hubbell No. 1220 series, Arrow Hart No. 1990 series, Bryant No. 4000 series, Cooper 1220 series or approved equal.

2. Duplex Convenience Receptacles: Duplex, 20-amperes, 125 volts, back and side wired, 3 wire, self-grounding type, specification grade, color as noted plastic body, with parallel and ground U-shaped slots, NEMA 5-20R; Cooper #5362, Leviton #5362A or approved equal.

3. GFI Receptacles: Duplex, 20-amperes, 125 volts, back and side wired, 3 wire, specification grade, color as noted plastic body, with parallel and ground U¬ shaped slots, NEMA 5-20R; Cooper #XGF201, Hubbell #GF53621, or approved equal.

4. Manual Motor Starter: NEMA ICS 2, AC general-purpose Class A manually operated, full voltage controller with horsepower rated overload element, red pilot light and toggle operator.

5. Wall-mounted Occupancy Sensor: Local, dual technology with passive infrared and ultrasonic. White color body with vandal resistant lens and manual on operation. Set time delay at 15 minutes or at the direction of Contracting Officer. Wattstopper #DW-100-W or approved equal (for lighting load only) and Wattstopper #DW-100-24-W with power pack or approved equal (for lighting and exhaust fan load. Dedicated power pack shall be provided for controlling each exhaust fan).

6. Ceiling-mounted Occupancy Sensor: Local, dual technology with passive infrared and ultrasonic. White color body with 360 degrees of coverage. Compatible with low voltage momentary switch to provide on/off manual operation. Set time delay at 15 minutes or at the direction of Contracting Officer. Provide compatible power pack where required. Dedicated power pack shall be provided for controlling each exhaust fan. Wattstopper #DT-300 or approved equal.

7. Special Purpose Receptacles: Specification grade, size as indicated. Provide one matching plug per receptacle.

8. Device Plates:

   a. Plates for interior flush construction shall be molded plastic of high dielectric strength and arc resistance, meeting or surpassing UL 514, color as noted color or matching surrounding area.
   b. Plates for exposed and weather exposed boxes shall be cast metal with neoprene gasket for sealing against entry of water and moisture into box. Switch plates shall be provided with neoprene cover over handle or raintight lever mechanism.
   c. Receptacle safety outlet enclosure shall consist of an outlet plate with a hinged safety cover that shall remain weatherproof while in use or idle. The enclosure shall have a latching mechanism to allow the enclosure to maintain weatherproof integrity. The enclosure shall have a cord port(s) capable of allowing an appropriate size electrical cord(s) to pass through when the safety cover is closed. The enclosure shall be UL Listed and conform to NEC Article 410.57. Body materials shall be of flame resistant, ultra violet inhibiting, impact resistant, polycarbonate resin. Gasket materials shall be of sufficient thickness to form a weatherproof seal. Attachment screw shall be stainless steel. TAYMAC Corporation or approved equal.

K. Light Fixture: Complete with necessary stem, lamps, drivers, starters and accessories, according to "Lighting Fixture Schedule" - on plans.

L. Hardware, Supports, Backing. Etc.: All hardware, supports, backing, and other accessories necessary to install electrical equipment shall be provided. Wood materials shall be "wolmanized" treated against termites; iron or steel materials shall be galvanized for corrosion protection, and non-ferrous materials shall be brass or bronze. All wood screws shall be brass or galvanized steel. Bolts, nuts,

washers, and screws used for exterior shall be high quality 316 stainless steel or brass.

M. Other Materials: All other materials not specifically described but required for a complete and operable electrical installation, shall be new, first quality of their respective kinds, and as selected by Contractor subject to approval by Contracting Officer.

PART 3 – EXECUTION

3.01 INSTALLATION AND WORKMANSHIP

A. Perform all work in accordance with equipment manufacturer's requirements and applicable NFPA standards. Install equipment and materials in a workmanlike manner conforming to recognized commercial standards.

B. Construction Methods

1. Comply with local ordinances and regulations of the County of Honolulu. Workmanship subject to approval of Contracting Officer who shall be afforded every opportunity to determine skill and competency. Concealed work re-opened at random during formal inspection by Contracting Officer without additional charge to the State.

2. Construction shall conform to construction practices as recommended by American Electricians Handbook by Croft (latest edition) Edison Electric Institute, National Electrical Code, National Electrical Safety Code and applicable instructions of manufacturers of equipment and materials supplied for project.

3.02 SURFACE CONDITIONS

A. Inspection: Prior to work of this section, carefully inspect installed work of other trades and verify that all such work is complete to point where this installation may properly commence.

B. Discrepancies: In event of discrepancy, immediately notify Contracting Officer. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.03 PREPARATION

A. Coordination: Coordinate installation of electrical items with schedules for work of other trades to prevent unnecessary delays in total work. Where electrical items are shown in conflict with locations of structural members and mechanical or other equipment, furnish and install required supports and wiring to clear encroachments.

B. Accuracy of Data: The data indicated on drawings and in specifications are as exact as could be secured but their absolute accuracy is not guaranteed. Exact

locations, distances, levels and other conditions will be governed by job decisions of Contracting Officer.

3.04 INSTALLATION OF RACEWAYS AND FITTINGS

A. All conduits within building line shall be rigid steel conduits or electrical metallic tubing. Electrical metallic tubing may be used above floor. EMT installation shall be installed exposed not less than 84" above floor.

B. Conduits shall be of ample size to allow drawing in or removing of wires and cables without undue strain and suitable bushings shall be installed on each end of every run of conduit where wires are installed.

C. Conduit system shall be continuous from outlet to outlet or fitting to fitting so that electrical continuity is obtained between all conduits of the system.

D. Cut raceways square, and ream inner edges. Adjoining lengths shall butt together evenly in couplings to provide passage for installing conductors. Factory threads shall be cleaned with die before installation of conduit. Use of running threads not permitted. Where conduits cannot be joined by standard threaded couplings, approved watertight conduit unions shall be used.

E. Bends, offsets, and crossing of conduits shall be avoided wherever possible. When necessary make bends and offsets with hickey or conduit bending machine. Do not use vise or pipe tee. Flattened or crushed conduit shall not be acceptable. Bends made so that interior cross-sectional area will not be reduced. Radius of curve of inner edge of field bend shall be not less than ten times internal diameter of raceway.

F. Cap raceways during construction with plastic or metal-capped bushings to prevent entrance of dirt or moisture. Swab all raceways out and dry before wires or cables are pulled in.

G. Mount raceway free from other pipes, valves, or mechanical equipment. Keep all conduits at least six inches away from the covering on hot water pipes, and 18" away from kitchen exhaust ducts.

H. Fish wires, cords, strings, chains or the like shall not be placed or inserted in the conduit system during installation of the conduits.

I. After conduit system has been installed, empty conduits shall be left with a nylon drag wire.

J. Install insulating bushings and two locknuts on each end of every run of conduit at enclosures and boxes. Provide grounding bushings as required to grounding receptacles and connect conduits to service ground, per NEC Article 250.

K. Run exposed raceways parallel with, or at right angles to structural or architectural elements.

L. Securely fasten raceways with two-hole galvanized pipe straps, or with approved beam clamps, or approved single or gang pipe hangers spaced not more than 7 feet apart, as conditions require. Vertical runs shall be supported at intervals not exceeding 5 feet by approved clamp hangers. Conduit runs with three 90-degree bends or equivalent, 150 feet maximum length without pullbox shall be permitted. Support raceways from structure. Do not support raceways from or on mechanical pipes, ducts or ceiling suspension wires.

3.05 INSTALLATION OF CONDUCTORS

A. Except for cables and wires otherwise called for, install all conductors in conduit, wireway or cable tray.

B. Color Coding: Wires shall be color-coded in accordance with requirements of the NEC.

C. Tag all feeders for identification.

D. Splicing:

1. Wires shall be formed neatly in enclosures and boxes. Conductors, #10 and smaller shall be twisted and made secure with wirenut suitable for the purpose. Splice conductors #8 through #4/0 with high pressure compression (indent) copper sleeve connectors.

2. Insulate all splices with a minimum of two half-lapped layers of vinyl¬plastic electrical tape where insulation is required.

3. Splice insulation shall be 200% in thickness of original wire insulation and of same electrical and mechanical characteristics.

E. Lubricants: Chemically neutral to insulation and sheath. Sherwin-Williams "flaxsoap". Apply liberally during pulling. Other means of lubricating allowed with written approval of Contracting Officer.

F. Pulling Conductors: Mechanical means for pulling to be torque limiting type and not to be used for No. 2 AWG and smaller wires. Pulling tensions shall not exceed manufacturer's recommendations. Form neatly in enclosure for minimum of cross-overs.

3.06 INSTALLATION OF OUTLET BOXES

Provide outlet boxes to suit conditions encountered. Provide outlet boxes in spaces with extension or raised rings of such depth that metal will be flush with surrounding surfaces of opening. When two or more switches are installed at single location, mount in gang box under single device plate. Close all unused knockouts and hubs.

3.07 INSTALLATION OF RECEPTACLES

Receptacles installed vertically, shall be installed with the ground prong up. Receptacles installed horizontally, shall be installed with the neutral prong up.

3.08 INSTALLATION OF LIGHT FIXTURES

Support fixtures securely and safely by means of fixture studs in the outlet boxes or other approved means. Ceiling fixtures arranged to hang vertically unless otherwise directed by Contracting Officer. Provide accessories, such as straps, mounting plates, nipples or brackets for proper installation. Provide additional stems and channels for mounting on suspended ceilings as recommended by fixture manufacturer. Pendant hung fixtures shall be supported directly from the structure above as noted without using the ceiling suspension system for direct support. Pendant mounted fixtures with stems exceeding 9 feet in length shall be braced for seismic level requirements.

3.09 GROUNDING

A. All metallic enclosures, raceways, and electrical equipment shall be grounded according to requirements of National Electrical Code, Article 250.

1. All grounding wire runs within buildings shall be in rigid nonmetallic conduits. Where practicable, all ground wires shall be run together with circuit conductors.

2. A No. 6 bare copper wire shall be used to connect ground to intercommunication cabinet. A four-foot slack of grounding wire shall be left in cabinet.

3.10 EQUIPMENT CONNECTIONS

Connect all equipment and appliances. Make power connections to motor on equipment with short section of flexible conduit. Provide disconnect switches for all motorized equipment if none is furnished by other trades. Furnish starters with overload protection on each leg for all motorized equipment if none is furnished by other trades.

3.11 MISCELLANEOUS DETAILS

Cut, core and patch as required to install electrical system. Repair any surface damaged or marred by notching, coring or any other process necessary for installation of electrical work. Cutting, repairs and refinishing shall be subject to the approval of the Contracting Officer. Need for remedial work determined by the Contracting Officer as attributable to poor coordination and workmanship shall be cause for reconstruction to the satisfaction of the Contracting Officer at no cost to the State.

3.12 FINISHING

A. Patch, repair and restore all structural and architectural elements cut or drilled for installation of electrical system. Drilling, cutting, patching, repairing and restoring shall be finished by suitable trades subject to approval of Contracting Officer.

B. Attach electrical equipment to wood by wood screws, and attach to concrete by embedded or expansion inserts and bolts. Use power-driven charge with approval only. Close unused knock-outs on boxes or enclosures with metal cap. Powder actuated fasteners shall not be used on precast concrete. Do not use powder activated fasteners to attach enclosures and boxes to the building.

C. Wipe clean all exposed raceways and enclosures with rag and solvent. Prime painting and finishing of unfinished raceways and enclosures shall conform to SECTION 09901 - PAINTING. Factory finished enclosures shall not be painted. Panelboard, switches, circuit breakers, junction boxes, and equipment shall be identified by stenciling with engraved plastic nameplates on cover or door. Voltage and phase shall be indicated on nameplates for panelboards, switches and circuit breakers.

D. Connect circuits to circuit assignments shown on drawings. Provide neatly typewritten circuit directory for all panelboards. Circuit directory shall indicate location of loads served by each circuit. For example: "LTS - PARKING, RECEP - OFFICE."

3.13 TESTING AND INSPECTIONS

A. After the installation has been completed, and at such time as the Contracting Officer may direct, the Contractor shall conduct all tests required to secure approval of the installation from all agencies having jurisdiction. The equipment shall be demonstrated to operate in accordance with the requirements of this section of the specifications. The test shall be performed in the presence of the Contracting Officer. The Contractor shall furnish the necessary instruments and personnel required for the test, and the State will furnish the necessary electrical power.

1. All wiring shall be tested to insure proper operation according to functions specified. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects. All systems shall show proper neutral connections.

2. Interior installation, 600 volts and less shall be tested for insulation resistance after all wiring is completed and ready for connection to equipment. With a 500V megger, measure and record the insulation resistance from phase to phase, and phase to neutral. The above tests shall be witnessed by the Contracting Officer and resistances of feeder cables shall be recorded and four (4) copies submitted to the Contracting Officer.

3. Proper operation of all electrical devices shall be demonstrated at request of Contracting Officer during final inspection.

4. Balance loading on each feeder.

5. Measure ground resistance at service equipment in the presence of the Contracting Officer. Submit four (4) copies of test results to Contracting Officer.

B. The Contractor shall retape splices which have been bared for inspection. The Electrical Contractor shall test all portions of the electrical system furnished by him for proper operation and freedom from accidental grounds. All tests shall be subject to the approval of the Contracting Officer.

C. Wherever test or inspection reveals faulty equipment or installation, the Contractor shall take corrective action, at his own expense repairing or replacing equipment or installation as directed.

D. If the Contracting Officer shall discover any of the following errors, the Contractor, at his own expense shall go over all similar portions of the entire job, taking the necessary or directed remedial action.

1. Loose connections.

2. Impaired clearance.

3. Improper finish.

4. Improper adjustment.

3.14 CLEAN UP

Upon completion of all installation, lamping and testing, thoroughly inspect all exposed portions of the electrical installation and completely remove all exposed labels, soil, markings and foreign material.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

SECTION 16510 – LIGHTING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provision for Construction Projects (2016), Special Provisions and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 SUMMARY

Work includes providing luminaires and lamps. Materials not normally furnished by manufacturers of these devices are specified in SECTION 16050 - ELECTRICAL WORK.

1.03 APPLICABLE PUBLICATIONS

The publications listed within this specification form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. Unless otherwise indicated, most recent edition of the publication with current revisions and amendments will be enforced.

1.04 SUBMITTALS

A. Data, shop drawings, and reports shall employ the terminology, classifications, and methods prescribed by the IES Lighting Handbook, as applicable, for the lighting system specified. Submit shop drawings and catalog cuts of the following equipment for approval. Prepare each submittal with a summary sheet attached to each copy individually identifying all items included in the submittal. Incomplete submittals and those without summary sheets will be returned without review.

B. Manufacturer's Data

1. Luminaires.

2. Emergency lights.

3. LED drivers.

C. Shop Drawings: Luminaire assemblies.

1.05 QUALITY ASSURANCE

Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, or in house manufacturer's laboratory, with the experience and capability to conduct the testing as recommended by IES testing standards. The agency shall be NRTL as defined by OSHA in 29 CRF 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products.

PART 2 – PRODUCTS

2.01 LED LIGHTING LUMINAIRES

A. Luminaire Manufacturer shall have a minimum of five (5) year's experience in the manufacture and design of LED products and systems.

B. Correlated Color Temperature (CCT) shall be provided as indicated on the luminaire schedule.

C. Color Rendering Index (CRI) shall be a minimum of 70 for exterior and 80 for interior fixture types.

D. Efficiency shall be measured based on IESNA LM-79 testing. Manufacturer shall provide published luminaire efficacy (Lumens / Watt) measured in a 25 degree Celsius environment. Efficacy shall include driver, thermal, optical and luminaire losses.

E. Lumen maintenance shall be at least 50,000 hours to 70% lumen maintenance. Tested per IESNA LM-80 and projected per IESNA TM-21.

F. The LED fixtures at specified operating voltage shall have a power factor not less than 0.90 and Total Harmonic Distortion (THD) shall be ??? 20%.

G. All exterior LED light fixture shall be provided with integral surge protection.

H. Shall be provided with warranty period that covers complete replacement of LED boards and drivers that fail within 5 years from substantial completion.

1. Manufacturer will keep record of original bin for each LED module and have replacement modules from the same bin available for 3 years after date of installation.

2. Manufacturer will keep an inventory of replacement parts (source assembly, power and control components).

3. Manufacturer's LED system will not become obsolete for 10 years: Manufacturer will provide exact replacement parts or provide upgraded parts that are designed to fit into the original luminaire and provide equivalent distribution and lumen output to the original.

4. All parts of the system shall be replaceable in field.

I. Driver:

1. 10-year operational life while operating with a case temperature range of 0 – **143.6 degrees Fahrenheit (62 degrees Celsius)** and 90% non-condensing relative humidity.

2. Designed and tested to withstand electrostatic discharges up to 15,000V without impairment per IEC 801-2.

3. Maximum inrush current of 2 amperes for 120V and 277V drivers.

4. Withstand up to a 4,000V surge without impairment of performance as defined by ANSI C62.41 Category A.

5. Inaudible in a 27 dBA ambient environment.

6. No visible change in light output with a variation of +/- 10% line voltage input.

7. THD less than 20% and meet ANSI C82.11 maximum allowable THD requirements.

2.02 POLE MOUNTED LUMINAIRES

A. Supply luminaires, arms, brackets, poles, handhole covers, base components, and all other accessories complete by specified manufacture who will be responsible for proper fitting of all elements.

B. Obtain from single manufacturer or producer

C. Poles: Butt flange mounting provisions for bolted mounting on concrete foundation

D. Adaptor fitting welded to pole, allowing the bracket to be bolted to the pole-mounted adapter, then bolted together with bolts.

E. Grounding and bonding Lugs: Welded ½" threaded lug listed for attaching grounding and bonding conductors of type and size required and accessible through handhole.

F. Provide with full base cover.

G. Hot-dipped galvanized after fabrication for anchor bolts, leveling nuts, caps and washers.

H. Handhole: Oval shaped, with minimum clear opening of 2-1/2 by 5 inches (65 by 130 mm), with cover secured by stainless-steel captive screws.

1. Provide additional handhole at top of pole for post top mounted luminaires.

I. Pole material:

1. Aluminum

a. Poles: Seamless, extruded structural tube complying with ASTM B221, Alloy 6063-T6, with access handhole in pole wall.
b. Cast aluminum base plate.
c. Finish:
1) Powder Coated Finish: Comply with AAMA 2605
(a) Factory Painted.

(b) Electrostatic-applied powder coating; single application and cured to a minimum 2.5- **3.5 mils (0.0889 mm)** dry film thickness. Coat interior and exterior of pole for equal corrosion protection.

2) Color as indicated in luminaire schedule. Provide finish samples at time of submittal for unspecified or custom finishes.

J. Structural Characteristics: Comply with AASHTO LTS-6-M

K. Luminaire poles shall be third party listed for the appropriate environmental conditions, including use as a raceway if applicable.

L. Fusing: All exterior fixtures shall be provided with fusing located inside the handhole of the pole, if pole mounted, otherwise within the fixture.

2.03 SUSPENDED LUMINAIRES

Provide hangers capable of supporting twice the combined weight of the adjoining luminaires. Provide with swivel hangers to ensure a plumb installation with swivel-ball tapped for the conduit size indicated. Allow luminaires to swing within an angle of 45 degrees. Single-unit suspended linear luminaires shall have twin-stem hangers. Multiple-unit or continuous row luminaires shall have a tubing or stem for wiring at one point and a tubing or rod suspension provided for each unit length of chassis, including one at each end. Rods shall be a minimum 3/16-inch diameter.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine architectural and other pertinent details and confirm with general and ceiling and wall construction and finish being installed.

1. It shall be the Contractor's responsibility to determine what suspension or mounting method is required and provide fixtures complete with all trim, flanges, brackets, levelers, etc. required for mounting at the location indicated.

B. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

C. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

B. Install fixtures in a workmanlike manner. Install fixtures to maintain the alignment, spacings, layout and general arrangement shown on the plans; obtain approval form contracting officer for any changes in layout required to avoid interferences with other trades.

C. Surface mounted fixtures shall be securely mounted and shall not rotate on single box connections. Additional fastening shall be installed by the contractor, if necessary, to secure fixture.

D. Deliver lamps to the project in the original cartons and install in the fixtures just prior to the completion of the project.

E. When installed, any exposed fixture hosing surface, trim frame, door frame and lens frame shall be free of light leaks; lens doors shall close in a light tight manner.

F. Exterior in-ground luminaires:

1. Install on existing concrete base, bolt patterns to match existing conditions.

G. Coordination:

1. Work incorporating with ceiling trades in location and framing recessed fixtures in acoustical tile pattern or grid system to conform to layout.

2. Inform affected trades of the location and framing details necessary for the installation of flush fixtures and delivery of all framing rings of these fixtures that become a part of the ceiling construction.

3. Before equipment is ordered, contractor to review luminaire and ceiling mechanical compatibility in each areas and verify luminaire ordering code numbers with the celling system shown on the drawings. Contractor shall be responsible for all fixture quantities, lengths, and clearances required.

4. Mechanical and electrical contractor are to review and coordinate lighting locations in relationship to mechanical systems to minimize conflicts prior to installation.

H. Mounting and Supports:

1. Unless otherwise noted pendant-mounted luminaires mounting heights shall be to the bottom of the luminaire. Wall mounted luminaire mounting heights shall be to the center of the luminaire.

2. Sized and rated for luminaire weight.

3. Able to maintain luminaire position after cleaning and relamping.

4. Provide support from the structural system above for luminaire without causing deflection of ceiling or wall.

5. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.

6. Pendants and Rods: Where longer than **48 inches (1219.2 mm)**, brace to limit swinging.

7. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.

8. Continuous Rows of Luminaires: Use tubing or stem for wiring at one point and wire support for suspension for each unit length of luminaire chassis, including one at each end.

9. Do not use ceiling grid as support for lay-in ceiling luminaires. Install ceiling support system rods or wires independent of the ceiling suspension devices, for each luminaire. Locate not more than 6" form luminaire corners. Fasten support clips to luminaire and to ceiling grid members at or near each corner with clips UL listed for the application.

10. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

3.03 GROUNDING

Ground noncurrent-carrying parts of equipment as specified in SECTION 16050 - ELECTRICAL WORK. Where the copper grounding conductor is connected to a metal other than copper, provide specially treated or lined connectors suitable for this purpose.

3.04 FIELD TESTS

Upon completion of the installation, conduct an operating test to show that the equipment operates in accordance with the requirements of this section and as indicated on the Drawings.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

AIRPORTS

APPENDIX A: EXISTING CONDITIONS AND PROJECT PHOTOS

APPENDIX A -SITE PHOTOS



Building Exterior



Exterior Staircase



Roadway Ramp Spalling



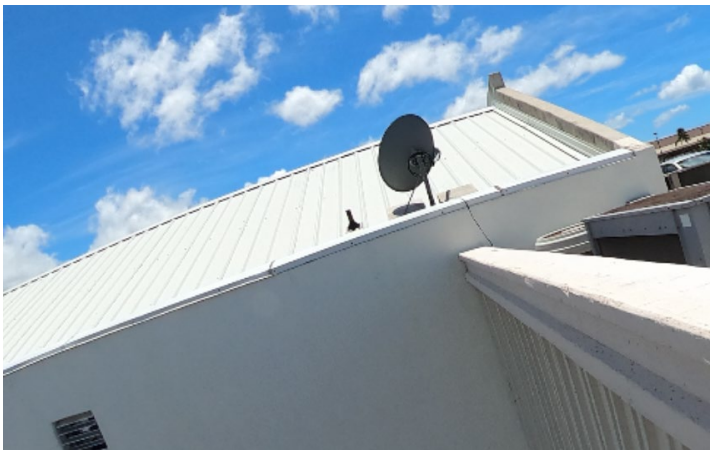
Roadway Ramp



Roof Level Exhaust Fan



Roof Level Parking



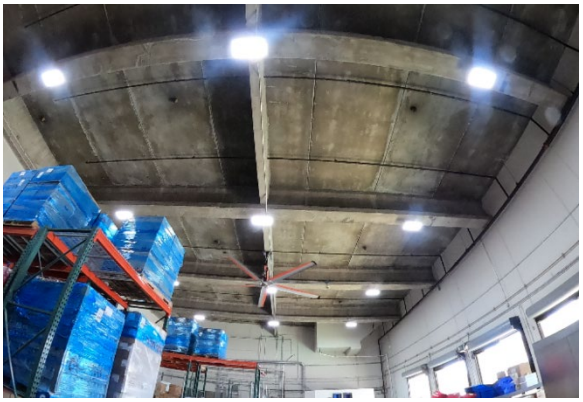
Building Roof



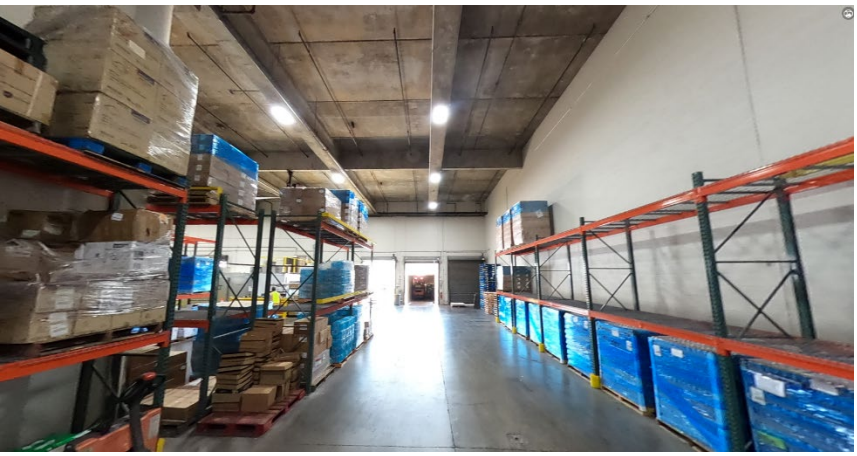
Building Air Conditioning Unit



Air Conditioning Unit



Building Interior Ceiling



Building Interior



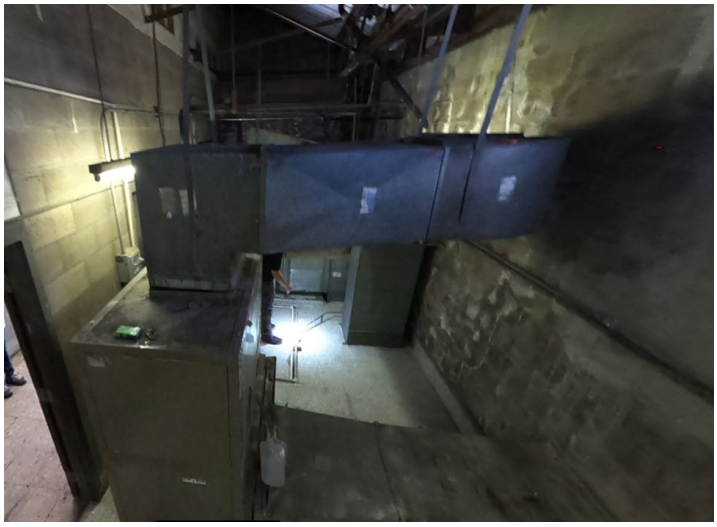
Building Interior



Water Heater



Ceiling Ducting



Building Ducting



Electrical Panel

Requirements of Chapter 104, HRS
Wages and Hours of Employees on Public Works Law

Chapter 104, HRS, applies to every public works construction project over $2,000, regardless of the method of procurement or financing (purchase order, voucher, bid, contract, lease arrangement, warranty, SPRB).

Rate of Wages for Laborers and Mechanics

- Minimum prevailing wages (basic hourly rate plus fringe benefits), as determined by the Director of Labor and Industrial Relations and published in wage rate schedules, shall be paid to the various classes of laborers and mechanics working on the job site. [§104-2(a), (b), Hawaii Revised Statutes (HRS)]

- If the Director of Labor determines that prevailing wages have increased during the performance of a public works contract, the rate of pay of laborers and mechanics shall be raised accordingly. [§104-2(a) and (b), HRS; §12-22-3(d) Hawaii Administrative Rules (HAR)]

Overtime

- Laborers and mechanics working on a Saturday, Sunday, or a legal holiday of the State or more than eight hours a day on any other day shall be paid overtime compensation at not less than one and one-half times the basic hourly rate plus the cost of fringe benefits for all hours worked. If the Director of Labor determines that a prevailing wage is defined by a collective bargaining agreement, the overtime compensation shall be at the rates set by the applicable collective bargaining agreement [§§104-1, 104-2(c), HRS; §12-22-4.1, HAR]

Weekly Pay

- Laborers and mechanics employed on the job site shall be paid their full wages at least once a week, without deduction or rebate, except for legal deductions, within five working days after the cutoff date. [§104-2(d), HRS]

Posting of Wage Rate Schedules

- Wage rate schedules with the notes for prevailing wages and special overtime rates, shall be posted by the contractor in a prominent and easily accessible place at the job site. A copy of the entire wage rate schedule shall be given to each laborer and mechanic employed under the contract, except when the employee is covered by a collective bargaining agreement. [§104-2(d), HRS]

Withholding of Accrued Payments

- If necessary, the contracting agency may withhold accrued payments to the contractor to pay to laborers and mechanics employed by the contractor or subcontractor on the job site any difference between the wages required by the public works contract or specifications and the wages received. [§104-2(e), HRS]

Certified Weekly Payrolls and Payroll Records

- A certified copy of all payrolls shall be submitted weekly to the contracting agency. [§104-3(a), HRS; §12-22-10, HAR]

- The contractor is responsible for the submission of certified copies of the payrolls of all subcontractors. The certification shall affirm that the payrolls are correct and complete, that the wage rates listed are not less than the applicable rates contained in the applicable wage rate schedule, and that the classifications for each laborer or mechanic conform with the work the laborer or mechanic performed. [§104-3(a), HRS; §12-22-10, HAR]

- Payroll records shall be maintained by the contractor and subcontractors for three years after completion of construction. The records shall contain: [§104-3(b), HRS; §12-22-10, HAR]
  - the name and home address of each employee
  - the last four digits of social security number
  - a copy of the apprentice's registration with DLIR
  - the employee's correct classification
  - rate of pay (basic hourly rate + fringe benefits)
  - itemized list of fringe benefits paid
  - daily and weekly hours worked
  - weekly straight time and overtime earnings
  - amount and type of deductions
  - total net wages paid
  - date of payment

- Records shall be made available for examination by the contracting agency, the Department of Labor and Industrial Relations (DLIR), or any of its authorized representatives, who may also interview employees during working hours on the job. [§§104-3(c), 104-22(a), HRS; §12-22-10, HAR]

Termination of Work on Failure to Pay Wages

- If the contracting agency finds that any laborer or mechanic employed on the job site by the contractor or any subcontractor has not been paid prevailing wages or overtime, the contracting agency may, by written notice to the contractor, terminate the contractor's or subcontractor's right to proceed with the work or with the part of the work in which the required wages or overtime compensation have not been paid. The contracting agency may complete this work by contract or otherwise, and the contractor or contractor's sureties shall be liable to the contracting agency for any excess costs incurred. [§104-4, HRS]

Apprentices

- Apprentice wage rates apply to contractors who are a party to a bona fide apprenticeship program which has been registered with the DLIR. In order to be paid apprentice rates, apprentices must be parties to an agreement either registered with or recognized as a USDOL nationally approved apprenticeship program by the DLIR, Workforce Development Division, (808) 586-8877, and the apprentice must be individually registered by name with the DLIR. [§12-22-6(1) and (2), HAR]

- The number of apprentices on any public work in relation to the number of journeyworkers in the same craft classification as the apprentices employed by the same employer on the same public work may not exceed the ratio allowed under the apprenticeship standards registered with or recognized by the DLIR. A registered or recognized apprentice receiving the journeyworker rate will not be considered a journeyworker for the purpose of meeting the ratio requirement. [§12-22-6(3), HAR]

Enforcement

- To ensure compliance with the law, DLIR and the contracting agency will conduct investigations of contractors and subcontractors. If a contractor or subcontractor violates the law, the penalties are: [§104-24, HRS]

  - First Violation — Equal to 25% of back wages found due or $250 per offense up to $2,500, whichever is greater.
  - Second Violation — Equal to amount of back wages found due or $500 for each offense up to $5,000, whichever is greater.
  - Third Violation — Equal to two times the amount of back wages found due or $1,000 for each offense up to $10,000, whichever is greater; and
    Suspension from doing any new work on any public work of a governmental contracting agency for three years.

  ▪ A violation would be deemed a second violation if it occurs within two years of the **first notification of violation**, and a third violation if it occurs within three years of **the second notification of violation**. [§104-24, HRS; §12-22-25(b), HAR]

  ▪ **Suspension**: For a first or second violation, the department shall immediately suspend a contractor who fails to pay wages or penalties until all wages and penalties are paid in full. For a third violation, the department shall penalize and suspend the contractor as described above, **except that if the contractor continues to violate the law, then the department shall immediately suspend the contractor for a mandatory three years. The contractor shall remain suspended until all wages and penalties are paid in full.** [§§104-24, 104-25, HRS]

- **Suspension**: Any contractor who fails to make payroll records accessible or provide requested information within 10 days, or fails to keep or falsifies any required record, shall be assessed a penalty including suspension as provided in Section 104-22(b) and 104-25(a)(3), HRS. [§104-3(c), HRS; §12-22-26, HAR]

- If any contractor interferes with or delays any investigation, the contracting agency shall withhold further payments until the delay has ceased. Interference or delay includes failure to provide requested records or information within ten days, failure to allow employees to be interviewed during working hours on the job, and falsification of payroll records. The department shall assess a penalty of $10,000 per project, and $1,000 per day thereafter, for interference or delay. [§104-22(b), HRS; §12-22-26, HAR]

- Failure by the contracting agency to include in the provisions of the contract or specifications the requirements of Chapter 104, HRS, relating to coverage and the payment of prevailing wages and overtime, is not a defense of the contractor or subcontractor for noncompliance with the requirements of this chapter. [§104-2(f), HRS]

For additional information, visit the department's website at *http://labor.hawaii.gov/wsd*
or contact any of the following DLIR offices:

Oahu (Wage Standards Division) .....(808) 586-8777
Hawaii Island.....(808) 974-6464
Maui and Kauai .....(808) 243-5322

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

AIRPORTS

PROPOSAL

PROPOSAL TO THE

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

PROJECT:	Continental Building Renovations Daniel K. Inouye International Airport Honolulu, Oahu, Hawaii
PROJECT NO.:	CO1543-33
COMPLETION TIME:	FOUR HUNDRED (400) Calendar days from the date indicated in the Notice to Proceed from the Department.
LIQUIDATED DAMAGES:	FIVE HUNDRED DOLLARS ($500.00) for each and every calendar day which the Contractor has delayed the completion of this project.
PROJECT MANAGER:	Mr. Benton Ho Department of Transportation Airports Daniel K Inouye International Airport 400 Rodgers Boulevard, Suite 700 Honolulu, HI 96819-1880 Phone: (808) 838-8804 Email: Benton.ho@hawaii.gov
ELECTRONIC SUBMITTAL:	**Bidders shall submit and upload the complete proposal to HIePRO prior to the bid opening date and time. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HIePRO. Bidders shall refer to SPECIAL PROVISIONS 2.8 PREPARATION AND DELIVERY OF BID for complete details. FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HIePRO SHALL BE GROUNDS FOR REJECTION OF THE BID.**

Director of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Sir:

The undersigned Bidder declares the following:

1. It has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal.

2. It has not been assisted or represented on this matter by any individual who has, in a State capacity, been involved in the subject matter of this contract within the past two years.

3. It has not and will not, either directly or indirectly offered or given a gratuity (i.e. an entertainment or gift) to any State or County employee to obtain a contract or favorable treatment under a contract.

The undersigned Bidder further agrees to the following:

1. If this proposal is accepted, it shall execute a contract with the Department to provide all necessary labor, machinery, tools, equipment, apparatus and any other means of construction, to do all the work and to furnish all the materials specified in the contract in the manner and within the time therein prescribed in the contract, and that it shall accept in full payment therefore the sum of the unit and/or lump sum prices as set forth in the attached proposal schedule for the actual quantities of work performed and materials furnished and furnish satisfactory security in accordance with Section 103D-324, Hawaii Revised Statutes, within 10 days after the award of the contract or within such time as the Director of Transportation may allow after the undersigned has received the contract documents for execution, and is fully aware that non-compliance with the aforementioned terms will result in the forfeiture of the full amount of the bid guarantee required under Section 103D-323, Hawaii Revised Statutes.

2. That the quantities given in the attached proposal schedule are approximate only and are intended principally to serve as a guide in determining and comparing the bids.

3. That the Department does not either expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work, as may be deemed necessary or advisable by the Director of Transportation, and that all increased or decreased quantities of work shall be performed at the unit prices set forth in the attached proposal schedule except as provided for in the specifications.

4. In case of a discrepancy between unit prices and the totals in said Proposal Schedule, the unit prices shall prevail.

5. Agrees to begin work within 10 working days after the date of notification to commence with the work, which date is in the notice to proceed, and shall finish the entire project within the time prescribed.

6. The Director of Transportation reserves the right to reject any or all bids and to waive any defects when in the Director's opinion such rejections or waiver will be for the best interest of the public.

The Bidder acknowledges receipt of and certifies that it has completely examined the following listed items: the Hawaii Department of Transportation, Air and Water Transportation Facilities Division General Provisions for Construction Projects dated 2016, the Notice to Bidders, the Special Provisions, if any, the Technical Provisions, the Proposal, the Contract and Bond Forms, and the Project Plans.

In accordance with Section 103D-323, Hawaii Revised Statutes, this proposal is accompanied with a bid security in the amount of 5% of the total amount bid, in the form checked below. (Check applicable bid security submitted with bid.)

_____ Surety Bid Bond (Use standard form),

_____ Cash,

_____ Cashier's Check,

_____ Certified Check, or

_____ _____.
(Fill in other acceptable security.)

The undersigned Bidder acknowledges receipt of any addendum issued by the Department by recording in the space below the date of receipt.

Addendum No. 1 _____ Addendum No. 3 _____

Addendum No. 2 _____ Addendum No. 4 _____

In accordance with Section 103D-302, Hawaii Revised Statutes, the undersigned as Bidder, has listed the name of each person or firm, who will be engaged by the Bidder on the project as a Subcontractor or Joint Contractor and the nature of work to be done by each. The Bidder must adequately and unambiguously disclose the unique nature and scope of the work to be performed by each Subcontractor or Joint Contractor. For each listed firm, the Bidder declares the respective firm is a Subcontractor or Joint Contractor and is subject to evaluation as a Subcontractor or Joint Contractor. It is understood that failure to comply with the aforementioned requirements may be cause for rejection of the bid submitted.

Name of Subcontractor	Nature and Scope of Work
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

Name of Joint Contractor	Nature and Scope of Work
1.	
2.	
3.	

("None" or if left blank indicates no Subcontractor or Joint Contractor; if more space is needed, attach additional sheets.)

The undersigned hereby certifies that the bid prices contained in the attached proposal schedule have been carefully checked and are submitted as correct and final.

This declaration is made with the understanding that the undersigned is subject to the penalty of perjury under the laws of the United States and is in violation of the Hawaii Penal Code, Section 710-1063, unsworn falsification to authorities, of the Hawaii Revised Statutes, for knowingly rendering a false declaration.

_____
Bidder (Company Name)

By_____
Authorized Signature

_____
Print Name and Title

_____

_____
Business Address

_____ _____
Business Telephone Email

_____
Date

_____
Contact Person (If different from above)

Phone:_____ Email:_____

NOTE:

If Bidder is a CORPORATION, the legal name of the corporation shall be set forth above, the corporate seal affixed, together with the signature(s) of the officer(s) authorized to sign contracts for the corporation. Please attach to this page current (not more than six months old) evidence of the authority of the officer(s) to sign for the corporation.

If Bidder is a PARTNERSHIP, the true name of the partnership shall be set forth above, with the signature(s) of the general partner(s). Please attach to this page current (not more than six months old) evidence of the authority of the partner authorized to sign for the partnership.

If Bidder is an INDIVIDUAL, the bidder's signature shall be placed above.

If signature is by an agent, other than an officer of a corporation or a partner of a partnership, a POWER OF ATTORNEY must be on file with the Department before opening bids or submitted with the bid. Otherwise, the Department may reject the bid as irregular and unauthorized.

PREFERENCES

Bidders agree that preferences shall be taken into consideration to determine the low bidder in accordance with said Sections and the rules promulgated, however, the award of contract will be in the amount of the bid offered exclusive of any preferences.

A. HAWAII PRODUCTS PREFERENCE

In accordance with ACT 174, SLH 2022, effective June 27, 2022, Hawaii Products Preference shall not apply to solicitations for public works construction. Therefore, the Hawaii Products Preference shall not apply to this project.

B. APPRENTICESHIP PROGRAMS PREFERENCE

In accordance with ACT 17, SLH 2009 —Apprenticeship Program, a 5% bid adjustment for bidders that are parties to apprenticeship agreements pursuant to Hawaii Revised Statutes IRS) Section 103-55.6 may be applied to the bidder's price for evaluation purposes,

Any bidder seeking this preference must be a party to an apprenticeship agreement registered with the Department of Labor and Industrial Relations at the time the offer is made for each apprenticeable trade the bidder will employ to construct the public works projects for which the offer is being made.

The bidder is responsible for complying with all submission requirements for registration *of* its apprenticeship program before requesting the preference.

( ) Yes, I wish to be considered for the Apprenticeship Programs Preference. I have included Certification Form(s) 1 with my bid.

C. RECYCLED PRODUCT PREFERENCE

Recycled product preference shall not apply to this proposal.

Continental Building Renovations

Daniel K. Inouye International Airport

Honolulu, Oahu, Hawaii Project No. CO1543-33

PROPOSAL SCHEDULE

Item No.	Description	Approx Qty	Unit	Unit Price	Total
01010.1	Continental Building Renovations	LS	LS	LS	$
01210.1	Unforeseen Conditions	Allow.	Allow.	Allow.	$ 200,000
01561.1	Construction Site Pollution Controls	LS	LS	LS	$
01562.1	Management of Contaminated Media, Soil Disposal, and Soil Reuse	LS	LS	LS	$
01562.2	Additional Management of Contaminated Media, Soil Disposal, and Soil Reuse	Allow.	Allow.	Allow.	$ 20,000
	TOTAL AMOUNT FOR COMPARISION OF BIDS				$

NOTES:

The bid prices herein shall include all labor, materials, equipment, and incidentals necessary to construct all items in place, including installation and testing of equipment, complete and ready for operation, all in accordance with the plans and specifications.

Note 1: Bids shall include all Federal, State, County and other applicable taxes and fees.

Note 2: The TOTAL AMOUNT FOR COMPARISON OF BIDS shall be used to determine the lowest responsible bidder.

Note 3: Bidders shall complete all unit prices and amounts. Failure to do so shall be grounds for rejection of bid.

Note 4: If a discrepancy occurs between unit bid price and the bid price, the unit bid price shall govern.

Note 5: The State reserves the right to reject any or all Bids and to waive any defects in said Bids in the best interest of the State.

Note 6: Submission of a Bid is a warranty that the bidder has made an examination of the project site and is fully aware of all conditions to be encountered in performing the work and the requirements of the plans and specifications.

Note 7: The bidder's attention is directed to Section 2.11 - BID SECURITY as amended by the Special Provisions.

Note 8: Bidder shall be paid for actual work performed as directed by the Engineer for allowance items. Bidder shall not be paid overhead and profit for unused allowance funds.

Note 9: If the TOTAL AMOUNT FOR COMPARISION OF BIDS exceeds the funds available for the project, then the State reserves the right to negotiate with the lowest, responsive, responsible bidder as permitted under Section 103D-302, Hawaii Revised Statutes (HRS), to further reduce the scope of work and award a contract thereafter.

Note 10: **Bidders shall submit and upload the complete proposal to HIePRO prior to the bid opening date and time. Proposals received after said due date and time shall not be considered. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HIePRO. Do not include confidential and/or proprietary documents with the proposal. The record of each bidder and respective bid shall be open to public inspection. Original (wet ink, hard copy) proposal documents are not required to be submitted. Contract award shall be based on evaluation of proposals submitted and uploaded to HIePRO.**

FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HIePRO SHALL BE GROUNDS FOR REJECTION OF THE BID.

If there is a conflict between the specification document and the HIePRO solicitation, the specifications shall govern and control, unless otherwise specified.

SURETY BID BOND

Bond No. _____

KNOW TO ALL BY THESE PRESENTS:

That we, _____
(full name or legal title of offeror)

as Offeror, hereinafter called the Principal, and

_____
(name of bonding company)

as Surety, hereinafter called Surety, a corporation authorized to transact business as a Surety in the State of Hawaii, are held and firmly bound unto

_____
(State/county entity)

as Owner, hereinafter called Owner, in the penal sum of

_____
(required amount of bid security)

Dollars ($_____), lawful money of the United States of America, for the payment of which sum well and truly to be made, the said Principal and the said Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS:

The Principal has submitted an offer for

_____
(project by number and brief description)

NOW, THEREFORE:

The condition of this obligation is such that if the Owner shall reject said offer, or in the alternate, accept the offer of the Principal and the Principal shall enter into a contract with the Owner in accordance with the terms of such offer, and give such bond or bonds as may be specified in the solicitation or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof as specified in the solicitation then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed this _____ day of _____, _____

_____
Name of Principal (Offeror) (Seal)

_____
Signature

_____
Title

_____
Name of Surety (Seal)

_____
Signature

_____
Title

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

AIRPORTS

FORMS

Sample Contract

Performance Bond (Surety)

Performance Bond

Labor and Material Payment Bond (Surety)

Labor and Material Payment Bond

Chapter 104, HRS Compliance Certificate

Certification for Compliance for Employment of State Residents (HRS Ch. 103B, as amended by Act 192, SLH 2011)

Provisions to be Included in Construction Procurement Solicitation

CONTRACT

THIS AGREEMENT, made this day of _____, by and between the STATE OF HAWAII, by its Director of Transportation, hereinafter referred to as "STATE", and «CONTRACTOR», «STATE_OF_INCORPORATON», whose business/post office address is «ADDRESS», hereinafter referred to as CONTRACTOR";

WITNESSETH: That for and in consideration of the payments hereinafter mentioned, the CONTRACTOR hereby covenants and agrees with the STATE to complete in place, furnish and pay for all labor and materials necessary for "«PROJECT_NAME_AND_NO»", or such a part thereof as shall be required by the STATE, the total amount of which labor, material and construction shall be computed at the unit and/or lump sum prices set forth in the attached proposal schedule and shall be the sum of «BASIC»----DOLLARS ($«BASIC_NUMERIC») as follows:

SAMPLE

TOTAL AMOUNT FOR COMPARISON OF BIDS……$«BASIC_NUMERIC»

which sum shall be provided from State funds, all in accordance with the specifications, the special provisions, if any, the notice to bidders, the instructions to bidders, the proposal and plans for «PROJECT_NO_ONLY», and any supplements thereto, on file in the office of the Director of Transportation. These documents, together with all alterations, amendments, and additions thereto and deductions therefrom, are attached hereto or incorporated herein by reference and made a part of this contract.

The CONTRACTOR hereby covenants and agrees to complete such construction within «WORKING_DAYS» from the date indicated in the Notice to Proceed from the State subject, however, to such extensions as may be provided for in writing under the specifications.

For and in consideration of the covenants, undertakings and agreements of the CONTRACTOR herein set forth and upon the full and faithful performance thereof by the CONTRACTOR, the STATE hereby agrees to pay the CONTRACTOR the sum of «BASIC»---DOLLARS ($«BASIC_NUMERIC») in lawful money, but not more than such part of the same as is actually earned according to the STATE's determination of the actual quantities of work performed and materials furnished by the CONTRACTOR at the unit or lump sum prices set forth in the attached proposal schedule. Such payment, including any extras, shall be made, subject to such additions or deductions hereto or hereafter made in the manner and at the time prescribed in the specifications and this contract.

An additional sum of «EXTRAS»-----DOLLARS ($«EXTRA_NUMERIC») is hereby provided for extra work.

SAMPLE

All words used herein in the singular shall extend to and include the plural. All words used in the plural shall extend to and include the singular. The use of any gender shall extend to and include all genders.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be duly executed the day and year first above written.

STATE OF HAWAII

_____
Director of Transportation

«CONTRACTOR» (Seal)

_____
Signature

_____
Print name

_____
Print Title

_____
Date

SAMPLE

PERFORMANCE BOND (SURETY)
(6/21/07)

KNOW TO ALL BY THESE PRESENTS:

That _____,
(Full Legal Name and Street Address of Contractor)

as Contractor, hereinafter called Principal, and _____

_____
(Name and Street Address of Bonding Company)

as Surety, hereinafter called Surety, a corporation(s) authorized to transact business as a surety in the State of Hawaii, are held and firmly bound unto the _____,
(State/County Entity)

its successors and assigns, hereinafter called Obligee, in the amount of _____

_____
DOLLARS ($_____), to which payment Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above-bound Principal has signed a Contract with Obligee on _____, for the following project:_____
_____
_____
_____
_____
_____
hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE, the condition of this obligation is such that:

If the Principal shall promptly and faithfully perform, and fully complete the Contract in strict accordance with the terms of the Contract as said Contract may be modified or amended from time to time; then this obligation shall be void; otherwise to remain in full force and effect.

Surety to this Bond hereby stipulates and agrees that no changes, extensions of time, alterations, or additions to the terms of the Contract, including the work to be performed thereunder, and the specifications or drawings accompanying same, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, extensions of time, alterations, or additions, and agrees that they shall become part of the Contract.

In the event of Default by the Principal, of the obligations under the Contract, then after written Notice of Default from the Obligee to the Surety and the Principal and subject to the limitation of the penal sum of this bond, Surety shall remedy the Default, or take over the work to be performed under the Contract and complete such work, or pay moneys to the Obligee in satisfaction of the surety's performance obligation on this bond.

Signed this _____ day of _____, _____.

(Seal) _____
Name of Principal (Contractor)

* _____
Signature

_____
Title

(Seal) _____
Name of Surety

* _____
Signature

_____
Title

*ALL SIGNATURES MUST BE ACKNOWLEDGED
BY A NOTARY PUBLIC

PERFORMANCE BOND

KNOW TO ALL BY THESE PRESENTS:

That we, _____
(full legal name and street address of Contractor)

as Contractor, hereinafter called Contractor, is held and firmly bound unto the

_____
(State/County entity)

its successors and assigns, as Obligee, hereinafter called Obligee, in the amount

_____DOLLARS $_____),
(Dollar amount of Contract)

lawful money of the United States of America, for the payment of which to the said Obligee, well and truly to be made, Contractor binds itself, its heir, executors, administrators, successors and assigns, firmly by these presents. Said amount is evidenced by:

☐ **Legal Tender;**

☐ **Share Certificate** unconditionally assigned to or made payable at sight to _____
Description:_____;

☐ **Certificate of Deposit**, No. _____, dated _____ issued by _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Cashier's Check** No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Teller's Check** No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Treasurer's Check** No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Official Check** No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Certified Check** No. _____, dated _____ accepted by a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

WHEREAS:

The Contractor has by written agreement dated _____ entered into a contract with Obligee for the following Project:_____

_____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE,

The Condition of this obligation is such that, if Contractor shall promptly and faithfully perform the Contract in accordance with, in all respects, the stipulations, agreements, covenants and conditions of the Contract as it now exists or may be modified according to its terms, and shall deliver the Project to the Obligee, or to its successors or assigns, fully completed as in the Contract specified and free from all liens and claims and without further cost, expense or charge to the Obligee, its officers, agents, successors or assigns, free and harmless from all suits or actions of every nature and kind which may be brought for or on account of any injury or damage, direct or indirect, arising or growing out of the doing of said work or the repair or maintenance thereof or the manner of doing the same or the neglect of the Contractor or its agents or servants or the improper performance of the Contract by the Contractor or its agents or servants or from any other cause, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

AND IT IS HEREBY STIPULATED AND AGREED that suit on this bond may be brought before a court of competent jurisdiction without a jury, and that the sum or sums specified in the said Contract as liquidated damages, if any, shall be forfeited to the Obligee, its successors or assigns, in the event of a breach of any, or all, or any part of, covenants, agreements, conditions, or stipulations contained in the Contract or in this bond in accordance with the terms thereof.

The amount of this bond may be reduced by and to the extent of any payment or payments made in good faith hereunder.

Signed and sealed this _____ day of _____, _____.

(Seal)_____
Name of Contractor

_____
Signature*

_____
Title

*ALL SIGNATURES MUST BE ACKNOWLEDGED
BY A NOTARY PUBLIC

LABOR AND MATERIAL PAYMENT BOND (SURETY)
(6/21/07)

KNOW TO ALL BY THESE PRESENTS:

That _____,
(Full Legal Name and Street Address of Contractor)

as Contractor, hereinafter called Principal, and _____

_____,
(Name and Street Address of Bonding Company)
as Surety, hereinafter called Surety, a corporation(s) authorized to transact business as a surety in the State of Hawaii, are held and firmly bound unto the _____,
(State/County Entity)

its successors and assigns, hereinafter called Obligee, in the amount of _____

_____
_____Dollars ($_____), to which payment Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above-bound Principal has signed Contract with the Obligee on _____for the following project:_____
_____
_____
_____
_____
hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payment to any Claimant, as hereinafter defined, for all labor and materials supplied to the Principal for use in the performance of the Contract, then this obligation shall be void; otherwise to remain in full force and effect.

1. Surety to this Bond hereby stipulates and agrees that no changes, extensions of time, alterations, or additions to the terms of the Contract, including the work to be performed thereunder, and the specifications or drawings accompanying same, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, extensions of time, alterations, or additions, and agrees that they shall become part of the Contract.

2. A "Claimant" shall be defined herein as any person who has furnished labor or materials to the Principal for the work provided in the Contract.

Every Claimant who has not been paid amounts due for labor and materials furnished for work provided in the Contract may institute an action against the Principal and its Surety on this bond at the time and in the manner prescribed in Section 103D-324, Hawaii Revised Statutes, and have the rights and claims adjudicated in the action, and judgment rendered thereon; subject to the Obligee's priority on this bond. If the full amount of the liability of the Surety on this bond is insufficient to pay the full amount of the claims, then after paying the full amount due the Obligee, the remainder shall be distributed pro rata among the claimants.

Signed this _____day of _____, _____.

(Seal) _____
Name of Principal (Contractor)

* _____
Signature

_____
Title

(Seal) _____
Name of Surety

* _____
Signature

_____
Title

*ALL SIGNATURES MUST BE ACKNOWLEDGED
BY A NOTARY PUBLIC

LABOR AND MATERIAL PAYMENT BOND

KNOW TO ALL BY THESE PRESENTS:

That we, _____
(full legal name and street address of Contractor)

as Contractor, hereinafter called Contractor, is held and firmly bound unto _____
(State/County entity)

its successors and assigns, as Obligee, hereinafter called Obligee, in the amount

_____DOLLARS ($_____)
(Dollar amount of Contract)

lawful money of the United States of America, for the payment of which to the said Obligee, well and truly to be made, Contractor binds itself, its heir, executors, administrators, successors and assigns, firmly by these presents. Said amount is evidenced by:

☐ **Legal Tender;**

☐ **Share Certificate** unconditionally assigned to or made payable at sight to_____
Description:_____

☐ **Certificate of Deposit**, No. _____, dated _____ issued by _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Cashier's Check** No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Teller's Check** No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Treasurer's Check** No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Official Check** No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

☐ **Certified Check** No. _____, dated _____ accepted by a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

WHEREAS:

The Contractor has by written agreement dated _____ entered into a contract with Obligee for the following Project:_____

_____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE,

The condition of this obligation is such that, if Contractor shall promptly and faithfully perform the Contract in accordance with, in all respects, the stipulations, agreements, covenants and conditions of the Contract as it now exists or may be modified according to its terms, free from all liens and claims and without further cost, expense or charge to the Obligee, its officers, agents, successors or assigns, free and harmless from all suits or actions of every nature and kind which may be brought for or on account of any injury or damage, direct or indirect, arising or growing out of the doing of said work or the repair or maintenance thereof or the manner of doing the same or the neglect of the Contractor or its agents or servants or the improper performance of the Contract by the Contractor or its agents or servants or from any other cause, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

AND IT IS HEREBY STIPULATED AND AGREED that suit on this bond may be brought before a court of competent jurisdiction without a jury, and that the sum or sums specified in the said Contract as liquidated damages, if any, shall be forfeited to the Obligee, its successors or assigns, in the event of a breach of any, or all, or any part of, covenants, agreements, conditions, or stipulations contained in the Contract or in this bond in accordance with the terms thereof.

AND IT IS HEREBY STIPULATED AND AGREED that this bond shall inure to the benefit of any and all persons entitled to file claims for labor performed or materials furnished in said work so as to give any and all such persons a right of action as contemplated by Sections 103D-324(d) and 103D-324(e), Hawaii Revised Statutes.

The amount of this bond may be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payments of mechanics' liens which may be filed of record against the Project, whether or not claim for the amount of such lien be presented under and against this bond..

Signed this _____ day of _____, _____.

(Seal)_____
Name of Contractor

_____
Signature*

_____
Title

ALL SIGNATURES MUST BE ACKNOWLEDGED BY A NOTARY PUBLIC

CHAPTER 104, HRS COMPLIANCE CERTIFICATE

The undersigned bidder does hereby certify to the following:

1. Individuals engaged in the performance of the contract on the job site shall be paid:

A. Not less than the wages that the director of labor and industrial relations shall have determined to be prevailing for corresponding classes of laborers and mechanics employed on public works projects; and

B. Overtime compensation at one and one-half times the basic hourly rate plus fringe benefits for hours worked on Saturday, Sunday, or a legal holiday of the State or in excess of eight hours on any other day.

2. All applicable laws of the federal and state governments relating to workers' compensation, unemployment compensation, payment of wages, and safety shall be fully complied with.

DATED at Honolulu, Hawaii, this _____ day of _____, 20___.

«CONTRACTOR»
Name of Corporation, Partnership, or Individual

Signature and Title of Signer

Notary Seal
NOTARY ACKNOWLEDGEMENT

Subscribed and sworn before me this
_____day of_____
Notary signature_____
Notary public, State of _____
My Commission Expires:_____

Notary Seal
NOTARY CERTIFICATION

Doc. Date: _____ #Pages: ____
Notary Name: _____ _____Circuit
Doc. Description: _____

_____
Notary signature_____
Date _____

CERTIFICATION OF COMPLIANCE
FOR
EMPLOYMENT OF STATE RESIDENTS
HRS CHAPTER 103B, AS AMENDED BY ACT 192, SLH 2011

Project Title: _____

Agency Project No: _____

Contract No.: _____

As required by Hawaii Revised Statutes Chapter103B, as amended by Act 192, Session Laws of Hawaii 2011—Employment of State Residents on. Construction Procurement Contracts, I hereby certify under oath, that I am an officer of _____ and
(Name of Contractor or Subcontractor Company)
for the Project Contract indicated above, _____ was in
(Name of Contractor or Subcontractor Company)
compliance with HRS Chapter 103B, as amended by Act 192, SLH 2011, by employing a workforce of which not less than eighty percent are Hawaii residents, as calculated according to the formula in the solicitation, to perform this Contract.

- ❑ I am an officer of the Contractor for this contract.
- ❑ I am an officer of a Subcontractor for this contract.

CORPORATE SEAL

_____
(Name of Company)

_____
(Signature)

_____
(Print Name)

_____
(Print Title)

Subscribed and sworn to me before this
_____ day of _____, 2011.

Doc. Date: _____# of Pages _____1ST Circuit
Notary Name: _____
Doc. Description: _____
_____
_____

_____
Notary Public, 1" Circuit, State of Hawai`i
My commission expires: _____

_____
Notary Signature Date
NOTARY CERTIFICATION

EXHIBIT 2

PROVISIONS TO BE INCLUDED IN CONSTRUCTION PROCUREMENT SOLICITATIONS

1. Definitions for terms used in HRS Chapter 103B as amended by Act 192, SLH 2011:

a. "Contract" means contracts for construction under 103D, HRS.

b. "Contractor" has the same meaning as in Section 103D-104, HRS, provided that "contractor" includes a subcontractor where applicable.

c. "Construction" has the same meaning as in Section 103D-104, HRS.

d. "General Contractor" means any person having a construction contract with a governmental body.

e. "Procurement Officer" has the same meaning as in Section 103D-104, HRS.

f. "Resident" means a person who is physically present in the State of Hawaii at the time the person claims to have established the person's domicile in the State of Hawaii and shows the person's intent is to make Hawaii the person's primary residence.

g. "Shortage trade" means a construction trade in which there is a shortage of Hawai`i residents qualified to work in the trade as determined by the Department of Labor and Industrial Relations.

2. HRS Chapter 103B as amended by Act 192, SLH 2011—Employment of State Residents Requirements:

a. A Contractor awarded a contract shall ensure that Hawaii residents comprise not less than 80% of the workforce employed to perform the contract work on the project. The 80% requirement shall be determined by dividing the total number of hours worked on the contract by Hawaii residents, by the total number of hours worked on the contract by all employees of the Contractor in the performance of the contract. The hours worked by any Subcontractor of the Contractor shall count towards the calculation for this section. The hours worked by employees within shortage trades, as determined by the Department of Labor and Industrial Relations (DLIR), shall not be included in the calculation for this section.

b. Prior to award of a contract, an Offeror/Bidder may withdraw an offer/bid without penalty if the Offeror/Bidder finds that it is unable to comply with HRS Chapter 103B as amended by Act 192, SLH 2011.

c. Prior to starting any construction work, the Contractor shall submit the subcontract dollar amount for each of its Subcontractors.

d. The requirements of this section shall apply to any subcontract of $50,000 or more in connection with the Contractor; that is, such Subcontractors must also ensure that Hawaii residents comprise not less than 80% of the Subcontractor's workforce used to perform the subcontract.

e. The Contractor and any Subcontractor whose subcontract is $50,000 or more shall comply with the requirements of HRS Chapter 103B as amended by Act 192, SLH 2011.

1) Certification of compliance shall be made in writing under oath by an officer of the General Contractor and applicable Subcontractors and submitted with the final payment request.

2) The certification of compliance shall be made under oath by an officer of the company by completing a "Certification of Compliance for Employment of State Residents" form and executing the Certificate before a licensed notary public.

3) In addition to the certification of compliance as indicated above, the Contractor and Subcontractors shall maintain records such as certified payrolls for laborers and mechanics who performed work at the site and time sheets for all other employees who performed work on the project. These records shall include the names, addresses and number of hours worked on the project by all employees of the Contractor and Subcontractor who performed work on the project to validate compliance with HRS Chapter 103B as amended by Act 192, SLH 2011. The Contractor and Subcontractors shall retain these records and provide access to the State for a minimum period of four (4) years after the final payment, except that if any litigation, claim, negotiation, investigation, audit or other action involving the records has been started before the expiration of the four-year period, the Contractor and Subcontractors shall retain the records until completion of the action and resolution of all issues that arise from it, or until the end of the four-year period, whichever occurs later. Furthermore, it shall be the Contractor's responsibility to enforce compliance with this provision by any Subcontractor.

f. A General Contractor or applicable Subcontractor who fails to comply with this section shall be subject to any of the following sanctions:

1) With respect to the General Contractor, withholding of payment on the contract until the Contractor or its Subcontractor complies with HRS Chapter 103B as amended by Act 192, SLH 2011.

2) Proceedings for debarment or suspension of the Contractor or Subcontractor under Hawaii. Revised Statues §103D-702.

3. Conflict with Federal Law: This section shall not apply if the application of this section is in conflict with any federal law, or if the application of this section will disqualify the State from receiving Federal funds or aid.