

STATE OF HAWAII

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM

FOREIGN-TRADE ZONE NO. 9

**INVITATION FOR BID
Solicitation No. IFB-FTZ-18-001**

**SEALED BIDS
FOR
THE FOREIGN-TRADE ZONE NO. 9
MAKAI WING CHILLER REPLACEMENT PROJECT**

**WILL BE RECEIVED UP TO 11:00 A.M., HAWAII STANDARD TIME (HST) ON
THURSDAY, MARCH 29, 2018**

IN THE DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM
(DBEDT), FOREIGN-TRADE ZONE BUSINESS OFFICE,
521 ALA MOANA BOULEVARD, SUITE 101, HONOLULU, HAWAII, 96813.
DIRECT QUESTIONS RELATING TO THIS SOLICITATION TO Tsurumi Hamasu,
TELEPHONE: (808) 586-2510; FACSIMILE: (808) 586-2512; OR E-MAIL
BIDS@FTZ9.ORG

DOWNLOAD SOLICITATION from Website

Bidders are advised that if interested in responding to this solicitation, they may choose to submit their bids on a downloaded document, **provided that they** register their company by fax or e-mail for this specific solicitation. If the Bidder does not register its company, the Bidder will not receive addenda, if any, and their Bid may be rejected and not considered for award.

Registration or Request for Copy of Solicitation

Submit FAX or E-MAIL to: FAX NO.: (808) 586-2512
E-MAIL ADDRESS: bids@ftz9.org

Provide the following information:

- | | |
|--|-----------------------|
| ⊕ Name of Company | ⊕ Mailing Address |
| ⊕ Name of Contact Person | ⊕ Telephone Number |
| ⊕ Facsimile Number | ⊕ Solicitation Number |
| ⊕ FedEx (or equivalent) account number (document will be sent by U.S. Postal Service first class mail if this is not provided) | |

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NOTICE TO BIDDERS

SEALED BIDS (Chapter 103D, HRS) For:

**MAKAI WING CHILLER REPLACEMENT
FOREIGN-TRADE ZONE, PIER 2
HONOLULU, HAWAII
FTZ JOB NO. IFB-FTZ-18-001**

Will be received at **the Foreign Trade Zone Business Office, 521 Ala Moana Boulevard, Suite 101, Honolulu, Hawaii 96813. Direct questions related to this solicitation to Tsurumi Hamasu, Telephone: (808) 586-2510, Facsimile: (808)586-2512; or E-mail at bids@ftz9.org.**

DOWNLOAD SOLICITATION FROM WEBSITE

Bidders are advised that if interested in responding to this solicitation, they may choose to submit their bids on a downloaded document, provided that they register their company by fax or e-mail for this specific solicitation. If the Bidder does not register its company, the Bidder will not receive addenda, if any, and their Bid may be rejected and not considered for award.

REGISTRATION OR REQUEST FOR COPY OF SOLICITATION

Submit FAX or E-MAIL to: FAX NO.: (808) 586-2512
E-MAIL ADDRESS: bids@ftz9.org

Provide the following information:

- | | |
|--------------------------|---|
| ⊕ Name of Company | ⊕ Mailing Address |
| ⊕ Name of Contact Person | ⊕ Telephone Number |
| ⊕ Facsimile Number | ⊕ Solicitation Number |
| ⊕ Email address | ⊕ FedEx (or equivalent) account number
(document will be sent by U.S. Postal
Service first class mail if this is not
provided) |

Pursuant to the Hawaii Public Procurement Code, Chapter 103D, HRS, the State of Hawaii, Department of Business, Economic Development, and Tourism (DBEDT) Foreign-Trade Zone Division (FTZ) is soliciting bids for MAKAI WING CHILLER REPLACEMENT, FOREIGN-TRADE ZONE, PIER 2, HONOLULU, HAWAII.

To be eligible to submit a Bid, the Bidder must possess a valid State of Hawai'i Contractor's license classification A and C.

Submit your bid up to 11:00 A.M. on Thursday, March 29, 2018. At that time, bids will be publicly opened. Bids received after the due time and date will not be considered.

Scope of Work: The work will be for the mechanical and electrical work for replacement of the three air cooled chillers serving the Pier 2 makai wing building including chilled water pumps, related piping, and appurtenances. The work will include the following:

1. Replacement of existing three air cooled chillers with two new high efficiency air cooled chillers.

2. Provide for the following:
 - a. Replace connected piping as required to accommodate the new chiller equipment.
 - b. Replace the existing chilled water pumps.
 - c. Provide two new chemical pot feeders and two new expansion tanks.
 - d. Provide a DDC controls to operate the plant and is expandable for future expansion into the building.
 - e. Phase the work to minimize air conditioning outages to the building.
 - f. Modify equipment pad and fence for the new chiller equipment and piping layout as needed.
 - g. Replace the power connections to the equipment and provide new disconnects and feeders as required.

IFB SCHEDULE AND SIGNIFICANT DATES

The schedule set out herein represents the STATE's best estimate of the schedule that will be followed. All times indicated are Hawaii Standard Time (HST). If a component of this schedule, such as the "Bids Due and Opened" date is delayed, the rest of the schedule will likely be shifted by the same number of days. The approximate schedule is as follows:

Advertising of Invitation for Bid	WEDNESDAY, FEBRUARY 21, 2018
Mandatory Pre-Bid Conference Meeting	MONDAY, FEBRUARY 26, 2018 11:00 AM HST
Deadline to Submit Written Questions	WEDNESDAY, FEBRUARY 28, 2018 2:00 PM HST
STATE's Response to Written Questions	TUESDAY, MARCH 6, 2018 2:00 PM HST
Bids Due in Business Office, Room 101 and Opened in Conf. Rm. 202	THURSDAY, MARCH 29, 2018 11:00 AM HST Foreign-Trade Zone No. 9 521 Ala Moana Boulevard Honolulu, Hawaii 96813
Contract Start Date	As Determined by the Notice to Proceed

Campaign Contributions by State and County Contractors Prohibited.

If awarded a contract in response to this solicitation, offeror agrees to comply with HRS section 11-355, which states that campaign contributions are prohibited from a State and County government contractor during the term of the contract if the contractor is paid with funds appropriated by the legislative body between the execution of the contract through the completion of the contract.

OFFICIAL CONTACT PERSON

The official contact person for all communication regarding is:

Tsurumi Hamasu, Business Manager
Hawaii Foreign-Trade Zone No. 9
521 Ala Moana Boulevard, Suite 101
Honolulu, Hawaii 96813
Telephone: (808) 587-5373
Fax: (808) 586-2512
Email: bids@ftz9.org

INSTRUCTIONS TO BIDDERS

The services by the CONTRACTOR described herein shall commence upon the date designated in the written Notice to Proceed. The Contract shall be completed within **365 days** of the start date on the Notice to Proceed, unless extended or sooner terminated as hereinafter provided.

Except for extensions necessitated by change orders, this Contract may be extended for a period not to exceed three (3) months. The CONTRACTOR shall submit the extension request in writing for STATE approval a minimum of sixty (60) days prior to the termination of this Contract. The request shall provide detailed reasons for the delay and steps to be taken to ensure the timely completion of the project. If the STATE approves the extension request, a Supplemental Contract shall be executed by both parties in accordance with the General Conditions. The CONTRACTOR shall not be entitled to any additional compensation to complete the work described in the primary Contract.

AWARD AND COMPENSATION

1. Award shall be made to the most responsive and responsible Bidder submitting the lowest price.
2. Payments shall be made only after satisfactory completion of each task or service as specified herein.
3. The Awardee shall be required to obtain and submit a Certificate of Compliance from Hawaii Compliance Express (HCE).
4. If any work is not in full compliance with these specifications, the CONTRACTOR shall make all necessary corrections to the full satisfaction of the STATE and at no additional cost to the STATE. The CONTRACTOR shall perform corrective work within the period allowed by the Officer-In-Charge.
5. CONTRACTOR shall submit an original invoice plus three copies for work performed to the following address:

Foreign-Trade Zone No. 9, Pier 2
521 Ala Moana Boulevard, Suite 101
Honolulu, Hawaii 96813
Administrator@ftz.org

QUALITY CONTROL

1. The FTZ reserves the right to monitor the CONTRACTOR'S job performance at any time for compliance with the requirements of the Contract and to ensure that the quality of work is maintained at the standard established at the start of the Contract. The FTZ Officer-in-Charge (OIC) may require the CONTRACTOR to accompany the FTZ OIC in conducting evaluations in which event the arrangements will be made by the FTZ OIC.

2. The CONTRACTOR must assure and be responsible for the continuity of service activities in the event of staff illness, medical emergencies, vacancies, or other situations that result in program resources that are less than proposed and contracted for. The CONTRACTOR must not require or depend on STATE staff to provide service activities in the event that program resources are not available due to the above situations.
3. When a disagreement arises between the CONTRACTOR and the STATE in regards to the performance of specific service requirements within the Contract specifications, the wishes of the STATE shall prevail. Failure on the part of the CONTRACTOR to comply shall be deemed cause for corrective action and subject to contractual remedies, including but not limited to, the STATE reserves the right to engage the services of another company to perform the services and to deduct the costs thereof from any monies due or that may become due to the CONTRACTOR.
4. STATE reserves the right to reduce, amend, or expand the "Scope of Services."

WORK CONDUCT

1. General. The CONTRACTOR shall perform all services in a safe and efficient manner. The CONTRACTOR shall employ the best industry practices to provide services as specified herein. The CONTRACTOR shall further assure that the performance of work specified herein shall be in complete compliance with any applicable rules and regulations of all federal, state, and local governmental agencies.
 - a) The CONTRACTOR shall proceed with the work described herein upon notification by FTZ No. 9.
 - b) The CONTRACTOR shall employ, insofar as is reasonably possible, such methods and means of carrying out its work so as not to cause any interruption or interference to the FTZ No. 9 operations.
 - c) All work and products shall conform to all applicable City and County, State and Federal rules and regulations.
 - d) The CONTRACTOR shall be required to have any contractor's license necessary to perform this work.
 - e) The CONTRACTOR and its employees shall not be allowed to park in zones assigned to facility personnel/tenants.
 - f) The CONTRACTOR's employees shall park in areas designated by the Officer-In-Charge.
 - g) The FTZ No. 9 reserves the right at any time to contract for or otherwise perform other or additional work within the contract zone limits of this Contract. The CONTRACTOR of this project shall, to the extent ordered by the FTZ No. 9, conduct the CONTRACTOR's work so as not to interfere with or hinder the progress or completion of the work performed by other contractors.
2. Work performance. The CONTRACTOR shall be solely responsible for the satisfactory completion of all work performed in accordance with the specifications herein.

3. Safe performance of work. The CONTRACTOR shall be required to protect the occupants of the FTZ and the general public from any unsafe conditions during the performance of services and/or as a result of the services. The CONTRACTOR shall provide and use safety devices such as barricades, cones, barriers and the like, as required.
4. Protection of worksite and damages. The CONTRACTOR shall exercise care and provide all necessary protection to prevent injury and/or damage to any existing site amenities.

BONDS

Bid, performance, and payment bonds **SHALL BE** required for this solicitation.

STATUTORY REQUIREMENTS OF SECTION 103-55, HAWAII REVISED STATUTES (HRS)

Bidders are advised that Section 103-55, HRS, provides that the services to be performed shall be performed by employees paid at wages not less than wages paid to public officers and employees for similar work. Bidders are further advised that in the event of an increase in wages for public employees performing similar work during the periods of the contract, the CONTRACTOR shall be obliged to provide wages not less than those increased wages.

In the event of a wage increase to public employees during the Contract period, the CONTRACTOR shall apply for an increase in the Contract price, including additional cost for those benefits required by law, i.e., federal old age benefit, workers compensation, temporary disability insurance, unemployment insurance and prepaid public health insurance.

The CONTRACTOR shall be further obliged to notify its employees performing work under the Contract of the provisions of Section 103-55, HRS, and of the current wage rates for public employees or the CONTRACTOR may include such notice with each paycheck furnished to the employee.

Pursuant to Chapter 103-55, HRS, the CONTRACTOR will provide FTZ No. 9 with a quarterly **Prevailing Wage Payroll Certification**.

SUBMISSION OF BID

Bidders shall complete all pages of the Offer Form OF-1 and submit it in a sealed envelope to:

Hawaii Foreign-Trade Zone No. 9
521 Ala Moana Boulevard, Suite 101
Honolulu, HI 96813

"Solicitation No. IFB-FTZ-18-001" shall be referenced on the outside of the sealed bid. Facsimiles will not be accepted.

Sealed bids must be received in the Foreign-Trade Zone Business Office, Suite 101, no later than the date and time cited in Subsection 1.03, "IFB Schedule and Significant Dates." Bids shall be time-stamped with the FTZ No. 9 time clock upon receipt. Late bids will not be accepted. The Foreign-Trade Zone Business Office time clock shall serve as the official time.

BIDDER QUALIFICATION

In addition to meeting the legal and other requirements of this IFB, Bidders must meet these Bidder qualification requirements at the time of bidding.

1. All Bidders shall have local office/representative(s) in-place on the island of Oahu, at the time of bid opening. All Bidders shall list contact information for its local office and/or responsible individuals who can be contacted by the STATE on matters concerning this IFB on the Offer Form OF-1.
2. This IFB is issued under the provisions of Chapter 103D, HRS, and Subchapter 3-122, HAR. All Bidders are charged with presumptive knowledge of all requirements of the cited authorities. Submission of a valid, executed bid by any Bidder shall constitute admission of such knowledge on the part of such Bidder.

PREFERENCES

The following preferences shall apply to this IFB. The bid price shall be adjusted for evaluation purposes only based on application of these preferences in the order specified below:

1. In-state Contractor. Preference shall be given to Bidders within the State of Hawaii. Whenever a Bidder selects and qualifies for an In-state Contractor preference, all prices from Bidders who do not select or qualify under the In-state Contractor preference shall be increased by 5% for evaluation purposes. Bidders claiming this preference shall submit a tax clearance certificate from the State of Hawaii, Department of Taxation with their proposal and must indicate a State of Hawaii business address.
2. Taxpayer Preference. For evaluation purposes, pursuant to Chapter 103D-1008, HRS, the Bidder's tax-exempt price submitted in response to an IFB shall be increased by the applicable retail rate of general excise tax and the applicable use tax. Under no circumstances shall the contract amount of the contract award include the aforementioned adjustments.
3. Reciprocal. A resident Bidder of the State of Hawaii may be given a reciprocal preference equal to the preference the out-of-state Bidder would be given in their own state. If the out-of-state Bidder's state has a preference comparable to a Hawaii preference, the reciprocal preference shall be equal to the amount the out-of-state preference exceeds the Hawaii preference.

CERTIFICATION OF INDEPENDENT COST DETERMINATION

By submission of a Bid in response to this IFB, the Bidder certifies as follows:

1. The costs in this IFB have been arrived at independently, without consultation, communication, or agreement with any other Bidder, as to any matter relating to such costs for the purpose of restricting competition.
2. Unless otherwise required by law, the costs which have been quoted in this IFB have not been knowingly disclosed by the Bidder, directly or indirectly, to any other Bidder or competitor prior to the opening of the bids.
3. No other attempt has been made or will be made by the Bidder to influence any other person or firm to submit or not to submit a Bid for the purpose of restricting competition.

CANCELLATION OF IFB AND BID REJECTION

The STATE reserves the right to cancel this IFB and to reject any and all bids, in whole or in part, when it is determined to be in the best interest of the STATE, as provided in Sections 3-122-95 through 3-122-97, HAR.

BID OPENING

Bids shall be opened publicly, and in the presence of two (2) or more procurement officials on the bid opening date in Subsection 1.03, "IFB Schedule and Significant Dates." The Bid register and Bidders' bids will be available for public inspection at the time of opening.

All bids and other material submitted by Bidders become the property of the STATE and may be returned only at the STATE's option.

The STATE's award, if any, will be made within 90 calendar days after the opening of bids. Unless extended by mutual agreement, the bid shall remain firm for the 90 day period.

DISQUALIFICATION OF BIDS

The STATE reserves the right to consider as acceptable only those bids submitted in accordance with all requirements set forth in this IFB and which demonstrate an understanding of the scope of services. Any bid offering any other set of terms and conditions contradictory to those included in this IFB may be disqualified without further notice.

Each bid shall be submitted in the format prescribed in this IFB and all portions shall be addressed.

AWARD OF CONTRACT

Award, if any, shall be made on a firm fixed fee basis to the responsive and responsible bidder who has submitted the lowest bid in accordance with this solicitation. The award shall be based on the total, annual bid for the work described herein.

Award shall be contingent on the availability of funds. The STATE reserves the right to cancel this IFB and/or reject any and all bids, in whole or in part, when it is determined to be in the best interest of the STATE.

The notice of award letter(s), if any, resulting from this IFB shall be posted on the Procurement Reporting System, which is available on the State Procurement Office website: <http://www.hawaii.gov/spo2/source/>.

EXECUTION OF CONTRACT

Performance and/or payment bond **SHALL BE** required for this Contract.

If an award is made, the STATE shall forward to the successful Bidder a formal contract to be signed by the Bidder and returned within ten (10) days or as may otherwise be allowed by the STATE. No work is to be undertaken by the Bidder prior to the official commencement date specified on a formal Notice to Proceed letter issued by the STATE upon execution of the Contract by both parties. The State of Hawaii is not liable for any work, contract, costs, expenses, loss of profits, or any damages whatsoever incurred by the Bidder prior to the official commencement date.

NOTICE TO PROCEED

No work is to be undertaken by the CONTRACTOR prior to the official commencement date specified on the formal Notice to Proceed. The STATE is not liable for any work, contract, costs, expenses, loss of profits, or any damages whatsoever incurred by the CONTRACTOR prior to the official commencement date.

BID AS PART OF THE CONTRACT

This IFB and the successful bid will be part of the Contract.

PROTEST

A protest shall be submitted in writing within five (5) working days after the aggrieved person knows, or should have known, of the facts giving rise thereto; provided that a protest based upon the content of the IFB shall be submitted in writing prior to the date set for receipt of bids; and further provided that a protest of an award or proposed award shall be submitted within five (5) working days after the posting of award of the Contract.

The Notice of Award, if any, resulting from this IFB shall be posted on the Procurement Reporting System, which is available on the State Procurement Office website: <http://www.hawaii.gov/spo2/source/>.

Any protest pursuant to §103D-701, HRS, shall be submitted in writing to the Foreign-Trade Zone No. 9 Administration Office, 521 Ala Moana Boulevard, Suite 201, Honolulu, HI 96813.

RESPONSIBILITY OF BIDDERS

Bidders are advised that prior to award of a contract under this IFB, Bidders shall furnish proof of compliance with the requirements of Sections 103D-310(c), HRS. A "Certificate of Vendor Compliance" must be provided as proof of compliance through Hawaii Compliance Express (HCE). HCE allows the Bidder to collectively apply for these certificates. To use HCE, businesses must register online through a simple wizard interface at <http://vendors.ehawaii.gov/hce/splash/welcome.html>. The HCE provides current compliance status as of the issuance date. The "Certificate of Vendor Compliance," indicating that the vendor's status is compliant with the requirements of HRS Section 103D-310(c), shall be accepted for both contracting purposes and final payment. Vendors will be required to pay an annual fee of \$12.00 to the Hawaii Information Consortium, LLC (HIC) for use of the HCE system. **All Vendors must participate in the HCE program and must submit a "Certificate of Vendor Compliance" before being awarded the Contract.**

1. **Final Payment Requirements.** The CONTRACTOR is required to submit an original "Certificate of Vendor Compliance" from Hawaii Compliance Express as proof of compliance before final payment. The Certificate of Vendor Compliance must be valid within thirty (30) days of submission for final payment.
2. **Timely Submission of "Certificate of Vendor Compliance".** The "Certificate of Vendor Compliance" should be applied for and submitted to the Foreign-Trade Zone Administrator as soon as possible. If a valid certificate is not submitted on a timely basis for award of a contract, a bid otherwise responsive and responsible may not receive the award.

CAMPAIGN CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS

It has been determined that funds for a contract awarded under this IFB have been appropriated by a legislative body.

Therefore, if a Bidder is awarded a contract in response to this IFB, Bidder agrees to comply with Section 11-355, HRS, which states that campaign contributions are prohibited from a State or county government contractor during the term of the contract if the CONTRACTOR is paid with funds appropriated by a legislative body between the execution of the Contract through the completion of the Contract.

PAYMENT

Payments shall be made only after satisfactory completion of each task or service as specified herein.

Section 103-10, HRS, provides that the STATE shall have 30 calendar days after receipt of an invoice or satisfactory performance of the services to make payment. For this reason, the STATE will reject any Bid submitted with a condition requiring payment within a shorter period. Further, the STATE will reject any Bid submitted with a condition requiring interest payments greater than that allowed by Section 103-10, HRS, as amended.

BID SUBMISSION

- A. The undersigned has carefully read and understands the terms, conditions, and requirements specified in the Specifications, Special Provisions and General Provisions attached hereto and incorporated herein by reference, and hereby submits the following bid to perform the work specified herein, all in accordance with the true intent and meaning thereof:
- B. The undersigned further understands and agrees to the following:
- That by submitting this Bid, the undersigned is declaring that this Bid is not in violation of Chapter 84, HRS, concerning prohibited State contracts;
 - That by submitting this Bid, the undersigned is declaring that this Bid is being made without collusion with any other person, firm, or corporation;
 - Award, if any, will be made to the responsive and responsible Bidder submitting the lowest total bid price;
 - That liquidated damages for delays in completing the Contract beyond the specified time of completion shall be based on the amount specified in the Special Provisions section for each and every calendar day of delay;
 - That by submitting this Bid, the undersigned is declaring that if awarded a contract, the undersigned will comply with all wages, hours and working conditions in accordance with Section 103-55, HRS;
 - That the Director of the Department of Business, Economic Development, and Tourism reserves the right to reject any or all bids and waive any defects when, in his opinion, such rejection or waiver is made in the best interest of the STATE; and,
 - That if awarded a contract, the undersigned hereby commits to a minimum of two (2) consultation sessions with the STATE.
- C. The undersigned acknowledges receipt of any addendum issued by the Department of Business, Economic Development, and Tourism by recording in the space below the **date of receipt**:

Addendum No. 1 _____

Addendum No. 2 _____

Addendum No. 3 _____

Addendum No. 4 _____

The undersigned hereby certifies that the Bid hereby attached has been carefully checked and is submitted as correct.

Respectfully submitted,

Exact Legal Name of Bidder (company name)

Authorized signature (attach corporate
resolution or evidence of authorization to bind)

Title

Date

Street Address

City, State, Zip Code

Telephone No.

Mailing Address (if different from street
address)

BIDDER INFORMATION

State of Hawaii General Excise Tax (GET) License Number: _____

Federal Taxpayer Identification Number: _____

Type of Organization:

☐ Individual ☐ Partnership ☐ Corporation ☐ Joint Venture

If the bidder is a "dba" or a division of a corporation, furnish the exact legal name of the corporation under which the contract, if awarded, shall be executed:

State of Incorporation: ☐ Hawaii ☐ Other: _____
(Indicate where)

State of Hawaii, _____ License No. _____

Insurance Coverage:

	<u>Carrier</u>	<u>Policy No.</u>	<u>Agent</u>
1. Commercial General Liability (\$1,000,000 per occurrence bodily injury and property damage)	_____	_____	_____
2 Workers' Compensation	_____	_____	_____
3. Temporary Disability	_____	_____	_____
4. Unemployment Insurance: State of Hawaii Labor No.	_____	_____	_____
5. Prepaid Health Carrier	_____	_____	_____

REFERENCES

Listed below are names and addresses of three (3) companies or government agencies for which the undersigned has provided or is currently providing similar type work. It is expressly understood that the STATE reserves the right to seek additional references and that unfavorable references may be grounds for the rejection of any kind.

	<u>Company</u>	<u>Contact Person</u>	<u>Telephone No.</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____

Island of Oahu office address: _____

Island of Oahu office representative: _____

Name	Phone
------	-------

Signature of Authorized Representative
of Bidder

PREFERENCES

The following preferences apply to this IFB. A detailed discussion of each preference is included in the section entitled, "Special Provisions." Indicate which preferences apply.

1. In-state Contractor preference: ☐ yes ☐ no

If yes, indicate State of Hawaii business street address: _____

If yes, attach current tax clearance certificate from the State of Hawaii, Department of Taxation (issued within 45 days of bid submittal). (Note: The Bidder may wish to also obtain tax clearance from the Internal Revenue Service at the same time in order to fulfill this requirement if awarded a contract.)

2. Tax Adjustment:

Are you an out-of-state business? ☐ yes ☐ no

Is your organization tax exempt? ☐ yes ☐ no

3. Reciprocal Preferences:

List your principal place of business:

Street address, City, State, Zip Code

Are you registered with the State of Hawaii, Department of Commerce and Consumer Affairs, to do business in the State of Hawaii? ☐ yes ☐ no

CORPORATE RESOLUTION

Submit the company's Corporate Resolution or written authorization of Bidder's representative to sign this bid.

ATTACHMENTS

- ATTACHMENT 1: OFFER FORM, OF-1
- ATTACHMENT 2: OFFER FORM, OF-2
- ATTACHMENT 3: SURETY BID BOND
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- ATTACHMENT 6: CHAPTER 396, HRS, OCCUPATIONAL SAFETY AND HEALTH
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- ATTACHMENT 16: DAGS GENERAL CONDITIONS FOR CONSTRUCTION

Attachment 1
OFFER FORM-OF-1

Hawaii Foreign-Trade Zone No. 9
521 Ala Moana Boulevard, Suite 101
Honolulu, Hawaii 96813

Dear Mr. David Sikkink:

The undersigned has carefully read and understands the terms and conditions specified in the Specifications and Special Provisions attached hereto, and in the General Conditions, Form 4/15/09, by reference made a part hereof and available upon request; and hereby submits the following offer to perform the work specified herein, all in accordance with the true intent and meaning thereof. The undersigned further understands and agrees that by submitting this offer, 1) he/she is declaring his/her offer is not in violation of Chapter 84, Hawaii Revised Statutes, concerning prohibited State contracts, and 2) he/she is certifying that the price(s) submitted was (were) independently arrived at without collusion.

The undersigned represents that it is: **(Check ☒ one only)**

- ☐ A **Hawaii business** incorporated or organized under the laws of the State of Hawaii; **OR**
☐ A **Compliant Non-Hawaii business** not incorporated or organized under the laws of the State of Hawaii, is or shall be registered at the State of Hawaii, Department of Commerce and Consumer Affairs Business Registration Division (DCCA-BREG) to do business in the State of Hawaii.

State of incorporation: _____

Bidder is:

☐ Sole Proprietor ☐ Partnership ☐ Corporation ☐ Joint Venture ☐ Other _____

Federal I.D. No.: _____

Hawaii General Excise Tax License I.D. No.: _____

Payment address (other than street address below): _____

City, State, Zip Code: _____

Business address (street address): _____

City, State, Zip Code: _____

Respectfully submitted:

(x) _____
Authorized (Original) Signature

Date: _____

Telephone No.: _____

Fax No.: _____

Name and Title (Please Type or Print)

* _____
Exact Legal Name of Company (Bidder)

*If Bidder is a "dba" or a "division" of a corporation, furnish the exact legal name of the corporation under which the awarded contract will be executed:

E-mail Address: _____

Respectfully submitted:

(x) _____
Authorized (Original) Signature

Date: _____

Telephone No.: _____

Name and Title (Please Type or Print)

Fax No.: _____

* _____
Exact Legal Name of Company (Bidder)

E-mail Address: _____

*If Bidder is a "dba" or a "division" of a corporation,
furnish the exact legal name of the corporation
under which the awarded
contract will be executed:

Bidder shall provide a separate bid amount for the items listed below. Bidders shall provide bids for one or more Bid Options. All bids shall be inclusive of General Excise Tax.

Bid Options are ordered in the preferential order. The Base Bid is the least preferred, acceptable option. Award, if any, will be made to the most responsive and responsible bidder submitting the lowest total bid price for the most preferred Bid Option within the State budget.

- Item 1 Supply all labors and materials for the demolition and construction work of the replacement of existing three chillers; and incidental related works.
- Item 2 Supply all labor and materials for providing temporary chiller; and incidental related works.
- Item 3 Supply all labor and materials for commissioning.
- Item 4 Supply all labor and materials for two years maintenance contract.

Bid Options	Air Cooled Chiller Type	Tube Metal	Fin Metal	Control
1st Choice	Screw Chiller	Copper	Copper	DDC System
2nd Choice	Centrifugal Chiller	Copper	Copper	DDC System
3rd Choice	Scroll Chiller	Copper	Copper	DDC System
4th Choice	Screw Chiller	Copper	Aluminum	DDC System
5th Choice	Centrifugal Chiller	Copper	Aluminum	DDC System
6th Choice	Scroll Chiller	Copper	Aluminum	DDC System
7th Choice	Screw Chiller	Copper	Copper	(no system)
8th Choice	Centrifugal Chiller	Copper	Copper	(no system)
9th Choice	Scroll Chiller	Copper	Copper	(no system)
10th Choice	Screw Chiller	Copper	Aluminum	(no system)
11th Choice	Centrifugal Chiller	Copper	Aluminum	(no system)
12th Choice (Base Bid)	Scroll Chiller	Copper	Aluminum	(no system)

Attachment 2
OFFER FORM-OF-2 (cont.)

	Item 1	Item 2	Item 3	Item 4	Total	
1st Choice					\$	-
2nd Choice					\$	-
3rd Choice					\$	-
4th Choice					\$	-
5th Choice					\$	-
6th Choice					\$	-
7th Choice					\$	-
8th Choice					\$	-
9th Choice					\$	-
10th Choice					\$	-
11th Choice					\$	-
12th Choice (Base Bid)					\$	-

SURETY BID BOND

Bond No. _____

KNOW ALL MEN BY THESE PRESENTS:

That we, _____,
(Full name or legal title of Bidder)

as Bidder, hereinafter called 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 _____
(Owner)
of _____, as Owner, hereinafter called Owner, in the penal sum of
(City and State)

_____ 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 Number, if available, and 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 _____, 201__.

(Principal)

By _____
Its

(Surety)

By _____
Its Attorney-in-Fact

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)

_____ a _____
(Corporation, Partnership, or Individual)

hereinafter called "Principal" and _____
(Surety)

_____ of _____, State of _____

hereinafter called the "Surety", are held and firmly bound unto _____

_____ of _____,
(Owner) (City and State)

hereinafter called "Owner", in the penal sum of _____

_____ Dollars (\$_____) in
lawful money of the United States, for the payment of which sum well and truly
to be made, we bind ourselves, our heirs, executors, administrators and
successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal
entered onto a certain contract with the Owner, dated the _____ day of _____
_____, 20_____, a copy of which is hereto attached and made a
part hereof for the construction of:

NOW, THEREFORE, if the Principal shall promptly make payment to all
persons, firms, subcontractors, and corporations furnishing materials for or
performing labor in the prosecution of the work provided for in such contract,
and any authorized extension or modification thereof, including all amounts
due for materials, lubricants, oil, gasoline, coal and coke, repairs on
machinery, equipment and tools, consumed or used in connection with the
construction of such work, and all insurance premiums on said work, and for
all labor, performed in such work whether by subcontractor or otherwise, then
this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby
stipulates and agrees that no change, extension of time, alteration or
addition to the terms of the contract or to the work to be performed
thereunder or the specifications accompanying the same shall in any wise
affect its obligation on this bond, and it does hereby waive notice of any
such change, extension of time, alteration or addition to the terms of the
contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____, 20 _____.

ATTEST:

Principal

(Principal) Secretary
(SEAL)

By _____ (S)

(Address, Zip Code)

Witness as to Principal

(Address-Zip Code)

(Surety)

ATTEST:

By _____

Attorney-in-Fact

(Surety) Secretary
(SEAL)

(Address, Zip Code)

Witness as to Surety

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract.
If Contractor is Partnership, all partners should execute bond.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we (1) _____
 _____ a (2) _____
 hereinafter called "Principal" and (3) _____
 of _____, State of _____ hereinafter called
 the "Surety", are held and firmly bound into (4) _____
 _____ of _____, hereinafter called "Owner", in the
 penal sum of _____

Dollars (\$_____) in lawful money of the United States, for the payment
 of which sum well and truly to be made, we bind ourselves, our heirs,
 executors, administrators and successors, jointly and severally, firmly by
 these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal
 entered into a certain contract with the Owner, dated the _____ day of
 _____, 20____, a copy of which is hereto attached
 and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall well, truly and faithfully
 perform its duties, all the undertakings, covenants, terms, conditions, and
 agreements of said contract during the original term thereof, and any
 extensions thereof which may be granted by the Owner, with or without notice
 to the Surety, and if he shall satisfy all claims and demands incurred under
 such contract, and shall fully indemnify and save harmless the Owner from all
 costs and damages which it may suffer by reason of failure to do so, and shall
 reimburse and repay the Owner all outlay and expenses which the Owner may
 incur in making good any default, then this obligation shall be void;
 otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby
 stipulates and agrees that no change, extension of time, alteration or
 addition to the terms of the contract or to the work to be performed
 thereunder or the specifications accompanying the same shall in any wise
 affect its obligation on this bond, and it does hereby waive notice of any
 such change, extension of time, alteration or addition to the terms of this
 contract or to the work or to the specifications.

Previous Editions Obsolete

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____ 20____.

ATTEST:

(Principal)

(Principal) Secretary

(SEAL)

By _____ (S)

(Address)

Witness as to Principal

(Address)

ATTEST:

Surety

By _____
Attorney-in-Fact

(Surety) Secretary

(SEAL)

Witness as to Surety

(Address)

(Address)

Note: Date of Bond must not be prior to date of Contract.

- (1) Correct name of Contractor
- (2) A Corporation, a Partnership or an Individual, as case may be
- (3) Correct name of Surety
- (4) Correct name of Owner
- (5) If Contractor is Partnership, all partners should execute bond

CHAPTER 396
OCCUPATIONAL SAFETY AND HEALTH

Section

- 396-1 Short title
- 396-2 Findings and purpose
- 396-3 Definitions
- 396-4 Powers and duties of department
- 396-4.5 Certification of safety and health professionals
- 396-5 Repealed
- 396-5.1 Fees
- 396-5.5 Repealed
- 396-6 Employer responsibility: safe place of employment;
safety devices and safeguards
- 396-7 Toxic materials
- 396-8 Employee responsibility and rights
- 396-9 Explosives
- 396-10 Violations and penalties
- 396-11 Review
- 396-12 Judicial review
- 396-13 Trade secrets
- 396-14 Evidence
- 396-15 Exception to liability
- 396-16 Exception for federal jurisdiction
- 396-17 Repealed
- 396-18 Safety and health programs for contractors bidding
on state construction jobs
- 396-19 Hoisting machine operators advisory board
- 396-20 Hoisting machine operators' certification revolving
fund

Cross References

Fireworks control law, see chapter 132D.

Case Notes

Company was properly served with, and received, safety violation citation, and mailing the citation to local company representative's residence did not violate company's due process rights where representative was served with the citation by certified mail delivered with return receipt in compliance with Hawaii administrative rule §12-51-15(a), and the mailing was to the "employer" who, under rule §12-50-2, included the representative, who had control over company's employees and was in charge of company's business within the State. 120 H. 135 (App.), 202 P.3d 596.

Discussed: 87 H. 71, 951 P.2d 934.

[§396-1] Short title. This chapter shall be known as the
"Hawaii Occupational Safety and Health Law". [L 1972, c 57, pt of §1]

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§396-2 Findings and purpose. Through years of research and study, Congress has found that the number of industrial accidents that take place in the United States can be reduced if certain minimum standards are established and enforced.

Congress has also found that personal injuries and illnesses arising out of work situations impose a substantial burden upon, and are a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments. The overall congressional findings would definitely be applicable to Hawaii. There is a need to assure so far as possible, every working man and woman in the State safe and healthful working conditions. This legislation is also designed to permit and encourage employer and employee efforts to reduce injury and disease arising out of employment, and to stimulate them to institute new programs and to perfect existing programs for providing safe and healthful working environments. [L 1972, c 57, pt of §1; am L 1976, c 95, §2]

Case Notes

Cited: 59 H. 53, 575 P.2d 1299.

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§396-3 Definitions. When used in this chapter:

"Appeals board" means the Hawaii labor relations board.

"Certified safety professional" means an individual who is certified by the board of certified safety professionals.

"Dealer" means, for the purpose of the section concerning explosives, any person, corporation, partnership, association, association of dealers, or other form of business enterprise engaged in the business of buying and selling explosives.

"Department" means the department of labor and industrial relations.

"Director" means the director of labor and industrial relations or the director's designee.

"Employee" means every natural person who is required or directed or permitted or suffered by any employer to engage in any employment, or to go to work or be at any time in any place of employment.

"Employee of the State" includes officers and employees of the department of labor and industrial relations, and persons acting in behalf of the department in an official capacity, whether temporarily or with or without compensation.

"Employer" means:

- (1) The State and every state agency;
- (2) Each county and all public and quasi-public corporations and public agencies therein;
- (3) Every person which has any natural person in service;
- (4) The legal representative of any deceased employer;
- (5) Every person having direction, management, control, or custody of any employment, place of employment, or any employee.

"Employment" includes the carrying on of any trade, business, occupation, or work, including all excavation, demolition, and construction work, or any process or operation in any way related thereto, in which any person is engaged to work for hire except domestic service in or about a private home.

"Hoisting machine" means a machine with a hoist line, sling, or hydraulic lifting mechanism used in construction, demolition, or excavation work.

"Hoisting machine operator" means any individual who operates a hoisting machine in the State.

"Occupational safety and health standard" means a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment.

"Place of employment" means any place, and the premises appurtenant thereto, where employment is carried on.

"Safe" and "safety" as applied to an employment or place of employment mean such freedom from danger to employees as the nature of the employment reasonably permits.

"Safety device" and "safeguard" shall be given a broad interpretation so as to include any practicable method of mitigating

or preventing a specific danger.

"Serious violation" means a violation that carries with it a substantial probability that death or serious physical harm could result from a condition that exists, or from one or more practices, means, methods, operations, or processes that have been adopted or are in use, in a place of employment, unless the employer did not, and could not with the exercise of reasonable diligence, have known of the presence of the violation.

"Wilful violation" means a voluntary act or omission by the employer, as distinguished from an accidental act or omission, that is done with intentional disregard of, or plain indifference to, any standard, rule, citation, or order issued under the authority of this chapter. A wilful violation does not require a showing of malicious intent or bad motive. [L 1972, c 57, pt of §1; am L 1974, c 152, §1; am L 1975, c 50, §1; am L 1976, c 95, §1; am L 1977, c 179, §1; gen ch 1985; am L 1993, c 175, §1; am L 1997, c 347, §1; am L 1998, c 165, §3 and c 259, §§1, 2; am L 2002, c 104, §2]

Case Notes

Employer must provide a safe place to work to whomever the employer requires or permits to perform work on the employer's premises, including an employee of an independent contractor. 59 H. 53, 575 P.2d 1299.

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§396-4 Powers and duties of department. (a) Administration. The department shall be responsible for administering occupational safety and health standards throughout the State.

- (1) The department shall prescribe and enforce rules under chapter 91 as may be necessary for carrying out the purposes and provisions of this chapter. The department shall make reports to the Secretary of Labor in the form and containing the information that the Secretary from time to time shall require pursuant to federal law;
- (2) The department shall adopt, amend, or repeal occupational safety and health standards in the manner prescribed by rules adopted hereunder. Emergency temporary standards may be adopted without conforming to chapter 91 and without hearings to take immediate effect upon giving a statewide public notice of the emergency temporary standard or upon any other date that may be specified in the notice. An emergency temporary standard may be adopted if the director determines:
 - (A) That employees are exposed to grave danger from exposure to substances or agents determined to be toxic or physically harmful or from new hazards; and
 - (B) That the emergency standard is necessary to protect employees from danger.

The emergency temporary standard shall be effective until superseded by a standard adopted in accordance with the procedures set forth in chapter 91, but in any case shall be effective no longer than six months;

- (3) Variances from occupational safety and health standards adopted under this chapter may be granted upon application of an employer or employers. Application for variances must correspond to procedures set forth in the rules of this chapter. The director may issue an order for variance if the director determines that the proponent of the variance has demonstrated that the conditions, practices, means, methods, operations, or processes used or proposed to be used by the employer will provide employment and places of employment to the employer's employees which are as safe and healthful as those which would prevail if the employer complied with the standard. The employer shall also notify the employer's employees upon each application for variance and the employees shall be given an opportunity to request and participate in hearings or other proceedings relating to applications for variance. No inference of admission of violation of a standard shall be made against the employer by reason of the employer's application for variance; and
- (4) The department, upon the application of any employer or other person affected thereby, may grant any time that may reasonably be necessary for compliance with any order. Any person affected by an order may petition the department for an extension of time, which may be granted if the department

finds it necessary; and

- (5) The department shall regulate hoisting machines and shall certify their operators.
- (b) Inspection and investigation.
 - (1) Authorized representatives of the director shall have the right to enter without delay any place of employment during regular working hours and at other reasonable times;
 - (2) The department shall inspect places of employment and machines, devices, apparatus, and equipment for the purpose of insuring adequate protection to the life, safety and health of workers;
 - (3) The department shall inspect construction activities for the purpose of protecting the health and safety of employees and the general public. A construction activity includes any activity related to the erection, construction, alteration, demolition or maintenance of buildings, structures, bridges, highways, roadways, dams, tunnels, sewers, underground buildings or structures, underground pipelines or ducts, and any other construction project or facility;
 - (4) The department may investigate the cause of all industrial injuries resulting in disability or death which occur in any employment, or place of employment, and may make reasonable orders and recommendations with respect to the cause of the injuries;
 - (5) The department shall have the right to question privately any employer, owner, operator, agent or employee in investigation, enforcement and inspection activities;
 - (6) There shall be a prohibition against advance notice of inspection except that written exception may be expressly authorized by the director in the director's discretion and pursuant to the rules and regulations promulgated under this chapter. Those inspections requiring advance notice for preparation or for other purposes of inspection as further defined in the rules and regulations promulgated under this chapter shall not be included in the prohibition against advance notice;
 - (7) An employee of the State acting within the scope of the employee's office, employment, or authority under this chapter shall not be liable in or made a party to any civil action growing out of the administration or enforcement of this chapter.
- (c) Education and training.
 - (1) The department may disseminate through exhibitions, moving pictures, lectures, pamphlets, and any other method of publicity, information to employers, employees and the general public regarding the causes and prevention of industrial accidents and injuries.
 - (2) Where appropriate, the department shall undertake programs in training and consultation with employers and employees as a means of encouraging voluntary compliance.

- (d) Enforcement.
- (1) Whenever right of entry or inspection is refused to an authorized representative of the director, the department may apply to the circuit court of the circuit where such place of employment exists for a search warrant providing on its face that the wilful interference with its lawful execution may be punished as a contempt of court.
- (2) Whenever the department finds that any employment or place of employment or the operation of any machine, device, apparatus, or equipment is not safe, or that any practice, means, method, operation, or process employed or used in connection therewith is unsafe or does not afford adequate protection to the life, safety and health of employees in the employment, the department shall make a citation or an order relative thereto which is necessary to render the employment or place of employment safe and protect the life and safety of employees therein and deliver the same to the employer. The department may in the citation or order direct that, in the manner and within a time specified, such additions, repairs, improvements, or changes be made and such safety devices and safeguards be furnished, provided and used as are reasonably required to render the employment or place of employment safe. The employer shall obey and observe all citations or safety orders and post said citation or order at or near the place where the violation, referred to in the citation or order occurred.
- (3) Whenever in the opinion of the department the condition of any employment or place of employment, or the operation of any machine, device, apparatus, or equipment, or any practice, means, method, operation, or process employed or used, is in an unsafe condition or is not properly guarded or is dangerously placed, the use thereof may be prohibited by the department, and a citation or order to that effect shall be posted prominently in the working place. The citation or order shall be removed: (A) when a determination has been made by the department that the place of employment, machine, device, apparatus, or equipment is made safe and the required safeguards or safety devices are provided for; and (B) by an authorized representative of the department.
- (4) Whenever in the opinion of the department the condition of any employment or place of employment, or the operation of any machine, device, apparatus, or equipment, or any practice, means, method, operation, or process employed or used constitutes an imminent hazard to the life or safety of any person, the department may apply to the circuit court of the circuit in which such place of employment, machine, device, apparatus, or equipment is situated or such practice, means, method, operation, or process is employed for an injunction restraining the use or operation thereof

until the use or operation is made safe.

The application to the circuit court accompanied by an affidavit showing that the use or operation exists in violation of a standard, rule, regulation, citation or order of the department and constitutes an imminent hazard to the life or safety of any employee, and accompanied by a copy of the standard, rule, regulation, citation or order applicable thereto, shall warrant, in the discretion of the court, the immediate granting of a temporary restraining order. If the department arbitrarily or capriciously fails to seek relief under this section, any employee who may be injured by reason of such failure or a representative of said employee may bring an action against the department in the circuit court of the circuit in which the imminent hazard is alleged to exist for a writ of mandamus to compel the department to seek such an order and for such further relief as may be appropriate. No bond shall be required from the department as a prerequisite to the granting of a restraining order.

- (5) The director and the director's authorized agents shall have the same powers respecting the administering of oaths, compelling the attendance of witnesses, the production of documentary evidence, and examining or causing to be examined witnesses as are possessed by a court, and may take depositions and certify to official acts. The circuit court of any circuit upon application by the director shall have power to enforce by proper proceedings the attendance and testimony of any witness so subpoenaed. Subpoena and witness fees and mileage in such cases shall be the same as in criminal cases in the circuit courts. Necessary expenses of or in connection with any such hearings or investigations shall be payable from the funds appropriated for expenses of administration of the department.

No person shall be excused from attending or testifying or producing material, books, paper, correspondence, memoranda, and other records before the director or in obedience to subpoena on the grounds that the testimony or evidence, documentary or otherwise, required of the person may tend to incriminate the person or subject the person to a penalty or forfeiture; but no individual shall be prosecuted or subjected to any penalty or forfeiture for or on account of any transaction, matter, or thing concerning which the individual is compelled, after having claimed the individual's privilege against self-incrimination, to testify or produce evidence, documentary, or otherwise, except that such individuals so testifying shall not be exempt from prosecution and punishment for perjury committed in so testifying.

- (6) Where a condition or practice in a place of employment could reasonably be expected to cause death or serious physical harm, the department shall have the right, independent of

any other enforcement powers under this chapter, to: (A) immediately inform the employees and employers of such hazard by meeting, posted notice, or otherwise; (B) take steps to obtain immediate abatement of the hazard by the employer and where appropriate to initiate necessary legal proceedings to require such abatement.

- (7) The department may prosecute, defend, and maintain actions in the name of the department for the enforcement of the provisions of this chapter, including the enforcement of any order issued by it, the appeal of any administrative or court decision, and other actions necessary to enforce this chapter. [L 1972, c 57, pt of §1; am L 1974, c 152, §2; am L 1975, c 50, §2; am L 1976, c 95, §§3 to 5; am L 1980, c 19, §2; gen ch 1985; am L 1994, c 130, §§2, 4; am L Sp 1995, c 12, §§1, 2; am L 1997, c 347, §2; am L 1998, c 2, §95; am L 1999, c 28, §§1, 2]

Note

Transfer of funds. L 1994, c 130, §4; L Sp 1995, c 12, §2.

Cross References

Depositions, see chapter 624.

Oaths, subpoenas, see §§1-21, 603-21.9, 621-1, 621-12.

Rules of Court

Injunctions, see HRCp rule 65.

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[\$396-4.5] Certification of safety and health professionals.

(a) Only individuals receiving certification from the department as safety and health professionals shall be qualified to certify that an employer:

- (1) Has an effective safety and health program; and
- (2) Qualifies for a reduction in workers' compensation insurance premiums under section 431:14-103(b).

(b) Certification as a safety and health professional shall be:

- (1) Issued to an individual only; and
- (2) Renewable.

(c) Certificates issued under this section may be revoked or suspended by the director on any grounds specified in rules adopted under this chapter. [L 1995, c 234, §3]

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§396-5 REPEALED. L 1980, c 19, §3.

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§396-5.1 Fees. (a) The director may establish fees pursuant to chapter 91 to be charged for the following:

- (1) Any aspect relating to the issuance of permits, certificates, or licenses required by this chapter or rule adopted by the director;
- (2) Searching, reviewing, segregating, and providing records pursuant to chapter 92F requests where such fees are not provided for under rules adopted by the office of information practices;
- (3) The costs of training materials used in department sponsored workshops; and
- (4) The costs of public notices required for variances, and public requests for adoption, amendment, or repeal of rules.

(b) Fees received pursuant to subsection (a) shall be deposited into the general fund. [L 1996, c 156, §1]

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§396-5.5 REPEALED. L 1980, c 19, §4.

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§396-6 Employer responsibility: safe place of employment; safety devices and safeguards. (a) Every employer shall furnish to each of the employer's employees employment and a place of employment which are safe as well as free from recognized hazards. No employer shall require or direct or permit or suffer any employee to go or be in any employment or place of employment which is not free from recognized hazards that are causing or likely to cause death or serious physical harm to employees or which does not comply with occupational safety and health standards, rules, regulations, citations, or orders made pursuant to this chapter except for the specific purpose of abating said hazard.

(b) Every employer shall furnish and use safety devices and safeguards, and shall adopt and use practices, means, methods, operations, and processes which are reasonably adequate to render such employment and place of employment safe.

(c) No employer shall construct or cause to be constructed any place of employment that is not safe, and no employer shall occupy or maintain any unsafe place of employment.

(d) Every employer shall make such reports as the Secretary of Labor may require pursuant to Public Law 91596 Section 8(c).

(e) Each employer shall make, keep and preserve and make available to the department such records regarding the employer's activities relating to this chapter as the department may prescribe by regulation as necessary or appropriate for the enforcement of this chapter or for developing information regarding the causes and prevention of occupational accidents and illnesses.

The department shall prescribe regulations requiring employers to maintain accurate records of, and to make periodic reports on work related deaths, injuries and illnesses other than minor injuries requiring only first aid treatment and which do not involve medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job.

(f) All employers shall be required to post prominently in the working place all posters and information provided by the department for posting as well as notices informing employees of their rights and obligations under this chapter. [L 1972, c 57, pt of §1; am L 1974, c 152, §3; am L 1976, c 95, §6; gen ch 1985]

Case Notes

Statute recognizes limited exception relating to employees permitted on premises to abate specific hazard. 59 H. 53, 575 P.2d 1299.

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[§396-7] Toxic materials. (a) The department shall issue regulations requiring employers to maintain accurate records of employee exposures to potentially toxic materials or harmful physical agents which are required to be monitored or measured as prescribed under the rules and regulations.

(b) All employers shall prominently post information regarding hazards in the employer's workplace including information about suitable precautions, relevant symptoms, and emergency treatment in case of exposure, and where appropriate, medical examination at no cost to employees with the results of such medical examinations being furnished only to appropriate state officials, and if the employee so requests, to the employee's own physician. Where possible, said information shall additionally be posted or labeled on or near said hazard. Where suitable protective equipment is available, all employers shall provide information concerning their availability and use to the affected employees including control or technological procedures with respect to such hazards including monitoring or measuring exposure.

(c) No employee shall be permitted regular exposure to any substance which may materially impair the employee's health or functional capacity.

(d) All employers shall provide prompt information to employees when they have been or are being exposed to toxic materials and harmful physical agents in concentrations or at levels in excess of those prescribed in the applicable safety and health standards. This information may be fulfilled by:

- (1) Observation by employees of the monitoring or measuring of such materials or agents;
- (2) Employee access to the records of such monitoring or measuring after notice of exposure, and explanation of said monitoring or measuring procedures where necessary;
- (3) In addition to the above, information shall be provided to the employees of corrective action being taken. [L 1972, c 57, pt of §1; gen ch 1985]

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§396-8 Employee responsibility and rights. (a) Employee compliance. Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued under this chapter which are applicable to the employee's own actions and conduct.

(b) Complaints to the department. Complaints may be made to the department and where reasonable grounds exist for the department to believe there may be a hazard, there shall be an inspection in response to the complaint.

(c) Opportunity for employees to participate in inspections. At the time and place of inspections under section 396-4(b)(2), (3), and (4), an opportunity shall be provided for employees and their representatives to bring possible violations to the attention of the authorized representative of the director conducting said inspection in order to aid inspections. This requirement may be fulfilled by allowing a representative of the employees and a representative of the employer to accompany the director's authorized representative during the physical inspection of the workplace, or in absence of the employees' representative, there shall be a consultation with a reasonable number of employees.

(d) Notice of nonaction to employees. The department shall notify the employees when the department decides not to take compliance action as a result of violations alleged by any employee or any representative of the employees. This notice shall state the decision not to take compliance action, the reasons therefor, and the procedures for informal review of such decision.

(e) Discharge or discrimination against employees for exercising any right under this chapter is prohibited. In consideration of this prohibition:

- (1) No person shall discharge, suspend or otherwise discriminate in terms and conditions of employment against any employee by reason of:
 - (A) The employee's failure or refusal to operate or handle any machine, device, apparatus, or equipment which is in any unsafe condition; or
 - (B) The employee's failure or refusal to engage in unsafe practices in violation of this chapter or of any standard, rule, regulation, citation or order issued under the authority of this chapter;
- (2) Upon discretion of the director or request, names of complainants may be withheld from the employer;
- (3) No person shall discharge or in any manner discriminate against any employee because the employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this chapter, or has testified or intends to testify in any such proceeding, or acting to exercise or exercised on behalf of the employee or others any right afforded by this chapter;
- (4) Any employee who believes that there has been a discharge or discrimination against the employee by any person in

violation of this subsection may, within sixty days after the violation occurs, file a complaint with the director alleging unlawful discharge or discrimination and setting forth the circumstances thereof;

- (5) Upon receipt of the complaint, the director shall investigate to determine if a discharge or discrimination in violation of this subsection has occurred;
- (6) If upon investigation the director determines that the provisions of this subsection have been violated, the director shall order the employer to provide all appropriate relief to the employee, including rehiring or reinstating the employee to the former position with back pay and restoration of seniority;
- (7) Within ninety days of receipt of a complaint filed under this subsection, unless extended by the director, the director shall notify the employee of the final determination and any subsequent action the department will take to resolve the complaint; and
- (8) Nothing in this subsection shall preclude any employee or representative of an employee from simultaneously pursuing a cause of action for injunctive relief or any other remedy provided by law.

(f) Except for those complainants alleging violations under subsection (e) above, names of all complainants and witnesses shall be withheld from the employer unless prior permission is given by the complainant or witness to release the complainant's or witness' name. [L 1972, c 57, pt of §1; am L 1974, c 152, §4; am L 1976, c 95, §7; am L 1977, c 179, §2; gen ch 1985; am L 1993, c 204, §1]

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§396-9 Explosives. (a) No person shall use, store, or deal in explosives unless the person has first obtained a certificate of fitness. A certificate of fitness shall only be issued to an individual and shall set forth the individual's competency and provide for the individual's positive identification. Certificates of fitness may be limited as to types or kinds of explosives or to the use of explosives for specific purposes.

(b) No dealer shall sell or deliver explosives to any person who does not hold a certificate of fitness.

(c) It shall be unlawful for any person to use or possess any explosives unless the person has a certificate of fitness or is using the explosives under the immediate supervision and direction of a holder of the certificate.

Any person who violates this section shall be subject to arrest and upon conviction, shall be fined not more than \$1,000 or imprisoned not more than one year, or both, provided that an employer or an employee acting within the scope of employment shall not be deemed to be in violation of this section.

(d) Any certificate of fitness issued under this section may be revoked or suspended by the director on any ground specified in the rules adopted under this chapter, or for any violation of this section.

(e) Any certificate issued under this section, during any time of national emergency or crisis, may be suspended or canceled by the director. A national emergency or crisis shall be deemed to exist when it has been so determined under section 134-34.

(f) This section shall not apply to the armed forces of the United States, to employees of the United States, or the state or county police or fire departments who are authorized to handle explosives. [L 1972, c 57, pt of §1; am L 1975, c 50, §3; gen ch 1985; am L 1998, c 259, §3]

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§396-10 Violations and penalties. (a) Any employer who violates this chapter, or any occupational safety and health standard promulgated hereunder or any rule or regulation issued under the authority of this chapter, or who violates or fails to comply with any citation, notice or order made under or by virtue of this chapter or under or by virtue of any rule or regulation of the department, or who defaces, displaces, destroys, damages, or removes without the authority of the department any safety device, safeguards, notice or warning required by this chapter or any rule or regulation of the department may be assessed a civil penalty as specified in this chapter.

(b) Any employer who has received an order or citation for a serious violation of any standard or rule adopted pursuant to this chapter shall be assessed a civil penalty of not more than \$7,700 for each violation.

(c) Any employer who has received an order or citation for a violation of any standard or rule adopted pursuant to this chapter, and the violation is specifically determined not to be of a serious nature, may be assessed a civil penalty of up to \$7,700 for each violation.

(d) Each day a violation continues shall constitute a separate violation except that during an abatement period only, no additional penalty shall be levied against the employer.

(e) Any employer who violates any of the posting requirements prescribed under this chapter shall be assessed a civil penalty of up to \$7,700 for each violation.

(f) Any employer who wilfully or repeatedly violates this chapter, or any standard, rule, citation, or order issued under the authority of this chapter, shall be assessed a civil penalty of not less than \$5,500 nor more than \$77,000 for each violation.

(g) Any employer convicted of wilful or repeated violations of any standard, rule, citation, or order issued under the authority of this chapter resulting in the death of an employee shall be punished by a fine of not more than \$77,000 or by imprisonment for not more than six months, or both, except that if the conviction is for a violation committed after a first conviction, punishment shall be by a fine of not more than \$77,000 or by imprisonment for not more than one year, or both. Failure to correct a violation for which an order or citation of arrest has been issued shall be evidence of wilful conduct.

(h) Any employer who has received an order for violation under section 396-8(e) may be assessed a civil penalty of not more than \$1,100 for each violation.

(i) Any person who gives advance notice of any inspection to be conducted under this chapter, without authority from the director or the director's designees shall, upon conviction, be punished by a fine of not more than \$1,100 or by imprisonment for not more than six months, or by both.

(j) The director shall have authority to assess all civil penalties provided in this section, giving due consideration to the

appropriateness of the penalty with respect to the size of the business of the employer being charged, the gravity of the violation, the good faith of the employer, and the history of previous violations.

(k) Civil penalties imposed under this chapter shall be paid to the department and may be recovered by civil action in the name of the department and the State brought in the district or circuit court for the circuit where the violation is alleged to have occurred or where the employer has its principal office.

(l) When an alleged violation of any provision of this chapter or any standard, rule, or order made thereunder has occurred, the department shall promptly issue a written citation, order, or notice thereof to the employer who shall be required to post the citation, order, or notice. The citation, order, or notice thereof shall include the abatement requirements and within a reasonable time the employer shall be advised of the proposed sanctions, including proposed penalties. Whenever reference is made to posting of any citation, order, notice, petition, decision, or any other type of document issued by the director under this chapter and rules adopted pursuant to this chapter, the employer shall post copies of the document at the work site involved or affected and at the place or places where notices to the employees involved are normally posted. Where posting starts the time for notice of action to or for appeal by employees under this chapter and rules adopted under this chapter, the document shall be posted by the employer upon receipt or on the next business day following receipt.

"(m) Whoever knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to this chapter shall, upon conviction, be punished by a fine of not more than \$11,000, or by imprisonment for not more than six months, or by both.

(n) Criminal offenses committed against any employee of the State acting within the scope of the employee's office, employment, or authority under this chapter shall be subject to the penalties set forth in the Hawaii Penal Code; provided that:

- (1) Ten years shall be added to the maximum term of imprisonment (unless life imprisonment is imposed) and \$55,000 shall be added to the maximum fine imposed for conviction of a class A felony;
- (2) Five years shall be added to the maximum term of imprisonment and \$27,500 shall be added to the maximum fine imposed for conviction of a class B felony;
- (3) Three years shall be added to the maximum term of imprisonment and \$11,000 shall be added to the maximum fine for conviction of a class C felony;
- (4) One year shall be added to the maximum term of imprisonment and \$2,200 shall be added to the maximum fine for conviction of a misdemeanor; and
- (5) The maximum term of imprisonment and maximum fines prescribed for misdemeanors under the Hawaii Penal Code

shall apply to convictions of a petty misdemeanor. [L 1972, c 57, pt
of §1; am L 1974, c 152, §5; am L 1975, c 50, §4; am L 1976,
c 95, §8; am L 1977, c 179, §3; gen ch 1985; am L 1992, c
94, §§1 to 3; am L 1993, c 175, §2; am L 2011, c 123, §1]

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§396-11 Review. (a) Any citation, proposed penalty, or order of the director shall be final and conclusive against the employer unless the employer files with the director a written notice of contest of the citation, the abatement period stated in the citation, the proposed penalty, or order within twenty days after receipt of the citation, proposed penalty, or order.

(b) The employer may petition the director for modification of the abatement requirements in a citation; provided the employer shall file the petition no later than the close of the next business day following the date on which abatement is required, or under exceptional circumstances and for good cause shown, at a later date. The petition for modification may be filed after the twenty-day period for contesting the citation has expired if the initial abatement period stated in the citation expires after the twenty-day period for filing a notice of contest has run.

(c) The director shall issue an order either affirming or modifying the abatement requirement. The director may issue an order modifying the abatement requirement upon a showing by the employer of a good faith effort to comply with the abatement requirements of a citation and that abatement has not been completed because of factors beyond the employer's reasonable control.

(d) Any employee or representative of employees may file with the director a written notice of contest of the initial abatement period stated in a citation or order alleging that the period of time fixed for abatement is unreasonable; provided the notice is filed within twenty days after the citation or order has been posted. Any employee or representative of employees may also file a written notice of contest of an order granting modification of the abatement period; provided the notice shall be filed within ten days of the posting of the order.

(e) Any employee or representative of employees may file a notice of contest of an order of the director denying a complaint of discrimination filed by an employee pursuant to section 396-8(e); provided that in each case the notice is filed within twenty days after receipt of the order by the employee.

(f) Any employee or representative of employees may file a notice of contest of an order granting an employer's application for a variance under section 396-4(a)(3); provided the notice is filed within twenty days after the posting of a final order or decision of the director.

(g) Upon receipt, the director shall advise the appeals board of any notice of contest.

(h) The appeals board shall afford an opportunity for a de novo hearing on any notice of contest except where rules require a prior formal hearing at the department level, the proceedings of which are required to be transcribed, in which case review before the appeals board shall be confined to the record only.

(i) The appeals board may affirm, modify, or vacate the citation, the abatement requirement therein, or the proposed penalty or order or continue the matter upon terms and conditions as may be

deemed necessary, or remand the case to the director with instructions for further proceedings, or direct other relief as may be appropriate.

(j) The affected employees or representatives of affected employees shall be provided an opportunity to participate as parties to hearings under this section.

(k) The director shall submit annual reports to the legislature on the number of contests filed pursuant to this section, the disposition of each, and information indicating whether the issue involved an employee or employees of the department who failed to act within the scope of their office, employment, or authority under this chapter. [L 1972, c 57, pt of §1; am L 1974, c 152, §6; am L 1975, c 50, §5; am L 1976, c 95, §9; am L 1977, c 179, §4; gen ch 1985; am L 1992, c 94, §4]

Case Notes

As transmission of facsimile copies was not specifically allowed by any applicable statute or rule, including Hawaii administrative rule §12-51-19, faxing a notice of contest to the occupational safety and health office did not satisfy the filing requirement under subsection (a). 120 H. 135 (App.), 202 P.3d 596.

Where company mailed an original notice of contest to the director that was postmarked within the twenty-day deadline under Hawaii administrative rule §12-51-19, company timely filed its notice of contest under subsection (a) and the Hawaii labor relations board and the circuit court had jurisdiction to decide the merits of the company's challenge to the safety violation citation. 120 H. 135 (App.), 202 P.3d 596.

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§396-12 Judicial review. Except where an order has already become final for failure to contest, the decision and order of the appeals board shall be final and conclusive unless the director or any party to the proceedings before the appeals board obtains a review thereof in the manner provided in chapter 91 by instituting proceedings in the circuit court of the circuit in which the place of employment, machine, device, apparatus, or equipment is situated or such practice, means, method, operation, or process is employed. The hearing on review shall be on the record and the department shall be deemed a party to any such proceedings. The court shall give precedence to such proceedings over all other civil cases. [L 1972, c 57, pt of §1; am L 1975, c 50, §6; am L 1976, c 95, §10]

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§396-13 Trade secrets. Information obtained by the department containing or revealing a trade secret shall be held confidential and access shall be limited to authorized representatives of the director concerned with carrying out this chapter or when relevant in any proceeding under this chapter. In such proceeding the director, the appeals board, or the court shall issue such orders as may be appropriate to protect the confidentiality of trade secrets. [L 1972, c 57, pt of §1; am L 1974, c 152, §7; am L 1975, c 50, §7]

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§396-14 Evidence. No record or determination of any administrative proceeding under this chapter or any statement or report of any kind obtained, received, or prepared in connection with the administration or enforcement of this chapter shall be admitted or used, whether as evidence or as discovery, in any civil action growing out of any matter mentioned in the record, determination, statement, or report other than an action for enforcement or review under this chapter. [L 1972, c 57, pt of §1; am L 1987, c 42, §1]

Attorney General Opinions

This section prohibits disclosure of information relating to the identification of witnesses and information given by them in an accident investigation. Att. Gen. Op. 76-3.

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[§396-15] Exception to liability. Any employee who is required by the regulations under this chapter to be trained and certified in first aid, and consequently renders first aid care as provided by this chapter, shall not be liable for any civil damages resulting from the employee's acts or omissions, except for such damages as may result from the employee's gross negligence or wanton acts or omissions. [L 1976, c 155, §1; gen ch 1985]

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[\$396-16] Exception for federal jurisdiction. Nothing in this chapter shall apply to working conditions of employees with respect to which any federal agency exercises statutory authority to prescribe and enforce standards or regulations affecting occupational safety or health. [L 1977, c 179, §5]

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§396-17 REPEALED. L 1999, c 28, §2.

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[\$396-18] Safety and health programs for contractors bidding on state construction jobs. (a) All bids and proposals in excess of \$100,000 for state construction jobs as defined in section 103D-104 shall include a signed certification from the bidder or offerer that a written safety and health plan for the job will be available and implemented by the notice to proceed date of the project. The written safety and health plan shall include:

- (1) A safety and health policy statement reflecting management commitment;
 - (2) A description of the safety and health responsibilities of all levels of management and supervisors on the job and a statement of accountability appropriate to each;
 - (3) The details of:
 - (A) The mechanism for employee involvement in job hazard analysis;
 - (B) Hazard identification, including periodic inspections and hazard correction and control;
 - (C) Accident and "near-miss" investigations; and
 - (D) Evaluations of employee training programs;
 - (4) A plan to encourage employees to report hazards to management as soon as possible and to require management to address these hazards promptly; and
 - (5) A certification by a senior corporate or company manager that the plan is true and correct.
- (b) Failure to submit the required certification may be grounds for disqualification of the bid or proposal.
- (c) Failure to have available on site or failure to implement the written safety and health plan by the project's notice to proceed date shall be considered wilful noncompliance and be sufficient grounds to disqualify the award and terminate the contract. [L 1995, c 199, §2]

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§396-19 Hoisting machine operators advisory board. (a) There is created a hoisting machine operators advisory board, which shall be placed in the department for administrative purposes, to be composed of five members to serve without compensation and without reimbursement for expenses. Members shall be appointed by the governor under section 26-34.

The board shall adopt rules pursuant to chapter 91 for the certification of hoisting machine operators.

(b) The hoisting machine operators advisory board may employ a 0.5 full-time equivalent executive director, without regard to chapters 76 and 89 and may dismiss such person as it finds necessary for the performance of its function and duties. The board shall have the authority to fix the executive director's compensation. [L 1998, c 165, pt of §2; am L 2002, c 222, §2]

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[\$396-20] Hoisting machine operators' certification revolving fund. (a) There is established in the state treasury a revolving fund to be known as the hoisting machine operators' certification revolving fund into which shall be deposited all fees, penalties, fines, and interest collected from:

- (1) Certification of hoisting machine operators;
- (2) Interest and investment moneys earned on any moneys in the fund; and
- (3) All moneys received for the fund from any source.

The moneys in the fund may be used to carry out the purposes of this section. The director of finance shall disburse the moneys in the fund in accordance with instructions from the director.

(b) The fund may be used for:

- (1) Personnel and operating expenses for an executive director for the hoisting machine operators advisory board;
- (2) All necessary board costs and reimbursements;
- (3) Preparation and dissemination of public information on hoisting machine operators' certification and training;
- (4) Preparation of annual reports on certification program activities and accomplishments and on the fund; and
- (5) Any reimbursements to the state general fund for funds appropriated by the legislature to establish the revolving fund.

(c) The director shall submit an annual report to the legislature on the status of the fund, including expenditures and program results, not less than twenty days prior to the convening of each regular session. [L 1998, c 165, pt of §2]

Note

Return of start-up money to the legislature on July 1, 2000. L 1998, c 165, §6.

Transfer of certain interest earnings to general fund until June 30, 2015. L 2009, c 79, §30(a)(36).

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STATE OF HAWAII
CONTRACT FOR GOODS OR SERVICES
BASED UPON
COMPETITIVE SEALED BIDS

This Contract, executed on the respective dates indicated below, is effective as of _____, _____, between _____,
(Insert name of state department, agency, board or commission)
State of Hawaii ("STATE"), by its _____,
(Insert title of person signing for State)
(hereafter also referred to as the HEAD OF THE PURCHASING AGENCY or designee ("HOPA")),
whose address is _____
_____ and _____
("CONTRACTOR"), a _____
(Insert corporation, partnership, joint venture, sole proprietorship, or other legal form of the Contractor)
under the laws of the State of _____, whose business address and federal
and state taxpayer identification numbers are as follows: _____

RECITALS

A. The STATE desires to retain and engage the CONTRACTOR to provide the goods or services, or both, described in this Contract and its attachments, and the CONTRACTOR is agreeable to providing said goods or services, or both.

B. The STATE has issued an invitation for competitive sealed bids, and has received and reviewed bids submitted in response to the invitation.

C. The solicitation for bids and the selection of the CONTRACTOR were made in accordance with section 103D-302, Hawaii Revised Statutes ("HRS"), Hawaii Administrative Rules, Title 3, Department of Accounting and General Services, Subtitle 11 ("HAR"), Chapter 122, Subchapter 5, and applicable procedures established by the appropriate Chief Procurement Officer ("CPO").

D. The CONTRACTOR has been identified as the lowest responsible and responsive bidder whose bid meets the requirements and criteria set forth in the invitation.

E. Pursuant to _____, the STATE
(Legal authority to enter into this Contract)
is authorized to enter into this Contract.

F. Money is available to fund this Contract pursuant to:
(1) _____
(Identify state sources)
or (2) _____
(Identify federal sources)
or both, in the following amounts: State \$ _____
Federal \$ _____

NOW, THEREFORE, in consideration of the promises contained in this Contract, the STATE and the CONTRACTOR agree as follows:

1. Scope of Services. The CONTRACTOR shall, in a proper and satisfactory manner as determined by the STATE, provide all the goods or services, or both, set forth in the Invitation for Bids number _____ ("IFB") and the CONTRACTOR'S accepted bid ("Bid"), both of which, even if not physically attached to this Contract, are made a part of this Contract.

2. Compensation. The CONTRACTOR shall be compensated for goods supplied or services performed, or both, under this Contract in a total amount not to exceed _____

_____ DOLLARS
(\$ _____), including approved costs incurred and taxes, at the time and in the manner set forth in the IFB and CONTRACTOR'S Bid.

3. Time of Performance. The services or goods required of the CONTRACTOR under this Contract shall be performed and completed in accordance with the Time of Performance set forth in Attachment-S3, which is made a part of this Contract.

4. Bonds. The CONTRACTOR ☐ is required to provide or ☐ is not required to provide: ☐ a performance bond, ☐ a payment bond, ☐ a performance and payment bond in the amount of _____ DOLLARS (\$ _____).

5. Standards of Conduct Declaration. The Standards of Conduct Declaration of the CONTRACTOR is attached to and made a part of this Contract.

6. Other Terms and Conditions. The General Conditions and any Special Conditions are attached to and made a part of this Contract. In the event of a conflict between the General Conditions and the Special Conditions, the Special Conditions shall control. In the event of a conflict among the documents, the order of precedence shall be as follows: (1) this Contract, including all attachments and addenda; (2) the IFB, including all attachments and addenda; and (3) the CONTRACTOR'S Bid.

7. Liquidated Damages. Liquidated damages shall be assessed in the amount of _____ DOLLARS (\$ _____) per day, in accordance with the terms of paragraph 9 of the General Conditions.

8. Notices. Any written notice required to be given by a party to this Contract shall be (a) delivered personally, or (b) sent by United States first class mail, postage prepaid. Notice to the STATE shall be sent to the HOPA'S address indicated in the Contract. Notice to the CONTRACTOR shall be sent to the CONTRACTOR'S address indicated in the Contract. A notice shall be deemed to have been received three (3) days after mailing or at the time of actual receipt, whichever is earlier. The CONTRACTOR is responsible for notifying the STATE in writing of any change of address.

IN VIEW OF THE ABOVE, the parties execute this Contract by their signatures, on the dates below, to be effective as of the date first above written.

STATE

(Signature)

(Print Name)

(Print Title)

(Date)

CONTRACTOR

(Name of Contractor)

(Signature)

(Print Name)

(Print Title)

(Date)

CORPORATE SEAL
(If available)

APPROVED AS TO FORM:

Deputy Attorney General

* Evidence of authority of the CONTRACTOR'S representative to sign this Contract for the CONTRACTOR must be attached.



STATE OF HAWAII

CONTRACTOR'S ACKNOWLEDGMENT

STATE OF _____)
) SS.
_____ COUNTY OF _____)

On this _____ day of _____, _____ before me appeared
_____ and _____, to me
known, to be the person(s) described in and, who, being by me duly sworn, did say that he/she/they is/are
_____ and _____ of
_____, the
CONTRACTOR named in the foregoing instrument, and that he/she/they is/are authorized to sign said
instrument on behalf of the CONTRACTOR, and acknowledges that he/she/they executed said
instrument as the free act and deed of the CONTRACTOR.

(Notary Stamp or Seal)

(Signature)

(Print Name)

Notary Public, State of _____

My commission expires: _____

Doc. Date: _____ # Pages: _____

Notary Name: _____ Circuit _____

Doc. Description: _____

(Notary Stamp or Seal)

Notary Signature

Date

NOTARY CERTIFICATION



STATE OF HAWAII

CONTRACTOR'S

STANDARDS OF CONDUCT DECLARATION

For the purposes of this declaration:

"Agency" means and includes the State, the legislature and its committees, all executive departments, boards, commissions, committees, bureaus, offices; and all independent commissions and other establishments of the state government but excluding the courts.

"Controlling interest" means an interest in a business or other undertaking which is sufficient in fact to control, whether the interest is greater or less than fifty per cent (50%).

"Employee" means any nominated, appointed, or elected officer or employee of the State, including members of boards, commissions, and committees, and employees under contract to the State or of the constitutional convention, but excluding legislators, delegates to the constitutional convention, justices, and judges. (Section 84-3, HRS).

On behalf of _____, CONTRACTOR, the undersigned does declare as follows:

1. CONTRACTOR ☐ is ☐ is not a legislator or an employee or a business in which a legislator or an employee has a controlling interest. (Section 84-15(a), HRS).
2. CONTRACTOR has not been represented or assisted personally in the matter by an individual who has been an employee of the agency awarding this Contract within the preceding two years and who participated while so employed in the matter with which the Contract is directly concerned. (Section 84-15(b), HRS).
3. CONTRACTOR has not been assisted or represented by a legislator or employee for a fee or other compensation to obtain this Contract and will not be assisted or represented by a legislator or employee for a fee or other compensation in the performance of this Contract, if the legislator or employee had been involved in the development or award of the Contract. (Section 84-14 (d), HRS).
4. CONTRACTOR has not been represented on matters related to this Contract, for a fee or other consideration by an individual who, within the past twelve (12) months, has been an agency employee, or in the case of the Legislature, a legislator, and participated while an employee or legislator on matters related to this Contract. (Sections 84-18(b) and (c), HRS).

CONTRACTOR understands that the Contract to which this document is attached is voidable on behalf of the STATE if this Contract was entered into in violation of any provision of chapter 84, Hawaii Revised Statutes, commonly referred to as the Code of Ethics, including the provisions which are the source of the declarations above. Additionally, any fee, compensation, gift, or profit received by any person as a result of a violation of the Code of Ethics may be recovered by the STATE.

*Reminder to Agency: If the "is" block is checked and if the Contract involves goods or services of a value in excess of \$10,000, the Contract must be awarded by competitive sealed bidding under section 103D-302, HRS, or a competitive sealed proposal under section 103D-303, HRS. Otherwise, the Agency may not award the Contract unless it posts a notice of its intent to award it and files a copy of the notice with the State Ethics Commission. (Section 84-15(a), HRS).

CONTRACTOR

By _____
(Signature)

Print Name _____

Print Title _____

Name of Contractor _____

Date _____



STATE OF HAWAII

SCOPE OF SERVICES

DRAFT PURPOSES ONLY—SUBJECT TO CHANGE

- A. The CONTRACTOR shall provide and perform, in a satisfactory and proper manner as determined by the State, all labor, tools, equipment, and materials necessary and required to construct in place and complete all work indicated in Solicitation No. IFB-FTZ-18-001, attached hereto and incorporated herein as Exhibit A, and in the Contractor's Bid, attached hereto and incorporated herein as Exhibit B, including but not limited to the "Drawings," "Specifications," and "Special Provisions," for the replacement of three chiller units, associated equipment pads and chain link fence; and incidental related works. All work shall be carried out on a site occupied by the Foreign-Trade Zone (FTZ) No. 9, Pier 2, State of Hawaii, Department of Business, Economic Development, and Tourism, Honolulu, Oahu, Hawaii as specified herein. The STATE reserves the right to amend the Scope of Services.



STATE OF HAWAII

COMPENSATION AND PAYMENT SCHEDULE

DRAFT PURPOSES ONLY—SUBJECT TO CHANGE

Total compensation for the services to be provided by the CONTRACTOR under this Contract shall be the sum of money not to exceed TO BE DETERMINED, inclusive of all applicable fees and taxes. Payment shall be made by the STATE to the CONTRACTOR in accordance with paragraphs 17 and 18 of the “General Conditions,” any other related provisions of the Contract, and the following provisions:

1. Payments are made on a monthly basis upon the CONTRACTOR’s submittal of three (3) copies of and an original invoice with details of the work performed and the STATE’s approval of said invoice. The CONTRACTOR shall submit said invoice at the beginning of the month for work satisfactorily completed the previous month. Five percent (5%) shall be withheld from each invoice as retainage for payment of the initial fifty percent (50%) of the total Contract amount. Retainage shall not be released until all closing documents, including a valid “Certificate of Vendor Compliance” has been submitted and approved by the STATE.
2. Payment to the CONTRACTOR shall be made only upon the CONTRACTOR’s submittal of an original invoice and the STATE’s approval of said invoice.



STATE OF HAWAII

TIME OF PERFORMANCE

DRAFT PURPOSES ONLY--SUBJECT TO CHANGE

A. Performance of services by the CONTRACTOR under this Contract shall commence upon the date as noted on the Notice to Proceed from the STATE and all work under this Contract shall be completed within Three Hundred Sixty Five (365) consecutive calendar days.

B. This Contract may be extended for a period not to exceed three (3) months. The CONTRACTOR shall submit the extension request in writing for STATE approval a minimum of sixty (60) days prior to the termination of this Contract. The request shall provide detailed reasons for the delay and steps to be taken to ensure the timely completion of the project. If the STATE approves the extension request, a Supplemental Contract shall be executed by both parties in accordance with the General Conditions. The CONTRACTOR shall not be entitled to any additional compensation to complete the work described in the primary Contract.



STATE OF HAWAII

**CERTIFICATE OF EXEMPTION
FROM CIVIL SERVICE****1. By Heads of Departments Delegated by the Director of the Department of Human Resources Development (“DHRD”).***

Pursuant to a delegation of the authority by the Director of DHRD, I certify that the services to be provided under this Contract, and the person(s) providing the services under this Contract are exempt from the civil service, pursuant to § 76-16, Hawaii Revised Statutes (HRS).

(Signature)_____
(Date)_____
(Print Name)_____
(Print Title)

* This part of the form may be used by all department heads and the heads of attached agencies to whom the Director of DHRD expressly has delegated authority to certify § 76-16, HRS, civil service exemptions. The specific paragraph(s) of § 76-16, HRS, upon which an exemption is based should be noted in the contract file. If an exemption is based on § 76-16(b)(15), the contract must meet the following conditions:

- (1) It involves the delivery of completed work or product by or during a specific time;
- (2) There is no employee-employer relationship; and
- (3) The authorized funding for the service is from other than the "A" or personal services cost element.

NOTE: Not all attached agencies have received a delegation under § 76-16(b)(15). If in doubt, attached agencies should check with the Director of DHRD prior to certifying an exemption under § 76-16(b)(15). Authority to certify exemptions under §§76-16(b)(2), and 76-16(b)(12), HRS, has not been delegated; only the Director of DHRD may certify §§ 76-16(b)(2), and 76-16(b)(12) exemptions.

2. By the Director of DHRD, State of Hawaii.

I certify that the services to be provided under this Contract, and the person(s) providing the services under this Contract are exempt from the civil service, pursuant to §76-16, HRS.

(Signature)_____
(Date)_____
(Print Name)_____
(Print Title, if designee of the Director of DHRD)



STATE OF HAWAII
SPECIAL CONDITIONS

1. All work and products shall conform to all applicable City and County, State and Federal rules and regulations.
2. Contractor shall be required to have any contractor's license necessary to perform this work.
3. CONTRACTOR shall provide the following minimum insurance limits and coverage in accordance with the terms of this LIABILITY INSURANCE provision:

<u>Coverage</u>	<u>Limits</u>
Commercial General Liability (occurrence form)	\$1,000,000 combined single limit per occurrence for bodily injury and property damage. \$2,000,000 aggregate coverage.

AUTOMOBILE INSURANCE provision:

<u>Coverage</u>	<u>Limits</u>
Automobile contractual liability	\$1,000,000 per accident or:
Uninsured and Underinsured motorist coverage	Bodily Injury \$1,000,000 per person
Basic No-Fault and Personal Injury Protection (occurrence form)	\$1,000,000 per accident Property Damage \$1,000,000 per accident

Appropriate levels of per occurrence insurance coverages for workers' compensation and any other insurance coverage required by federal or state law.

The STATE shall retain the right at any time to review the coverage, form, and amount of the insurance required hereby. If, in the opinion of the STATE, the insurance provisions in the Contract do not provide adequate protection, the STATE may request that CONTRACTOR obtain additional insurance sufficient in coverage, form, and amount to provide the protection required. The request shall be reasonable but shall be designed to assure protection from and against the kind and extent of the risks involved. If the CONTRACTOR is unable to provide the additional coverage as requested, the STATE reserves the right to terminate the Contract with prior written notice.

The insurance policy required by the Contract shall contain the following clauses:

- (1) "This insurance shall not be canceled, limited in scope of coverage or non-renewed until after 30 days written notice has been given to the State of Hawaii, Department of Business, Economic Development, and Tourism, Foreign-Trade Zone No. 9, 521 Ala Moana, Honolulu, Hawaii 96813."



STATE OF HAWAII

SPECIAL CONDITIONS

(2) “The State of Hawaii, its departments, attached agencies, officers, employees, and agents are added as additional insureds with respect to operations performed for the State of Hawaii.”

(3) “It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contribute with, insurance provided by this policy.”

Failure of the CONTRACTOR to provide and keep in force such insurance shall be regarded as material default under the Contract, entitling the STATE to exercise any or all of the remedies provided in the Contract for a default of the CONTRACTOR.

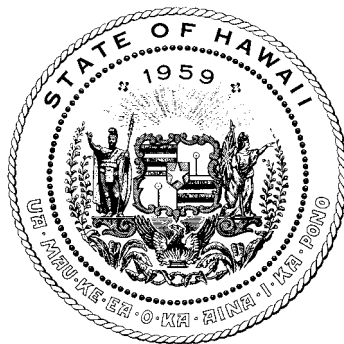
The procuring of such required policy or policies of insurance shall not be construed to limit CONTRACTOR’S liability hereunder or to fulfill the indemnification provisions and requirements of the Contract. Notwithstanding said policy or policies of insurance, CONTRACTOR shall be obliged for the full and total amount of any damage, injury, or loss caused by negligence or neglect connected with the Contract.

4. Liquidated damages. Liquidated damages are fixed at the sum of TWENTY FIVE AND NO/100 DOLLARS (\$25.00) for each and every calendar day the CONTRACTOR fails to perform, in whole or in part, any of his/her obligations specified hereunder. Liquidated damages may be deducted from any payments due or that may thereafter become due to the CONTRACTOR.
5. Non-performance of work or late deliveries. In the event the CONTRACTOR does not, for any reason, perform any or all of the services on the scheduled day of services, or in accordance with the specifications herein, the CONTRACTOR shall notify the Officer-in-Charge and the Officer-in-Charge shall determine that the CONTRACTOR:
 - (1) Provide the services on a non-scheduled day during the same week; or
 - (2) Not be compensated for work not done in an amount equal to the prorated cost based on the price bid for said work.

INTERIM

**GENERAL
CONDITIONS**

1999 EDITION



PUBLIC WORKS DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

INTERIM GENERAL CONDITIONS

1999 EDITION

FOR CONSTRUCTION

**State of Hawaii
Department of Accounting and General Services
Public Works Division**

Printed by
State of Hawaii
First Printing March 2000

PREFACE

The State of Hawaii Procurement Code forms the basis for portions of this Interim General Conditions. The Hawaii Administration Rules Procurement Code is not physically included in this Interim General Conditions, but shall govern if any provisions used in this Interim General Conditions are not consistent with the Hawaii Administration Rules Procurement Code.

Copies of the Hawaii Administration Rules Procurement Code may be obtained from the State Procurement Office, Department of Accounting and General Services, State of Hawaii, fourth floor Kalanimoku Building Room 416, 1153 Punchbowl Street, Honolulu Hawaii.

Approved for Publication

Comptroller, State of Hawaii
Department of Accounting and General Services

Approved as to Form

Deputy Attorney General, State of Hawaii

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ARTICLE 1 - Definitions

Whenever the following terms or pronouns are used in these Bidding and Execution of Contract Requirements, and General Conditions, or in any contract documents or instruments where these Bidding and Execution of Contract Requirements, and General Conditions govern, the intent and meaning shall be interpreted as follows

- 1.1 ADDENDUM (plural - Addenda)** A written or graphic document, including Drawings and Specifications, issued by the Comptroller during the bidding period which modify or interpret the bidding documents, by additions, deletions, clarifications or corrections which shall be considered and made a part of the bid proposal and the contract when executed.
- 1.2 ADDITION (to the contract sum)** Amount added to the contract Sum by Change Order.
- 1.3 ADMINISTRATIVE RULES** Hawaii Administrative Rules for Chapter 103-D of the Hawaii Revised Statutes.
- 1.4 ADMINISTRATOR** The Public Works Administrator, Department of Accounting and General Services
- 1.5 ADVERTISEMENT** A public announcement inviting bids for work to be performed or materials to be furnished.
- 1.6 AMENDMENT** A written document properly executed by the Contractor and Comptroller issued to amend the existing contract between the State and the Contractor.
- 1.7 BAD WEATHER DAY** When weather or other conditions prevent a minimum of four hours of work with the Contractor's normal work force on controlling items of work at the site.
- 1.8 BENEFICIAL OCCUPANCY** The point of project completion when the State can use the constructed facility in whole or in part for its intended purpose even though substantial completion may not be achieved.
- 1.9 BID** See PROPOSAL
- 1.10 BID SECURITY** The security furnished by the bidder from which the State may recover its damages in the event the bidder breaches its promise to enter into a contract with the State and fails to execute the required bonds covering the work contemplated, if its proposal is accepted.
- 1.11 BIDDER** Any individual, partnership, firm, corporation, joint venture, or other legal entity submitting, directly or through a duly authorized representative or agent, a proposal for the work contemplated.
- 1.12 BIDDING DOCUMENTS** The advertisement "Notice to Contractors", or invitation to bid, instructions to bidders, proposal requirements, the bid form and the proposed Contract Documents including all addenda issued prior to receipt of Bids.
- 1.13 BULLETIN** A written notice to the Contractor requesting a price and / or time proposal for contemplated changes preparatory to the issuance of a field order or change order.
- 1.14 BY OR TO THE ENGINEER** To avoid cumbersome and confusing repetition of expressions in these General Conditions, it is provided that whenever the following words or words of like import are used, they shall be understood as if they were followed by the words "by the Engineer" or "to the Engineer", unless the context clearly indicates another meaning: contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable, unacceptable, suitable, accepted, satisfactory, unsatisfactory, sufficient, insufficient, rejected or condemned.
- 1.15 CALENDAR DAY** Any day shown on the calendar beginning at midnight and ending at midnight the following day. If no designation of calendar or working day is made, "day" shall mean calendar day.
- 1.16 CHANGE ORDER** A written order signed by the Engineer that establishes the full payment and final settlement of all claims for direct, indirect and consequential costs, including costs of delays, and establishes any adjustments to contract time related to the work covered and affected by one or more field orders, or for change work done or agreed to be done without issuance of a separate field order. A change order signed by all the parties to the contract constitutes a supplemental agreement.
- 1.17 COMPLETION** See SUBSTANTIAL COMPLETION and FINAL COMPLETION.
- 1.18 COMPTROLLER** The Comptroller of the State of Hawaii, Department of Accounting and General Services.
- 1.19 CONSULTANT** A person, firm or corporation having a contract with the State to furnish services with respect to the project
- 1.20 CONTRACT** The written agreement between the Contractor and the State of Hawaii by its Comptroller, by which the Contractor is bound to furnish all labor, equipment, and materials and to perform the specified work within the contract time stipulated, and by which the State of Hawaii is obligated to compensate the Contractor therefor at the prices set forth therein. The contract shall include the Contract Documents and also any and all amendments and change orders which are required to complete the construction in an acceptable manner.

- 1.21 CONTRACT COMPLETION DATE** The calendar day on which all work on the project, required by the contract, must be completed. See CONTRACT TIME and FINAL COMPLETION.
- 1.22 CONTRACT DOCUMENTS** The Contract, Addenda (which pertain to the Contract Documents, Contractor's Proposal (including Wage Schedule, List of Subcontractors and other documentation accompanying the Bid and any post bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Contract, the Notice to Proceed, the Bonds, these GENERAL CONDITIONS, the SPECIAL CONDITIONS, the Specifications and the Drawings as the same are more specifically identified in the Contract together with all written Amendments, Change Orders, Field Orders, a written order for minor changes in the work and Engineer's written interpretations and clarifications issued on or after the effective date of the Contract.
- 1.23 CONTRACT PRICE** The amount designated on the face of the contract for the performance of work including allowances for extra if any.
- 1.24 CONTRACT TIME** The number of working or calendar days provided in the contract for completion of the contract, exclusive of authorized time extensions. The number of days shall begin running on the effective date in the Notice to Proceed. If in lieu of providing a number of working or calendar days, the contract requires completion by a certain date, the work shall be completed by that date.
- 1.25 CONTRACTOR** Any individual, partnership, firm, corporation, joint venture, or other legal entity undertaking the execution of the work under the terms of the contract with the State of Hawaii, and acting directly or through its agents, or employees.
- 1.26 DEPARTMENT** The Department of Accounting and General Services, State of Hawaii (abbreviated DAGS).
- 1.27 DRAWINGS (or Plans)** The contract drawings in graphic or pictorial form, which show the design, location, character, dimensions and details of the Work to be done and which shall be a part of the Contract Documents.
- 1.28 ENGINEER** The Public Works Administrator, or the authorized person to act in the Administrator's behalf.
- 1.29 EQUAL OR APPROVED EQUAL** Whenever this term is used in the drawings or specifications, it shall be interpreted to mean a brand or article, prequalified in accordance with Section 6.3 SUBSTITUTION OF MATERIALS AND EQUIPMENT, that may be used in place of the one specified.
- 1.30 FIELD ORDER** A written order issued by the Engineer or the Engineer's authorized representative to the Contractor requiring the contract work to be performed in accordance with a change or changes in the work. A field order may (1) establish a price adjustment and/or time adjustment in an amount the Engineer believes is reasonable for the change; or (2) may declare that the Engineer does not intend to adjust contract time or price for the work; or (3) may request the Contractor to submit a proposal for an adjustment to the contract time and/or price by a certain date.
- 1.31 FINAL COMPLETION** The date set by the Comptroller that all work required by the contract and any amendments or changes thereto is in full compliance with the contract.
- 1.32 FORCE ACCOUNT** Term used when Work is ordered to be done without prior agreements as to lump sum or unit price cost thereof and is to be billed for at cost of labor, materials and equipment, insurances, taxes, etc., plus an agreed percentage for overhead and profit.
- 1.33 GUARANTEE** Legally enforceable assurance of the duration of satisfactory performance of quality of a product or Work
- 1.34 GOODS** Materials. §103D-104
- 1.35 HAZARDOUS MATERIALS** Any and all radioactive materials, asbestos, polychlorinated biphenyls, petroleum, crude oil, chemicals known to cause cancer or reproductive toxicity, pollutants, contaminants, toxic substances or materials cited in Hazardous Material Laws. Abandoned motor vehicles or parts thereof are not hazardous material.
- 1.36 HOLIDAYS** The days of each year which are set apart and established as State holidays pursuant to Chapter 8, Hawaii Revised Statutes.
- 1.37 INSPECTOR** The person assigned by the Engineer to make detailed inspections of contract performance and materials supplied for the work.
- 1.38 LAWS** All Federal, State, City and County Laws, ordinances, rules and regulations, and standard specifications, including any amendments thereto effective as of the date of the call for sealed bids.
- 1.39 LIQUIDATED DAMAGES** The amount prescribed in the General Conditions, Section 7.26 FAILURE TO COMPLETE THE WORK ON TIME to be paid to the State or to be deducted from any payments due or to become due the Contractor for each working day or calendar day (as applicable) delay in completing the whole or any specified portion of the work beyond the Contract Time.
- 1.40 LETTER OF AWARD** A written notice from the Comptroller to the successful bidder(s) stating that its proposal has been accepted by the State.
- 1.41 MAJOR UNIT PRICE ITEM** A unit price item which, when extended on its estimated quantities in the proposal form, exceeds five percent (5%) of the

- total base bid proposal less any allowance and contingent items included in the proposal.
- 1.42 NON-CONFORMING WORK** Work that does not fulfill the requirements of the Contract Documents.
- 1.43 NOTICE TO CONTRACTOR** The advertisement for proposals for all work or materials on which bids are required. Such advertisement will indicate the location of the work to be done or the character of the material to be furnished and the time and place of the opening of proposals.
- 1.44 NOTICE TO PROCEED** A written notice from the Engineer to the Contractor advising it of the date on which it is to begin the prosecution of the Work, which date shall also be the beginning of Contract Time.
- 1.45 POST CONTRACT DRAWINGS** Drawings issued after the award of the contract for the purpose of clarification and / or changes to the work indicated in the original drawings and which may be made a part of the contract.
- 1.46 PROJECT ACCEPTANCE DATE** The calendar day on which the Engineer accepts the project as sufficiently completed in compliance with the contract so that the State can occupy or utilize the Work for its intended use. See SUBSTANTIAL COMPLETION.
- 1.47 PROJECT CONTRACT LIMITS** (or Contract Zone) The portion of the site as delineated on the drawings which define the Contractor's primary area of operation for the prosecution of the work. It does not define the exact limits of all construction that may be required under the contract.
- 1.48 PROJECT GUARANTEE** A guarantee issued by the Contractor to the State. See GUARANTEE.
- 1.49 PROPOSAL (Bid)** The executed document submitted by a Bidder in the prescribed manner, in response to a request for proposals or invitation to Bid, to perform at the prices quoted, for the work specified under the contract, within the time prescribed for performance.
- 1.50 PROPOSAL FORM** The form prepared by the State on which the written offer or formal bid for the work to be done is submitted by the Bidder. By submitting a bid on the proposal form, a Bidder adopts the language therein as its own.
- 1.51 PUNCHLIST** A list compiled by the Engineer (or Contractor) stating work yet to be completed or corrected by the Contractor in order to substantially complete or finally complete the contract requirements.
- 1.52 QUESTIONNAIRE** The specified forms on which the bidder shall furnish required information as to its ability to perform and finance the work.
- 1.53 SHOP DRAWINGS** All drawings, diagrams illustrations, schedules and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
- 1.54 SPECIAL CONDITIONS** Supplements or modifies the standard clauses of the GENERAL CONDITIONS setting forth conditions or requirements peculiar to the individual project under consideration, which are not thoroughly or satisfactorily covered, described or explained in these GENERAL CONDITIONS.
- 1.55 SPECIFICATIONS** That portion of the Contract Documents consisting of written descriptions for materials, equipment, construction systems, standards, workmanship, directions, provisions and requirements that pertain to the method and manner of performing the work and certain administrative requirements applicable thereto.
- 1.56 STATE** The State of Hawaii acting through its authorized representative.
- 1.57 SUBCONTRACT** Any written agreement between the Contractor and its subcontractors which contains the conditions under which the subcontractor is to perform a portion of the work for the Contractor.
- 1.58 SUBCONTRACTOR** An individual, partnership, firm, corporation, joint venture or other legal entity, as covered in Chapter 444, Hawaii Revised Statutes, which enters into an agreement with the Contractor to perform a portion of the work for the Contractor.
- 1.59 SUBSTANTIAL COMPLETION** The status of the project when the Contractor has completed all the work and 1) all utilities and services are connected and working, 2) all equipment is in acceptable working condition, 3) additional activity by the Contractor to correct punchlist items as described herein will not prevent or disrupt use of the work or the facility in which the work is located, and 4) the building, structure, improvement or facility can be used for its intended purpose.
- 1.60 SUPERINTENDENT** The employee of the Contractor who is charged with the responsibility of all the Work.
- 1.61 SURETY** The qualified individual, firm or corporation other than the Contractor, which executes a bond with and for the Contractor to insure its acceptable performance of the contract.
- 1.62 UNUSUALLY SEVERE WEATHER** Uncommonly harsh weather including but not limited to hurricanes, tornados, tropical storms and tropical depressions, or as otherwise defined in the SPECIAL CONDITIONS.
- 1.63 WORK** The furnishing of all labor, materials, equipment, and other incidentals necessary or convenient for the successful completion of the

project and the execution of all the duties and obligations imposed by the contract.

- 1.64 WORKING DAY** A calendar day, exclusive of Saturdays, Sundays and State-recognized legal holidays for the month in question.

ABBREVIATIONS

HAR Hawaii Administrative Rules

HRS Hawaii Revised Statutes

VECP Value Engineering cost Proposal

DOTAX State Department of Taxation

IRS Internal Revenue Service

BIDDING AND EXECUTION OF CONTRACT REQUIREMENTS

ARTICLE 2 - Proposal Requirements and Conditions

2.1 QUALIFICATION OF BIDDERS Prospective bidders must be capable of performing the work for which bids are invited, and must be capable of entering into a public contract of \$25,000 or more.

2.1.1 Notice of Intention to Bid

2.1.1.1 In accordance with Section 103D-310, Hawaii Revised Statutes, and Section 3-122-108, Hawaii Administrative Rules, a written notice of intention to bid must be filed for the construction of any public building or public work when the bid is \$25,000 or more. A written notice of intention to bid need not be filed for the mere furnishing and installing of furniture, equipment, appliances, material and any combination of these items when a Contractor's license is not required under Chapter 444 of the Hawaii Revised Statutes, as amended, and the rules and regulations of the Contractor's License Board.

2.1.1.2 The written notice must be addressed to the Comptroller, State of Hawaii, who is the officer charged with letting the contract. The words, "**INTENTION TO BID**" must be clearly written or typed on the face of the envelope containing the written notice of intention to bid. The notice may be faxed, hand carried or mailed to the office indicated in the Notice to Contractors. Submitting the intention to bid via fax is acceptable only to the Oahu office.

2.1.1.3 The written notice must be received by the office(s) indicated in the Notice to Contractors no later than 2:00 p.m. on the 10th calendar day prior to the day designated for opening bids. If the 10th calendar day prior to the day designated for opening bids is a Saturday, Sunday, or legal State holiday, then the written notice must be received by the Department no later than 2:00 p.m. on the last working day immediately prior to said Saturday, Sunday, or legal State holiday. The written notice will be time stamped when received by said office. The time designated by the time stamping device in said office shall be official. If the written notice is hand carried, then the bearer is responsible to ensure that the notice is time stamped by said office. If the notice is faxed, the time of receipt by the Department fax machine shall be official.

2.1.1.4 It is the responsibility of the prospective bidder to ensure that the written notice of intention to bid is received in time and the Department assumes no responsibility for failure of timely delivery caused by the prospective bidder or by any method of conveyance chosen by the prospective bidder.

2.1.1.5 If two (2) or more prospective bidders desire to bid jointly as a joint venture on a single project, they must file an affidavit of joint venture with their notice of intention to bid. Such affidavit of joint venture will be valid only for the specific project for which it is filed. No further license is required when all parties to the joint venture possess current

and appropriate contractor's licenses. Joint ventures are required to be licensed in accordance with Chapter 444 of the Hawaii Revised Statutes, as amended, and the rules and regulations of the Contractor's License Board when any party to the joint venture agreement does not hold a current or appropriate contractor's license. The joint venture must register with the office of the Director of Commerce and Consumer Affairs in accordance with Chapter 425 of the Hawaii Revised Statutes, as amended.

2.1.1.6 No persons, firm or corporation may bid where (1) the person, firm, or corporation, or (2) a corporation owned substantially by the person, firm, or corporation, or (3) a substantial stockholder or an officer of the corporation, or (4) a partner or substantial investor in the firm is in arrears in any payment owed to the State of Hawaii or any of its political subdivisions or is in default of any obligation to the State of Hawaii or to all or to any of its political subdivisions, including default as a surety or failure to perform faithfully and diligently any previous contract with the Department.

2.1.1.7 The Comptroller may, in accordance with Section 103D-310 Hawaii Revised Statutes, require the prospective Bidder to submit answers to questions contained in the STANDARD QUALIFICATION QUESTIONNAIRE FOR PROSPECTIVE BIDDERS ON PUBLIC WORKS CONTRACTS, on the form provided by the Department, properly executed and notarized, setting forth a complete statement of the experience of such prospective Bidder and its organization in performing similar work and a statement of the equipment proposed to be used, together with adequate proof of the availability of such equipment, at least two (2) working days prior to the time advertised for the opening of bids. If the information in the questionnaire proves satisfactory, the Bidder's proposal will be received. All information contained in the answers to the questionnaire shall be kept confidential. The questionnaire will be returned to the Bidder after it has served its purpose.

2.1.1.8 If upon review of the Questionnaire, or otherwise, the Bidder appears not fully qualified or able to perform the intended work, the Comptroller shall, after affording the Bidder an opportunity to be heard and if still of the opinion that the Bidder is not fully qualified to perform the work, refuse to receive or to consider any bid offered by the prospective Bidder.

2.1.1.9 Failure to complete and submit the prequalification questionnaire by the designated deadline will be sufficient cause for the Department to disqualify a prospective Bidder.

2.1.2 Tax Clearance § 103D -328 HRS)

2.1.2.1 Contractors are required to provide both state and federal tax clearances as a prerequisite to entering into a public contract of \$25,000 or more. To meet this requirement, all Bidders shall submit valid tax clearances with their bid proposals when the bid is \$25,000 or more. An additional tax clearance will be required before final payment can be made.

2.1.2.2 Tax clearances may be obtained by completing the Tax Clearance Application (Form A-6) and submitting it to the Hawaii State Department of Taxation (DOTAX) or the

Internal Revenue Service (IRS). The application may be obtained from the DOTAX, the IRS, or the Public Works Division, Kalanimoku Building, Room 422, 1151 Punchbowl Street, Honolulu, Hawaii. The application may be mailed in or walked in to either the DOTAX or the IRS. Both tax agencies encourage the use of their mail-in process, which should be completed within twenty-one (21) calendar days. Tax clearance certificates will be issued to the applicant upon determination that the applicant has filed all tax returns due, and has paid all amounts owing on such returns, including penalty and interest.

2.1.2.3 Only original tax clearance certificates or certified copies will be accepted for this purpose. Failure to submit the required tax clearance certificates may be sufficient grounds for the Department to refuse to receive or consider the prospective bidder's proposal.

2.1.2.4 Tax clearance certificates are valid for six (6) months. The six-month period will begin with the later approval date stamped on the tax clearance. An original copy of a tax clearance that bears an original green certified copy stamp will be accepted by the Department for final payment. The period of validity is two months.

2.1.2.5 The tax clearances submitted with the bid proposals must be valid on the solicitation's first legal advertisement date or any date thereafter up to the bid opening date. Valid tax clearances submitted with the proposal will remain valid for the contract award and encumbrance.

2.1.2.6 Any person, firm or corporation that is not presently doing business in the State of Hawaii and submits a Notice of Intention to Bid must submit along with said Notice of Intention to Bid a certified letter stating that said person, firm or corporation is not doing business in the State of Hawaii and is not in default of any obligations due to the State or any of its political subdivisions.

2.1.2.7 If a business cannot obtain a tax clearance certificate because of tax delinquencies, it may submit a "special letter" from DOTAX and/or the IRS. The "special letter" may only be obtained if (1) the business has an existing installment agreement with the tax agency, or (2) the delinquency is the subject of an administrative or judicial appeal. The bidder is cautioned that the "special letter" from the IRS must be certified by DOTAX. All conditions applied to tax clearance certificates for this purpose are applicable to these "special letters". Instructions to obtain the "special letter" are available from each respective tax agency.

2.1.2.8 Various combinations of tax clearance certificates and "special letters" are acceptable for this purpose as follows:

- (a) Tax clearance certificate signed by both tax agencies;
- (b) Individual tax clearance certificates from each tax agency, respectively;
- (c) Tax clearance certificate from one tax agency and a "special letter" from the other tax agency;
- (d) "Special letters" from both tax agencies.

2.1.3 Wrongful Refusal to Accept a Bid - In the event the Comptroller, for any reason, wrongfully refuses to accept what would otherwise be a responsive and responsible lowest bid, the exclusive remedy for such lowest bidder shall be the recovery of the reasonable actual costs of preparing the bid. No other bidder shall have any claim for damages. Refer to 2.13 PROTEST.

2.2 INTERPRETATION OF QUANTITIES IN BID SCHEDULE

2.2.1 When quantities for individual items of work are listed in the proposal form for which respective unit prices are asked, said quantities are estimated or approximate and are to be used by the Department only for the purpose of comparing on a uniform basis bids offered for the work. The Department does not, expressly or by implication, agree that the actual quantity of work will correspond therewith.

2.2.2 After determining the low bidder by comparison of bids submitted in accordance with the proposal form and Section 3.1 CONSIDERATION OF PROPOSALS; CANCELLATION in these specifications, the quantities of unit price items of work may increase or decrease.

2.2.3 On unit price bids, payment will be made only for the actual number of units incorporated into the finished project at the unit price bid, subject to Section 4.7 VARIATIONS IN ESTIMATED QUANTITIES.

2.3 CONTENTS OF PROPOSAL FORMS

2.3.1 Prospective bidders will be furnished with proposal forms giving the location, description, and the contract time of the work contemplated for which a lump sum bid price is asked or containing a schedule of items, together with estimated quantities of work to be performed and materials to be furnished, for which unit bid prices and/or lump sum bid prices are asked.

2.3.2 All papers bound with or attached to the proposal form shall be considered a part thereof and shall not be detached or altered when the proposal is submitted.

2.3.3 The drawings, specifications and other documents designated in the proposal form, will also be considered a part thereof whether attached or not.

2.3.4 By submitting a bid on the proposal form, a bidder accepts the language therein as its own.

2.4 THE SITE AND PROPOSED CONTRACT DOCUMENTS

2.4.1 The Bidder shall examine carefully the Project Site contemplated and the proposal, drawings, specifications, supplemental specifications, SPECIAL CONDITIONS, and any documents or items referenced therein and contract and bond forms therefore. The submission of a bid shall be considered as a warranty that the Bidder has made such examination and is informed of the conditions to be encountered in performing the Work and of the requirements of the drawings, specifications, supplemental specifications, SPECIAL CONDITIONS and any documents and items referenced therein, and contract and bonds.

2.5 ADDENDA AND BID CLARIFICATIONS

2.5.1 The terms and requirements of the bid documents (i.e. drawings, specifications and other bid and contract documents) cannot be changed prior to the bid opening except by a duly issued addenda or bid clarification.

2.5.2 The Department may alter, increase or decrease the scope of the work or the contract time, provisions and conditions by issuing a written addendum which sets forth such alterations, increase or decrease.

2.5.3 Bid Discrepancy - If a bidder discovers what it considers to be a discrepancy, ambiguity, omission or doubt as to the meaning of drawings, specifications and any other bid or contract documents, the bidder shall request in writing no later than 14 days before the bids are opened.

2.5.4 Addenda to the bid documents will be provided to all prospective bidders at the respective offices furnished for such purposes. Each addendum shall be an addition to the Contract Documents.

2.5.5 Upon providing an addenda, all bidders shall be deemed to be on notice of the information therein whether or not the addendum or bid clarification is actually received. All addenda and bid clarifications so issued shall become part of the Contract Documents.

2.5.6 No claim for additional compensation and/or time for performance will be allowed if the Contractor discovered, or in the exercise of reasonable care, should have discovered a discrepancy, ambiguity, omission or doubt for which an interpretation was not requested.

2.6 SUBSTITUTION OF MATERIALS AND EQUIPMENT BEFORE BID OPENING

2.6.1 Brand names of materials or equipment are specified or shown on the drawings to indicate a quality, style, appearance or performance and not to limit competition. The Bidder shall base its bid on one of the specified brand names unless alternate brands are qualified as equal or better in an addendum. Qualifications of such proposed alternate brands shall be submitted in writing and addressed to the Public Works Administrator. The face of the envelope containing the request must be clearly marked "SUBSTITUTION REQUEST". The request may be hand carried to the Public Works Division, 4th Floor of the Kalanimoku Building, Room 426, 1151 Punchbowl Street or mailed to the Public Works Division, P.O. Box 119, Honolulu, Hawaii 96810. In either case, the written request must be received by the Public Works Division no later than the time and date specified in the SPECIAL CONDITIONS. The written request will be time stamped by the Public Works Division. For the purpose of this section, the time designated by the time stamping device in the Public Works Division shall be official. If the written request is hand carried, the bearer is responsible to ensure that the request is time stamped by the Public Works Division.

2.6.2 Submit three (3) sets of the written request, technical brochures, and a statement of variances. Refer to the Appendix for the Sample "Request for Substitution."

2.6.3 Statement of Variances - The statement of variances must list all features of the proposed substitution which differ from the drawings, specifications and / or product(s) specified and must further certify that the substitution has no other variant features. The brochure and information submitted shall be clearly marked showing make, model, size, options, etc., and must include sufficient evidence to evaluate each feature listed as a variance. A request will be denied if submitted without sufficient evidence. If after installing the substituted product, an unlisted variance is discovered, Contractor shall immediately replace the product with a specified product all at no cost to the State

2.6.4 Substitution Denial - Any substitution request not complying with the above requirements will be denied. Substitution requests sent to other agencies and received by the Public Works Division after the deadline above will be denied.

2.6.5 An addendum shall be issued to inform all prospective bidders of any accepted substitution in accordance with Section 2.5 ADDENDA AND BID CLARIFICATIONS.

2.6.6 For substitutions of materials and equipment after issuance of the Letter of Award, refer to Section 6.3 SUBSTITUTION OF MATERIALS AND EQUIPMENT AFTER BID OPENING.

2.7 PREPARATION OF PROPOSAL

2.7.1 The Bidder's proposal must be submitted on the proposal form furnished by the Department. The proposal must be prepared in full accordance with the instructions thereon. The Bidder must state, both in words and numerals, the lump sum price or total sum bid at which the work contemplated is proposed to be done. These prices must be written in ink or typed. In case of a discrepancy between the prices written in words and those written in figures, the words shall govern over the figures. The Bidder shall sign the proposal in the spaces provided with ink. By submitting a bid, the Bidder adopts the language of the proposal as its own.

2.7.2 If the proposal is made by an individual, the person's name and post office address must be shown in the space provided. If made by a partnership the name and post office address of each member of the partnership must be shown and the proposal signed by all partners or evidence in the form of a partnership agreement must be submitted showing the authority of the partner to enter, on behalf of said partnership, into contract with the State. If made by a corporation the proposal must show the name, titles, and business address of the president, secretary and treasurer and also evidence in the form of a corporate resolution must be submitted showing the authority of the particular corporate representative to enter on behalf of said corporation into contract with the State. If made by a joint venture the name and post office address of each member of the individual firm, partnership or corporation comprising the joint-venture must be shown with other pertinent information required of individuals, partnerships or corporations as the case may be. The proposal must be signed by all parties to the joint-venture or evidence in the form of a Joint-Venture Agreement must be submitted showing the authority of the joint-venture's representative to enter on behalf of said joint-venture into contract with the State.

2.7.3 Pursuant to the requirements of Section 103D-302, HRS, each Bidder shall include in its bid the name of each person or firm to be engaged by the Bidder on the project as joint contractor or subcontractor indicating also the nature and scope of work to be performed by such joint contractor and/or subcontractor and their respective contractor's license number. A joint contractor or subcontractor performing less than or equal to one percent of the total bid amount is not required to be listed in the proposal. The Bidder shall be solely responsible for verifying that their joint contractor or subcontractor has the proper license at the time of the submitted bid.

2.8 BID SECURITY §3-122-223(d) HAR

2.8.1 Subject to the exceptions in Section 3-122-223(d) HAR, all lump sum bids of \$25,000 and higher, or lump sum base bids including alternates of \$25,000 and higher, that are not accompanied by bid security are non-responsive. Bid security shall be one of the following: §3-122-222(a) HAR

2.8.1.1 Surety bid bond underwritten by a company licensed to issue bonds in this State which shall be substantially in the form of the Surety Bid Bond form in the Appendix; or

2.8.1.2 Legal Tender; or

2.8.1.3 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, and payable on demand to the State by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration.

(a) These instruments may be utilized only to a maximum of \$100,000.

(b) If the required security or bond amount totals over \$100,000, more than one instrument not exceeding \$100,000 each and issued by different financial institutions shall be accepted.

(c) **CAUTION** - Bidders are cautioned that certificates of deposit or share certificates with an early withdrawal penalty must have a face value sufficient to cover the maximum penalty amount in addition to the proposal guaranty requirement. If the certificate is made out to two names, the certificate must be assigned unconditionally to the Comptroller.

2.8.2 Unless otherwise stated, the bid security shall be in an amount equal to at least five percent (5%) of the lump sum bid or lump sum base bid including alternates or in an amount required by the terms of the federal funding, where applicable.

2.8.3 If the Bidder is a corporation, evidence in the form of a corporate resolution, authorizing the corporate representative to execute the bond must be submitted with the proposal. (See sample in Appendix.) If the Bidder is a partnership, all partners must sign the bond or evidence in the form of a partnership agreement must be submitted showing the authority of the partner.

2.8.4 If the Bidder is a joint -venture, all parties to the joint venture must sign the bond; provided, that one party to the joint-

venture may sign on behalf of the joint-venture if evidence in the form of a joint-venture agreement or power of attorney, is submitted showing the authority of the signatory to sign the bond on behalf of the joint-venture.

2.8.5 In the case where the award will be made on a group or item basis, the amount of bid security shall be based on the total bid for all groups or items submitted.

2.8.6 Bidders are cautioned that surety bid bonds which place a limit in value to the difference between the bid amount and the next acceptable bid, such value not to exceed the purported amount of the bond, are not acceptable. Also, surety bid bonds which place a time limit on the right of the State to make claim other than allowed by statutes or these GENERAL CONDITIONS are not acceptable. Bidders are hereby notified that a surety bid bond containing such limitation(s) is not acceptable and a bid accompanied by such surety bid bond will be automatically rejected.

2.9 DELIVERY OF PROPOSALS - The entire proposal shall be placed together with the bid security, in a sealed envelope no smaller than 9-1/2" x 12" so marked as to indicate the identity of the project, the project number, the date of bid opening and the name and address of the bidder and then delivered as indicated in the Notice to Contractors. Bids which do not comply with this requirement may not be considered. Proposals will be received up to the time fixed in the public notice for opening of bids and must be in the hands of the official by the time indicated. The words "SEALED BID" must be clearly written or typed on the face of the sealed envelope containing the proposal and bid security.

2.10 WITHDRAWAL OR REVISION OF PROPOSAL - may be modified prior to the deadline to submit the offers by any of the following documents.

2.10.1 Withdrawal of Proposals:

2.10.1.1 A signed, written notice received in the office designated in the solicitation; or

2.10.1.2 A written notice faxed to the office designated in the solicitation; or

2.10.1.3 A telegraphic message received by telephone by the office designated in the solicitation from the receiving telegraph company office, provided the telegraph company confirms the telephone message by sending a written copy of the telegram showing that the message was received at such office prior to the time and date set for the opening.

2.10.2 Modification of Proposals:

2.10.2.1 A written notice received in the office designated in the solicitation, stating that a modification to the offer is submitted; and

2.10.2.2 The actual modification sealed securely in a separate envelope or container, accompanying the written notice.

2.11 PUBLIC OPENING OF PROPOSALS - Proposals will be opened and read publicly at the time and place indicated

in the Notice to Contractors. Bidders, their authorized agents and other interested parties are invited to be present.

2.12 DISQUALIFICATION OF BIDDERS - Any one or more of the following causes will be considered as sufficient for the disqualification of a Bidder and the rejection of its proposal or proposals:

2.12.1 Non-compliance with Section 2.1 QUALIFICATION OF BIDDERS.

2.12.2 Evidence of collusion among bidders.

2.12.3 Lack of responsibility and cooperation as shown by past work such as failing to complete all of the requirements to close the project within a reasonable time or engaging in a pattern of unreasonable or frivolous claims for extra compensation.

2.12.4 Being in arrears on existing contracts with the State of Hawaii, or having defaulted on a previous contract with the State of Hawaii.

2.12.5 Lack of proper equipment and/or sufficient experience to perform the work contemplated, as revealed by the Standard Questionnaire and Financial Statement for Bidders.

2.12.6 No contractor's license or a contractor's license which does not cover type of work contemplated.

2.12.7 More than one proposal for the same work from an individual, firm, partnership, corporation or joint venture under the same or different name.

2.12.8 Delivery of bids after the deadline specified in the advertisement calling for bids.

2.12.9 Failure to pay, or satisfactorily settle, all bills overdue for labor and materials of former contracts in force at the time of issuance of proposal forms.

2.12.10 Debarment or suspension pursuant to the provisions of Chapters 103D, 104 and 444, Hawaii Revised Statutes, as amended.

2.13 PROTEST

2.13.1 Protests shall be adjudicated in accordance with §103D-701, HRS and as amended.

2.13.2 No Protest based upon the contents of the solicitation shall be considered unless it is submitted in writing to the Comptroller, State of Hawaii prior to the date set for the receipt of proposals.

2.13.3 A protest of an award or proposed award pursuant to §103D-302 or §103D-303, HRS, shall be submitted in writing to the Comptroller within five (5) working days after the posting of the award of the Contract.

2.13.4 In addition to any other relief, when a protest is sustained and the protestor should have been awarded the contract under the solicitation but is not, then the protestor shall be entitled to the actual costs reasonably incurred in connection

with the solicitation, including bid or proposal preparation costs but not attorney's fees.

ARTICLE 3 - Award and Execution of Contract

3.1 CONSIDERATION OF PROPOSALS; CANCELLATION - After the proposals are opened and read, the figures will be extended and/or totaled in accordance with the bid prices of the acceptable proposals and the totals will be compared and the results of such comparison shall be made public. In the event of a tie bid, the low bidder shall be determined by lot. In the comparison of bids, words written in the proposals will govern over figures and unit prices will govern over totals. Until the award of the contract, the Department may cancel the solicitation, reject any and all proposals in whole or part and may waive any defects or technicalities whenever such action is deemed to be in the best interest of the State.

3.2 IRREGULAR PROPOSALS - Proposals will be considered irregular and may be rejected for the following reasons:

3.2.1 If the proposal is unsigned.

3.2.2 If bid security is not in accordance with Section 2.8 BID SECURITY.

3.2.3 If proposal is on a form other than that furnished by the Department; or if the form is altered or any part thereof detached.

3.2.4 If the proposal shows any non-compliance with applicable law, alteration of form, additions not called, conditional bids, incomplete bids, non initialed erasures, other defects, or if the prices are obviously unbalanced.

3.2.5 If the Bidder adds any provisions reserving the right to accept or reject an award.

3.2.6 If the Bidder adds any provisions reserving the right to enter into a contract pursuant to an award.

3.2.7 When a proposal is signed by an officer or officers of a corporation and a currently certified corporate resolution authorizing such signer(s) to submit such proposal is not submitted with the proposal or when the proposal is signed by an agent other than the officer or officers of a corporation or a member of a partnership and a power of attorney is not submitted with the proposal.

3.2.8 Where there is an incomplete or ambiguous listing of joint contractors and/or subcontractors the proposal may be rejected. All work which is not listed as being performed by joint contractors and/or subcontractors must be performed by the bidder with its own employees. Additions to the list of joint contractors or subcontractors will not be allowed. Whenever there is a doubt as to the completeness of the list, the Bidder will be required to submit within five (5) working days, a written confirmation that the work in question will be performed with its own work force. Whenever there is more than one joint contractor and/or subcontractor listed for the same item of work,

the Bidder will be required to either confirm in writing within five (5) working days that all joint contractors or subcontractors listed will actually be engaged on the project or obtain within five (5) working days written releases from those joint contractors and/or subcontractors who will not be engaged.

3.2.9 If in the opinion of the Comptroller, the Bidder and its listed subcontractors do not have the contractor's licenses or combination of contractor's licenses necessary to complete all of the work.

3.3 CORRECTION OF BIDS AND WITHDRAWAL OF BIDS §3-122-31 HAR

3.3.1 Corrections to bids after bid openings but prior to award may be made under the following conditions:

3.3.1.1 If the mistake is attributable to an arithmetical error, the Comptroller shall so correct the mistake. In case of error in extension of bid price, the unit price shall govern.

3.3.1.2 If the mistake is a minor informality which shall not affect price, quantity, quality, delivery, or contractual conditions, the Bidder shall request correction by submitting proof of evidentiary value which demonstrates that a mistake was made. The Comptroller shall prepare a written approval or denial in response to this request. Examples of such mistakes include:

- (a) Typographical errors;
- (b) Transition errors;
- (c) Failure of a Bidder to sign the bid, but only if the unsigned bid is accompanied by other material indicating the Bidder's intent to be bound.

3.3.1.3 For reasons not allowable under paragraphs 3.3.1.1 and 3.3.1.2 when the Comptroller determines that the correction or waiver of an obvious mistake is in the best interest of the Department or is warranted for the fair treatment of other bidders.

3.3.2 Withdrawal of bids after bid opening but prior to award may be made when the bid contains a mistake attributable to an obvious error which affects price, quantity, quality, delivery, or contractual conditions, and the bidder requests withdrawal by submitting proof of evidentiary value which demonstrates that a mistake was made. The Comptroller shall prepare a written approval or denial in response to this request.

3.3.3 Correction or withdrawal of bids after award is not permissible except in response to a written withdrawal or correction request by the Contractor, and the Comptroller makes a written determination that the Department's procurement practices and policies would not be materially affected by such correction or withdrawal.

3.4 AWARD OF CONTRACT

3.4.1 The award of contract, if it be awarded, will be made within sixty (60) consecutive calendar days after the opening of the proposals to the lowest responsible and responsive Bidder (including the alternate or alternates which may be selected by the Comptroller in the case of alternate bids) whose proposal

complies with all the requirements prescribed, but in no case will an award be made until all necessary investigations are made. The successful Bidder will be notified, by letter mailed to the address shown on the proposal, that its bid has been accepted and that it has been awarded the contract.

3.4.2 If the contract is not awarded within the sixty (60) days noted in paragraph 3.4.1 above, the Department may request the successful Bidder to extend the time for the acceptance of its bid. The Bidder may reject such a request without penalty; and in such case, the Department may at its sole discretion make a similar offer to the next lowest responsive and responsible bidder and so on until a bid is duly accepted or until the Department elects to stop making such requests.

3.4.3 No contract will be awarded to any person or firm suspended or debarred under the provisions of Chapters 103D, 104 and Chapter 444, Hawaii Revised Statutes as amended.

3.4.4 The contract will be drawn on the forms furnished by the Comptroller. The contract will not be binding on the Department until all required signatures have been affixed thereto and written certification that funds are available for the work has been made.

3.5 CANCELLATION OF AWARD - The Department reserves the right to cancel the award of any contract at any time before the execution of said contract by all parties. The exclusive remedy to the awardee for such cancellation shall be payment of the reasonable bid preparation costs and the reimbursement of any direct expenses incurred as directed in the Notice of Award. Such cancellation will not incur any liability by the Department to any other Bidder.

3.6 RETURN OF BID SECURITY - All bid securities, except those of the four (4) lowest Bidders, will be returned following the opening and checking of the proposals. The retained bid securities of the four lowest Bidders will be returned within five (5) working days following the complete execution of the contract.

3.7 REQUIREMENT OF PERFORMANCE AND PAYMENT BONDS

3.7.1 Performance and Payment Bonds shall be required for contracts \$25,000 and higher. At the time of the execution of the contract, the successful Bidder shall file good and sufficient performance and payment bonds on the form furnished by the Department (see Appendix), each in an amount equal to one hundred percent (100%) of the amount of the contract price unless otherwise stated in the solicitation of bids. Acceptable performance and payment bonds shall be limited to the following:

3.7.1.2 Surety bonds underwritten by a company licensed to issue bonds in this State; or

3.7.1.3 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, and payable on demand to the State by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration.

- (a) These instruments may be utilized only a maximum of \$100,000.
- (b) If the required security or bond amount totals over \$100,000, more than one instrument not exceeding \$100,000 each and issued by different financial institutions shall be acceptable.

3.7.2 If the Contractor fails to deliver the required performance and payment bonds, the contractor's award shall be canceled, the Department shall have the remedies provided under Section 3.9 FAILURE TO EXECUTE THE CONTRACT and award of the contract shall be made to the next lowest responsible and responsive bidder.

3.8 EXECUTION OF THE CONTRACT

3.8.1 The contract shall be signed by the successful bidder and returned, together with satisfactory performance and payment bonds, within ten (10) calendar days after the bidder is awarded the contract for execution or within such further time as the Comptroller may allow. No proposal or contract shall be considered binding upon the State until the contract has been fully and properly executed by all parties thereto and the Comptroller has endorsed thereon its certificate, as required by Section 103D-309, HRS, that there is an available unexpended appropriation or balance of an appropriation over and above all outstanding contracts sufficient to cover the State's amount required by such contract.

3.8.2 On any individual award totaling less than \$25,000, the State reserves the right to execute the contract by the issuance of a State Purchase Order. Issuance of a State Purchase Order shall result in a binding contract between the parties without further action by the State. The issuance of a State Purchase Order shall not be deemed a waiver of these General Conditions and Contract Document requirements.

3.9 FAILURE TO EXECUTE THE CONTRACT

3.9.1 Before the Award - If a low Bidder without legal justification withdraws its bid after the opening of bids but before the award of the contract, the State shall be entitled to retain as liquidated damages the amount established as bid security, and may take all appropriate actions to recover the liquidated damages sum from the property or third-party obligations deposited as bid security.

3.9.2 After the Award - If the Bidder to whom a contract is awarded shall fail or neglect to enter into the contract and to furnish satisfactory security within ten (10) calendar days after such award or within such further time as the Comptroller may allow, the State shall be entitled to recover from such Bidder its actual damages, including but not limited to the difference between the bid and the next lowest responsive bid, as well as personnel and administrative costs, consulting and legal fees and other expenses incurred in arranging a contract with the next low responsive bidder or calling for new bids. The State may apply all or part of the amount of the bid security to reduce its damages. If upon determination by the State of the amount of its damages the bid security exceeds that amount, it shall release or return the excess to the person who provided same.

3.9.3 Comptroller's Options - Upon a withdrawal of the lowest responsive bid, or upon a refusal or failure of the lowest

Bidder to execute the contract, the Comptroller may thereupon award the contract to the next lowest responsible and responsive Bidder or may call for new bids, whichever method the Comptroller may deem to be in the best interests of the State.

3.10 NOTICE TO PROCEED

3.10.1 After the contract is fully executed and signed by the Comptroller, the Contractor will be sent a formal Notice to Proceed letter advising the Contractor of the date on which it may proceed with the work. The Contractor shall be allowed ten (10) consecutive working days from said date to begin its work. In the event that the Contractor refuses or neglects to start the work, the Comptroller may terminate the contract in accordance with Section 7.27 TERMINATION OF CONTRACT FOR CAUSE.

3.10.2 The Contractor may commence its operations strictly at its own risk prior to receipt of the formal notice to proceed, provided it makes a written request and has received approval from the Engineer in writing. All work performed shall be conducted in accordance with Section 7.1 PROSECUTION OF THE WORK.

3.10.3 In certain cases, the State, with agreement of the Contractor, may issue a Notice to Proceed before full execution of the contract by the Comptroller and it may further issue a Notice to Proceed concurrently with the Notice of Award.

3.10.4 In the event the Notice to Proceed is not issued within one hundred and eighty (180) days after the date of the award of contract the Contractor may submit a claim for increased labor and material costs (but not overhead costs) which are directly attributable to the delay beyond the first 180 days. Such claims shall be accompanied with the necessary documentation to justify the claim. No payment will be made for escalation costs that are not fully justified.

GENERAL CONDITIONS

ARTICLE 4 - Scope of Work

4.1 INTENT OF CONTRACT, DUTY OF CONTRACTOR - The intent of the Contract is to provide for the construction, complete in every detail, of the Work described at the accepted bid price and within the time established by the contract. The Contractor has the duty to furnish all labor, materials, equipment, tools, transportation, incidentals and supplies and to determine the means, methods and schedules required to complete the work in accordance with the drawings, specifications and terms of the contract.

4.2 CHANGES - The Engineer may at any time, during the progress of the work, by written order, and without notice to the sureties, make changes in the work as may be found to be necessary or desirable. Such changes shall not invalidate the Contract nor release the Surety, and the Contractor will perform the work as changed, as though it had been a part of the original Contract.

4.2.1 Minor Changes - Minor changes in the work may be directed by the Engineer with no change in contract price or time of performance. Minor changes are consistent with the intent of the Contract Documents and do not substantially alter the type of work to be performed or involve any adjustment to the contract sum or extension of the contract time.

4.2.2 Oral Orders

4.2.2.1 Any oral order, direction, instruction, interpretation or determination from the Engineer or any other person which in the opinion of the Contractor causes any change, shall be considered as a change only if the Contractor gives the Engineer written notice of its intent to treat such oral order, direction, instruction, interpretation or determination as a change directive. Such written notice must be delivered to the Engineer before the Contractor acts in conformity with the oral order, direction, instruction, interpretation or determination, but not more than five (5) days after delivery of the oral order to the Contractor. The written notice shall state the date, circumstances, whether a time extension will be requested, and source of the order that the Contractor regards as a change. Such written notice may not be waived and shall be a condition precedent to the filing of any claim by the Contractor. Unless the Contractor acts in accordance with this procedure, any such oral order shall not be treated as a change for which the Contractor may make a claim for an increase in the contract time or contract price related to such work.

4.2.2.2 No more than five (5) days after receipt of the written notice from the Contractor, a Field Order shall be issued for the subject work if the State agrees that it constitutes a change. If no Field Order is issued in the time established, it shall be deemed a rejection of Contractor's claim for a change. If the Contractor objects to the failure to issue a Field Order, it shall file a written protest with the Engineer within thirty (30) days after delivery to the Engineer of the Contractor's written notice of its intention to treat the oral order as a change. In all cases, the Contractor shall proceed with the work. The protest shall be determined as provided in Section 7.25 DISPUTES AND CLAIMS.

4.2.3 Field Orders – Upon receipt of a Field Order, the Contractor shall proceed with the changes as ordered. If the Contractor does not agree with any of the terms or conditions or in the adjustment or non-adjustment to the contract time and / or contract price, Contractor shall file a notice of intent to claim within thirty (30) calendar days after receipt of the written Field Order that was not agreed upon by both parties. Failure to file such protest within the time specified shall constitute agreement on the part of the Contractor with the terms, conditions, amounts and adjustment or non-adjustment to contract price and / or contract time set forth in the Field Order. The requirement for timely written notice shall be a condition precedent to the assertion of a claim.

4.2.4 Change Orders

4.2.4.1 The Department will issue sequentially numbered Change Orders at times it deems appropriate during the contract period. A Change Order may contain the adjustment in contract price and / or time for a number of Field Orders. The Change Order will be issued in the format attached (refer

to the Appendix). No payment for any change will be made until the change order is issued.

4.2.4.2 The penal sum of the Surety Performance and Payment Bonds will be adjusted by the amount of each and every Change Order.

4.2.4.3 Upon receipt of a Change Order, if the Contractor does not agree with any of the terms or conditions or in the adjustment or non-adjustment to the contract time and / or contract price, Contractor shall file a notice of intent to claim within thirty (30) calendar days after receipt of the written Change Order that was not agreed upon by both parties. Failure to file such protest within the time specified shall constitute agreement on the part of the Contractor with the terms, conditions, amounts and adjustment or non-adjustment to contract price and / or contract time set forth in the Change Order. The requirement for timely written notice shall be a condition precedent to the assertion of a claim.

4.3 DUTY OF CONTRACTOR TO PROVIDE PROPOSAL FOR CHANGES

4.3.1 A Field Order may request the Contractor to supply the Department with a proposal for an adjustment to the contract time or contract price for the work described therein. Any such request for a proposal shall not affect the duty of the Contractor to proceed as ordered with the work described in the Field Order.

4.3.2 The Engineer from time to time may issue a Bulletin to the Contractor requesting price and / or time adjustment proposals for contemplated changes in the work. A Bulletin is not a directive for the Contractor to perform the work described therein.

4.3.3 Within fifteen (15) days after receipt of a Bulletin or Field Order containing a request for proposal, the Contractor shall submit to the Engineer a detailed written statement in a format similar to the one shown in the Appendix to these General Conditions setting forth all charges the Contractor proposes for the change and the proposed adjustment of the contract time, all properly itemized and supported by sufficient substantiating data to permit evaluation. No time extension will be granted for delays caused by late Contractor pricing of changes or proposed changes. If the project is delayed because Contractor failed to submit the cost proposal within the fifteen (15) days, or as allowed by the Engineer, liquidated damages will be assessed in accordance with Section 7.26 FAILURE TO COMPLETE THE WORK ON TIME.

4.3.4 No payment shall be allowed to the Contractor for pricing or negotiating proposed or actual changes.

4.4 PRICE ADJUSTMENT §3-125-13 HAR

4.4.1 Any adjustment in the contract price pursuant to a change or claim in this contract shall be made in one or more of the following ways:

4.4.1.1 By agreement to a fixed price adjustment before commencement of the pertinent performance or as soon thereafter as practicable;

4.4.1.2 By unit prices specified in the contract or subsequently agreed upon;

4.4.1.3 Whenever there is a variation in quantity for any work covered by any line item in the schedule of costs submitted as required by Section 7.2 COMMENCEMENT REQUIREMENTS, by the Department at its discretion, adjusting the lump sum price proportionately;

4.4.1.4 In such other manner as the parties may mutually agree;

4.4.1.5 At the sole option of the Engineer, by the costs attributable to the event or situation covered by the change, plus appropriate profit or fee, all as specified in Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT and the force account provision of Section 8.3 PAYMENT FOR ADDITIONAL WORK; or

4.4.1.6 In the absence of an agreement between the two parties, by a unilateral determination by the Engineer of the reasonable and necessary costs attributable to the event or situation covered by the change, plus appropriate profit or fee, all as computed by the Engineer in accordance with applicable sections of Chapters 3-123 and 3-126 of the Hawaii Administrative Rules and Regulations, and Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT.

4.5 ALLOWANCES FOR OVERHEAD AND PROFIT §3-125-13 HAR

4.5.1 In determining the cost or credit to the Department resulting from a change, the allowances for all overhead, including, extended overhead resulting from adjustments to contract time (including home office, branch office and field overhead, and related delay impact costs) and profit combined, shall not exceed the percentages set forth below:

4.5.1.1 For the Contractor, for any work performed by its own labor forces, fifteen percent (15%) of the direct cost;

4.5.1.2 For each subcontractor involved, for any work performed by its own forces, fifteen percent (15%) of the direct cost;

4.5.1.3 For the Contractor or any subcontractor, for work performed by their subcontractors, seven percent (7%) of the amount due the performing subcontractor.

4.5.2 Not more than three markup allowance line item additions not exceeding the maximum percentage shown above will be allowed for profit and overhead, regardless of the number of tier subcontractors.

4.5.3 The allowance percentages will be applied to all credits and to the net increase of direct costs where work is added and deleted by the changes.

4.6 PAYMENT FOR DELETED MATERIAL

4.6.1 **Canceled Orders** - If acceptable material was ordered by the Contractor for any item deleted by an ordered change in the work prior to the date of notification of such deletion by the Engineer, the Contractor shall use its best efforts to cancel the order. The Department shall pay reasonable

cancellation charges required by the supplier excluding any markup for overhead and profit to the Contractor.

4.6.2 Returned Materials - If acceptable deleted material is in the possession of the Contractor or is ultimately received by the Contractor, if such material is returnable to the supplier and the Engineer so directs, the material shall be returned and the Contractor will be paid for the reasonable charges made by the supplier for the return of the material, excluding any markup for overhead and profit to the Contractor. The cost to the Contractor for handling the returned material will be paid for as provided in Section 4.4 PRICE ADJUSTMENT.

4.6.3 Uncancelled Materials - If orders for acceptable deleted material cannot be canceled at a reasonable cost, it will be paid for at the actual cost to the Contractor including an appropriate markup for overhead and profit as set forth in Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT. In such case, the material paid for shall become the property of the State and the cost of further storage and handling shall be paid for as provided in Section 4.4 PRICE ADJUSTMENT.

4.7 VARIATIONS IN ESTIMATED QUANTITIES §3-125-10 HAR

4.7.1 Where the quantity of a major unit price item in this contract is estimated on the proposal form and where the actual quantity of such pay item varies more than fifteen percent (15%) above or below the estimated quantity stated in this contract, an adjustment in the contract price shall be made upon demand of either party. The adjustment shall be based upon any increase or decrease in costs due solely to the variation above one hundred fifteen percent (115%) or below eighty-five percent (85%) of the estimated quantity. The adjustment shall be subject to Section 4.4 PRICE ADJUSTMENT and Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT. If the quantity variation is such as to cause an increase in the time necessary for completion, the Engineer shall, upon receipt of a written request for an extension of time within thirty (30) days of the item's completion, ascertain the facts and make such adjustment to the completion date as the Engineer finds justified.

4.8 VARIATIONS IN BOTTOM ELEVATIONS The Contractor shall plan and construct to the bottom elevations of footings, piles, drilled shafts, or cofferdams as shown on the drawings. When the bottom of a pile, drilled shaft, or cofferdam is shown as an estimated or approximate elevation, the Contractor shall plan and construct to that elevation or to any deeper elevation required by the drawings or direction of the Engineer. In the event the bottom elevation is lowered, the Contractor shall be entitled to additional payment in accordance with Sections 4.4 PRICE ADJUSTMENT and 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT. In the event the bottom elevation is raised, the State shall be entitled to a credit in accordance with Sections 4.2 CHANGES, 4.4 PRICE ADJUSTMENT and 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT.

4.9 DIFFERING SITE CONDITIONS §3-125-11 HAR

4.9.1 During the progress of the work, if the Contractor encounters conditions at the site differing materially from those

shown in the drawings and specifications, Contractor shall promptly, and before any such conditions are disturbed or damaged (except in an emergency as required by subsection 7.17.8), notify the Engineer in writing of:

4.9.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the contract; or

4.9.1.2 Unknown physical conditions at the site, of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this contract.

4.9.2 After receipt of written notice, the Engineer shall promptly investigate the site, and if it is found that such conditions do materially differ and cause an increase in the Contractor's cost of, or the time required to, perform any part of the Work, whether or not changed as a result of such conditions, an adjustment shall be made and the contract modified accordingly. Any adjustment in contract price made pursuant to this Section 4.9 shall be determined in accordance with Sections 4.4 PRICE ADJUSTMENT and 7.25 DISPUTES AND CLAIMS.

4.9.3 Nothing contained in this Section 4.9 shall be grounds for an adjustment in compensation if the Contractor had actual knowledge or should have known of the existence of such conditions prior to the submission of bids.

4.10 UTILITIES AND SERVICES

4.10.1 The cost of all the following will be included in the contract price and the Contractor shall be fully responsible for:

4.10.1.1 Reviewing and checking all such information and data,

4.10.1.2 Locating all underground and overhead utilities shown or indicated in the contract documents,

4.10.1.3 Coordination of the Work with the Owners of such underground and overhead utilities during construction, and

4.10.1.4 The safety and protection of all such underground and overhead utilities as provided in Section 7.17 PROTECTION OF PERSONS AND PROPERTY and repairing any damage thereto resulting from the work.

4.10.2 Unknown Utilities - During the progress of the work, if an underground utility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, or found at a location that is substantially different than shown or indicated in the Contract Documents, Contractor shall promptly, and before any such conditions are disturbed or damaged (except in an emergency as required by subsection 7.17.8), notify the Engineer. Contractor shall be responsible for the safety and protection of the underground utility as provided in Section 7.17 PROTECTION OF PERSONS AND PROPERTY. Refer to subsections 4.9.2 and 4.9.3.

4.10.3 If the Engineer determines a change in the Contract Documents is required, a Field Order or Change Order will be issued. Upon issuance of a duly authorized Field Order or Change Order regarding the disposition of a newly discovered

utility, Contractor shall be responsible for damages to the utility, including any damage claims due to the disruption of service caused by the utility being damaged.

4.10.4 Restoration of Damaged Utilities - The Contractor shall repair and restore to pre-damaged condition any utilities or any other property it damaged. The Contractor shall be liable for any resulting damages, to the Work or to the utility owner or property owner and shall pay any claim due to the disruption of service caused by the utilities being damaged. Contractor shall defend and save harmless the State from all suits, actions or claims of any character brought on account of such damages, whether or not the State may have been partially at fault. Contractor shall obtain public liability and property damage insurance pursuant to Article 7 PROSECUTION AND PROGRESS to cover such risk of damage.

4.10.5 In the event the Contractor, simultaneously with the discovery of an unknown utility or other property, damages that utility or other property, the Contractor shall immediately notify the Engineer. If the Contractor is without fault in such a situation, notwithstanding subsection 4.10.4, the Contractor shall not be liable for resulting damages or the defense of the State from claims brought on account of said damages to unknown utilities or other property. Upon instruction from the Engineer, the Contractor shall repair all damages and execute a plan for dealing with the damaged utility or other property. This repair work shall be considered additional work as covered in Section 4.2 CHANGES.

ARTICLE 5 - Control of Work

5.1 AUTHORITY OF THE ENGINEER

5.1.1 The Engineer shall make final and conclusive decisions on all questions which may arise relating to the quality and acceptability of the materials furnished and work performed, the manner of performance and rate of progress of the work, the interpretation of the Contract Documents, the acceptable fulfillment of the contract on the part of the Contractor, the compensation under the Contract and the mutual rights of the parties to the Contract.

5.1.2 The Engineer shall have the authority to enforce and make effective such decisions and orders at the Contractor's expense when the Contractor fails to carry such decisions and orders out promptly and diligently.

5.1.3 The Engineer shall have the authority to suspend the work wholly or in part as provided in Section 7.24 SUSPENSION OF WORK.

5.1.4 The Engineer may delegate specific authority to act for the Engineer to a specific person or persons. Such delegation of authority shall be established in writing to the Contractor.

5.2 AUTHORITY OF THE INSPECTOR

5.2.1 The Inspector shall observe and inspect the contract performance and materials. The Inspector does not have any authority vested in the Engineer unless specifically delegated in writing.

5.2.2 The Inspector may offer advice and recommendations to the Contractor, but any such advice or recommendations are not directives from the Engineer.

5.2.3 The Inspector has no authority to allow deviations from the Contract Documents and may reject any and all work that the Inspector deems is not in conformity with the contract requirements. Failure of an Inspector at any time to reject non-conforming work shall not be considered a waiver of the Department's right to require work in strict conformity with the Contract Documents as a condition of final acceptance.

5.3 AUTHORITY OF CONSULTANT(S) - The Department may engage Consultant(s) for limited or full observation to supplement the inspections performed by the State and respective Counties. Unless otherwise specified in writing to the Contractor, such retained Consultant(s) will have the authority of a Project Inspector.

5.4 SHOP DRAWINGS AND OTHER SUBMITTALS

5.4.1 The following documents shall be submitted where required by the contract documents:

5.4.1.1 Shop Drawings

- (a) The Contractor shall prepare, and thoroughly check, approve, all shop drawings, including those prepared by subcontractors or any other persons. The Contractor shall indicate its approval by stamping and signing each drawing. Any shop drawing submitted without being reviewed, stamped and signed will be considered as not having been submitted, and any delay caused thereby shall be the Contractor's responsibility.
- (b) Shop drawings shall indicate in detail all parts of an item of work, including erection and setting instructions and engagements with work of other trades or other separate contractors. Shop drawings for structural steel, millwork and pre-cast concrete shall consist of calculations, fabrication details, erection drawings and other working drawings, as necessary, to show the details, dimensions, sizes of members, anchor bolt plans, insert locations and other information necessary for the complete fabrication and erection of the structure to be constructed.
- (c) All shop drawings as required by the contract, or as determined by the Engineer to be necessary to illustrate details of the Work shall be submitted to the Engineer with such promptness as to cause no delay in the work or in that of any other Contractor. Delay caused by the failure of the Contractor to submit shop drawings on a timely basis to allow for review, possible resubmittal and acceptance will not be considered as a justifiable reason for a contract time extension. Contractor, at its own risk, may proceed with the work affected by the shop drawings before receiving acceptance, however the Department shall not be liable for any costs or time required for the correction of work done without the benefit of accepted shop drawings.

- (d) It is the Contractor's obligation and responsibility to check all of its and its subcontractor's shop drawings and be fully responsible for them and for coordination with connecting and other related work. The Contractor shall prepare, and submit to the Engineer coordination drawings showing the installation locations of all plumbing, piping, duct and electrical work including equipment throughout the project. By approving and submitting shop drawings, the Contractor thereby represents that it has determined and verified all field measurements and field construction criteria, or will do so, and that it has checked and coordinated each shop drawing with the requirements of the work and the contract documents. When shop drawings are prepared and processed before field measurements and field construction criteria can be or have been determined or verified, the Contractor shall make all necessary adjustments in the work or resubmit further shop drawings, all at no change in contract price or time.

5.4.1.2 Shop Drawing Form - Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and number of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:

- (a) Date of Submission
- (b) Name of Project
- (c) Project Number
- (d) Location of Project
- (e) Name of submitting Contractor and Subcontractor
- (f) Revision Number

5.4.1.3 The size of the sheets that shop drawings are prepared on shall be as appropriate to suit the drawing being presented so that the information is clearly and legibly depicted. At the determination of the Engineer, for each sheet of drawings, the submittal shall consist of either; one reproducible transparency and five prints, or eight prints.

5.4.14 Descriptive Sheets and Other Submittals When a submittal is required by the contract, the Contractor shall submit to the Engineer eight (8) complete sets of descriptive sheets such as brochures, catalogs, illustrations, etc., which will completely describe the material, product, equipment, furniture or appliances to be used in the project as shown in the drawings and specifications. Prior to the submittal, the Contractor will review and check all descriptive sheets for conformity to the contract requirements and indicate such conformity by marking or stamping and signing each sheet. It is the responsibility of the Contractor to submit descriptive sheets for review and acceptance by the Engineer as required at the earliest possible date after the date of award in order to meet the construction schedule. Delays caused by the failure of the Contractor to submit descriptive sheets as required will not be considered as justifiable reasons for contract time extension.

5.4.15 **Material Samples and Color Samples** - When sample submittals are required by the contract, the Contractor shall review, approve, indicate its approval and submit to the Engineer samples of the materials to be used in the project and color selection samples. It is the responsibility of the Contractor to submit material and color samples for review as required at the earliest possible date after the date of award in order to meet the construction schedule. Delays caused by the failure of the Contractor to submit material and color samples will not be considered as justifiable reasons for contract time extension.

5.4.2 Submittal Variances - The Contractor shall include with the submittal, written notification clearly identifying all deviations or variances from the contract drawings, specifications and other Contract Documents. The notice shall be in a written form separate from the submittal. The variances shall also be clearly indicated on the shop drawing, descriptive sheet, material sample or color sample. Failure to so notify of and identify such variances shall be grounds for the subsequent rejection of the related work or materials, notwithstanding that the submittal was accepted by the Engineer. If the variances are not acceptable to the Engineer, the Contractor will be required to furnish the item as specified or indicated on the contract documents at no additional cost or time.

5.4.3 Review and Acceptance Process - Submittals will be returned to the Contractor within twenty one (21) days (for projects on Oahu) and twenty five (25) days (for projects on the islands of Hawaii, Maui, Kauai, Molokai and Lanai) after receipt by the Engineer unless otherwise agreed between the Contractor and the Engineer or as stated elsewhere in the contract documents.

5.4.3.1 The acceptance by the Engineer of the Contractor's submittal relates only to their sufficiency and compliance with the intention of the contract. Acceptance by the Engineer of the Contractor's submittal does not relieve the Contractor of any responsibility for accuracy of dimensions, details, and proper fit, and for agreement and conformity of submittal with the contract drawings and specifications. Nor will the Engineer's acceptance relieve the Contractor of responsibility for variance from the contract documents unless the Contractor, at the time of submittal, has provided notice and identification of such variances required by this section. Acceptance of a variance shall not justify a contract price or time adjustment unless the Contractor requests such an adjustment at the time of submittal and the adjustment is explicitly agreed to in writing by the Engineer. Any such request shall include price details and proposed scheduling modifications. Acceptance of a variance is subject to all contract terms, stipulations and covenants, and is without prejudice to any and all rights under the surety bond.

5.4.3.2 If the Engineer returns a submittal to the Contractor that has been rejected, the Contractor, so as not to delay the work, shall promptly make a resubmittal conforming to the requirements of the contract documents and indicating in writing on the transmittal and the subject submittal what portions of the resubmittal has been altered in order to meet the acceptance of the Engineer. Any other differences between the resubmittal and the prior submittal shall also be specifically described in the transmittal.

5.4.3.3 No mark or notation made by the Engineer on or accompanying the return of any submittal to the Contractor shall be considered a request or order for a change in work. If the Contractor believes any such mark or notation constitutes a request for a change in the work for which it is entitled to an adjustment in contract price and/or time, the Contractor must follow the same procedures established in Section 4.2 CHANGES for oral orders, directions, instructions, interpretations or determinations from the Engineer or else lose its right to claim for an adjustment.

5.5 COORDINATION OF CONTRACT DOCUMENTS - It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. The Contract Documents are complementary: any requirement occurring in one document is as binding as though occurring in all. In the event of conflict or discrepancy the priorities stated in the following subparagraphs shall govern:

5.5.1 Addenda shall govern over all other Contract Documents. Subsequent addenda issued shall govern over prior addenda only to the extent specified.

5.5.2 SPECIAL CONDITIONS and Proposal shall govern over the GENERAL CONDITIONS and Specifications.

5.5.3 Specifications shall govern over drawings.

5.5.4 Specification Error - Should an error or conflict appear within the specification, the Contractor shall immediately notify the Engineer. The Engineer shall promptly issue instructions as to procedure. Any requirement occurring in one or more parts of the specification is as binding as though occurring in all applicable parts.

5.5.4.1 Should an error or conflict appear within a specification section, between a listed manufacturer / product and the performance requirements of the specification section, the performance requirements shall govern.

5.5.5 Drawings:

5.5.5.1 Schedules shall govern over all other notes and drawings.

5.5.5.2 Bottom elevations of footings shown on drawings shall govern over a general note such as: "All footings shall rest on firm, undisturbed soil and extend a minimum of a certain number of feet into natural or finish grade, whichever is lower."

5.5.5.3 Except for drawing schedules and bottom elevations as noted above, general notes shall govern over all other portions of the drawings:

5.5.5.4 Larger scale drawings shall govern over smaller scale drawings.

5.5.5.5 Figured or numerical dimensions shall govern over dimensions obtained by scaling. Measurements from the drawings when scaled shall be subject to the approval of the Engineer.

5.5.5.6 In cases of discrepancies in the figures or drawings, the discrepancies shall be immediately referred to the Engineer without whose decision said discrepancy shall not be corrected by the Contractor save at its own risk and in the settlement of any complications arising from such adjustment without the knowledge and consent of the Engineer, the Contractor shall bear all extra expense involved.

5.5.5.7 Items shown on the drawings that are completely void in terms of description, details, quality and / or performance standards in both the drawings and specifications to make a price determination shall be considered an omission and the Contractor shall immediately refer same to the Engineer for a decision.

5.5.5.8 Where there is a conflict between the architectural sheets and the civil or landscaping or electrical sheets, etc., the conflict shall be considered a discrepancy and the Contractor shall immediately refer same to the Engineer for a decision.

5.5.5.9 Any requirement occurring in one or more of the sheets is as binding as though occurring in all applicable sheets.

5.6 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS - The Contractor shall carefully study and compare the Contract Documents with each other, with field conditions and with the information furnished by the State and shall at once report to the Engineer errors, conflicts, ambiguities, inconsistencies or omissions discovered. Should an item not be sufficiently detailed or explained in the Contract Documents, Contractor shall report and request the Engineer's clarification and interpretation. The Engineer will issue a clarification or interpretation that is consistent with the intent of and reasonably inferred from Contract Documents.

5.7 EXAMINATION OF DRAWINGS, SPECIFICATIONS, PROJECT SITE

5.7.1 The Contractor shall examine carefully the Project Site to become familiar with the conditions to be encountered in performing the Work and the requirements of the Contract Documents.

5.7.1.1 No extra compensation will be given by reason of the Contractor's misunderstanding or lack of knowledge of the requirements of the Work to be accomplished or the conditions to be encountered in performing the project.

5.7.1.2 No extra compensation will be given by reason of the Contractor's misunderstanding or lack of knowledge when the existence of differing site, subsurface or physical conditions could have been reasonably discovered or revealed as a result of any examination, investigation, exploration, test or study of the site and contiguous areas required by the Bidding requirements or Contract Documents to be conducted by or for the Contractor.

5.7.2 When the Contract Drawings include a log of test borings showing a record of the data obtained by the Department's investigation of subsurface conditions, said log represents only the opinion of the Department as to the character of material encountered in its test borings and at only

the location of each boring. The Contractor acknowledges that underground site conditions in Hawaii vary widely. There is no warranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work or any part of it, or that other conditions may not occur.

5.7.3 Reference is made to the SPECIAL CONDITIONS for identification of subsurface investigations, reports, explorations and tests utilized by the State in preparation of the Contract Documents. Such reports, drawings, boring logs etc. are not part of the Contract Documents.

5.8 COOPERATION BETWEEN THE CONTRACTOR AND THE DEPARTMENT

5.8.1 Furnishing Drawings and Specifications - Contractor will be supplied up to twenty-four (24) copies of the Contract Drawings and Specifications. Contractor shall have and maintain at least one copy of the Contract Drawings and Specifications on the work site, at all times. Contractor shall cooperate with the Engineer, the Inspector(s), and other contractors in every possible way.

5.8.2 Superintendent - The Contractor shall have a competent superintendent or agent on the work site while work is being performed under the contract. The superintendent or agent shall be experienced in the type of project being undertaken and the work being performed. The superintendent or agent shall represent the Contractor and shall have the authority to act on behalf of the Contractor. Communications given to the superintendent or agent shall be as binding as if given to the Contractor.

5.8.2.1 If the superintendent or agent is not present at the work site, the Engineer shall have the right to suspend the work as described under Section 7.24 SUSPENSION OF WORK.

5.8.2.2 The Contractor shall file with the Engineer a written statement giving the name of the superintendent or agent assigned to the project. The Contractor shall be responsible for notifying the Engineer in writing of any change in the superintendent or agent.

5.8.2.3 The requirements of this subsection 5.8.2 may be waived by the Engineer.

5.8.3 Engineering Work - The Contractor shall properly and accurately lay out the work, perform all engineering work, and furnish all engineering materials and equipment required to establish and maintain all lines, grades, dimensions and elevations called for in the drawings or required in the progress of construction, unless otherwise noted in the contract documents. The Contractor will be held definitely and absolutely responsible for any errors in lines, grades, dimensions and elevations and shall at once, on instruction from the Engineer, correct and make good such errors or any errors, or faults in the work resulting from errors in engineering performed under the requirements of its contract to the entire satisfaction of the Engineer. Full compensation for the work shall be included in the prices paid for contract items of work. No additional allowance will be made for the correction of incorrect engineering work.

5.8.3.1 The Engineer shall furnish the requisite bench elevations.

5.8.3.2 The Contractor shall locate and verify all lines, grades, dimensions and elevations indicated on the drawings before any excavation, or construction begins. Any discrepancy shall be immediately brought to the attention of the Engineer, any change shall be made in accordance with the Engineer's instruction.

5.8.3.3 The Contractor shall verify all street survey monuments (horizontal and vertical alignment) prior to final acceptance by the Engineer in accordance with any governmental requirements.

5.8.3.4 The Contractor shall provide a surveyor or Civil Engineer licensed in the State of Hawaii to verify and establish all lines, grades, dimensions and elevations.

5.8.4 Use of Structure or Improvement - The Department shall have the right, at any time during construction of the structure or improvements, to enter same for the purpose of installing by government labor or by any other Contractor or utility any necessary work in connection with the installation of facilities, it being mutually understood and agreed, however, that the Contractors, utilities and the Department will, so far as possible work to the mutual advantage of all, where their several works in the above mentioned or in unforeseen instances touch upon or interfere with each other. As a convenience to those involved, the Engineer shall allocate the work and designate the sequence of construction in case of controversy between Contractors on separate projects under State jurisdiction.

5.8.4.1 The Department shall also have the right to use the structure, equipment, improvement or any part thereof, at any time after it is considered by the Engineer as available. In the event that the structure, equipment or any part thereof is so used, the Department shall be responsible for all expenses incidental to such use and any damages resulting from the Department's use.

5.8.4.2 Equipment warranty will commence to run before the work is complete when and if the Department begins actual use of the equipment for the purpose for which the equipment was designed and installed.

5.8.4.3 If the Department enters the structure for construction and/or occupancy and the Contractor is delayed because of interference by the Department or by extra work resulting from damage which the Contractor is not responsible for, or by extraordinary measures the Contractor must take to accommodate the Department, the Contractor shall be granted an extension of time in accordance with Section 7.21 CONTRACT TIME. However, if such use increases the cost or delays the completion of the remaining portions of work, the Contractor shall be entitled to such extra compensation or extension of time or both, as the State may determine to be proper. Any additional work necessary will be paid in accordance with Section 8.3 PAYMENT FOR ADDITIONAL WORK.

5.9 INSPECTION - The Engineer, the Department's consultants, Inspectors employed by the Department and other representatives duly authorized by the Department shall at all times have access to the work during its construction and shall

be furnished with every reasonable facility for ascertaining at any time that the materials and the workmanship are in accordance with the requirements and intentions of the contract. All work done and all materials furnished shall be subject to inspection and acceptance.

5.9.1 Such inspection and approval may extend to all or part of the work, and to the preparation, fabrication or manufacture of the materials to be used. By entering into a contract for the supply of materials, equipment or performance of labor in connection with the Work, such Material and Equipment Supplier or Labor Contractor consents to and is subject to the terms of this Section 5.9 to the same extent as the Contractor.

5.9.2 Authority to Suspend Operations - The Inspector shall have the authority to suspend operations of any work being improperly performed by issuing a written order giving the reason for shutting down the work. Should the Contractor disregard such written order, the work done thereafter will not be accepted nor paid for.

5.9.3 The inspection of the work shall not relieve the Contractor of any of its obligations to fulfill the contract as prescribed. Notwithstanding prior payment and acceptance by the Engineer, defective and nonconforming work shall be corrected to comply with the contract requirements. Unsuitable, unspecified or unapproved materials may be rejected.

5.9.4 Federal Agency Inspection - Projects financed in whole or in part with Federal funds shall be subject to inspection and corrective requirements at all times by the Federal Agency involved at no cost to the State.

5.10 REMOVAL OF DEFECTIVE, NON-CONFORMING AND UNAUTHORIZED WORK

5.10.1 All work which has been rejected as not conforming to the requirements of the Contract shall be remedied or removed and replaced by the Contractor in an acceptable manner and no compensation will be allowed for such removal or replacement. Any work done beyond the work limits shown on the drawings and specifications or established by the Engineer or any additional work done without written authority will be considered as unauthorized and will not be paid for. Work so done may be ordered removed at the Contractor expense.

5.10.2 Scheduling Corrective Work - The Contractor shall perform its corrective or remedial work at the convenience of the State and shall obtain the Engineer's approval of its schedule.

5.10.3 Failure to Correct Work - Upon failure on the part of the Contractor to comply promptly with any order of the Engineer made under the provisions of this Section 5.10, the Engineer shall have authority to cause defective work to be remedied or removed and replaced, and unauthorized work to be removed, at the Contractor's expense, and to deduct the costs from any monies due or to become due the Contractor.

5.11 VALUE ENGINEERING INCENTIVE

§3-132 HAR amended by Act 149 SLH 1999 - On projects with contract amounts in excess of \$250,000, the following Value Engineering Incentive Clause shall apply to allow the

Contractor to share in cost savings that ensue from cost reduction proposals it submits.

5.11.1 The Value Engineering Incentive Clause applies to all Value Engineering Change Proposals (cost reduction proposals, hereinafter referred to as (VECP) initiated and developed by the Contractor for changing the drawings, designs, specifications or other requirements of this contract. This clause does not, however apply to any VECP unless it is identified as such by the Contractor at the time of its submission to the Engineer.

5.11.2 Value Engineering Change Proposal - All VECP must:

5.11.2.1 Result in a savings to the State of at least four thousand dollars (\$4,000) by providing less costly items than without impairing any essential functions and characteristics such as service life, reliability, economy of operation, ease of maintenance and all necessary features of the completed work.

5.11.2.2 Require, in order to be applied to this contract, a change order to this contract.

5.11.2.3 Not adversely impact on the schedule of performance or the contract completion date.

5.11.3 VECP Required Information - The VECP will be processed expeditiously and in the same manner as prescribed for any other change order proposal. As a minimum, the following information will be submitted by the Contractor with each proposal:

5.11.3.1 A description of the difference between the existing contract requirements and the VECP, and the comparative advantages and disadvantages of each including durability, service life, reliability, economy of operation, ease of maintenance, design safety standards, desired appearance, impacts due to construction and other essential or desirable functions and characteristics as appropriate;

5.11.3.2 An itemization of the requirements of the contract which must be changed if the VECP is adopted and a recommendation as to how to make each such change;

5.11.3.3 An estimate of the reduction in performance costs that will result from adoption of the VECP taking into account the costs of implementation by the Contractor, including any amounts attributable to subcontracts, and the basis for the estimate;

5.11.3.4 A prediction of any effects the VECP would have on other costs to the State, such as State furnished property costs, costs of related items, and costs of maintenance and operation over the anticipated life of the material, equipment, or facilities as appropriate; the construction schedule, sequence and time; and bid item totals used for evaluation and payment purposes;

5.11.3.5 A statement of the time by which a change order adopting the VECP must be issued so as to obtain the maximum cost reduction during the remainder of this contract noting any effect on the contract time; and

5.11.3.6 The dates of any previous submissions of the VECP, the numbers of any Government contracts under which submitted and the previous actions by the Government, if known.

5.11.4 Required Use of Licensed Architect or Engineer - When, in the judgment of the Engineer, a VECP alters the design prepared by a registered professional architect or engineer, the Contractor shall ensure the changes to be prepared are by or under the supervision of a licensed professional architect or engineer, and stamped and so certified.

5.11.5 Unless and until a change order applies a VECP to a contract, the Contractor shall remain obligated to perform in accordance with the terms of the contract and the Department shall not be liable for delays incurred by the Contractor resulting from the time required for the Department's determination of the acceptability of the VECP.

5.11.5.1 The determination of the Engineer as to the acceptance of any VECP under a contract shall be final.

5.11.6 Acceptance of VECP - The Engineer may accept in whole or in part any VECP submitted pursuant to this section by issuing a change order to the contract. Prior to issuance of the change order, the Contractor shall submit complete final contract documents similar to those of the original contract showing the accepted changes and the new design and features as well as the following:

5.11.6.1 Design calculations;

5.11.6.2 The design criteria used; and

5.11.6.3 A detailed breakdown of costs and expenses to construct or implement such revisions.

5.11.6.4 The change order will identify the final VECP on which it is based.

5.11.7 VECP Price Adjustments - When a VECP is accepted under a contract, an adjustment in the contract price shall be made in accordance with Section 4.4 PRICE ADJUSTMENT. The adjustment shall first be established by determining the effect on the Contractor's cost of implementing the change, including any amount attributable to subcontractors and to the Department's charges to the Contractor for architectural, engineering, or other consultant services, and the staff time required to examine and review the proposal. The contract price shall then be reduced by fifty percent (50%) of the net estimated decrease in the cost of performance.

5.11.8 The Contractor may restrict the Department's right to use the data or information or both, on any sheet of a VECP or of the supporting data, submitted pursuant to this paragraph, if it is stated on that sheet as follows:

5.11.8.1 "This data or information or both shall not be disclosed outside the Department or be duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate this VECP. This restriction shall not limit the Department's right to use this data or information or both if obtained from another source, or is otherwise available, without limitations. If this VECP is accepted by the Department by issuance of a change order after the use of this

data or information or both in such an evaluation, the Department shall have the right to duplicate, use and disclose any data or information or both pertinent to the proposal as accepted in any manner and for any purpose whatsoever and have others so do.”

5.11.9 In the event of acceptance of a VECP, the Department shall have all rights to use, duplicate or disclose in whole or in part in any manner and for any purpose whatsoever, and to have or permit others to do so, any data or information or both reasonably necessary to fully utilize such proposal.

5.11.10 The Contractor shall submit with each VECP all required information and provide all additional information as may be required by the Engineer to evaluate and implement the VECP. The cost for preparing the VECP shall be the Contractor’s responsibility, and any part of the Contractor’s cost for implementing the change shall be due only when the proposal is accepted and a change order is issued.

5.11.11 If the services of the Department’s architect, engineer or consultant is necessary to review and evaluate a VECP, the cost therefor shall be paid for by the Contractor.

5.11.12 Each VECP shall be evaluated as applicable to this contract, and past acceptance on another Department project for a similar item shall not be automatic grounds for approval.

5.11.13 The method by which the Contractor will share a portion of the cost savings from an accepted VECP shall be for this contract only, and no consideration shall be made for future acquisition, royalty type payment or collateral savings.

5.11.13.1 The Department may accept the proposed VECP in whole or in part. The Engineer shall issue a contract change order to identify and describe the accepted VECP.

5.12 SUBCONTRACTS - Nothing contained in the contract documents shall create a contractual relationship between the Department and any subcontractor.

5.12.1 Substituting Subcontractors - Contractors may enter into subcontracts only with subcontractors listed in the proposal or with non-listed joint contractors / subcontractors permitted under subsection 2.7.3. No subcontractor may be added or deleted and substitutions will be allowed only if the subcontractor:

5.12.1.1 Fails, refuses or is unable to enter into a subcontract; or

5.12.1.2 Becomes insolvent; or

5.12.1.3 Has its subcontractor’s license suspended or revoked; or

5.12.1.4 Has defaulted or has otherwise breached the subcontract in connection with the subcontracted work; or

5.12.1.5 Is unable to comply with other requirements of law applicable to contractors, subcontractors and public works projects.

5.12.2 Requesting Approval to Substitute a Subcontractor - Requests to substitute a subcontractor shall be submitted to the

Engineer for approval. Contractor agrees to hold the State harmless and indemnify the State for all claims, liabilities, or damages whatsoever, including attorney’s fees arising out of or related to the approval or disapproval of the substitution.

5.12.3 Once a subcontractor’s claim is established, should the Contractor intend to make the claim against the Department, it shall follow the procedure set forth under Section 7.25 DISPUTES AND CLAIMS.

5.12.4 Subcontracting - Contractor shall perform with its own organization, work amounting to not less than twenty (20%) of the total contract cost, exclusive of costs for materials and equipment the Contractor purchases for installation by its subcontractors, except that any items designated by the State in the contract as “specialty items” may be performed by a subcontract and the cost of any such specialty items so performed by the subcontract may be deducted from the total contract cost before computing the amount of work required to be performed by the Contractor with its own organization.

ARTICLE 6 - Control of Materials and Equipment

6.1 MATERIALS AND EQUIPMENT - Contractor shall furnish, pay for and install all material and equipment as called for in the drawings and specifications. Materials and equipment shall be new and the most suitable for the purpose intended unless otherwise specified. The State does not guarantee that the specified or pre-qualified product listed in the drawings and specifications are available at the time of bid or during the contract period.

6.2 SOURCE OF SUPPLY AND QUALITY OF MATERIALS

6.2.1 Only materials conforming to the drawings and specifications and, when required by the contract have been accepted by the Engineer, shall be used. In order to expedite the inspection and testing of materials, at the request of the Engineer, the Contractor shall identify its proposed sources of materials within ten (10) days after notification by the Engineer.

6.2.2 At the option of the Engineer, the materials may be accepted by the Engineer at the source of supply before delivery is started. Representative preliminary samples of the character and quantity prescribed shall be submitted by the Contractor or producer for examination and tested in accordance with the methods referred to under samples and tests.

6.2.3 Engineer’s Authorization to Test Materials - Materials proposed to be used may be inspected and tested whenever the Engineer deems necessary to determine conformance to the specified requirements. The cost of testing shall be borne by the Contractor. However, should test results show that the material(s) is in compliance with the specified requirements, the cost of the testing will be borne by the State.

6.2.4 Unacceptable Materials - In the event material(s) are found to be unacceptable, the Contractor shall cease their use, remove the unacceptable material(s) that have already been installed or applied, and furnish acceptable materials all at no

additional cost to the State. No material which is in any way unfit for use shall be used.

6.3 SUBSTITUTION OF MATERIALS AND EQUIPMENT AFTER BID OPENING

6.3.1 Substitution of materials and equipment before bid opening - Refer to Section 2.6 SUBSTITUTION OF MATERIALS AND EQUIPMENT BEFORE BID OPENING. For materials and equipment submitted in compliance with Section 2.6, if after installing the substituted product, an unlisted variance is discovered, the Contractor shall immediately replace the product with a specified product at no cost to the State.

6.3.2 Substitution After Contract Award - Subject to the Engineer's determination if the material or equipment is equal to the one specified or prequalified, substitution of material or equipment may be allowed after the Letter of Award is issued only:

6.3.2.1 If the specified or prequalified item is delayed by unforeseeable contingencies beyond the control of the Contractor which would cause a delay in the project completion; or

6.3.2.2 If any specified or prequalified item is found to be unusable or unavailable due to a change by the manufacturer or other circumstances; or

6.3.2.3 If the Contractor desires to provide a more recently developed material, equipment, or manufactured model from the same named manufacturer than the one specified or prequalified; or

6.3.2.4 If the specified material and / or equipment inadvertently lists only a single manufacturer.

6.3.3 A substitution request after Contract Award shall be fully explained in writing. Contractor shall provide brochures showing that the substitute material and / or equipment is equal or better in essential features and also provide a matrix showing comparison of the essential features. Contractor shall justify its request and include quantities and unit prices involved, respective supplier's price quotations and such other documents necessary to fully support the request. Any savings in cost will be credited to the Department. Contractor shall absorb any additional cost for the substitute item(s) or for its installation. Submitting a substitution request, does not imply that substitutions, for brand name specified materials and equipment, will be allowed. The Engineer may reject and deny any request deemed irregular or not in the best interest of the Department. A request for substitution shall not in any way be grounds for an extension of contract time. At the discretion of the Engineer, a time extension may be granted for an approved substitution.

6.4 ASBESTOS CONTAINING MATERIALS - The use of materials or equipment containing asbestos is prohibited under this contract. Contractor warrants that all materials and equipment incorporated in the project are asbestos-free.

6.5 TEST SAMPLES

6.5.1 The Engineer may require any or all materials to be tested by means of samples or otherwise. Contractor shall

collect and forward samples requested by the Engineer. Contractor shall not use or incorporate any material represented by the samples until all required tests have been made and the material has been accepted. In all cases, the Contractor shall furnish the required samples without charge. Where samples are required from the completed work, the Contractor shall cut and furnish samples from the completed work. Samples so removed shall be replaced with identical material and refinished. No additional compensation will be allowed for furnishing test samples and their replacement with new materials.

6.5.2 Tests of the material samples will be made in accordance with the latest standards of the American Society for Testing and Materials (ASTM), as amended prior to the contract date unless otherwise provided. In cases where a particular test method is necessary or specifications and serial numbers are stipulated, the test shall be made by the method stated in the above-mentioned publication. Where the test reference is the American Association of State Highway and Transportation Officials (AASHTO), it means the specifications and serial numbers of the latest edition and amendments prior to the bid date.

6.5.3 The Engineer may retest any materials which have been tested and accepted at the source of supply after the same has been delivered to the work site. The Engineer shall reject all materials which, when retested, do not meet the requirements of the contract.

6.6 MATERIAL SAMPLES

6.6.1 The Contractor shall furnish all samples required by the drawings and specifications or that may be requested by the Engineer of any and all materials or equipment it proposes to use. Unless specifically required, samples are not to be submitted with the bid.

6.6.2 No materials or equipment of which samples are required shall be used on the Work until the Engineer has received and accepted the samples. If the Contractor proceeds to use such materials before the Engineer accepts the samples, the Contractor shall bear the risk.

6.6.3 Contractor shall furnish two (2) copies of a transmittal letter with each shipment of samples. The letter shall provide a list of the samples, the name of the building or work for which the materials are intended and the brands of the materials and names of the manufacturers. Also, each sample submitted shall have a label indicating the material represented, its place of origin, the names of the producer, the Contractor and the building or work for which the material is intended. Samples of finished materials shall be marked to indicate where the materials represented are required by the drawings or specifications.

6.6.4 Acceptance of any sample(s) shall be only for the characteristics or for the uses named in such acceptance and for no other purpose. Acceptance of samples shall not change or modify any contract requirement. All samples will be provided by the Contractor at no extra cost to the Department. See also Section 5.4 SHOP DRAWINGS AND OTHER SUBMITTALS.

6.7 NON-CONFORMING MATERIALS - All materials not conforming to the requirements of these contract

documents, whether in place or not, shall be rejected and removed immediately from the site of work unless otherwise permitted by the Engineer in writing. No rejected material which has subsequently been made to conform shall be used unless and until written acceptance has been given by the Engineer. If the Contractor fails to comply forthwith with any order of the Engineer made under the provisions of this Section 6.7, the Engineer shall have the authority to remove and replace non-conforming materials and charge the cost of removal and replacement to the Contractor.

6.8 HANDLING MATERIALS - Contractor shall handle all materials to preserve their quality and fitness for work. Transport aggregates from the source or storage site to the work in tight vehicles to prevent loss or segregation of materials after loading and measuring.

6.9 STORAGE OF MATERIALS - Contractor shall store all materials to preserve their quality and fitness for the work. Unless otherwise provided, any portion of the project site within the Project Contract Limit not required for public travel, may be used for storage purposes and for the Contractor's plant and equipment. Any additional space required shall be provided by the Contractor at its expense subject to the Engineer's acceptance. Contractor shall store materials on wooden platforms or other hard, clean surfaces and covered to protect it from the weather and damage. Stored materials shall be located to allow prompt inspection.

6.10 PROPERTY RIGHTS IN MATERIALS - Nothing in the contract shall be construed to vest in the Contractor any right to any materials and equipment after such materials and equipment have been attached, affixed to, or placed in the work.

6.11 ASSIGNMENT OF ANTITRUST CLAIMS FOR OVERCHARGES FOR GOODS PURCHASED - Contractor (or Vendor) and the Department recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the Department. Therefore, Contractor hereby assigns to the Department any and all claims for such overcharges as to goods purchased in connection with this order or contract, except as to overcharges which result from antitrust violations commencing after the price is established under this order or contract and any change order. In addition, Contractor warrants and represents that each of its first tier suppliers and subcontractors shall assign any and all such claims to the Department, subject to the aforementioned exception.

ARTICLE 7 - Prosecution and Progress

(Including Legal Relations And Responsibility)

7.1 PROSECUTION OF THE WORK

7.1.1 After approval of the contract by the Comptroller, a Notice to Proceed will be given to the Contractor as described in Section 3.10 NOTICE TO PROCEED. The Notice to Proceed will indicate the date the Contractor is expected to begin the construction and from which date contract time will be charged.

7.1.2 The Contractor shall begin work no later than ten (10) working days from the date in the Notice to Proceed and shall diligently prosecute the same to completion within the contract time allowed. The Contractor shall notify the Engineer at least three (3) working days before beginning work.

7.1.3 If any subsequent suspension and resumption of work occurs, the Contractor shall notify the Engineer at least twenty-four (24) hours before stopping or restarting actual field operations.

7.1.4 Working Prior to Notice to Proceed - The Contractor shall not begin work before the date in the Notice to Proceed. Should the Contractor begin work before receiving the Notice to Proceed, any work performed in advance of the specified date will be considered as having been done at the Contractor's risk and as a volunteer and subject to the following conditions:

7.1.4.1 Under no circumstances shall the Contractor commence work on site until it has notified the Engineer of its intentions and has been advised by the Engineer in writing that the project site is available to the Contractor. The project site will not be made available until the Contractor has complied with commencement requirements under Section 7.2 COMMENCEMENT REQUIREMENTS.

7.1.4.2 In the event the contract is not executed, the Contractor shall, at its own expense, do such work as is necessary to leave the site in a neat condition to the satisfaction of the Engineer. The Contractor shall not be reimbursed for any work performed.

7.1.4.3 All work done prior to the Notice to Proceed shall be performed in accordance with the contract documents, but will only be considered authorized work and be paid for as provided in the contract after the Notice to Proceed is issued.

7.1.5 For repairs and/or renovations of existing buildings, unless otherwise permitted by the Engineer, the Contractor shall not commence with the physical construction unless all or sufficient amount of materials are available for either continuous construction or completion of a specified portion of the work. When construction is started, the Contractor shall work expeditiously and pursue the work diligently until it is complete. If only a portion of the work is to be done in stages, the Contractor shall leave the area safe and usable for the user agency at the end of each stage.

7.2 COMMENCEMENT REQUIREMENTS - Prior to beginning work on site, the Contractor shall submit the following to the Engineer:

7.2.1 Identification of the Superintendent or authorized representative on the job site. Refer to Section 5.8 COOPERATION BETWEEN THE CONTRACTOR AND THE DEPARTMENT.

7.2.2 Proposed Working Hours on the job. Refer to Section 7.5 NORMAL WORKING HOURS.

7.2.3 Permits and Licenses. Refer to Section 7.4 PERMITS AND LICENSES.

7.2.4 Schedule of Prices to be accepted for the agreed Monthly Payment Application. Unless the proposal provides unit price bids on all items in this project, the successful Bidder will be required, after the award of contract, to submit a schedule of prices for the various items of construction included in the contract. For projects involving more than a single building and / or facility, the breakdown cost shall reflect a separate schedule of prices for the various items of work for each building and/or facility. The sum of the prices submitted for the various items must equal the lump sum bid in the Bidder's proposal. This schedule will be subject to acceptance by the Engineer who may reject same and require the bidder to submit another or several other schedules if in the Engineer's opinion the prices are unbalanced or not sufficiently detailed. This schedule of prices shall be used for the purpose of determining the value of monthly payments due the Contractor for work installed complete in place; and may be used as the basis for determining cost and credit of added or deleted items of work, respectively.

7.2.4.1 The Contractor shall estimate at the close of each month the percentage of work completed under each of the various construction items during such month and submit the Monthly Payment Application to the Engineer for review and approval. The Contractor shall be paid the approved percentage of the price established for each item less the retention provided in Section 8.4 PROGRESS AND/OR PARTIAL PAYMENTS.

7.2.5 Proof of Insurance Coverage. Certificate of Insurance or other documentary evidence satisfactory to the Engineer that the Contractor has in place all insurance coverage required by the contract. Refer to Section 7.3 INSURANCE REQUIREMENTS.

7.2.6 Until such time as the above items are processed and approved, the Contractor shall not be allowed to commence on any operations unless authorized by the Engineer.

7.3 INSURANCE REQUIREMENTS

7.3.1 Obligation of Contractor - Contractor shall not commence any work until it obtains, at its own expense, all required herein insurance. Such insurance shall be provided by an insurance company authorized by the laws of the State to issue such insurance in the State of Hawaii. Coverage by a "Non-Admitted" carrier is permissible provided the carrier has a Best's Rating of "A-VII" or better.

7.3.2 All insurance described herein will be maintained by the Contractor for the full period of the contract and in no event will be terminated or otherwise allowed to lapse prior to written certification of final acceptance of the work by the State.

7.3.3 Certificate(s) of Insurance acceptable to the State shall be filed with the Engineer prior to commencement of the work. Certificates shall identify if the insurance company is a "captive" insurance company or a "Non-Admitted" carrier to the State of Hawaii. The best's rating must be stated for the "Non-Admitted" carrier. Certificates shall contain a provision that coverages being certified will not be cancelled or materially changes without giving the Engineer at least thirty (30) days prior written notice. If the State is to be an Additional Insured on any of the required insurance, it shall be so noted on the certificate. Should any policy be canceled before final

acceptance of the work by the State, and the Contractor fails to immediately procure replacement insurance as specified, the State, in addition to all other remedies it may have for such breach, reserves the right to procure such insurance and deduct the cost thereof from any money due to the Contractor.

7.3.4 Nothing contained in these insurance requirements is to be construed as limiting the extent of Contractor's responsibility for payment of damages resulting from its operations under this contract, including the Contractor's obligation to pay liquidated damages, nor shall it affect the Contractor's separate and independent duty to defend, indemnify and hold the State harmless pursuant to other provisions of this contract. In no instance will the State's exercise of an option to occupy and use completed portions of the work relieve the Contractor of its obligation to maintain the required insurance until the date of final acceptance of the work.

7.3.5 All insurance described herein shall be primary and cover the insured for all work to be performed under the contract, all work performed incidental thereto or directly or indirectly connected therewith, including traffic detour work or other work performed outside the work area and all change order work.

7.3.6 The Contractor shall, from time to time, furnish the Engineer, when requested, satisfactory proof of coverage of each type of insurance required covering the work. Failure to comply with the Engineer's request may result in suspension of the work, and shall be sufficient grounds to withhold future payments due the Contractor and to terminate the contract for Contractor's default.

7.3.7 Types of Insurance - Contractor shall purchase and maintain insurance described below which shall provide coverage against claims arising out of the Contractor's operations under the contract, whether such operations be by the Contractor itself or by any subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.

7.3.7.1 Worker's Compensation -The Contractor shall obtain worker's compensation insurance for all persons whom they employ in carrying out the work under this contract. This insurance shall be in strict conformity with the requirements of the most current and applicable State of Hawaii Worker's Compensation Insurance laws in effect on the date of the execution of this contract and as modified during the duration of the contract.

7.3.7.2 General Liability - The Contractor shall obtain General Liability insurance with a limit of not less than \$2,000,000 per occurrence and in the Aggregates. The General liability insurance shall include the State as an Additional Insured. The required limit of insurance may be provided by a single policy or with a combination of primary and excess policies. Refer to SPECIAL CONDITIONS for any additional requirements.

7.3.7.3 Auto Liability - The Contractor shall obtain Auto Liability Insurance covering all owned, non-owned and hired autos with a Combined single Limit of not less than \$1,000,000 per occurrence. The required limit of insurance may be provided by a single policy or with a combination of

primary and excess policies. Refer to SPECIAL CONDITIONS for any additional requirements.

7.3.7.4 Property Insurance (Builders Risk)

- (a) New Building(s) - The Contractor shall obtain Property Insurance covering building(s) being constructed under this Contract. The limit shall be equal to the completed value of the building(s) and shall insure against all-loss excluding earthquakes and floods. The coverage shall be provided by a company authorized to write insurance in the State of Hawaii as an insurer. If the project falls within the State University System, The University of Hawaii shall be named as an insured. Refer to SPECIAL CONDITIONS for any additional requirements.
- (b) Building Renovation and / or Installation Contract - The Contractor shall obtain Property Insurance with a limit equal to the completed value of the work or property being installed and shall insure against all-loss excluding earthquakes and floods. The coverage shall be provided by a company authorized to write insurance in the State of Hawaii as an insurer. If the project falls within the State University System, The University of Hawaii shall be named as an insured. Refer to SPECIAL CONDITIONS for any additional requirements.
- (c) The Contractor is not required to obtain property insurance for contracts limited to site development

7.4 PERMITS AND LICENSES

7.4.1 The State or its representative may process Federal (e.g. Corps of Engineers), State and County Permit applications. The Contractor shall pick up the pre-processed Permits at the appropriate governmental agency and pay the required fees. Other permits necessary for the proper execution of the work such as utility connection permits, elevator installation permits etc., unless processed by the State and paid for by the Contractor, shall be obtained and paid for by the Contractor.

7.4.2 Until such time as the above permits are approved, the Contractor shall not be allowed to commence any operations without written approval of the Engineer.

7.4.3 The Engineer reserves the right to waive application and processing of the building permit.

7.5 NORMAL WORKING HOURS - Prior to beginning operations, unless otherwise established by the State, the Contractor shall notify the Engineer in writing of the time in hours and minutes, A.M. and P.M. respectively, at which it desires to begin and end the day's work. If the Contractor desires to change the working hours, it shall request the Engineer's approval three (3) consecutive working days prior to the date of the change.

7.6 HOURS OF LABOR (Section 104-2 Hawaii Revised Statutes)

7.6.1 No laborer or mechanic employed on the job site of any public work of the Department or any political sub-division thereof shall be permitted or required to work on Saturday,

Sunday or a legal holiday of the State or in excess of eight hours on any other day unless the laborer or mechanic receives overtime compensation for all hours worked on Saturday, Sunday and a legal holiday of the State or in excess of eight hours on any other day. For the purposes of determining overtime compensation under this Section 7.6, the basic hourly rate of any laborer or mechanic shall not be less than the basic hourly rate determined by the Department of Labor and Industrial Relations to be the prevailing basic hourly rate for corresponding classes of laborers and mechanics on projects of similar character in the Department.

7.6.2 Overtime compensation means, compensation based on one and one-half times the laborers or mechanics basic hourly rate of pay plus the cost to an employer of furnishing a laborer or mechanic with fringe benefits.

7.7 PREVAILING WAGES - (§ 104-2 HRS)

7.7.1 The Contractor shall at all times observe and comply with all provisions of Chapter 104, HRS, the significant requirements of which are emphasized in the Department of Labor and Industrial Relations Publication No. H104-3 entitled 'Requirements of Chapter 104, HRS Wages and Hours of Employees on Public Works Law'.

7.7.2 Wage Rate Schedule - The wage rate schedule is not physically enclosed in the bid documents. However, the wage rate schedule is incorporated herein by reference and made a part of the Bid and Contract Documents. Said wage rate schedule may be obtained from the Contracts Office, Department of Accounting and General Services, 1151 Punchbowl Street, Room 422, Honolulu, Hawaii or, via the FAX-ON-DEMAND system of the Department of Labor and Industrial Relations, phone number (808) 586-8695. When the bid documents are made available on respective neighbor islands, copies of the wage rate schedule may also be obtained from the office of the respective neighbor island DAGS District Office.

7.7.3 The Contractor or its subcontractor(s) shall pay all laborers and mechanics employed on the job site, unconditionally and not less often than once a week, and without deduction or rebate on any account except as allowed by law, the full amounts of their wages including overtime, accrued to not more than five (5) working days prior to the time of payment, at wage rates not less than those stated in the contract, regardless of any contractual relationship which may be alleged to exist between the Contractor and subcontractor and such laborers and mechanics. The wages stated in the contract shall not be less than the 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. Any increase in wage rates, as determined by the Director of Labor and Industrial Relations and issued in the wage rate schedule, shall be applicable during the performance of the contract, in accordance with section 104-2(a) and (b), Hawaii Revised Statutes. Notwithstanding the provisions of the original contract, if the Director of Labor and Industrial Relations determines that prevailing wages have increased during the performance of the contract, the rate of pay of laborers and mechanics shall be raised accordingly.

7.7.4 The applicable wage rate schedule shall be physically included in the Contract Documents executed by the successful Bidder.

7.7.5 Posting Wage Rate Schedule - The rates of wages to be paid shall be posted by the Contractor in a prominent and easily accessible place at the job site and a copy of such wages required to be posted shall be given to each laborer and mechanic employed under the contract by the Contractor at the time the person is employed thereunder, provided that where there is a collective bargaining agreement, the Contractor does not have to provide its employees the wage rate schedules. Any revisions to the schedule of wages issued by the Director of Labor and Industrial Relations during the course of the contract shall also be posted by the Contractor and a copy provided to each laborer and mechanic employed under the contract as required above.

7.7.6 The Comptroller may withhold from the Contractor so much of the accrued payments as the Comptroller may consider necessary to pay to laborers and mechanics employed by the Contractor or any subcontractor on the job site. The accrued payments withheld shall be the difference between the wages required by this contract and the wages actually received by such laborers or mechanics.

7.8 FAILURE TO PAY REQUIRED WAGES (§ 104-4, HRS) - If the Department finds that any laborer or mechanic employed on the job site by the Contractor or any subcontractor has been or is being paid wages at a rate less than the required rate by the contract, or has not received their full overtime compensation, the Department may, by written notice to the Contractor, terminate its right, or the right of any subcontractor, to proceed with the work or with the part of the work on which the required wages or overtime compensation have not been paid and may complete such work or part by contract or otherwise, and the Contractor and its sureties shall be liable to the Department for any excess costs occasioned thereby.

7.9 PAYROLLS AND PAYROLL RECORDS
(§ 104-3 HRS)

7.9.1 A certified copy of each weekly payroll shall be submitted to the Comptroller within seven (7) calendar days after the end of each weekly payroll period. Failure to do so on a timely basis shall be cause for disqualification from bidding in accordance with the provisions of Section 2.12 DISQUALIFICATION OF BIDDERS. The Contractor shall be responsible for the timely submission of certified copies of payrolls of all subcontractors. The certification shall affirm that payrolls are correct and complete, that the wage rates contained therein are not less than the applicable rates contained in the wage determination decision, any amendments thereto during the period of the contract, and that the classifications set forth for each laborer and mechanic conform with the work they performed.

7.9.2 Payroll records for all laborers and mechanics working at the site of the work shall be maintained by the General Contractor and its subcontractors, if any, during the course of the work and preserved for a period of four (4) years thereafter. Such records shall contain the name of each employee, their correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid. Such records shall be made available for

inspection at a place designated by the Comptroller, the Director of Labor and any authorized persons who may also interview employees during working hours on the job site.

7.9.3 Note that the falsification of certifications noted in this Section 7.9 may subject the Contractor or subcontractor to penalties and debarment under the laws referenced in Section 7.14 LAWS TO BE OBSERVED and / or criminal prosecution.

7.10 OVERTIME AND NIGHT WORK

7.10.1 Overtime work shall be considered as work performed in excess of eight (8) hours in any one day or work performed on Saturday, Sunday or legal holiday of the State. Overtime and night work are permissible when approved by the Engineer in writing, or as called for elsewhere within these GENERAL CONDITIONS.

7.10.2 Overtime Notification - Contractor shall inform the Engineer in writing at least two (2) working days in advance as to exactly what specific work is to be done during any overtime and night period to insure that proper inspection will be available.

7.10.3 In the event that work other than that contained in the above notification is performed and for which the Engineer determines State inspection services were necessary but not available because of the lack of notification, the Contractor may be required to remove all such work and perform the work over again in the presence of State inspection personnel.

7.10.4 Any hours worked in excess of the normal eight (8) working hours per day or on Saturdays, Sundays or legal State holidays will not be considered a working day.

7.10.5 The State hereby reserves the right to cancel the overtime, night, Saturday, Sunday or legal State holiday work when it is found that work during these periods is detrimental to the public welfare or the user agency.

7.11 OVERTIME AND NIGHT PAYMENT FOR STATE INSPECTION SERVICE

7.11.1 Whenever the Contractor's operations require the State's inspection and staff personnel to work overtime or at night, the Contractor shall reimburse the State for the cost of such services unless otherwise instructed in the Contract. The Engineer will notify the Contractor of the minimum number of required Department employees and other personnel engaged by the Department prior to the start of any such work. The costs chargeable to the Contractor shall include but not be limited to the following:

7.11.1.1 The cost of salaries which are determined by the State and includes overtime and night time differential for the Department's staff and inspection personnel. In addition to the cost of the salaries, the Contractor shall reimburse the State's share of contributions to the employee's retirement, medical plan, social security, vacation, sick leave, worker's compensation funds, per diem, and other applicable fringe benefits and overhead expenses.

7.11.1.2 The transportation cost incurred by the Department's staff and inspection personnel which are based

on established rental rates or mileage allowance in use by the Department for the particular equipment or vehicle.

7.11.1.3 Fees and other costs billed the State by Consultants engaged on the project for overtime and/or night time work.

7.11.2 Payment for Inspection Services - The monies due the Department for staff and inspection work and use of vehicles and equipment as determined in subsection 7.11.1 shall be deducted from the monies due or to become due the Contractor. In any and all events, the Contractor shall not pay the Department's employees directly.

7.12 LIMITATIONS OF OPERATIONS

7.12.1 Contractor shall at all times conduct the work in such manner and in such sequence as will insure the least practicable interference with pedestrian and motor traffic passageways. The Contractor shall furnish convenient detours and provide and plan all other appropriate signs, flashers, personnel, warnings, barricades and other devices for handling pedestrian and motor traffic.

7.12.2 In the event that other contractors are also employed on the job site, the Contractor shall arrange its work and dispose of materials so as not to interfere with the operations of the other contractors engaged upon adjacent work. The Contractor shall join its work to that of others and existing buildings in a proper manner, and in accordance with the drawings and specifications, and perform its work in the proper sequence in relation to that of others, all as may be directed by the Engineer.

7.12.3 Each Contractor shall be responsible for any damage done by it to work performed by another contractor. Each Contractor shall so conduct its operations and maintain the work in such condition that adequate drainage shall be in effect at all times.

7.12.4 In the event that the Contractor fails to prosecute its work as provided in this Section 7.12 or disregards the directions of the Engineer, the Engineer may suspend the work until such time as the Contractor provides for the prosecution of the work with minimum interference to traffic and passageways or other contractors, adequate drainage, the repair of damage and complies with the direction of the Engineer. No payment will be made for the costs of such suspension.

7.13 ASSIGNMENT OR CHANGE OF NAME §3-125-14 HAR

7.13.1 Assignment - The Contractor shall not sublet, sell, transfer, assign or otherwise dispose of this contract or any part hereof or any right, title or interest herein or any monies due or to become due hereunder without the prior written consent of the Comptroller.

7.13.2 The Contractor may assign money due or to become due it under the contract and such assignment will be recognized by the Department, if given proper notice thereof, to the extent permitted by law; but any assignment of monies shall be subject to all proper set-offs in favor of the State and to all deductions provided in the contract and particularly all monies withheld or unpaid, whether assigned or not, shall be to use by the

Department for the completion of the work in the event that the Contractors should be in default therein.

7.13.3 Recognition of a Successor in Interest; Assignment - When in the best interest of the State, a successor in interest may be recognized in an assignment agreement in which the transferor and the transferee and the State shall agree that:

7.13.3.1 The transferee assumes all of the transferor's obligations;

7.13.3.2 Transferor remains liable for all obligations under the contract but waives all rights under the contract against the State; and

7.13.3.3 The transferor shall continue to furnish, and the transferee shall also furnish, all required bonds.

7.13.4 Change of Name - When a Contractor requests to change the name in which it holds a contract with the State, the Comptroller shall, upon receipt of a document indicating such change of name (for example: an amendment to the articles of incorporation of the corporation), enter into an agreement with the requesting Contractor to effect such a change of name. The agreement changing the name shall specifically indicate that no other terms and conditions of the contract are thereby changed.

7.13.5 All change of name or novation agreements effected hereunder other than by the Comptroller shall be reported to the Comptroller within thirty (30) days of the date that the agreement becomes effective.

7.13.6 Notwithstanding the provisions of paragraphs 7.13.3.1 through 7.13.3.3 above, when a Contractor holds contracts with more than one purchasing agency of the State, the novation or change of name agreements herein authorized shall be processed only through the Comptroller.

7.14 LAWS TO BE OBSERVED

7.14.1 The Contractor at all times shall observe and comply with all Federal, State and local laws or ordinances, rules and regulations which in any manner affect those engaged or employed in the work, the materials used in the work, and the conduct of the work. The Contractor shall also comply with all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the work. Any reference to such laws, ordinances, rules and regulations shall include any amendments thereto before and after the date of this contract.

7.14.2 The Contractor shall defend, protect, hold harmless and indemnify the State and its Departments and Agencies and all their officers, representatives, employees or agents against any claim or liability arising from or based on the violation of any such laws, ordinances, rules and regulations, orders or decrees, whether such violation is committed by the Contractor or its Subcontractor(s) or any employee of either or both. If any discrepancy or inconsistency is discovered in the contract for the work in relation to any such laws, ordinances, rules and regulations, orders or decrees, the Contractor shall forthwith report the same to the Engineer in writing.

7.14.3 While the Contractor must comply with all applicable laws, attention is directed to: Wage and Hours of Employees on Public Works, Chapter 104, Hawaii Revised Statutes (HRS);

Hawaii Public Procurement Code, Authority to debar or suspend, Section 103D-702, HRS; Hawaii Employment Relations Act, Chapter 377, HRS; Hawaii Employment Security Law, Chapter 383, HRS; Worker's Compensation Law, Chapter 386, HRS; Wage and Hour Law, Chapter 387, HRS; Occupational Safety and Health, Chapter 396, HRS; and Authority to Debar or Suspend, Chapter 126, subchapter 2, Hawaii Administrative Rules (HAR).

7.15 PATENTED DEVICES, MATERIALS AND PROCESSES - If the Contractor desires to use any design, device, material, or process covered by letters of patent or copyright, the right for such use shall be procured by the Contractor from the patentee or owner. The Contractor shall defend, protect, indemnify and hold harmless the State and its Departments and Agencies, any affected third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright in connection with the work to be performed under the contract, shall defend, protect, indemnify and hold harmless the State and its Departments and Agencies for any costs, expenses and damages which it may be obligated to pay by reason of any such infringement at any time during the prosecution or after the completion of the work. This section shall not apply to any design, device, material or process covered by letters of patent or copyright, which the Contractor is required to use by the drawings or specifications.

7.16 SANITARY, HEALTH AND SAFETY PROVISIONS

7.16.1 The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of its employees as may be necessary to comply with the requirements of the State and local Boards of Health, or other bodies or tribunals having jurisdiction. Unless otherwise stated in the drawings or specifications, the Contractor shall install toilet facilities conveniently located at the job site and maintain same in a neat and sanitary condition for the use of the employees on the job site for the duration of the contract. The toilet facilities shall conform to the requirements of the State Department of Health. The cost of installing, maintaining and removing the toilet facilities shall be considered incidental to and paid for under various contract pay items for work or under the lump sum bids as the case may be, and no additional compensation will be made therefor. These requirements shall not modify or abrogate in any way the requirements or regulations of the State Department of Health.

7.16.2 Attention is directed to Federal, State and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to their health or safety.

7.17 PROTECTION OF PERSONS AND PROPERTY

7.17.1 Safety Precautions and Programs - The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

7.17.1.1 All persons on the Work site or who may be affected by the Work;

7.17.1.2 All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor and its subcontractors; and

7.17.1.3 Other property at the site or adjacent thereto, including trees, shrubs lawns walks pavement, roadways structures, and utilities not designated for removal, relocation or replacement in the course of construction.

7.17.2 Contractor shall give notices and comply with applicable laws, ordinances, regulations, rules, and lawful orders of any public body having jurisdiction for the safety of persons or property or their protection from damage, injury or loss; and the Contractor shall erect and maintain reasonable safeguards for safety and protection, including posting danger signs, or other warnings against hazards.

7.17.3 The Contractor shall notify Owners of adjacent properties and of underground (or overhead) utilities when performing work which may affect the Owners; and shall cooperate with the Owners in the protection, removal and replacement of their property.

7.17.4 All damage, injury or loss to any property referred to in paragraphs 7.17.1.2 and 7.17.1.3 caused by the fault or negligence or damage or loss attributable to acts or omissions directly or indirectly in whole or part by the Contractor a subcontractor or any one directly or indirectly employed by them, or by anyone for whose acts they might be liable, shall be remedied promptly by the Contractor.

7.17.5 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the protection of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor

7.17.6 The Contractor shall not load or permit any part of the construction to be loaded so as to endanger its safety. The Contractor shall not injure or destroy trees or shrubs nor remove or cut them without permission of the Engineer. Contractor shall protect all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed.

7.17.7 In the event the Contractor encounters on the site, material reasonably believed to be asbestos or other hazard material that has not been rendered harmless, the Contractor shall stop work in the area and notify the Engineer promptly. The work in the affected area shall be resumed in the absence of hazard materials or when the hazard has been rendered harmless.

7.17.8 Emergencies - In an emergency affecting the safety and protection of persons or the Work or property at the site or adjacent thereto, Contractor without special instructions or authorization from the Engineer, shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Contractor shall give the Engineer prompt written notice of the emergency and actions taken. Additional compensation or extension of time claimed by the Contractor on account of an

emergency shall be determined under the provisions of Section 7.25 DISPUTES AND CLAIMS.

7.18 ARCHAEOLOGICAL SITES

7.18.1 Should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentration of charcoal or shells be encountered during construction, work shall cease in the immediate vicinity of the find and the find shall be protected from further damage. The Contractor shall immediately notify the Engineer and contact the State Historic Preservation Division which will assess the significance of the find and recommend the appropriate mitigation measures, if necessary.

7.18.2 When required, the Contractor shall provide and install any temporary fencing as shown on the drawings to protect archaeological sites within the project. The fencing shall be installed prior to any construction activity and shall be maintained by the Contractor for the duration of the project. Fence installation and maintenance shall be to the satisfaction of the Engineer. The Contractor shall remove the fencing upon completion of construction, or as directed by the Engineer.

7.18.3 No work shall be done within the temporary fencing area. If any construction work is done within the temporary fencing, the Contractor shall notify the Engineer immediately; and if the Contractor entered the archaeological site area without permission, it shall stop work in this area immediately. The Engineer shall notify the archaeologist to assess any damage to the area. The Contractor shall allow the archaeologist sufficient time to perform the field investigation.

7.18.4 Any site requiring data recovery within the project shall not be disturbed until data recovery is completed.

7.19 RESPONSIBILITY FOR DAMAGE CLAIMS; INDEMNITY

7.19.1 The Contractor shall indemnify the State and the Department against all loss of or damage to the State's or the Department's existing property and facilities arising out of any act or omission committed in the performance of the work by the Contractor, any subcontractor or their employees and agents. Contractor shall defend, hold harmless and indemnify the Department and the State, their employees, officers and agents against all losses, claims, suits, liability and expense, including but not limited to attorneys' fees, arising out of injury to or death of persons (including employees of the State and the Department, the Contractor or any subcontractor) or damage to property resulting from or in connection with performance of the work and not caused solely by the negligence of the State or the Department, their agents, officers and employees. The State or the Department may participate in the defense of any claim or suit without relieving the Contractor of any obligation hereunder. The purchase of liability insurance shall not relieve the Contractor of the obligations described herein.

7.19.2 The Contractor agrees that it will not attempt to hold the State and its Departments and Agencies and their officers, representatives, employees or agents, liable or responsible for any losses or damages to third parties from the action of the elements, the nature of the work to be done under these GENERAL CONDITIONS or from any unforeseen

obstructions, acts of God, vandalism, fires or encumbrances which may be encountered in the prosecution of the work.

7.19.3 The Contractor shall pay all just claims for materials, supplies, tools, labor and other just claims against the Contractor or any subcontractor in connection with this contract and the surety bond will not be released by final acceptance and payment by the Department unless all such claims are paid or released. The Department may, but is not obligated to, withhold or retain as much of the monies due or to become due the Contractor under this contract considered necessary by the Engineer to cover such just claims until satisfactory proof of payment or the establishment of a payment plan is presented.

7.19.4 The Contractor shall defend, indemnify and hold harmless the State and its Departments and Agencies and their officers, representatives, employees or agents from all suits, actions or claims of any character brought on account of any claims or amounts arising out of or recovered under the Workers' Compensation Laws or violation of any other law, by-law, ordinance, order or decree.

7.20 CHARACTER OF WORKERS OR EQUIPMENT

7.20.1 The Contractor shall at all times provide adequate supervision and sufficient labor and equipment for prosecuting the work to full completion in the manner and within the time required by the contract.

7.20.2 Character and Proficiency of Workers - All workers shall possess the proper license and / or certification, job classification, skill and experience necessary to properly perform the work assigned to them. All workmen engaged in special work or skilled work such as bituminous courses or mixtures, concrete pavement or structures, electrical installation, plumbing installation, or in any trade shall have sufficient experience in such work and in the operation of the equipment required to properly and satisfactorily perform all work. All workers shall make due and proper effort to execute the work in the manner prescribed in these GENERAL CONDITIONS, otherwise, the Engineer may take action as prescribed herein.

7.20.2.1 Any worker employed on the project by the Contractor or by any subcontractor who, in the opinion of the Engineer, is not careful and competent, does not perform its work in a proper and skillful manner or is disrespectful, intemperate, disorderly or neglects or refuses to comply with directions given, or is otherwise objectionable shall at the written request of the Engineer, be removed forthwith by the Contractor or subcontractor employing such worker and shall not be employed again in any portion of the work without the written consent of the Engineer. Should the Contractor or subcontractor continue to employ, or again employ such person or persons on the project, the Engineer may withhold all payments which are or may become due, or the Engineer may suspend the work until the Engineer's orders are followed, or both.

7.20.3 Insufficient Workers - A sufficient number of workers shall be present to ensure the work is accomplished at an acceptable rate. In addition, the proper ratio of apprentice to journey worker shall be maintained to ensure the work is properly supervised and performed. In the event that the Engineer finds insufficient workers are present to accomplish

the work at an acceptable rate of progress or if a adequate number of journey workers are not present and no corrective action is taken by the Contractor after being informed in writing, the Engineer may terminate the contract as provided for under Section 7.27 TERMINATION OF CONTRACT FOR CAUSE.

7.20.4 Equipment Requirements - All equipment furnished by the Contractor and used on the work shall be of such size and of such mechanical condition that the work can be performed in an acceptable manner at a satisfactory rate of progress and the quality of work produced will be satisfactory.

7.20.4.1 Equipment used on any portion of the project shall be such that no injury to the work, persons at or near the site, adjacent property or other objects will result from its use.

7.20.4.2 If the Contractor fails to provide adequate equipment for the work, the contract may be terminated as provided under Section 7.27 TERMINATION OF CONTRACT FOR CAUSE.

7.20.4.3 In the event that the Contractor furnishes and operates equipment on a force-account basis, it shall be operated to obtain maximum production under the prevailing conditions.

7.21 CONTRACT TIME

7.21.1 Time is of the essence for this contract.

7.21.2 Calculation of Contract Time - When the contract time is on a working day basis, the total contract time allowed for the performance of the work shall be the number of working days shown in the contract plus any additional working days authorized in writing as provided hereinafter. Refer to Article 1 DEFINITIONS for the definition of Working Day. The count of elapsed working days to be charged against contract time, shall begin from the date of Notice to Proceed and shall continue consecutively to the date of Project Acceptance determined by the Engineer. When the contract completion time is a fixed calendar date, it shall be the date on which all work on the project shall be completed. Maintenance periods are not included within the contract time unless specifically noted in the Contract Documents.

7.21.3 Modifications of Contract Time §3-125-4 HAR

7.21.3.1 Extensions - For increases in the scope for work caused by alterations and additional work made under Section 4.2 CHANGES, the Contractor will be granted a time extension only if the changes increase the time of performance for the Contract. If the Contractor believes that an extension of time is justified and is not adequately provided for in a Field Order, it must request the additional time sought in writing when the detailed cost breakdown required by Section 4.2 CHANGES, is submitted. The Contractor must show how the time of performance for the critical path will be affected and must also support the time extension request with schedules and statements from its subcontractors, suppliers, and/or manufacturers. Compensation for any altered or additional work will be paid as provided in Section 4.2 CHANGES.

7.21.3.2 The Department may direct changes to the work at any time until the work is finally accepted. The issuance of a Field Order at any time may alter or modify the contract duration only by the days specified therein; or if not specified therein, for the days the critical path must be extended for the change. Additional time to perform the extra work will be added to the time allowed in the contract without regard to the date the change directive was issued, even if the contract completion date has passed. A change requiring time will not constitute a waiver of pre-existing Contractor delay.

7.21.4 Delay for Permits - For delays beyond the control of the Contractor in obtaining necessary permits, one day extension for each day delay may be granted by the Engineer, provided the Contractor notifies the Engineer that the permits are not available, as soon as the delay occurs. Time extensions shall be the exclusive relief granted on account of such delays. No additional compensation will be paid for these time extensions.

7.21.5 Delays Beyond Contractor's Control

§3-125-18(4) - For delays affecting the critical path caused by acts of God, or the public enemy, fire, unusually severe weather, earthquakes, floods, epidemics, quarantine restrictions, labor disputes, freight embargoes and other reasons beyond the Contractor's control, the Contractor may be granted an extension of time provided that:

7.21.5.1 The Contractor notifies the Engineer in writing within five (5) work days after the occurrence of the circumstances described above and states the possible effects on the completion date of the contract.

7.21.5.2 No time extension will be granted for weather conditions other than unusually severe weather occurrences, and floods.

7.21.5.3 The Contractor, if requested, submits to the Engineer within ten (10) work days after the request, a written statement describing the delay to the project. The extent of delay must be substantiated as follows:

- (a) State specifically the reason or reasons for the delay and fully explain in a detailed chronology the effect of this delay to the work and/or the completion date.
- (b) Submit copies of purchase order, delivery tag, and any other pertinent documentation to support the time extension request.
- (c) Cite the period of delay and the time extension requested.
- (d) A statement either that the above circumstances have been cleared and normal working conditions restored as of a certain day or that the above circumstances will continue to prevent completion of the project.

7.21.5.4 Time extensions shall be the exclusive relief granted and no additional compensation will be paid the Contractor for such delays.

7.21.6 Delays in Delivery of Materials - For delays in delivery of materials and / or equipment which occur as a result of unforeseeable causes beyond the control and without fault or

negligence of both the Contractor, its subcontractor(s) or supplier(s), the Contractor may be granted an extension of time provided that it complies with the following procedures.

7.21.6.1 The Contractor must notify the Engineer in writing within five (5) consecutive working days after it first has any knowledge of delays or anticipated delays and state the effects such delays may have on the completion date of the contract.

7.21.6.2 The Contractor, if requested, must submit to the Engineer within ten (10) working days after a firm delivery date for the material and equipment is established, a written statement as to the delay to the progress of the project. The delay must be substantiated as follows:

- (a) State specifically the reason or reasons for the delay. Explain in a detailed chronology the effect of this delay to the other work and / or the completion date.
- (b) Submit copies of purchase order(s), factory invoice(s), bill(s) of lading, shipping manifest(s), delivery tag(s) and any other pertinent correspondence to support the time extension request.
- (c) Cite the start and end date of the delay and the days requested therefore. The delay shall not exceed the difference between the originally scheduled delivery date versus the actual delivery date.

7.21.6.3 Time extensions shall be the exclusive relief granted and no additional compensation will be paid the Contractor on account of such delay.

7.21.7 Delays For Suspension of Work - Delay during periods of suspension of the work by the Engineer shall be computed as follows:

7.21.7.1 When the performance of the work is totally suspended for one or more days (calendar or working days, as appropriate) by order of the Engineer in accordance with paragraphs 7.24.1.1, 7.24.1.2, 7.24.1.4 or 7.24.1.6 the number of days from the effective date of the Engineer's order to suspend operations to the effective date of the Engineer's order to resume operations shall not be counted as contract time and the contract completion date will be adjusted. Should the Contractor claim for additional days in excess of the suspension period, Contractor shall provide evidence justifying the additional time. During periods of partial suspensions of the work, the Contractor will be granted a time extension only if the partial suspension affects the critical path. If the Contractor believes that an extension of time is justified for a partial suspension of work, it must request the extension in writing at least five (5) working days before the partial suspension will affect the critical operation(s) in progress. The Contractor must show how the critical path was increased based on the status of the work and must also support its claim, if requested, with statements from its subcontractors. A suspension of work will not constitute a waiver of pre-existing Contractor delay.

7.21.8 Contractor Caused Delays - No time extension will be considered for the following:

7.21.8.1 Delays in performing the work caused by the Contractor, subcontractor and / or supplier.

7.21.8.2 Delays in arrival of materials and equipment caused by the Contractor, subcontractor and / or supplier in ordering, fabricating, delivery, etc.

7.21.8.3 Delays requested for changes which the Engineer determines unjustifiable due to the lack of supporting evidence or because the change is not on the critical path.

7.21.8.4 Delays caused by the failure of the Contractor to submit for review and acceptance by the Engineer, on a timely basis, shop drawings, descriptive sheets, material samples, color samples, etc. except as covered in subsection 7.21.5 and 7.21.6.

7.21.8.5 Failure to follow the procedure within the time allowed to qualify for a time extension.

7.21.8.6 Days the Contractor is unable to work due to normal rainfall or other normal bad weather day conditions.

7.21.9 Reduction in Time - If the Department deletes any portion of the work, an appropriate reduction of contract time may be made in accordance with Section 4.2 CHANGES.

7.22 CONSTRUCTION SCHEDULE

7.22.1 The Contractor shall submit its detailed construction schedule to the Engineer prior to the start of the work. The purpose of the schedule is to allow the Engineer to monitor the Contractor's progress on the work. The schedule shall account for normal inclement weather, unusual soil or other conditions that may influence the progress of the work, schedules and coordination required by any utility, off or on site fabrications, and all other pertinent factors that relate to progress.

7.22.2 Submittal of and the Engineer's receipt of the construction schedule shall not imply the Department's approval of the schedule's breakdown, its individual elements, and any critical path that may be shown. Any acceptance or approval of the schedule 1) shall be for general format only and not for sequences or durations thereon, and 2) shall not be deemed an agreement by the Department that the construction means, methods and resources shown on the schedule will result in work that conforms to the contract requirements. The Contractor has the risk of all elements (whether or not shown) of the schedule and its execution. Additional compensation shall not be due the Contractor in the event that deviations from the Contractor's schedule, caused by any design revisions required to resolve site conditions or State, County, or utility requirements, affect the efficiency of its operations.

7.22.3 In the event the Contractor submits and the Department receives an accelerated schedule (shorter than the contract time), such will not constitute an agreement to modify the contract time or completion date, nor will the receipt, acceptance or approval of such a schedule incur any obligation by the Department.

7.22.4 Caution - The Department will not be responsible if the Contractor does not meet its accelerated schedule.

7.22.5 The requirements of this Section 7.22 CONSTRUCTION SCHEDULE may be waived by the Engineer.

7.23 STATEMENT OF WORKING DAYS - For all contracts on a working day basis, the Contractor will submit a statement of the number of working days for each month together with the Monthly Payment Application. The Monthly Payment Application will not be processed without the statement of working days.

7.24 SUSPENSION OF WORK §3-125-7 HAR

7.24.1 Procedure to be followed - The Engineer may, by written order, suspend the performance of the Work up to thirty (30) days and the Comptroller, for an unlimited number of days, either in whole or in part for any cause, including but not limited to:

7.24.1.1 Weather or excess bad weather days, considered unsuitable by the Engineer for prosecution of the work; or

7.24.1.2 Soil Conditions considered unsuitable by the Engineer for prosecution of the work; or

7.24.1.3 Failure of the Contractor to:

- (a) Correct conditions unsafe for the general public or for the workers;
- (b) Carry out orders given by the Engineer;
- (c) Perform the work in strict compliance with the provisions of the contract; or
- (d) Provide a qualified Superintendent on the jobsite as described under Section 5.8 COOPERATION BETWEEN THE CONTRACTOR AND THE DEPARTMENT.

7.24.1.4 When any redesign is deemed necessary by the Engineer; or

7.24.1.5 Disturbance due to noise, odors or dust arising from the construction even if such disturbance does not violate the section on Environmental Protection contained in the specifications; or

7.24.1.6 The convenience of the State.

7.24.2 Partial, Total Suspension of Work - Suspension of work on some but not all items of work shall be considered a partial suspension. Suspension of work on the entire work at the job site shall be considered total suspension. The period of suspension shall be computed as set forth in subsection 7.21.7 -Delays for Suspension of Work.

7.24.3 Payment §3-125-7 HAR

7.24.3.1 In the event that the Contractor is ordered by the Engineer in writing as provided herein to suspend all work under the contract in accordance with paragraphs 7.24.1.4 or 7.24.1.6, the Contractor may be reimbursed for actual direct costs incurred on work at the jobsite, as authorized in writing

by the Engineer, including costs expended for the protection of the work. Payment for equipment which must standby during such suspension of work shall be made as described in clause 8.3.4.5.(e). No payment will be made for profit on any suspension costs. An allowance of five percent (5%) will be paid on any reimbursed actual costs for indirect categories of delay costs, including extended branch and home-office overhead and delay impact costs.

7.24.3.2 However, no adjustment to the contract amount or time shall be made under this Section 7.24 for any suspension, delay, or interruption:

- (a) To the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor; or
- (b) For which an adjustment is provided for or excluded under any other provision of this Contract.

7.24.3.3 Any adjustment in contract price made pursuant to this subsection shall be determined in accordance with this Section 7.24 and Section 4.2 CHANGES.

7.24.3.4 Claims for such compensation shall be filed with the Engineer within ten (10) calendar days after the date of the order to resume work or such claims will be waived by the Contractor. Together with the claim, the Contractor shall submit substantiating documents supporting the entire amount shown on the claim. The Engineer may make such investigations as are deemed necessary and shall be the sole judge of the claim and the Engineer's decision shall be final.

7.24.4 Claims Not Allowed - No claim under this Section 7.24 shall be allowed:

7.24.4.1 For any direct costs incurred more than twenty (20) days before the Contractor shall have notified the Engineer in writing of any suspension that the Contractor considered compensable. This requirement shall not apply as to a claim resulting from a suspension order under paragraphs 7.24.1.4 or 7.24.1.6, and

7.24.4.2 Unless the claim is asserted in writing within ten (10) calendar days after the termination of such suspension, delay, or interruption, but in no case not later than the date of final payment under the contract.

7.24.4.3 No provision of this Section 7.24 shall be construed as entitling the Contractor to compensation for delays due to failure of surety, for suspensions made at the request of the Contractor, for any delay required under the Contract, for partial suspension of work or for suspensions made by the Engineer under the provisions of paragraphs 7.24.1.1, 7.24.1.2, 7.24.1.3 and 7.24.1.5.

7.25 DISPUTES AND CLAIMS §3-126-31 HAR

7.25.1 Required Notification - As a condition precedent for any claim, the Contractor must give notice in writing to the Engineer in the manner and within the time periods stated in Section 4.2 CHANGES for claims for extra compensation,

damages, or an extension of time due for one or more of the following reasons:

7.25.1.1 Requirements not clearly covered in the contract, or not ordered by the Engineer as an extra;

7.25.1.2 Failure by the State and Contractor to agree to an Oral Order or an adjustment in price or contract time for a Field Order or a Change Order issued by the State;

7.25.1.3 An action or omission by the Engineer requiring performance changes beyond the scope of the contract;

7.25.1.4 Failure of the State to issue a Field Order for controversies within the scope of Section 4.2 CHANGES.

7.25.1.5 For any other type of claim, the Contractor shall give notice within the time periods set forth in contract provisions pertaining to that event. If no specific contract provisions pertain to the claim, then the written notice of claim must be submitted within fifteen (15) days of the event giving rise to the claim.

7.25.2 Continued Performance of Work - The Contractor shall at all times continue with performance of the contract in full compliance with the directions of the Engineer. Continued performance by the Contractor shall not be deemed a waiver of any claim for additional compensation, damages, or an extension of time for completion, provided that the written notice of claim is submitted in accordance with subsection 7.25.1

7.25.3 The requirement for timely written notice shall be a condition precedent to the assertion of a claim.

7.25.4 Requirements for Notice of Claim -The notice of claim shall clearly state the Contractor's intention to make claim and the reasons why the Contractor believes that additional compensation, changes or an extension of time may be remedies to which it is entitled. At a minimum, it shall provide the following:

7.25.4.1 Date of the protested order, decision or action;

7.25.4.2 The nature and circumstances which caused the claim;

7.25.4.3 The contract provision that support the claim;

7.25.4.4 The estimated dollar cost, if any, of the protested work and how that estimate was determined; and

7.25.4.5 An analysis of the progress schedule showing the schedule change or disruption if the Contractor is asserting a schedule change or disruption.

7.25.5 If the protest or claim is continuing, the information required in subsection 7.25.4 above shall be supplemented as requested by the Engineer.

7.25.6 Final Statement for Claim - The Contractor shall provide a final written statement of the actual adjustment in contract price and/or contract time requested for each notice of claim. Such statement shall clearly set forth that it is the final statement for that notice of claim. All such final statements shall

be submitted within thirty (30) days after completion of the work that is the subject of the claim, but in no event no later than thirty (30) days after the Project Acceptance Date or the date of termination of the Contractor, whichever comes first.

7.25.7 All claims of any nature are barred if asserted after final payment under this contract has been made, except as provided under Section 8.9 CLAIMS ARISING OUT OF PAYMENT FOR REQUIRED WORK.

7.25.8 Contractor may protest the assessment or determination by the Engineer of amounts due the State from the Contractor by providing a written notice to the Engineer within thirty (30) days of the date of the Engineer's written assessment or determination. Said notice shall comply with all requirements of subsections 7.25.4 and 7.25.6 above. The requirement of such notice cannot be waived and it is a condition precedent to any claim by the Contractor. Failure to comply with these notice provisions constitutes a waiver of any claim.

7.25.9 In addition to the requirements of subsections 7.25.4, 7.25.6, and 7.25.8, all final written statements of claim shall be certified. This certification requirement applies to the Contractor without exception, including, but not limited to, situations involving "pass through" claims of subcontractors or suppliers. The certification must be executed by a person duly authorized to bind the Contractor with respect to the claim. The certification shall state as follows:

7.25.9.1 "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the State is liable; and that I am duly authorized to certify the claim on behalf of the Contractor."

7.25.10 Decision on Claim / Appeal - The decision of the Engineer on the claim shall be final and conclusive, unless fraudulent, or unless the Contractor delivers to the Comptroller a written appeal of the Engineer's decision. Said appeal shall be delivered to the Comptroller no later than thirty (30) days after the date of the Engineer's decision.

7.25.10.1 In that event, the decision of the Comptroller shall be final and conclusive, unless fraudulent or unless the Contractor brings an action seeking judicial review of the Comptroller's decision in an appropriate circuit court of this State within six (6) months from the date of the Comptroller's decision.

7.25.11 Payment and Interest - The amount determined payable pursuant to the decision, less any portion already paid, normally should be paid without awaiting Contractor action concerning appeal. Such payments shall be without prejudice to the rights of either party. Interest on amounts ultimately determined to be due to a Contractor shall be payable at the Statutory rate applicable to judgments against the State under Chapter 662, HRS from the date of receipt of a properly certified final written statement of actual adjustment required until the date of decision; except, however, that if an action is initiated in circuit court, interest under this Section 7.25 shall only be calculated until the time such action is initiated. Interest on amounts due the State from the Contractor shall be payable at the same rate from the date of issuance of the Engineer's

notice to the Contractor. Where such payments are required to be returned by a subsequent decision, interest on such payments shall be paid at the statutory rate from the date of payment.

7.25.12 Contractor shall comply with any decision of the Engineer and proceed diligently with performance of this contract pending final resolution by a circuit court of this State of any controversy arising under, or by virtue of, this contract, except where there has been a material breach of contract by the State; provided that in any event the Contractor shall proceed diligently with the performance of the contract where the Engineer has made a written determination that continuation of work under the contract is essential to the public health and safety.

7.25.13 Waiver of Attorney's Fees - In the event of any litigation arising under, or by virtue of, this contract, the Contractor and the State agree to waive all claims against each other for attorney's fees and agree to refrain from seeking attorney's fees as part of any award or relief from any court.

7.26 FAILURE TO COMPLETE THE WORK ON TIME

7.26.1 Completion of the work within the required time is important because delay in the prosecution of the work will inconvenience the public and interfere with the State's business. In addition, the State will be damaged by the inability to obtain full use of the completed work and by increased engineering, inspection, superintendence, and administrative services in connection with the work. Furthermore, delay may detrimentally impact the financing, planning, or completion of other State projects because of the need to devote State resources to the project after the required completion date. The monetary amount of such public inconvenience, interference with State business, and damages, is difficult, if not impossible, to accurately determine and precisely prove. Therefore, it is hereby agreed that the amount of such damages shall be the appropriate sum of liquidated damages as set forth below.

7.26.1.1 When the Contractor fails to complete the Work or any portion of the Work within the time or times fixed in the contract or any extension thereof, it is agreed the Contractor shall pay liquidated damages to the Department based upon the amount stated in the Specification Section 00800 SPECIAL CONDITIONS.

7.26.1.2 If the Contractor fails to correct Punchlist deficiencies as required by Section 7.32 PROJECT ACCEPTANCE DATE, the State will be inconvenienced and damaged, therefore, it is agreed that the Contractor shall pay liquidated damages to the Department based upon the amount stated in the Specification Section 00800 SPECIAL CONDITIONS. Liquidated damages shall accrue for all days after the Contract Completion Date or any extension thereof, until the date the Punchlist items are corrected and accepted by the Engineer.

7.26.1.3 If the Contractor fails to submit final documents as required by Section 7.33 FINAL SETTLEMENT OF THE CONTRACT, the State will be inconvenienced and damaged, therefore, it is agreed that the Contractor shall pay liquidated damages to the Department based upon the amount stated in the Specification Section 00800 SPECIAL CONDITIONS. Liquidated damages shall accrue for all days after the

Contract Completion Date or any extension thereof, until the date the final documents are received by the Engineer.

7.26.1.4 The Engineer shall assess the total amount of liquidated damages in accordance with the amount stated in the Specification Section 00800 SPECIAL CONDITIONS and provide written notice of such assessment to the Contractor.

7.26.2 Acceptance of Liquidated Damages -The assessment of liquidated damages by the Engineer shall be accepted by the parties hereto as final, unless the Contractor delivers a written appeal of the Engineer's decision in accordance with subsection 7.25.10 requirements. Any allowance of time or remission of charges or liquidated damages shall in no other manner affect the rights or obligations of the parties under this contract nor be construed to prevent action under Section 7.27 TERMINATION OF CONTRACT FOR CAUSE. If the Department terminates the Contractor's right to proceed, the resulting damage will include such liquidated damages for such time as may be required for final completion of the work after the required contract completion date.

7.26.3 Payments for Liquidated Damages -Liquidated damages shall be deducted from monies due or that may become due to the Contractor under the contract or from other monies that may be due or become due to the Contractor from the State.

7.27 TERMINATION OF CONTRACT FOR CAUSE §3-125-18 HAR

7.27.1 Default - If the Contractor refuses or fails to perform the work, or any separable part thereof, with such diligence as will assure its completion within the time specified in this contract, or any extension thereof, fails to complete the work within such time, or commits any other material breach of this contract, and further fails within seven (7) days after receipt of written notice from the Engineer to commence and continue correction of the refusal or failure with diligence and promptness, the Comptroller may, by written notice to the Contractor, declare the Contractor in breach and terminate the Contractor's right to proceed with the work or the part of the work as to which there has been delay or other breach of contract. In such event, the Department may take over the work and perform the same to completion, by contract or otherwise, and may take possession of, and utilize in completing the work, the materials, appliances, and plant as may be on the site of the work and necessary therefor. Whether or not the Contractor's right to proceed with the work is terminated, the Contractor and the Contractor's sureties shall be liable for any damage to the Department resulting from the Contractor's refusal or failure to complete the work within the specified time.

7.27.2 Additional Rights and Remedies - The rights and remedies of the Department provided in this contract are in addition to any other rights and remedies provided by law.

7.27.3 Costs and Charges

7.27.3.1 All costs and charges incurred by the Department, together with the cost of completing the work under contract, will be deducted from any monies due or which would or might have become due to the Contractor had it been allowed to complete the work under the contract. If such expense exceeds the sum which would have been payable under the

contract, then the Contractor and the surety shall be liable and shall pay the Department the amount of the excess.

7.27.3.2 In case of termination, the Comptroller shall limit any payment to the Contractor to the part of the contract satisfactorily completed at the time of termination. Payment will not be made until the work has satisfactorily been completed and the tax clearance required by Section 8.8 FINAL PAYMENT is submitted by the Contractor. Termination shall not relieve the Contractor or Surety from liability for liquidated damages.

7.27.4 Erroneous Termination for Cause - If, after notice of termination of the Contractor's right to proceed under this Section 7.27, it is determined for any reason that good cause did not exist to allow the Department to terminate as provided herein, the rights and obligations of the parties shall be the same as, and the relief afforded the Contractor shall be limited to, the provisions contained in Section 7.28 TERMINATION FOR CONVENIENCE.

7.28 TERMINATION FOR CONVENIENCE §3-125-22 HAR

7.28.1 Termination - The Comptroller may, when the interests of the State so require, terminate this contract in whole or in part, for the convenience of the State. The Comptroller shall give written notice of the termination to the Contractor specifying the part of the contract terminated and when termination becomes effective.

7.28.2 Contractor's Obligations - The Contractor shall incur no further obligations in connection with the terminated work and on the date set in the notice of termination the Contractor will stop work to the extent specified. The Contractor shall also terminate outstanding orders and subcontracts as they relate to the terminated work. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders connected with the terminated work subject to the State's approval. The Comptroller may direct the Contractor to assign the Contractor's right, title, and interest under terminated orders or subcontracts to the State. The Contractor must still complete the work not terminated by the notice of termination.

7.28.3 Right to Construction and Goods - The Comptroller may require the Contractor to transfer title and delivery to the State in the manner and to the extent directed by the Comptroller, the following:

7.28.3.1 Any completed work; and

7.28.3.2 Any partially completed construction, goods, materials, parts, tools, dies, jigs, fixtures, drawings, information, and contract rights (hereinafter called "construction material") that the Contractor has specifically produced or specially acquired for the performance of the terminated part of this contract.

7.28.3.3 The Contractor shall protect and preserve all property in the possession of the Contractor in which the State has an interest. If the Comptroller does not elect to retain any such property, the Contractor shall use its best efforts to sell such property and construction material for the

Department's account in accordance with the standards of section 490:2-706, HRS.

7.28.4 Compensation

7.28.4.1 Contractor shall submit a termination claim specifying the amounts due because of the termination for convenience together with cost or pricing data, submitted to the extent required by subchapter 15, chapter 3-122, HAR. If the Contractor fails to file a termination claim within one year from the effective date of termination, the Comptroller may pay the Contractor, if at all, an amount set in accordance with paragraph 7.28.4.3.

7.28.4.2 The Comptroller and the Contractor may agree to a settlement provided the Contractor has filed a termination claim supported by cost or pricing data submitted as required and that the settlement does not exceed the total contract price plus settlement costs reduced by payments previously made by the State, the proceeds of any sales of construction, supplies, and construction materials under paragraph 7.28.3.3 of this Section, and the contract price of the work not terminated.

7.28.4.3 Absent complete agreement, the Comptroller shall pay the Contractor the following amounts, less any payments previously made under the contract.

- (a) The cost of all contract work performed prior to the effective date of the notice of termination work plus a five percent (5%) markup on the actual direct costs, including amounts paid to subcontractor, less amounts previously paid or to be paid for completed portions of such work; provided, however, that if it appears that the Contractor would have sustained a loss if the entire contract would have been completed, no markup shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss. No anticipated profit or consequential damage will be due or paid.
- (b) Subcontractors shall be paid a markup of ten percent (10%) on their direct job costs incurred to the date of termination. No anticipated profit or consequential damage will be due or paid to any subcontractor. These costs must not include payments made to the Contractor for subcontract work during the contract period.
- (c) In any case, the total sum to be paid the Contractor shall not exceed the total contract price reduced by the amount of any sales of construction supplies, and construction materials.

7.28.4.4 Costs claimed, agreed to, or established by the State shall be in accordance with chapter 3-123, HAR.

7.29 CORRECTING DEFECTS - If the Contractor fails to commence to correct any defects of any nature, within ten (10) working days after the correction thereof has been requested in writing by the State, and thereafter to expeditiously complete the correction of said defects, the Engineer may without further notice to the Contractor or surety and without termination of contract, correct the defects and deduct the cost thereof from the contract price.

7.30 FINAL CLEANING - Before final inspection of the work, the Contractor shall clean all ground occupied by the Contractor in connection with the Work of all rubbish, excess materials, temporary structures and equipment, and all parts of the work must be left in a neat and presentable condition to the satisfaction of the Engineer. However, the Contractor shall not remove any warning and directional signs prior to the formal acceptance by the Engineer. Full compensation for final cleaning will be included in the prices paid for the various items of work or lump sum bid, as the case may be, and no separate payment will be made therefor.

7.31 SUBSTANTIAL COMPLETION, AND FINAL INSPECTION - Before the Department accepts the project as being completed, unless otherwise stipulated by the Engineer, the following procedure shall be followed:

7.31.1 Substantial Completion:

7.31.1.1 The Contractor and its subcontractors shall inspect the project to confirm whether the Project is Substantially Complete. This inspection effort shall include the testing of all equipment and providing a Punchlist that identifies deficiencies which must be corrected. Contractor shall make the corrections and if required repeat the procedure. Also, the Contractor shall schedule final Building, Plumbing, Electrical, Elevator, Fire and other required inspections and obtain final approvals.

- (a) When in compliance with the above requirements, the Contractor shall notify the Engineer in writing that project is Substantially Complete and ready for a Final Inspection. Along with the Substantial Completion notification, the Contractor shall provide its Punchlist(s) with the status of the deficiencies and dates when the deficiencies were corrected. The Project Inspector and / or the Engineer shall make a preliminary determination whether project is Substantially Complete.
- (b) If the Project is not Substantially Complete, the Engineer shall inform the Contractor. The Contractor shall identify deficiencies which must be corrected, update its Punchlist, make the necessary corrections and repeat the previous step. After completing the necessary work, the Contractor shall notify the Engineer in writing that Punchlist deficiencies have been corrected and the project is ready for a Final Inspection.
- (c) If the Project is Substantially Complete, the Engineer shall schedule a Final Inspection within fifteen (15) days of the Contractor's notification letter or as otherwise determined by the Engineer.

7.31.1.2 In addition, and to facilitate closing of the project, the Contractor shall also proceed to obtain the following closing documents (where applicable) prior to the Final Inspection:

- (a) Field-Posted As-Built Drawings.
- (b) Maintenance Service Contract and two (2) copies of a list of all equipment.

- (c) Operating and maintenance manuals.
- (d) Air conditioning test and balance reports.
- (e) Any other final submittal required by the technical sections of the contract.

7.31.2 Final Inspection If at the Final Inspection the Engineer determines that all work is completed, the Engineer shall notify the Contractor in accordance with Section 7.32 PROJECT ACCEPTANCE DATE. Should there be remaining deficiencies which must be corrected, the Contractor shall provide an updated Punchlist to the Engineer, within five (5) days from the Final Inspection Date. The Contractor shall make the necessary corrections.

7.31.2.1 The Engineer shall confirm the list of deficiencies noted by the Contractor's punchlist(s) and will notify the Contractor of any other deficiencies that must be corrected before final settlement.

7.31.3 The Engineer may add to or otherwise modify the Punchlist from time to time. The Contractor shall take immediate action to correct the deficiencies.

7.31.4 Revoking Substantial Completion - At any time before final Project Acceptance is issued, the Engineer may revoke the determination of Substantial Completion if the Engineer finds it was not warranted. The Engineer shall notify the Contractor in writing with the reasons and outstanding deficiencies negating the declaration. Once notified, the Contractor shall make the necessary corrections and repeat the required steps noted in subsections 7.31.1 and 7.31.2.

7.32 PROJECT ACCEPTANCE DATE

7.32.1 If upon Final Inspection, the Engineer finds that the project has been satisfactorily completed in compliance with the contract, the Engineer shall declare the project completed and accepted and will notify the Contractor in writing of the acceptance by way of the Project Acceptance Notice.

7.32.2 Protection and Maintenance - After the Project Acceptance Date, the Contractor shall be relieved of maintaining and protecting the work EXCEPT that this does not hold true for those portions of the work which have not been accepted, including Punchlist deficiencies. The State shall be responsible for the protection and maintenance of the accepted facility.

7.32.3 The date of Project Acceptance shall determine:

7.32.3.1 End of Contract Time.

7.32.3.2 Commencement of all guaranty periods except as noted in Section 7.34 CONTRACTOR'S RESPONSIBILITY FOR WORK: RISK OF LOSS.

7.32.3.3 Commencement of all maintenance services except as noted in Section 7.34 CONTRACTOR'S RESPONSIBILITY FOR WORK: RISK OF LOSS.

7.32.4 Punchlist Requirements - If a Punchlist is required under Section 7.31 SUBSTANTIAL COMPLETION AND FINAL INSPECTION, the Project Acceptance Notice will

include the Engineer's Punchlist and the date when correction of the deficiencies must be completed.

7.32.5 Upon receiving the Punchlist, the Contractor shall promptly devote the required time, labor, equipment, materials and incidentals necessary to correct the deficiencies expeditiously.

7.32.6 For those items of work that cannot be completed by the established date, the Contractor shall submit a schedule in writing to the Engineer for approval along with documentation to justify the time required, no later than five (5) working days before the date stipulated for completion of the Punchlist work. A Proposed schedule submitted after the five (5) day period will not be considered.

7.32.7 Failure to Correct Deficiencies - After the Contract Completion Date, or any extension thereof, if the Contractor fails to correct the deficiencies within the established date or agreed to Punchlist completion date, the Engineer shall assess liquidated damages as required by Section 7.26 - FAILURE TO COMPLETE THE WORK ON TIME.

7.32.8 If the Contractor fails to correct the deficiencies and complete the work by the established or agreed to date, the State also reserves the right to correct the deficiencies by whatever method it deems necessary and deduct the cost from the final payment due the contractor.

7.32.9 The Contractor may further be prohibited from bidding in accordance with Section 2.12 - DISQUALIFICATION OF BIDDERS. In addition, assessment of damages shall not prevent action under Section 7.27 - TERMINATION OF CONTRACT FOR CAUSE.

7.33 FINAL SETTLEMENT OF CONTRACT - The contract will be considered settled after the project acceptance date and when the following items have been satisfactorily submitted, where applicable:

7.33.1 Necessary Submissions in addition to the items noted under paragraph 7.31.1.2.

- 7.33.1.1 All written guarantees required by the contract.
- 7.33.1.2 Complete and certified weekly payrolls for the Contractor and its Subcontractor(s).
- 7.33.1.3 Certificate of Plumbing and Electrical Inspection.
- 7.33.1.4 Certificate of Building Occupancy.
- 7.33.1.5 Certificates for Soil Treatment and Wood Treatment.
- 7.33.1.6 Certificate of Water System Chlorination.
- 7.33.1.7 Certificate of Elevator Inspection, Boiler and Pressure Pipe installation.
- 7.33.1.8 All other documents required by the Contract.

7.33.2 Failure to Submit Closing Documents - The Contractor shall submit the final Payment Application and the above applicable closing documents within sixty (60) days from

the date of Project Acceptance or the agreed to Punchlist completion date. Should the Contractor fail to comply with these requirements, the Comptroller may terminate the Contract for cause. The pertinent provisions of Section 7.27 TERMINATION OF CONTRACT FOR CAUSE shall be applicable.

7.33.3 In addition, should the Contractor fail to furnish final closing documents within the required time period, the Engineer shall assess liquidated damages as required by Section 7.26 FAILURE TO COMPLETE THE WORK ON TIME.

7.34 CONTRACTOR'S RESPONSIBILITY FOR WORK; RISK OF LOSS

7.34.1 Until the establishment of the Project Acceptance Date or Beneficial Occupancy whichever is sooner, the Contractor shall take every necessary precaution against injury or damage to any part of the work caused by the perils insured by an All Risk policy excluding earthquakes and floods, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore and make good all injuries or damage to any portion of the work occasioned by the perils insured by an All Risk policy before the date of final acceptance and shall bear the risk and expense thereof.

7.34.2 After the Project Acceptance Date or Beneficial Occupancy whichever is sooner, the Contractor shall be relieved of maintaining and protecting the work except for those portions of the work which have not been accepted including Punchlist deficiencies.

7.34.3 The risk of damage to the work from any hazard or occurrence that may be covered by a required Property Insurance policy is that of the Contractor, unless such risk of loss is placed elsewhere by express language in the contract documents. No claims for any loss or damage shall be recognized by the Department, nor will any such loss or damage excuse the complete and satisfactory performance of the contract by the Contractor.

7.35 GUARANTEE OF WORK

7.35.1 In addition to any required manufacturers warranties, all work and equipment shall be guaranteed by the Contractor against defects in materials, equipment or workmanship for one year from the Project Acceptance Date or as otherwise specified in the Contract Documents, whichever is earlier.

7.35.2 Repair of Work - If, within any guarantee period, repairs or changes are required in connection with the guaranteed work, which in the opinion of the Engineer is necessary due to materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract, the Contractor shall within five (5) working days and without expense to the Department commence to:

7.35.2.1 Place in satisfactory condition in every instance all such guaranteed work and correct all defects therein; and

7.35.2.2 Make good and repair or replace to new or pre-existing condition all damages to the building, facility, work or equipment or contents thereof, resulting from such defective materials, equipment or installation thereof.

7.35.3 Manufacturer's and Installer's Guarantee- Whenever a manufacturer's or installer's guarantee on any product specified in the respective Specification sections, exceeds one year, this guarantee shall become part of this contract in addition to the Contractor's guarantee. Contractor shall complete the guarantee forms in the name of the Department and submit such forms to the manufacturer within such time required to validate the guarantee. Contractor shall submit to the Department a photocopy of the completed guarantee form for the Department's record as evidence that such guarantee form was executed by the manufacturer.

7.35.4 If a defect is discovered during a guarantee period, all repairs and corrections to the defective items when corrected shall again be guaranteed for the original full guarantee period. The guarantee period shall be tolled and suspended for all work affected by the defect. The guarantee period for work affected by the defect shall restart for its remaining duration upon confirmation by the Engineer that the deficiencies have been repaired or remedied.

7.35.5 If guarantee is specified for greater than two (2) years, two (2) years shall prevail except for manufacturer's warranties. Manufacturer's warranties shall remain as specified in their respective Specification sections.

7.35.5.1 However, the number of years specified in the technical specifications shall prevail only if it is stated that the number of years for guarantee supercedes this provision.

7.36 WORK OF AND CHARGES BY UTILITIES

7.36.1 The Contractor shall be responsible for scheduling and coordinating the work with the utility companies and applicable Governmental agencies for permanent service installation and connections or modifications to existing utilities. The Contractor shall make available all portions of the work necessary for the utility companies to do their work. The Department shall not bear the risk of any damage to the contract work caused by any utility company, and work of repairing such damage and delay costs must be resolved between the Contractor and the utility company and their insurers.

7.36.2 Unless stated as an allowance item to be paid by the Contractor, the Department will pay the utility companies and applicable governmental agencies directly for necessary modifications and connections. Contractor charges for overhead, supervision, coordination, profit, insurance and any other incidental expenses shall be included in the Contractor's Bid whether the utility is paid directly by the Department or by an allowance item in the Contract.

7.37 RIGHT TO AUDIT RECORDS

7.37.1 Pursuant to Section 103D-317 HRS the State, at reasonable times and places, may audit the books and records of a Contractor, prospective contractor, subcontractor and prospective subcontractor relating to the Contractor's or subcontractor's cost or pricing data. The books and records shall be maintained by the Contractor and subcontractor(s) for a period of four (4) years from the date of final payment under the contract.

7.37.2 The Contractor shall insure that its subcontractors comply with this requirement and shall bear all costs (including

attorney's fees) of enforcement in the event of its subcontractor's failure or refusal to fully cooperate.

7.37.3 Additionally, Sections 231-7, 235-108, 237-39 and other HRS chapters through reference, authorizes the Department of Taxation to audit all taxpayers conducting business within the State. Contractors must make available to the Department of Taxation all books and records necessary to verify compliance with the tax laws.

7.38 RECORDS MAINTENANCE, RETENTION AND ACCESS

7.38.1 The Contractor and any subcontractor whose contract for services is valued at \$25,000 or more shall, in accordance with generally acceptable accounting practices, maintain fiscal records and supporting documents and related files, papers, and reports that adequately reflect all direct and indirect expenditures and management and fiscal practices related to the Contractor and subcontractor's performance of services under this Agreement.

7.38.2 The representative of the Department, the Comptroller of the State of Hawaii, the Attorney General, (the Federal granting agency, the Comptroller General of the United States, and any of their authorized representatives when federal funds are utilized), and the Legislative Auditor of the State of Hawaii shall have the right of access to any book, document, paper, file, or other record of the Contractor and any subcontractor that is related to the performance of services under this Agreement in order to conduct an audit or other examination and / or to make copies, excerpts and transcripts for the purposes of monitoring and evaluating the Contractor and subcontractor's performance of services and the Contractor and subcontractor's program, management, and fiscal practices to assure the proper and effective expenditure of funds and to verify all costs associated with any claims made under this Agreement.

7.38.3 The right of access shall not be limited to the required retention period but shall last as long as the records are retained. The Contractor and subcontractor shall retain all records related to the Contractor and subcontractor's performance of services under this Agreement for four (4) years from the date of 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 (4) 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 (4) year retention period, whichever occurs later. Furthermore, it shall be the Contractor's responsibility to enforce compliance with this provision by any subcontractor.

ARTICLE 8 - Measurement and Payment

8.1 MEASUREMENT OF QUANTITIES

8.1.1 All work completed under the Contract shall be measured by the Engineer according to United States standard

measures, or as stated in this Contract. The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract shall conform to good engineering practice. These measurements shall be considered correct and final unless the Contractor has protested same to the Engineer and has demonstrated the existence of an error by actual physical measurement before the work has progressed in a manner which would prohibit a proper check.

8.1.2 All measurements of the area of the various surface, pavement and base courses will be made in the horizontal projection of the actual surface and no deductions will be made for fixtures or structures having an area of nine (9) square feet or less. All measurements of headers, curbs, fences and any other type of construction which is to be paid for by its length, will be made in the horizontal projection of the actual driven length from toe to top of cutoff, except where slope exceeds ten percent (10%) and for piles, which will be by actual length. All materials which are specified for measurement by the cubic yard "Loose Measurement" or "Measured in the Vehicle" shall be hauled in approved vehicles and measured therein at the point of delivery. Approved vehicles for this purpose may be of any type or size satisfactory to the Engineer, provided that the body is of such type that the actual contents may be readily and accurately determined. Unless all approved vehicles on a job are of a uniform capacity each approved vehicle must bear a plainly legible identification mark indicating the specific approved capacity. The Inspector may reject all loads not hauled in such approved vehicles.

8.2 NO WAIVER OF LEGAL RIGHTS- The Engineer shall not be precluded or estopped by any measurements, estimate or certificate made either before or after the completion and acceptance of the work and payment therefor, from showing the true amount and character of the work performed and materials furnished by the Contractor, or from showing that any such measurement estimate or certificate is untrue or incorrectly made, or rejecting the work or materials that do not conform in fact to the contract. The Engineer shall not be precluded or estopped, notwithstanding any such measurement, estimate, or certificate and payment in accordance therewith, from recovering from the Contractor and its sureties such damages as the Department may sustain by reason of the Contractor's failure to comply with the terms of the contract. Neither the acceptance by the Engineer or any representative of the Engineer, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, or any possession taken by the Engineer, shall operate as a waiver of any portion of the contract, or of any power herein reserved, or any right to damage herein provided. A waiver of any notice requirement or breach of the contract shall not be held to be a waiver of any other notice requirement or subsequent breach.

8.3 PAYMENT FOR ADDITIONAL WORK

8.3.1 Additional work as defined in Section 4.2 CHANGES, when ordered, shall be paid for as defined in Section 4.4 PRICE ADJUSTMENT by a duly issued change order in accordance with the terms provided therein.

8.3.2 On credit proposals and proposals covering both increases and decreases, the application of overhead and profit shall be on the net change in direct costs for the performance of the work.

8.3.3 When payment is to be made for additional work directed by a field order, the total price adjustment as specified in the field order or if not specified therein for the work contained in the related change order shall be considered full compensation for all materials, labor, insurance, taxes, equipment use or rental and overheads, both field and home office including extended home and branch office overhead and other related delay impact costs.

8.3.4 Force Account Method - When, for the convenience of the Department, payment is to be made by the Force Account method, all work performed or labor and materials and equipment furnished shall be paid for as described below. Payment by the Force Account method will not alter any rights, duties and obligations under the contract.

8.3.4.1 Labor - For all hourly workers, the Contractor will receive the rate of wage including fringe benefits when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the work, which shall be agreed upon in writing before beginning work for each and every hour that said labor is actually engaged in said work.

- (a) All markups for overhead and profit shall be added subject to limitations established in Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT.
- (b) No allowance for overtime compensation will be given without the written approval of the Engineer prior to performance of such work.

8.3.4.2 Insurance and Taxes - The Contractor and subcontractor(s) will also receive the actual additional costs paid for property damage, liability, workers compensation insurance premiums, State unemployment contributions, Federal unemployment taxes, social security and Medicare taxes to which a markup of up to six percent (6%) may be added.

8.3.4.3 Materials - For materials accepted by the Engineer and used, the Contractor and subcontractor(s) shall receive the actual cost of such materials delivered and incorporated into work, plus a markup allowed under Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT.

8.3.4.4 Subcontractors - Subcontractor costs shall be the actual costs of the subcontractor marked up as defined in this Section 8.3 plus a markup allowed under Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT.

8.3.4.5 Equipment

- (a) For machinery or special equipment (other than small tools as herein defined in clause 8.3.4.5.(h) owned or leased by the Contractor or a related entity, the use of which has been authorized by the Engineer:
 - (a.1) The Contractor will be paid at the per-hour rental rates based on the monthly rate established for said machinery or equipment in the then-current edition of the Rental Rate Blue Book for Construction Equipment including the estimated

operating cost per hour and regional correction provided therein.

- (a.2) If no rate is listed for a particular kind, type or size of machinery or equipment, then the monthly, hourly rates shall be as agreed upon in writing by the Contractor and the Engineer prior to the use of said machinery or equipment. If there is no agreement, the Engineer will set a rate. The Contractor may contest the rate pursuant to Section 7.25 DISPUTES AND CLAIMS.
- (a.3) Rental rates which are higher than those specified in the aforesaid Rental Rate Blue Book publication may be allowed where such higher rates can be justified by job conditions such as work in water and work on lava, etc. Request for such higher rates shall be submitted in writing to the Engineer for approval prior to the use of the machinery or equipment in question.
- (b) For machinery or special equipment (other than small tools as herein defined in clause 8.3.4.5.(h) rented by the Contractor or a related entity specifically for the Force Account work, the use of which has been authorized by the Engineer; The Contractor will be paid the actual rental cost for the machinery or equipment, including mobilization and demobilization costs. A receipt from the equipment supplier shall be submitted to the Engineer.
- (c) For machinery or special equipment (other than small tools as herein defined in clause 8.3.4.5.(h) rented by the Contractor or a related entity for use in the project, but which will also be used for the Force Account work, the use of which has been authorized by the Engineer; The Contractor will be paid the actual rental cost for the machinery or equipment. No additional mobilization and demobilization costs will be paid. A receipt from the equipment supplier shall be submitted to the Engineer.
- (d) The rental rate for trucks not owned by the Contractor shall be those as established under the Hawaii State Public Utilities Commission, which will be paid for as an equipment item pursuant to paragraph 8.3.4.5. Rental rates for Contractor-owned trucks not listed in the Rental Rate Blue Book shall be agreed upon in writing by the Contractor and Engineer prior to the use of said trucks. If there is no agreement, the Engineer shall set the rate. The Contractor may contest the rate pursuant to Section 7.25 DISPUTES AND CLAIMS.
- (e) The rental period shall begin at the time equipment reaches the site of work, shall include each day that the machinery or equipment is at the site of the work and shall terminate at the end of the day on which the equipment is no longer needed. In the event the equipment must standby due to work being delayed or halted by reason of design, traffic, or other related problems uncontrollable by the Contractor, excluding Saturdays, Sundays and Legal Holidays, unless the equipment is used to perform work on such days, the rental shall be two hours per day until the equipment is no longer needed.
- (e.1) The rental time to be paid will be for the time actually used. Any hours or operation in excess of 8 hours in any one day must be approved by the Engineer prior to the performance of such work.
- (e.2) Rental time will not be allowed or credited for any day on which machinery or equipment is inoperative due to its breakdown. On such days, the Contractor will be paid only for the actual hours, if any, that the machinery or equipment was in operation.
- (e.3) In the event the Force Account work is completed in less than 8 hours, equipment rental shall nevertheless be paid for a minimum 8 hours.
- (e.4) For the purpose of determining the rental period the continuous and consecutive days shall be the normal 8-hour shift work day, Monday through Friday excluding legal holidays. Any work day to be paid less than 8 hours shall not be considered as continuous, except for equipment removed from rental for fuel and lubrication.
- (e.5) No additional premium beyond the normal rates used will be paid for equipment over 8 hours per day or 40 hours per week.
- (f) All rental rates for machinery and equipment shall include the cost of fuel, oil, lubricants, supplies, small tools, necessary attachments, repairs, maintenance, tire wear, depreciation, storage, and all other incidentals.
- (g) All machinery and equipment shall be in good working condition and suitable for the purpose for which the machinery and equipment is to be used.
- (h) Individual pieces of equipment or tools having a replacement value of five hundred dollars (\$500) or less, whether or not consumed by use, shall be considered to be small tools and included in the allowed markup for overhead and profit and no separate payment will be made therefor.
- (i) The total of all Force Account rental charges accrued over the duration of the contract for a specific item of equipment shall not exceed the replacement cost of that equipment.
- (i.1) The Contractor shall provide the cost of replacement to the Engineer prior to using the equipment. If the Engineer does not agree with the replacement cost, the Engineer shall set the replacement cost. The Contractor may contest the

replacement cost pursuant to Section 7.25
DISPUTES AND CLAIMS.

- (j) Should the item of equipment be rented from an unrelated entity, the rental cost will be treated as an equipment cost under paragraph 8.3.4.5.
- (k) Transportation and/or Mobilization: The following provisions shall govern in determining the compensation to be paid to the Contractor for use of equipment or machinery on the Force Account method:
 - (k.1) The location from which the equipment is to be moved or transported shall be approved by the Engineer.
 - (k.2) Where the equipment must be transported to the site of the force account work, the Department will pay the reasonable cost of mobilizing and transporting the equipment, including its loading and unloading, from its original location to the site of force account work. Upon completion of the work the Department will pay the reasonable cost of mobilizing and transporting the equipment back to its original location or to another location, whichever cost is less.
 - (k.3) The cost of transporting the equipment shall not exceed the rates established by the Hawaii State Public Utilities Commission. If such rates are nonexistent, then the rates will be determined by the Engineer based upon the prevailing rates charged by established haulers within the locale.
 - (k.4) Where the equipment is self-propelled, the Department will pay the cost of moving the equipment by its own power from its original location to the site of the force account work. Upon completion of the work the Department will pay the reasonable cost of moving of the Equipment back to its original or another location, whichever cost is less.
 - (k.5) At the discretion of the Engineer, when the Contractor desires to use such equipment for other than Force Account work, the costs of mobilization and transportation shall be prorated between the Force Account and non Force Account work.
- (l) Pickup trucks, vans, storage trailers, unless specifically rented for the Force Account work, shall be considered incidental to the Force Account work and the costs therefor are included in the markup allowed under Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT.

8.3.4.6 State Excise (Gross Income) Tax and Bond - A sum equal to the current percentage rate for the State excise (Gross Income) tax on the total sum determined in paragraphs

8.3.4.1, 8.3.4.2, 8.3.4.3 and 8.3.4.4 above, and the bond premium shall be added as compensation to the Contractor. The actual bond premium not to exceed one percent (1%) shall be added to items covered by paragraphs 8.3.4.1, 8.3.4.2, 8.3.4.3 and 8.3.4.4 when applicable.

- (a) The compensation as determined in paragraphs 8.3.4.1, 8.3.4.2, 8.3.4.3, 8.3.4.4 and 8.3.4.5 above shall be deemed to be payment in full for work paid on a force account basis.

8.3.4.7 Records - The Contractor and the Engineer shall compare records of the labor, materials and equipment rentals paid by the Force Account basis at the end of each day. These daily records, if signed by both parties, shall thereafter be the basis for the quantities to be paid for by the Force Account method. The Contractor shall not be entitled to payment for Force Account records not signed by the Engineer.

8.3.4.8 Statements - No payment will be made for work on a Force Account basis until the Contractor has submitted to the Engineer, duplicate itemized statements of the cost of such Force Account work detailed as follows:

- (a) Laborers - Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman and also the amount of fringe benefits payable if any.
- (b) Equipment - Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
- (c) Materials
 - (c.1) Quantities of materials, prices and extensions
 - (c.2) Costs of transporting materials, if such cost is not reflected in the prices of the materials.
 - (c.3) Statements shall be accompanied and supported by receipted invoices for all materials used and transportation charges. However, if materials used on the Force Account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractors shall submit an affidavit certifying that such materials were taken from stock and that the amount claimed represents the actual cost to the Contractor.
- (d) Insurance - Cost of property damage, liability and worker's compensation insurance premiums, unemployment insurance contributions, and social security tax.

8.4 PROGRESS AND / OR PARTIAL PAYMENTS

8.4.1 Progress Payments - The Contractor will be allowed progress payments on a monthly basis upon preparing the

Monthly Payment Application forms and submitting them to the Engineer. The monthly payment shall be based on the items of work satisfactorily completed and the value thereof at unit prices and/or lump sum prices set forth in the contract as determined by the Engineer and will be subject to compliance with Section 7.9 PAYROLLS AND PAYROLL RECORDS.

8.4.2 In the event the Contractor or any Subcontractor fails to submit certified copies of payrolls in accordance with the requirements of Section 7.9 PAYROLLS AND PAYROLL RECORDS, the Engineer may retain the amount due for items of work for which payroll affidavits have not been submitted on a timely basis notwithstanding satisfactory completion of the work until such records have been duly submitted. The Contractor shall not be due any interest payment for any amount thus withheld.

8.4.3 Partial Payment for Materials - The Contractor will also be allowed partial payments to the extent of ninety percent (90%) of the manufacturer's, supplier's, distributor's or fabricator's invoice cost of accepted materials to be incorporated in the work on the following conditions:

8.4.3.1 The materials are delivered and properly stored at the site of Work; or

8.4.3.2 For special items of materials accepted by the Engineer, the materials are delivered to the Contractor or subcontractor(s) and properly stored in an acceptable location within a reasonable distance to the site of Work.

8.4.4 Partial payments shall be made only if the Engineer finds that:

8.4.4.1 The Contractor has submitted bills of sale for the materials or otherwise demonstrates clear title to such materials.

8.4.4.2 The materials are insured for their full replacement value to the benefit of the Department against theft, fire, damages incurred in transportation to the site, and other hazards.

8.4.4.3 The materials are not subject to deterioration.

8.4.4.4 In case of materials stored off the project site, the materials are not commingled with other materials not to be incorporated into the project.

8.5 PROMPT PAYMENT §3-125-23 HAR

8.5.1 Any money paid to a Contractor for work performed by a subcontractor or for unpaid material invoice shall be disbursed to such subcontractors and material suppliers within ten (10) days after receipt of the money from the Department, provided that there are no bona fide disputes, and

8.5.2 Upon final payment to the Contractor, full payment to all subcontractors and material suppliers shall be made within ten (10) days after receipt of the money, provided there are no bona fide disputes over the subcontractor's or material supplier's performance under the subcontract.

8.5.3 Bona Fide Disputes - The existence of a bona fide dispute with a subcontractor or material supplier shall not

release the Contractor of its prompt payment obligations as to all sums due that are not directly affected by such dispute.

8.5.4 Filing Non-Payment Complaint - Subcontractors and material suppliers may file in writing a complaint with the Comptroller regarding non-payment by the Contractor. Such complaint shall include:

8.5.4.1 The amount past due for work performed and already paid for by the Department;

8.5.4.2 That all the terms, conditions or requirements of its subcontract have been met; and

8.5.4.3 That no bona fide dispute over its performance exists. The Department will investigate the validity of the complaint.

8.5.5 The Department may withhold from future progress payments amounts to cover any sums paid to the Contractor for work performed by a subcontractor if the Department finds that the subcontractor complaint regarding non-payment by the Contractor has merit.

8.5.6 If the Engineer determines that the Contractor failed to make prompt payment required to a subcontractor or material supplier with whom it has no bona fide dispute, the Engineer shall inform the Contractor of the findings and request the Contractor make payment accordingly. If the Contractor does not act promptly, the Engineer shall take appropriate action as allowed under this contract and / or refer the matter to the Contractor Licensing Board for appropriate action under Section 444-17 Hawaii Revised Statutes regarding the Revocation, Suspension and Renewal of (Contractor) Licenses and/or initiate a petition for debarment of the Contractor from bidding on other State jobs.

8.6 RETAINAGE

8.6.1 The Department will retain five percent (5%) of the total amount of progress and / or partial payments until after completion of the entire contract in an acceptable manner at which time this balance, less any previous payments, will be certified and paid to the Contractor. After fifty percent (50%) of the work is completed, and if progress is satisfactory, the Engineer at its sole discretion may elect not to withhold further retainage. If progress is not satisfactory, the Department may continue to withhold as retainage sums not exceeding five percent (5%) of the amount earned.

8.6.2 The retainage shall not include sums deducted as liquidated damages from moneys due or that may become due the contractor under the contract.

8.6.3 Contractor may withdraw from time to time the whole or any portion of the sum retained after endorsing over to the Department and depositing with the Department any general obligation bond of the State or its political subdivisions suitable to the Department but in no case with a face value less than the value established by law of the amount to be withdrawn. The Department may sell the bond and use the proceeds therefrom in the same way as it may use monies directly retained from progress payments or the final payment.

8.7 WARRANTY OF CLEAR TITLE - The Contractor warrants and guarantees that all work and materials covered by progress or partial payments made thereon shall be free and clear of all liens, claims, security interests or encumbrances, and shall become the sole property of the Department. This provision shall not, however, be construed as an acceptance of the work nor shall it be construed as relieving the Contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work, or as waiving the right of the Department to require the fulfillment of all the items of the contract.

8.8 FINAL PAYMENT

8.8.1 Upon final settlement, the final payment amount, less all previous payments and less any sums that may have been deducted in accordance with the provisions of the contract, will be paid to the Contractor, provided the Contractor has submitted a Tax Clearance Certificate from the Department of Taxation and the Internal Revenue Service to the effect that all taxes levied or accrued under Federal and State Statutes against the contractor have been paid.

8.8.2 Sums necessary to meet any claims of any kind by the State may be retained from the sums due the Contractor until said claims have been fully and completely discharged or otherwise satisfied.

8.9 CLAIMS ARISING OUT OF PAYMENT FOR REQUIRED WORK - If the Contractor disputes any determination made by the Engineer regarding the amount of work satisfactorily completed, or the value thereof, or the manner in which payment therefore is made or calculated, it shall notify the Engineer in writing of the specific facts supporting the Contractor's position. Such notice shall be delivered to the Engineer no later than thirty (30) days after the Contractor has been tendered payment for the subject work, or, if no payment has been tendered, not later than fifty (50) days after it has submitted the Monthly Payment Application required under Section 8.4 PROGRESS AND/OR PARTIAL PAYMENTS herein to the Engineer for the work that is the subject of the dispute. The delivery of the written notice cannot be waived and shall be a condition precedent to the filing of the claim. No claim for additional compensation for extra work or change work shall be allowed under this provision, unless the notice requirements of Article 4 SCOPE OF WORK have been followed. Acceptance of partial payment of a Monthly Payment Application amount shall not be deemed a waiver of the right to make a claim described herein provided the notice provisions are followed. The existence of or filing of a payment claim herein shall not relieve the Contractor of its duty to continue with the performance of the contract in full compliance with the directions of the Engineer. Any notice of claim disputing the final payment made pursuant to Section 8.8 FINAL PAYMENT must be submitted in writing not later than thirty (30) days after final payment that is identified as such has been tendered to the Contractor.

END ARTICLE 8

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APPENDIX

The forms included in this appendix are for general reference and are subject change. To obtain the most current form or information about the form, contact the Public Works Division, 4th Floor of the Kalanimoku Building, Room 426, 1151 Punchbowl Street or mailed to the Public Works Division, P.O. Box 119, Honolulu, Hawaii 96810.

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APPENDIX
(SUBSTITUTION REQUEST)

DATE

Public Works Administrator
Public Works Division
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810 - 0119

SUBJECT: SUBSTITUTION REQUEST

PROJECT TITLE: _____

D.A.G.S. JOB NO. _____

In accordance with the requirements of Section 00800 SPECIAL CONDITIONS, enclosed are three (3) sets of technical brochures and statement of variances for your review and approval for the item(s) shown below.

SECTION/ ITEM	SPECIFIED BRAND	SUBSTITUTE OR ALTERNATE BRAND	FEATURES	VARIANT ³ /
------------------	--------------------	----------------------------------	----------	------------------------

[I/Company certify/certifies]⁴ that the substitution request of the above item(s) has no other variant features.

SIGNATURE

NOTE:

- 1. Use own letterhead*
- 2. Submit one (1) original and two (2) copies*
- 3. If no variant features indicate "None"*
- 4. Fill in appropriate entity*

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APPENDIX

(NAME OF CORPORATION)

I, _____, Secretary of _____ Corporation, a corporation, do hereby certify that the following is a full, true and correct copy of a resolution duly adopted by the Board of Directors of said Corporation, at its meeting duly called and held at the office of the Corporation, _____ Street, _____, _____, on the day of _____, at which a quorum was present and acting throughout; and that said resolution has not been modified, amended or rescinded and continues in full force and effect:

“RESOLVED that any individual at the time holding the position of President or Vice Present, be, and each of them hereby is, authorized to execute on behalf of the Corporation any bid, proposal or contract for the sale or rental of the products of the Corporation or for services to be performed by the Corporation, and to execute any bond required by any such bid, proposal or contract with the United States Government or the State of Hawaii or the City and County of Honolulu, or any County or Municipal Government of said State, or any department or subdivision of any of them.”

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal of said _____ Corporation this _____ day of _____.

Secretary

(Names and Addresses of :)
President
Vice President
Secretary

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APPENDIX

(CONTRACT)

THIS CONTRACT, made as of the _____ day _____, 2000, by and between the State of Hawaii, hereinafter referred to as the "State", acting by and through its Comptroller, and _____ of _____

a duly licensed contractor in the State of Hawaii, hereinafter referred to as the "Contractor",

WITNESSETH THAT:

WHEREAS, the written proposal of the Contractor has been accepted by the State as the lowest responsible bid submitted pursuant to a call for bids for the work herein described;

NOW THEREFORE, in consideration of the mutual promises hereinafter set forth, the parties agree as follows:

A. **Scope of Work.** The Contractor shall furnish, in accordance with the Contract Documents, all the labor, materials, machinery, tools, superintendence, transportation, and other construction accessories, services and facilities necessary to construct and complete, at its own risk and expense, the following described work or so much of said work as shall be required by the Comptroller.

D.A.G.S. JOB NO.

B. **Time of Completion.** The work under this Contract shall be fully completed by the Contractor within _____ working days after receipt of the Notice to Proceed from the Comptroller.

Liquidated damages in the sum stated in the SPECIAL CONDITIONS will be deducted from the Contractor's final payment if the work is not completed prior to the expiration of the time limit specified above or of any time extension granted to the Contractor by the State.

C. **Compensation.** The State shall pay the Contractor for the performance of the work specified under this Contract, the Maximum sum of \$_____, this figure being the amount set forth in the Contractor's proposal, subject to such additions and deductions as provided in the GENERAL CONDITIONS of this Contract. Extras may be allowed in addition to said sum, but shall not exceed \$_____. All payments shall be made in the manner and at the times indicated in the Contract Documents.

It is understood and agreed that the compensation paid by the State to the Contractor shall include all expenses incurred by the Contractor for all loss or damage arising out of the nature of the work, from the action of the elements, or from any delay or unforeseen obstruction or difficulty encountered in the prosecution of the Work; for all risks of every description connected with the Work; and for all expenses incurred by or in consequence of the suspension or discontinuance of the work, except as set forth in the GENERAL CONDITIONS.

It is further agreed by the parties that any portion of the Contract price payable to the Contractor out of federal funds shall be paid to the Contractor only when such federal funds are so received, and this Contract shall not be construed as binding the State to pay said portion out of any fund other than those which are received from the Federal government.

D. **Guaranty of Work.** The Contractor agrees to guarantee all work under this Contract for the period(s) stipulated in the Contract Documents from the Project Acceptance Date.

If any unsatisfactory condition or damage develops within the time of this guaranty due to materials or workmanship that are defective, inferior, or not in accordance with the Contract, the Contractor shall, when notified by the State, immediately place such guaranteed work in a condition satisfactory to the State and make repairs of all damage to the buildings, equipment and grounds made necessary in fulfillment of the guaranty. Everything necessary for the fulfillment of any guaranty shall be done without any expense to the State. It is understood that the performance and payment bond furnished by the Contractor under this Contract may be used to secure performance of Contractor's guaranty.

E. **Contract Documents.** It is understood and agreed that the following documents, and any amendments or addenda thereto, comprise this Contract and are fully a part of this Contract as though attached hereto or set forth at length herein: (1) Contractor's accepted proposal; (2) GENERAL CONDITIONS; (3) Drawings; (4) Specifications, including the Notice to Contractors, Special Notice to Bidders and SPECIAL CONDITIONS, if any; (5) Combination Performance and Labor and Material Payment Bond; and (6) This Contract agreement.

F. **Entire Agreement.** This contract is the entire agreement between the parties, and no alterations, changes, or additions thereto shall be made, except in writing approved by the parties.

IN WITNESS WHEREOF, the parties have executed this Contract the day and year first above written.

STATE OF HAWAII

By _____
Its Comptroller

By _____
Seal

STATE OF _____)
 : SS
_____ COUNTY OF _____)

On this _____ day of _____, before me appeared _____
_____ and _____ to me known to be the person(s)
described in and, who, being by me duly sworn, did say that he/she/they is/are _____ and _____
_____ of _____ the Contractor
named in the foregoing instrument, and that he/she/they is/are authorized to sign said instrument in behalf of the
Contractor, and acknowledges that he/she/they executed said instrument as the free act and deed of the Contractor.

(Notary Seal)

Notary Public

State of _____

My commission expires: _____

APPROVED AS TO FORM:

Deputy Attorney General

APPROVAL CONTINGENT UPON
CERTIFICATION OF FUNDS

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APPENDIX

(SURETY [BID] [PROPOSAL] BOND)

Bond No. _____

KNOW TO ALL BY THESE PRESENTS:

That we, _____ (full name or legal title of offeror) _____,

as Offeror, hereinafter called 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 the State of Hawaii, 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 _____.

(Seal) [Name of Principal (Contractor)]

Signature

Title

[Name of Surety]

Signature

Title

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APPENDIX

(PERFORMANCE BOND - SURETY)

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 of Hawaii, 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 entered into a Contract with Obligee dated _____
____ for:

D.A.G.S. JOB NO.

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 _____

APPROVED AS TO FORM: (Seal)

[Name of Surety]

Signature _____

Deputy Attorney General

Title _____

*ALL SIGNATURES MUST BE ACKNOWLEDGED BY A NOTARY PUBLIC

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APPENDIX

(PERFORMANCE BOND - CONTRACTOR)

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 of Hawaii its successors and assigns, as Obligee, hereinafter called Obligee, in the amount of _____ (Dollar amount of contract) _____, DOLLARS (\$ _____), 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 heirs, executors, administrators, successors and assigns, firmly by these presents. Said amount as 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 conditionally assigned to _____;
_____;
- ☐ Cashier's Check 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 conditionally assigned to _____;
_____;
- ☐ Teller's Check 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 conditionally assigned to _____;
_____;
- ☐ Treasurer's Check 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 conditionally assigned to _____;
_____;
- ☐ Official Check 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 conditionally 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, the 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 this _____ day of _____.

(Seal)

[Name of Principal (Contractor)]

Signature _____

Title _____

*ALL SIGNATURES MUST BE ACKNOWLEDGED BY A NOTARY PUBLIC

APPENDIX

(LABOR AND MATERIAL PAYMENT BOND - SURETY)

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 of Hawaii, its successors and assigns, hereinafter called Obligor, 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 entered into a Contract with Obligor dated _____ for:

D.A.G.S. JOB NO.

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 Obligor's priority on this bond. If the full amount of the liability of the Surety on the bond is insufficient to pay the full amount of the claims, then after paying the full amount due the Obligor, the remainder shall be distributed pro rata among the claimants.

Signed this _____ day of _____.

(Seal)

[Name of Principal (Contractor)]

Signature _____

Title _____

APPROVED AS TO FORM: (Seal)

[Name of Surety]

Signature _____

Deputy Attorney General

Title _____

*ALL SIGNATURES MUST BE ACKNOWLEDGED BY A NOTARY PUBLIC

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APPENDIX

(LABOR AND MATERIAL PAYMENT BOND - CONTRACTOR)

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 of Hawaii its successors and assigns, as Obligee, hereinafter called Obligee, in the amount of _____ (Dollar amount of contract) _____, DOLLARS (\$ _____), 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 heirs, executors, administrators, successors and assigns, firmly by these presents. Said amount as 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 conditionally assigned to _____;
_____;
- ☐ Cashier's Check 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 conditionally assigned to _____;
_____;
- ☐ Teller's Check 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 conditionally assigned to _____;
_____;
- ☐ Treasurer's Check 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 conditionally assigned to _____;
_____;
- ☐ Official Check 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 conditionally 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 the 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, and shall promptly pay all persons supplying labor and materials for the performance of the Contract, 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, the 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 shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment 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 Principal (Contractor)]

Signature

Title

*ALL SIGNATURES MUST BE ACKNOWLEDGED BY A NOTARY PUBLIC

CONTRACTOR ACKNOWLEDGMENT
(FOR USE WITH PERFORMANCE AND PAYMENT BONDS)

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APPENDIX

[STATE PROCUREMENT OFFICE]

(CERTIFICATION OF RECYCLED CONTENT)

Solicitation No.: _____

Title: _____

Issuance Date: _____

Opening Date: _____

Item No.	Product Name	Product Description	Manufacturer	Post-Consumer Recovered Material Content*	Recovered Material Content*
----------	--------------	---------------------	--------------	---	-----------------------------

*Post-consumer recovered material and recovered material content, as defined in §3-124-21, HAR, measured as percentage of total product weight. Attach manufacturer's specifications or certification, as required by §3-124-24(d), HAR. Recycled content measurements to be used for bid evaluation. If more space is required for product information, additional sheets may be attached.

I DECLARE THAT THE RECYCLED CONTENT HAS BEEN EXAMINED BY ME AND IS TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE AND CORRECT.

Authorized Representative

Company: _____

Name: _____

Name: _____

Title: _____

Address: _____

Signature: _____

Telephone: _____

Date: _____

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APPENDIX

(VALUE ENGINEERING CHANGE PROPOSAL)

	VECP NO.	DATE:
["STATE" OR "NAME OF COUNTY"] PROJECT TITLE:	PROJECT NO:	CONTRACT NO.
	CONTRACTOR:	

A. CHANGES:

The following changes are to be performed in accordance with all contract stipulations and covenants (Specifications, Drawings, SPECIAL CONDITIONS, etc.):

B. CONTRACTOR'S QUOTATION:

The changes included under Part A above will be performed at a contract price decrease of \$ _____ In accordance with all terms of the contract documents. Six copies of our cost breakdown are attached herewith. We are aware that this value engineering change proposal must be approved by the State of Hawaii in the designated space below and that no work is to be performed until an approved change order has been given us. In case of rejection of this proposal by the State of Hawaii, we will continue all work in accordance with the existing contract terms.

NAME

TITLE

SIGNATURE

DATE

C. STATEMENT OF FUNDS:

Original contract Price	\$	_____
Amended Contract Price	\$	_____
New Contingency		\$	_____

D. SUMMARY DESCRIPTION AND POTENTIAL IMPACTS OF THE PROPOSED CHANGES:

E. TIME EXTENSION:

<p>F. VALIDATION OF CHANGE ORDER Recommend for approval</p> <p>_____ CONSTRUCTION ENGINEER Approved:</p> <p>_____ PROCUREMENT OFFICER</p> <p>_____ DATE</p>	<p>G. REJECTION OF CHANGE ORDER</p> <p>_____ CONSTRUCTION ENGINEER Disapproved:</p> <p>_____ PROCUREMENT OFFICER</p> <p>_____ DATE</p>
--	---

Reasons for rejection:

VALUE ENGINEERING CHANGE PROPOSAL
(Contractor Summary Sheet)

From _____
To _____
Project _____

Date _____
VECP No. _____
Contract No _____

Location _____

Summary of Change (Description - compare advantages and disadvantages, include all information required by the contract clauses and section §3-132-4 for value engineering change proposals)

Before (sketch, when applicable)

After

ESTIMATED COST SUMMARY (Costs shall be estimated in accordance with the change provisions contained in the General Clause of the contract. attach Cost Estimate form, for detailed estimate whenever applicable.)

	Qty	Unit Cost	Totals
A. Original	_____	_____	_____
B. Proposed	_____	_____	_____
C. Gross Savings(A-B)			_____
D. Contractor's Implementing Cost			_____
E. Total Estimated Decrease (C-D)			_____
F. State's Implementing Cost		_____	
G. Difference (E-F)		_____	
H. ½ difference (E-F*1/2)			_____
I. Reduction in Contract Price (E-H)			_____

DATE BY WHICH A CHANGE ORDER MUST BE
ISSUED SO AS TO OBTAIN MAXIMUM COST REDUCTION _____
Date

Contractor's Representative

Name Signature Date

Received By: STATE OF HAWAII

Name Signature Date

VALUE ENGINEERING CHANGE PROPOSAL
(Contractor Required Information)

From _____
To _____
Project _____
Location _____

Date _____
VECP No. _____
Contract No _____

INFORMATION REQUIRED OF THE CONTRACTOR (If answer to any of the following questions is "YES", explain in the remarks below)

		YES	NO
1	Does this proposal change affect the time of completion of the contract as stated in the General Conditions?		
2	Has the contractor submitted this proposed change previously to this office or any other government agency?		
3	Does this change affect other costs to the government, such as government -furnished property or costs of contract -related items?		
4	Does this proposed change increase the maintenance or operation costs of original or proposed items?		
5	Is a subcontractor involved in this proposed change to the contract?		
6	Does the Contractor intend to restrict the government's right to use any data described in this proposed change?		
7	Does this proposed change involve the use of proprietary materials?		

CHANGES OR REVISIONS TO DRAWINGS AND SPECIFICATIONS (Attach applicable contract drawings and specifications, including Contractor's or shop drawings of literature with all changes marked on the drawings and specifications.

REMARKS

Contractor's Representative

Name Signature Date

Received By: STATE OF HAWAII

Name Signature Date

APPENDIX

(ESTIMATE FOR FIELD ORDER OR BULLETIN)

CONTRACTOR'S ESTIMATE FOR CHANGE

Date _____

Project

DAGS Job No: _____ Contractor / Sub _____

Reference Bulletin No: _____ Field Order _____

Description _____

MATERIALS

Description	Unit	Unit Price	Subtotal
_____	_____	_____	0.00
_____	_____	_____	0.00
_____	_____	_____	0.00
_____	_____	_____	0.00
_____	_____	_____	0.00
TOTAL FOR MATERIALS			\$0.00

01

LABOR		WAGES		FRINGE*	(Fringe) x Hrs	(Wage) x Hrs
Classification	Hrs	Hour Rate	Fringe Rate	Subtotal	Subtotal	
_____	0.0	0.00	0.00	0.00	0.00	
_____	0.0	0.00	0.00	0.00	0.00	
_____	0.0	0.00	0.00	0.00	0.00	
_____	0.0	0.00	0.00	0.00	0.00	
_____	0.0	0.00	0.00	0.00	0.00	

SUBTOTAL Fringe Rate x Hours

SUBTOTAL Wage Rate x Hours

\$0.00

02

03

*If requested, fringe benefits shall be identified separately under each classification

TOTAL FOR LABOR - Wages and Fringe (2 + 3)

\$0.00

04

SUBTOTAL - Materials and Labor (1 + 4)

\$0.00

05

Overhead and Profit at 15% (maximum) 15 % of (5) \$0.00

06

Insurance and Taxes 0 % of (3) \$0.00

07

Overhead for Insurance and Taxes 6% 6 % of (7) \$0.00

08

TOTAL - MATERIALS and LABOR (5 + 6 + 7 + 8)

\$0.00

09

EQUIPMENT / REIMBURSABLE COSTS (per diem, air far, etc.)

Classification	Unit/Hours	Unit	Rate	Subtotal
_____	_____	_____	_____	0.00
_____	_____	_____	_____	0.00
_____	_____	_____	_____	0.00

TOTAL FOR EQUIPMENT / REIMBURSABLE COSTS

\$0.00

10

SUBCONTRACTORS

NAME	Amount	7% Markup	Subtotal
_____	0.00	0.00	0.00
_____	0.00	0.00	0.00
_____	0.00	0.00	0.00

TOTAL FOR SUBCONTRACTORS

\$0.00

11

TOTAL - MATERIALS, LABOR and EQUIPMENT / REIMBURSABLE (9 + 10 + 11)

\$0.00

12

Bond Fee (if applicable) 1% maximum 0 % on (12) \$0.00

13

Gross Income Tax (Less Subcontractor's Cost) (11) 4.16 % on (12 + 13) \$0.00

14

TOTAL FOR CHANGE ORDER (12 + 13 + 14)

\$0.00

SAY \$ 0

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APPENDIX

(CHANGE ORDER FORM)

CHANGE ORDER NO. _____ PROJECT TITLE: _____

DATE _____ DAGS JOB NO: _____ CONTRACT _____

ISSUED BY THE PUBLIC WORKS DIVISION CONTRACTOR: _____

A. CHANGES

THE FOLLOWING CHANGES ARE TO BE PERFORMED IN ACCORDANCE WITH ALL CONTRACT STIPULATIONS (SPECIFICATIONS, DRAWINGS, SPECIAL CONDITIONS, ETC.)

~~B. CONTRACTOR'S QUOTATION~~ THE CHANGES DESCRIBED IN A ABOVE WILL BE PERFORMED AT

A CONTRACT PRICE ☐ INCREASE OF \$ _____ AND A CONTRACT TIME ☐ EXTENSION OF _____ DAYS.
☐ DECREASE ☐ REDUCTION

NAME TITLE DATE

C. STATEMENT OF CONTRACT FUNDS & CONTRACT TIME

ORIGINAL CONTRACT PRICE	_____	ORIGINAL EXTRAS	_____	NOTICE TO PROCEED DATE	_____	
PREVIOUS ADJUSTED CONTRACT PRICE	_____	PREVIOUS BALANCE OF EXTRAS	_____	ORIGINAL CONTRACT TIME	_____	WD
AMOUNT THIS CHANGE		AMENDMENT	_____	ORIGINAL COMPLETION DATE	_____	
PLUS	_____	PLUS	_____	PREVIOUS TIME EXTENSIONS ALLOWED	_____	WD
MINUS	_____	MINUS	_____	TIME EXTENSIONS ALLOWED THIS CHANGE	_____	WD
NEW ADJUSTED CONTRACT PRICE	_____	NEW BALANCE OF EXTRAS	_____	NEW CONTRACT COMPLETION DATE	_____	

D. VALIDATION OF CHANGE ORDER

APPROVAL RECOMMENDED

APPROVED

INSPECTION BRANCH CHIEF/ DISTRICT ENGINEER _____ DATE _____ PUBLIC WORKS ADMINISTRATOR _____ DATE _____

DISTRIBUTION

OFFICE - ORIGINAL INSPECTION BRANCH - 1 _____ USER AGENCY - 1 _____
CONTRACTOR - 1 _____

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APPENDIX
(FIELD ORDER FORM)

FIELD ORDER

DATE _____
FIELD ORDER No. _____

TO _____ PROJECT _____

DAGS Job No: _____

Work shall be performed in accordance with this FIELD ORDER and applicable provisions of the Contract Documents.

To expedite the Work and avoid delays, proceed with this work promptly.

DESCRIPTION OF WORK TO BE PERFORMED OR DELETED:

ATTACHMENTS:

CONDITIONS AND TERMS:

- ☐ Work is considered a MINOR CHANGE and shall be performed at no additional cost or time to the Department
- ☐ Provide a cost proposal for the work. Submit the proposal in accordance with the General Conditions.
- ☐ Perform the Work under the Force Account Provisions of the General Conditions.
- ☐ Work is subject to an adjustment to contract price and / or contract time as follows.
 - ☐ Fixed ☐ Estimated ☐ Maximum Change in Contract Sum. Add / Deduct \$ _____
 - ☐ Fixed ☐ Estimated ☐ Maximum Change in Contract Time. Add _____ Working / Calendar Days

ISSUED

RECEIVED

BY _____
Engineer Date

BY _____
Contractor Authorized Representative Date

Copy: ~~Field File Consultant~~
Public Works Administrator
DPW Form

SECTION 00700 - GENERAL CONDITIONS

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

- A. The publication by the Public Works Division, Department of Accounting and General Services, State of Hawaii, titled "INTERIM GENERAL CONDITIONS 1999 Edition," known as the "GENERAL CONDITIONS", forms part of the State of Hawaii Contract between the Contractor and the State of Hawaii. The GENERAL CONDITIONS are not physically included with these specifications, but are included by reference. Copies of the GENERAL CONDITIONS may be obtained from the Department of Accounting and General Services, Public Works Division, Oahu Office, State of Hawaii, fourth floor of the Kalanimoku Building, Room 422, 1151 Punchbowl Street, Honolulu, Hawaii or at the DAGS District Offices on Kauai, Maui and Hawaii.
- B. The GENERAL CONDITIONS and SECTION 00800 - SPECIAL CONDITIONS shall govern the Work specified in all DIVISIONS and SECTIONS.
- C. Wherever the term 'Interim General Conditions' appears in the Contract Documents, it shall be replaced with the term "GENERAL CONDITIONS."

1.02 REVISIONS TO THE GENERAL CONDITIONS - The following changes shall govern over the respective items in the published "INTERIM GENERAL CONDITIONS, 1999 Edition."

- A. Under ARTICLE 1 - DEFINITIONS, replace existing sections (1.5, 1.9, 1.11, 1.12, 1.24, 1.37, 1.43, 1.44, 1.49 and 1.50 respectively) and add new sections (1.65 through 1.75 respectively):

"1.5 ADVERTISEMENT - A public announcement soliciting bids or offers.

1.9 BID - See Offer.

1.11 BIDDER - See Offeror.

1.12 BIDDING DOCUMENTS (or SOLICITATION DOCUMENTS) - The advertisement solicitation notice and instructions, Offer requirements, Offer forms, and the proposed contract documents including all addenda, and clarifications issued prior to receipt of the Offer.

1.24 CONTRACT TIME (or CONTRACT DURATION) - The number of calendar (or working) days provided for completion of the contract, inclusive of authorized time extensions. The number of days shall begin running on the effective date in the Notice to Proceed. If in lieu of providing a number of calendar (or working) days, the contract requires completion by a certain date, the work shall be completed by that date.

1.37 INSPECTOR - The person assigned by the Contracting Officer to inspect and monitor construction operations.

- 1.43 NOTICE TO CONTRACTORS** - See Solicitation.
- 1.44 NOTICE TO PROCEED** - A written notice from the Department to the Contractor establishing the applicable Contract Duration, Project Start Date, Jobsite Start Date, Jobsite Completion Date, and Contract Completion Date.
- 1.49 PROPOSAL (Bid)** - See Offer (or Bid).
- 1.50 PROPOSAL FORM** - See Offer Form (or Bid Form).
- 1.65 CONTRACTING OFFICER** - See Engineer.
- 1.66 JOBSITE START DATE** - The date when on-site construction may start.
- 1.67 JOBSITE COMPLETION DATE** - The date when on-site construction must be completed.
- 1.68 OFFER (or BID)** - The executed document submitted by an Offeror in response to a solicitation request, to perform the work required by the proposed contract documents, for the price quoted and within the time allotted.
- 1.69 OFFEROR (or BIDDER)** - Any individual, partnership, firm, corporation, joint venture or other legal entity submitting directly or through a duly authorized representative or agent, an Offer for the work or construction contemplated.
- 1.70 OFFER FORM (or BID FORM)** - The form prepared by the Department on which the Offeror submits the written offer or bid. By submitting an offer or bid, the Offeror adopts the language on the form as its own.
- 1.71 PROJECT CONTROL BUDGET** - The amount of funds set aside for the construction of the Project.
- 1.72 PROJECT START DATE** - The date established in the Notice to Proceed when the Contractor shall begin prosecution of the work and the start of contract time.
- 1.73 RESIDENT** – 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.
- 1.74 SHORTAGE TRADE** – A construction trade in which there is a shortage of Hawaii residents qualified to work in the trade as determined by the Department of Labor and Industrial Relations.
- 1.75 SOLICITATION** - An Invitation to Bid or Request for Proposals or any other document issued by the Department to solicit bids or offers to perform a contract. The solicitation may indicate the time and place to

receive the bids or offers and the location, nature and character of the work, construction or materials to be provided.”

- B. Under ARTICLE 2 – PROPOSAL REQUIREMENTS AND CONDITIONS, modify section 2.1 – QUALIFICATION OF BIDDERS, by deleting 2.1.1, through 2.1.2.8 and substitute the following 2.1.1 through 2.1.2:

“2.1.1 Notice of Intention to Bid

2.1.1.1 In accordance with section 103D-310, Hawaii Revised Statutes, and Section 3-122-108, Hawaii Administrative Rules, a written notice of intention to bid need not be filed for construction of any public building or public work. A written notice of intention to bid need not be filed for mere furnishing and installing of furniture, equipment, appliances, material and any combination of these items when a Contractor’s license is not required under Chapter 444 of the Hawaii Revised Statutes, as amended, and the rules and regulations of the Contractor’s License Board.

2.1.1.2 If two (2) or more prospective bidders desire to bid jointly as a joint venture on a single project, they must file an affidavit of joint venture. Such affidavit of joint venture will be valid only for the specific project for which it is filed. No further license is required when all parties to the joint venture possess current and appropriate contractor’s licenses. Joint ventures are required to be licensed in accordance with Chapter 444 of the Hawaii Revised Statutes, as amended, and the rules and regulations of the Contractor’s License Board when any party to the joint venture agreement does not hold a current or appropriate contractor’s license. The joint venture must register with the office of the Director of Commerce and Consumer Affairs in accordance Chapter 425 of the Hawaii Revised Statutes, as amended.

2.1.1.3 No persons, firm or corporation may bid where (1) the person, firm, or corporation, or (2) a corporation owned substantially by the person, firm, or corporation, or (3) a substantial stockholder or an officer of the corporation, or (4) a partner or substantial investor in the firm is in arrears in any payment owed to the State of Hawaii or any of its political subdivisions or is in default of any obligation to the State of Hawaii or to all or to any of its political subdivisions, including default as a surety or failure to perform faithfully and diligently any previous contract with the Department.

2.1.1.4 In accordance with Section 103D-310 Hawaii Revised Statutes, the prospective Bidder shall submit answers to questions contained in the STANDARD QUALIFICATION QUESTIONNAIRE FOR PROSPECTIVE BIDDERS ON PUBLIC WORKS CONTRACTS, (SPO Form 21, may be found and downloaded from websites, “www.SPO.hawaii.gov/”, and selecting Quik Links, “Forms for Vendors/Contractors”, and selecting “form 21pdf” or “www.hawaii.gov/pwd”, and selecting “Form 21(Standard Qualification Questionnaire)”, on the form provided by the Department, properly executed and notarized, setting forth a complete statement of the experience of such prospective Bidder and its organization in performing similar work and a statement of the equipment proposed to be used, together with adequate proof of the availability of such equipment, at least two (2) working days prior

to the time advertised for the opening of bids unless the prospective Bidder had previously filed a questionnaire with the DAGS-PWD within one year of the scheduled opening of bids. If the information in the questionnaire proves satisfactory, the Bidder's proposal will be received. All information contained in the answers to the questionnaire shall be kept confidential. The questionnaire will be returned to the Bidder after it has served its purpose.

2.1.1.5 If upon review of the Questionnaire, or otherwise, the Bidder appears not fully qualified or able to perform the intended work, the Comptroller shall, after affording the Bidder an opportunity to be heard and if still of the opinion that the Bidder is not fully qualified to perform the work, refuse to receive or to consider any bid offered by the prospective Bidder.

2.1.1.6 Failure to complete and submit the prequalification questionnaire by the designated deadline will be sufficient cause for the Department to disqualify a prospective Bidder.

2.1.2 Compliance Certificate 103D-310(c), Hawaii Revised Statutes – The Contractors are required to provide proof of compliance in order to receive a contract of \$25,000 or more. To meet this requirement, Bidders may apply and register at the “Hawaii Compliance Express” website:
<http://vendors.ehawaii.gov/hce/splash/welcome.html>”

- C. Under ARTICLE 2 - PROPOSAL REQUIREMENTS AND CONDITIONS, modify section 2.6 - SUBSTITUTION OF MATERIALS AND EQUIPMENT BEFORE BID OPENING, by renaming section 2.6 SUBSTITUTION BEFORE CONTRACT AWARD and deleting subsections 2.6.1, through 2.6.6 and substitute the following three new subsections and related paragraphs 2.6.1 through 2.6.3:

“2.6.1 For Substitutions after the Letter of Award is issued; refer to Section 6.3 SUBSTITUTION AFTER CONTRACT AWARD.

2.6.2 Unless specifically required otherwise in the contract documents, Offerors shall not submit products, materials, equipment, articles or systems for review or approval prior to submitting their Offers.

2.6.3 Offerors shall prepare their Offer forms based on the performance requirements of the materials, equipment, articles or systems noted on the drawings and specifications. If trade names, makes, catalog numbers or brand names are specified, Offerors shall infer that these items indicate the quality, style, appearance or performance of the material, equipment, article, or systems to be used in the project.”

- D. Under ARTICLE 2 – PROPOSAL REQUIREMENTS AND CONDITIONS, modify section 2.7 – PREPARATION OF PROPOSAL, by deleting subsection 2.7.3 and substituting the following 2.7.3”

“2.7.3 Pursuant to the requirements of Section 103D-302, HRS, each Bidder shall include in its bid the name of each person or firm to be engaged by the Bidder on the project as joint contractor or subcontractor indicating also the nature and scope of work to be performed by such joint contractor and/or subcontractor. If the Bidder fails to list a joint contractor or subcontractor, the

State may accept the bid if it is in the State's best interest and the value of the work to be performed by the joint contractor or subcontractor is equal to or less than one percent of the total bid amount. The Bidder shall be solely responsible for verifying that their joint contractor or subcontractor has the proper license at the time of the submitted bid."

- E. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.3 CORRECTION OF BIDS AND WITHDRAWAL OF BIDS 3-122-31 HAR, by deleting subsection 3.3.1.2(b) and substituting the following 3.3.1.2(b):

"(b) Transposition errors;"

- F. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.3 CORRECTION OF BIDS AND WITHDRAWAL OF BIDS §3-122-31 HAR, by deleting subsection 3.3.2 and substituting the following 3.3.2:

"3.3.2 Withdrawal of bids after bid opening but prior to award may be made when the bid contains a mistake attributable to an obvious error which affects price, quantity, quality, delivery, or contractual conditions, and the bidder requests withdrawal in writing by submitting proof of evidentiary value which demonstrates that a mistake was made. The Comptroller shall prepare a written approval or denial in response to this request."

- G. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.4 AWARD OF CONTRACT, by deleting subsection 3.4.4 and substituting the following 3.4.4:

"3.4.4 The contract will be drawn on the offer forms and accepted by the Comptroller. The contract will not be binding upon the Department until all required signatures have been affixed thereto and written certification that funds are available for the work has been made."

- H. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, add new Section 3.8 as follows:

"3.8 CAMPAIGN CONTRIBUTIONS BY STATE AND COUNTY

CONTRACTORS - Contractors are hereby notified of the applicability of Section 11-355 HRS, 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."

- I. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.8 EXECUTION OF THE CONTRACT, by renumbering the section number to 3.9, related subsection numbers to 3.9.1, 3.9.2 , by deleting former subsection 3.8.1 and substituting the following new 3.9.1:

"3.9.1 Upon acceptance of the successful bidder's offer by the Comptroller, the Contractor shall provide satisfactory performance and payment bonds within ten (10) calendar days after award of the contract or within such further time as granted by the Comptroller. No proposal or contract shall be considered binding upon the State until the contract has been fully and properly executed by all parties thereto and the Comptroller has endorsed thereon its certificate, as

required by Section 103D-309, HRS, that there is an available unexpended appropriation or balance of an appropriation over and above all outstanding contracts sufficient to cover the State's amount required by such contract."

- J. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.9 FAILURE TO EXECUTE THE CONTRACT, by renumbering the section number to 3.10, related subsection numbers to 3.10.1, 3.10.2, 3.10.3, by deleting former subsection 3.9.2 and substituting the following new 3.10.2:

"3.10.2 After the Award – If the Bidder to whom contract is awarded shall fail or neglect to furnish satisfactory security within ten (10) calendar days after such award or within such further time as the Comptroller may allow, the State shall be entitled to recover from such Bidder its actual damages, including but not limited to the difference between the bid and the next lowest responsive bid, as well as personnel and administrative costs, consulting and legal fees and other expenses incurred in arranging a contract with the next low responsive bidder or calling for new bids. The State may apply all or part of the amount of the bid security to reduce damages. If upon determination by the State of the amount of its damages the bid security exceeds that amount, it shall release or return the excess to the person who provided same."

- K. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, renumber Section 3.10 NOTICE TO PROCEED and related subsection numbers to 3.11, 3.11.1, 3.11.2, 3.11.3 and 3.11.4.

- L. Under ARTICLE 4 - SCOPE OF WORK, modify Section 4.2 CHANGES, by deleting subsection 4.2.4.3 and substituting the following two new subsections:

"4.2.4.3 Upon receipt of a change order, that the Contractor does not agree with any of the terms or conditions or the adjustments or non adjustments of the contract price or contract time; the Contractor shall not execute or sign the change order, but shall return the unsigned change order, along with a written notification of the conditions or items that are in dispute.

4.2.4.4 If the Contractor signs or executes the change order, this constitutes an agreement on the part of the Contractor with the terms and conditions of the change order. A change order that is mutually agreed to and signed by the parties of the contract constitutes a contract modification."

- M. Under ARTICLE 4 - SCOPE OF WORK, modify section 4.2 CHANGES, by adding the following three new subsections 4.2.5 through 4.2.7:

"4.2.5 Claim Notification - The Contractor shall file a notice of intent to claim for a disputed change order within 30 calendar days after receipt of the written order. Failure to file the protest within the time specified constitutes an agreement on the part of the Contractor with the terms, conditions, amounts and adjustment or non-adjustment to contract price or contract time set forth in the disputed change order. The requirement for timely written notice shall be a condition precedent to the assertion of a claim.

4.2.6 Proceeding with Directed Work - Upon receipt of a contract modification, change order, or field order, the Contractor shall proceed with the directed

changes and instructions. The Contractor's right to make a claim for additional compensation or an extension of time for completion is not affected by proceeding with the changes and instructions described in a change order and field order.

4.2.7 Pricing or Negotiating Costs Not Allowed - The Contractor's cost of responding to requests for price or time adjustments is included in the contract price. No additional compensation will be allowed unless authorized by the Contracting Officer."

- N. Under ARTICLE 4 - SCOPE OF WORK, modify section 4.3 Duty of Contractor to Provide Proposal for Changes, by deleting subsection 4.3.4.
- O. Under ARTICLE 4 - SCOPE OF WORK, modify section 4.4 PRICE ADJUSTMENT, by deleting subsection 4.4.1 and substituting subsection 4.4.1 and adding a new subsection 4.4.2 and modify section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT, by deleting subsections 4.5.1, 4.5.2 and 4.5.3 and substituting subsections 4.5.1, 4.5.2 and 4.5.3 as follows:

"4.4 PRICE ADJUSTMENT HRS 103D-501

4.4.1 A fully executed change order or other document permitting billing for the adjustment in price under any method listed in paragraphs (4.4.1.1) through (4.4.1.5) shall be issued within ten days after agreement on the price adjustment. Any adjustment in the contract price pursuant to a change or claim in this contract shall be made in one or more of the following ways:

4.4.1.1 By agreement to a fixed price adjustment before commencement of the pertinent performance;

4.4.1.2 By unit prices specified in the contract or subsequently agreed upon before commencement of the pertinent performance;

4.4.1.3 Whenever there is a variation in quantity for any work covered by any line item in the schedule of costs submitted as required by Section 7.2 COMMENCEMENT REQUIREMENTS, by the Department at its discretion, adjusting the lump sum price proportionately;

4.4.1.4 **FORCE ACCOUNT METHOD.** At the sole option of the Contracting Officer, by the costs attributable to the event or situation covered by the change, plus appropriate profit or fee, all as specified in Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT and the force account provision of Section 8.3 PAYMENT FOR ADDITIONAL WORK before commencement of the pertinent performance;

4.4.1.5 In such other manner as the parties may mutually agree upon before commencement of the pertinent performance; or

4.4.1.6 In the absence of an agreement between the two parties:

4.4.1.6.a For change orders with value not exceeding \$50,000 by documented actual costs of the work, allowing for overhead and profit as set forth in Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT. A

change order shall be issued within fifteen days of submission by the contractor of proper documentation of completed force account work, whether periodic (conforming to the applicable billing cycle) or final. The procurement officer shall return any documentation that is defective to the contractor within fifteen days after receipt, with a statement identifying the defect; or

4.4.1.6.b For change orders with value exceeding \$50,000 by a unilateral determination by the Contracting Officer of the reasonable and necessary costs attributable to the event or situation covered by the change, plus appropriate profit or fee, all as computed by the Contracting Officer in accordance with applicable sections of Chapters 3-123 and 3-126 of the Hawaii Administrative Rules, and Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT. When a unilateral determination has been made, a unilateral change order shall be issued within ten days. Upon receipt of the unilateral change order, if the contractor does not agree with any of the terms or conditions, or the adjustment or nonadjustment of the contract time or contract price, the contractor shall file a notice of intent to claim within thirty days after the receipt of the written unilateral change order. Failure to file a protest within the time specified shall constitute agreement on the part of the contractor with the terms, conditions, amounts, and adjustment or nonadjustment of the contract time or the contract price set forth in the unilateral change order.

4.4.2 Cost or Pricing Data - Contractor shall provide and certify cost or pricing data for any price adjustment to a contract involving aggregate increases and decreases in costs plus applicable profits expected to exceed \$100,000. The certified cost or pricing data shall be subject to the provisions of HAR chapter 3-122, subchapter 15.

4.5 ALLOWANCES FOR OVERHEAD AND PROFIT HRS103D-501

4.5.1 In determining the cost or credit to the Department resulting from a change, the allowances for all overhead, including, extended overhead resulting from adjustments to contract time (including home office, branch office and field overhead, and related delay impact costs) and profit combined, shall not exceed the percentages set forth below:

4.5.1.1 For the Contractor, for any work performed by its own labor forces, twenty percent (20%) of the direct cost;

4.5.1.2 For each subcontractor involved, for any work performed by its own forces, twenty percent (20%) of the direct cost;

4.5.1.3 For the Contractor or any subcontractor, for work performed by their subcontractors, ten percent (10%) of the amount due the performing subcontractor.

4.5.2 Not more than three markup allowance line item additions not exceeding the maximum percentage shown above will be allowed for profit and overhead, regardless of the number of tier subcontractors.

4.5.3 The allowance percentages will be applied to all credits and to the net increase of direct costs where work is added and deleted by the changes."

- P. Under ARTICLE 5 - CONTROL OF THE WORK, modify section 5.4 SHOP DRAWINGS AND OTHER SUBMITTALS, by deleting subsection 5.4.14 and 5.4.15 and substitute the following new subsections:

“5.4.1.4 Descriptive Sheets and Other Submittals - When a submittal is required by the contract, the Contractor shall submit to the Contracting Officer eight (8) complete sets of descriptive sheets such as shop drawings, brochures, catalogs, illustrations, calculation, material safety data sheets (MSDS), certificates, reports, warranty, etc., which will completely describe the material, product, equipment, furniture or appliance to be used in the project as shown in the drawings and specifications and how it will be integrated into adjoining construction. When submittals are specified to be submitted under Web Based Construction Management System, the number of complete sets will be as specified or as directed by the Contracting Officer. Prior to the submittal, the Contractor shall review and check all submittal sheets for conformity to the contract requirements and indicate such conformity by marking or stamping and signing each sheet. Where descriptive sheets include materials, systems, options, accessories, etc. that do not apply to this contract, non-relevant items shall be crossed out so that all remaining information will be considered applicable to this contract. It is the responsibility of the Contractor to submit descriptive sheets for review and acceptance by the Contracting Officer as required at the earliest possible date after the date of award in order to meet the Contract Duration. Delays caused by the failure of the Contractor to submit descriptive sheets as required will not be considered as justification for contract time extension.

5.4.1.5 Material Samples and Color Samples - When material and color sample submittals are required by the contract, the Contractor shall submit to the Contracting Officer no less than three (3) samples conforming to Section 6.6 MATERIAL SAMPLES. One sample will be retained by the Consultant, one sample will be retained by the State, and the remaining sample(s) will be returned to the Contractor. Prior to the material and color submittal, the Contractor shall review and check all samples for conformity to the contract requirements and indicate such conformity by marking or stamping and signing each sample. It is the responsibility of the Contractor to submit samples for review and acceptance by the Contracting Officer as required at the earliest possible date after the date of award in order to meet the Contract Duration. Delays caused by the failure of the Contractor to submit material and color samples as required will not be considered as justification for contract time extension.

5.4.1.6 Unless the technical sections (Divisions 2 - 16) specifically require the Contractor furnish a greater quantity of shop drawings and other submittals, the Contractor shall furnish the quantities required by this section.”

- Q. Under ARTICLE 5 - CONTROL OF THE WORK, modify section 5.8 COOPERATION BETWEEN THE CONTRACTOR AND THE DEPARTMENT, by deleting the subsection 5.8.1 and substitute the following new subsection 5.8.1:

“5.8.1 Furnishing Drawings and Specifications - DAGS will not furnish hard copies of contract plans and specifications to Contractors. Contractors who receive award for projects shall download the files of drawings and specifications from the DAGS website: http://www.hawaii.gov/pwd/pwd_db/construction_bids/view_db_previous, and make their own hard copies. Contractor shall have and maintain at least one hard copy of the Contract Drawings and Specifications on the work site, at all times.”

- R. Under ARTICLE 5 - CONTROL OF THE WORK, modify section 5.12 SUBCONTRACTS, by deleting the subsection 5.12 and related paragraphs and substitute the following new subsection 5.12 and related paragraphs:

“5.12 SUBCONTRACTS - Nothing contained in the contract documents shall create a contractual relationship between the State and any subcontractor. The contractor may subcontract a portion of the work but the contractor shall remain responsible for the work that is subcontracted.

5.12.1 Replacing Subcontractors - Contractors may enter into subcontracts only with subcontractors listed in the offer form. The contractor will be allowed to replace a listed subcontractor if the subcontractor:

5.12.1.1 Fails, refuses or is unable to enter into a subcontract consistent with the terms and conditions of the subcontractor’s offer presented to the contractor; or

5.12.1.2 Becomes insolvent; or

5.12.1.3 Has any license or certification necessary for performance of the work suspended or revoked; or

5.12.1.4 Has defaulted or has otherwise breached the subcontract in connection with the subcontracted work; or

5.12.1.5 Agrees to be substituted by providing a written release; or

5.12.1.6 Is unable or refuses to comply with other requirements of law applicable to contractors, subcontractors, and public works projects.

5.12.2 Notice of Replacing Subcontractor - The contractor shall provide a written notice to the Contracting Officer when it replaces a subcontractor, including in the notice, the reasons for replacement. The contractor agrees to defend, hold harmless, and indemnify the State against all claims, liabilities, or damages whatsoever, including attorney’s fees, arising out of or related to the replacement of a subcontractor.

5.12.3 Adding Subcontractors - The Contractor may enter into a subcontract with a subcontractor that is not listed in the offer form only after this contract becomes enforceable.

5.12.4 Subcontracting - Contractor shall perform with its own organization, work amounting to not less than twenty (20%) of the total contract cost, exclusive

of costs for materials and equipment the Contractor purchases for installation by its subcontractors, except that any items designated by the State in the contract as “specialty items” may be performed by a subcontract and the cost of any such specialty items so performed by the subcontract may be deducted from the total contract cost before computing the amount of work required to be performed by the Contractor with its own organization.”

- S. Under ARTICLE 6 - CONTROL OF MATERIALS AND EQUIPMENT, Modify Section 6.3 SUBSTITUTION OF MATERIALS AND EQUIPMENT AFTER BID OPENINGS, by renaming section 6.3 SUBSTITUTION AFTER CONTRACT AWARD and by deleting subsections 6.3.1 through 6.3.3 and related paragraphs, and substitute the following two new subsections 6.3.1 and 6.3.2 and related paragraphs:

“6.3.1 Materials, equipment, articles and systems noted on the drawings and specifications, establish a standard of quality, function, performance or design requirements and shall not be interpreted to limit competition. Should trade names, makes, catalog numbers or brand names be specified, the contractor shall infer that these items indicate the quality, style, appearance or performance of the material, equipment, article, or systems to be used in the project. The contractor is responsible to use materials, equipment, articles or systems that meet the project requirements. Unless specifically provided otherwise in the contract documents, the contractor may, at its option, use any material, equipment, article or system that, in the judgment of the Contracting Officer, is equal to that required by the contract documents.

6.3.1.1 If after installing a material, equipment, article or system a variance is discovered, the contractor shall immediately replace the material, equipment, article or system with one that meets the requirements of the contract documents.

6.3.2 Substitution After Contract Award - Subject to the Contracting Officer's determination; material, equipment, article or system with a variant feature(s) may be allowed as a substitution, provided it is in the State's best interest. The State may deny a substitution; and if a substitution is denied, the contractor is not entitled to any additional compensation or time extension.

6.3.2.1 The contractor shall include with the submittal, a notification that identifies all deviations or variances from the contract documents. The notice shall be in a written form separate from the submittal. The variances shall be clearly shown on the shop drawing, descriptive sheet, and material sample or color sample; and the contractor shall certify that the substitution has no other variant features. Failures to identify the variances are grounds to reject the related work or materials, notwithstanding that the Contracting Officer accepted the submittal. If the variances are not acceptable to the Contracting Officer, the contractor will be required to furnish the item as specified on the contract documents at no additional cost or time.

6.3.2.2 Acceptance of a variance shall not justify a contract price or time adjustment unless the contractor requests an adjustment at the time of submittal and the adjustments are explicitly agreed to in writing by the Contracting Officer. Any request shall include price details and proposed

scheduling modifications. Acceptance of a variance is subject to all contract terms, and is without prejudice to all rights under the surety bond.

6.3.2.3 The contractor can recommend improvements to the project, for materials, equipment, articles, or systems by means of a substitution request, even if the improvements are at an additional cost. The Contracting Officer shall make the final determination to accept or reject contractor's proposed improvements. If the proposed material, equipment, article or system cost less than the specified item, the Department will require a sharing of cost similar to value engineering be implemented. State reserves its right to deny a substitution; and if a substitution is denied, the contractor is not entitled to additional compensation or time extension."

- T. Under Article 7 - PROSECUTION AND PROGRESS, modify section 7.2 SCHEDULE OF PRICES by deleting paragraph 7.2.4.1 and substitute the following paragraph 7.2.4.1:

"7.2.4.1. The Contractor shall estimate at the close of each month the percentage of work completed under each of the various construction items during such month and submit the Monthly Payment Application to the Contracting Officer for review and approval. The Contractor shall be paid the approved percentage of the price established for each item less the retention provided in Section 8.4 PROGRESS PAYMENTS."

- U. Under Article 7 - PROSECUTION AND PROGRESS, add the following paragraph 7.2.4A:

"7.2.4A Subcontracts. Upon award of a contract and prior to starting any construction work, the Contractor shall submit to the Contracting Officer a list of all subcontractors and the actual subcontracted dollar amount for each of its subcontractors regardless of the amount of the subcontract. See section 7.39 – Employment of State Residents Requirements."

- V. Under ARTICLE 7 – PROSECUTION AND PROGRESS, modify section 7.2.5 PROOF OF INSURANCE COVERAGE, by deleting subsection 7.2.5 and substitute the following:

"7.2.5 Proof of Insurance Coverage - Certificate of Insurance or other documentary evidence satisfactory to the Contracting Officer that the Contractor has in place all insurance coverage required by the contract. The Certificate of Insurance shall contain wording which identifies the Project number and Project title for which the certificate of insurance is issued. Refer to Section 7.3 INSURANCE REQUIRMENTS."

- W. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.7 PREVAILING WAGES, by deleting subsection 7.7.4.

- X. Under Article 7 – PROSECUTION AND PROGRESS, add the following section 7.9A – APPRENTICESHIP AGREEMENT CERTIFICATION

"7.9A APPRENTICESHIP AGREEMENT CERTIFICATION (HRS §103-55.6)

7.9A.1 For the duration of a contract awarded and executed utilizing the apprenticeship agreement preference, the Contractor shall certify for each month that work is being conducted on the project, that it continues to be a participant in the relevant registered apprenticeship program for each trade it employs.

7.9A.2 Monthly certification shall be made by completing the *Monthly Report of Contractor's Participation - Form 2* made available by the State Department of Labor and Industrial Relations, the original to be signed by the respective apprenticeship program sponsors authorized official, and submitted by the Contractor to the Engineer with its monthly payment requests. The *Monthly Report of Contractor's Participation - Form 2* available on the DLIR website at: <http://hawaii.gov/labor/wdd>.

7.9A.3 Should the Contractor fail or refuse to submit its *Monthly Report of Contractor's Participation - Form 2*, or at any time during the duration of the contract, cease to be a party to a registered apprenticeship agreement for any of the apprenticeable trades the Contractor employs, or will employ, the Contractor will be subject to the following sanctions:

7.9A.3.1 Withholding of the requested payment until all of the required *Monthly report of Contractor's Participation - Form 2s* are properly completed and submitted.

7.9A.3.2 Temporary or permanent cessation of work on the project, without recourse to breach of contract claims by the Contractor; provided the Department shall be entitled to restitution for nonperformance or liquidated damages claims; or

7.9A.3.3 Proceedings to debar or suspend pursuant to HRS §103D-702.

7.9A.4 If events such as "acts of God," acts of a public enemy, acts of the State or any other governmental body in its sovereign or contractual capacity, fires, floods, epidemics, freight embargoes, unusually severe weather, or strikes or other labor disputes prevent the Contractor from submitting the *Monthly Report of Contractor's Participation - Form 2*, the Contractor shall not be penalized as provided herein, provided the Contractor completely and expeditiously complies with the certification process when the event is over."

- Y. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.10 OVERTIME AND NIGHT WORK, by deleting subsection 7.10.2 and substitute the following:

"7.10.2 Contractor shall notify the Contracting Officer two working days prior to doing overtime and night work, to insure proper inspection will be available. The notification shall address the specific work to be done. A notification is not required when overtime work and night work are included as normal working hours in the contract and in the contractor's construction schedule."

- Z. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.11 - OVERTIME AND NIGHT PAYMENT FOR STATE INSPECTION SERVICES, by adding new subsection 7.11.1 and renumbering the existing subsections 7.11.1, 7.11.1.1, 7.11.1.2, 7.11.1.3 and 7.11.2 to read 7.11.2, 7.11.2.1, 7.11.2.2, 7.11.2.3

and 7.11.3 respectively. Change subsection reference number (7.11.1) in subsection 7.11.3 - Payment for Inspection Services to read 7.11.2:

“7.11.1 The Department is responsible for overtime or night time payments for Department’s inspection services, including Department’s Inspector, State staff personnel and the Department’s Consultant(s) engaged on the project, when overtime and night work are included as normal working hours in the contract and in the contractor’s construction schedule.”

AA.Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.25 - DISPUTES AND CLAIMS, by deleting subsection 7.25.10 and paragraph 7.25.10.1 and substitute the following:

“7.25.10 Decision on Claim or Appeal - The Contracting Officer shall decide all controversies between the State and the contractor which arise under, or are by virtue of, this contract and which are not resolved by mutual agreement. The decision of the Contracting Officer on the claim shall be final and conclusive, unless fraudulent or unless the contractor delivers to the Comptroller a written appeal of the Contracting Officer’s decision no later than 30 days after the date of the Contracting Officer’s decision. The Comptroller’s decision shall be final and conclusive, unless fraudulent or unless the contractor brings an action seeking judicial review of the Comptroller’s decision in an appropriate circuit court of this State within six months from the date of the Comptroller’s decision.

7.25.10.1 If the contractor delivers a written request for a final decision concerning the controversy, the Comptroller shall issue a final decision within 90 days after receipt of such a request; provided that if the Comptroller does not issue a written decision within 90 days, or within such longer period as may be agreed upon by the parties, then the contractor may proceed as if an adverse decision had been received. Both parties to this contract agree that the period of up to 30 days to appeal the Contracting Officer’s decision to the Comptroller shall not be included in the 90 day period to issue a final decision.”

BB.Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.25 - DISPUTES AND CLAIMS, by deleting subsection 7.25.13 Waiver of Attorney’s Fees.

CC.Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.31 - SUBSTANTIAL COMPLETION, AND FINAL INSPECTION, by deleting paragraph 7.31.2.1 and substitute the following:

“7.31.2.1 The Contracting Officer shall confirm the list of deficiencies noted by the contractor’s punchlist(s) and will notify the contractor of any other deficiencies that must be corrected.”

DD.Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.32 - PROJECT ACCEPTANCE DATE, by adding new paragraph 7.32.4.1 as follows:

“7.32.4.1 Punchlist corrective work shall be completed prior to Contract Completion Date, or extension thereof.”

EE. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.32 - PROJECT ACCEPTANCE DATE, by deleting subsection 7.32.7 and substitute the following:

“7.32.7 If the contractor fails to correct the deficiencies within the time established in paragraph 7.32.4.1, the Contracting Officer shall assess liquidated damages as required by section 7.26 - FAILURE TO COMPLETE THE WORK ON TIME.”

FF. Under ARTICLE 7 - PROSECUTION AND PROGRESS, add new section 7.39 as follows:

“7.39 EMPLOYMENT OF STATE RESIDENTS REQUIREMENTS HRS 103B

7.39.1 A Contractor awarded a contract shall ensure that Hawaii residents comprise not less than 80% of the workforce employed to perform the contract. 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 purposes of 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.

7.39.2 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. See also, section 7.2 - Commencement Requirements.

7.39.3 The Contractor, and any subcontractor whose subcontract is \$50,000 or more, shall comply with the requirements of this section.

7.39.3.1 Certification of compliance shall be made in writing under oath by an officer of the Contractor and applicable subcontractors and submitted with the final payment request.

7.39.3.2 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. See attached form at the end of Section 00700 – General Conditions.

7.39.3.3 In addition to the certification of compliance as indicated above, the Contractor and any subcontractors shall maintain records such as certified payrolls for laborers and mechanics who performed work at the site and timesheets 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 subcontractors who performed work on the project to validate compliance with this section. The Contractor and Subcontractors shall maintain, retain, and provide access

to these records in accordance with Section 7.38 – RECORDS MAINTENANCE, RETENTION AND ACCESS, except that these provisions shall apply to all contracts, regardless of the value of the contract.

7.39.4 A Contractor or applicable subcontractor who fails to comply with this section shall be subject to any of the following sanctions:

7.39.4.1 With respect to the General Contractor, withholding of payment on the contract until the Contractor or its subcontractor complies with this section; or

7.39.4.2 Proceedings for debarment or suspension of the Contractor or subcontractor under Hawaii Revised Statutes §103D-702.

7.39.5 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. See Section 00800 - Special Conditions, if not applicable.”

GG.Under ARTICLE 8 – MEASUREMENT AND PAYMENT, Section 8.3 PAYMENT FOR ADDITIONAL WORK, modify clause 8.3.4.5(h) by changing the replacement value from ‘five hundred dollars (\$500)’ to read “\$1,000.”

HH.Under ARTICLE 8 - MEASUREMENT AND PAYMENT, Modify section 8.3 PAYMENT FOR ADDITIONAL WORK, by deleting subsection 8.3.1 and substitute the following new subsections and paragraph:

“8.3.1 Payment for Changed Conditions - A contract modification or change order complying with section 4.4 PRICE ADJUSTMENT and section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT shall be issued for all changes that are directed under Section 4.2 CHANGES. No payment for any change including work performed under the force account provisions will be made until a change order is issued or contract modification is executed.

8.3.1.1 At the completion of the force account work or at an intermediate interval approved by the Contracting Officer, the contractor shall submit its force account cost proposal, including; approved daily force account records with any attached invoices or receipt, to the Department for processing a contract modification or change order.”

II. Under Article 8 - MEASUREMENT AND PAYMENT, modify section 8.4 PROGRESS AND/OR PARTIAL PAYMENTS, by deleting section and related subsections 8.4.1 thru 8.4.4.4 and substitute the following new section 8.4 and related subsections 8.4.1 thru 8.4.4.4:

“8.4 PROGRESS PAYMENTS

8.4.1 Progress Payments - The Contractor will be allowed progress payments on a monthly basis upon preparing the Monthly Payment Application forms and submitting them to the Contracting Officer. The monthly payment shall be based on the items of work satisfactorily completed and the value thereof at unit prices and/or lump sum prices set

forth in the contract as determined by the Contracting Officer and will be subject to compliance with Section 7.9 PAYROLLS AND PAYROLL RECORDS.

8.4.2 In the event the Contractor or any Subcontractor fails to submit certified copies of payrolls in accordance with the requirements of Section 7.9 PAYROLLS AND PAYROLL RECORDS, the Contracting Officer may retain the amount due for items of work for which payroll affidavits have not been submitted on a timely basis notwithstanding satisfactory completion of the work until such records have been duly submitted. The Contractor shall not be due any interest payment for any amount thus withheld.

8.4.3 Payment for Materials - The Contractor will also be allowed payments of the manufacturer's, supplier's, distributor's or fabricator's invoice cost of accepted materials to be incorporated in the work on the following conditions:

8.4.3.1 The materials are delivered and properly stored at the site of Work; or

8.4.3.2 For special items of materials accepted by the Contracting Officer, the materials are delivered to the Contractor or subcontractor(s) and properly stored in an acceptable location within a reasonable distance to the site of Work.

8.4.4 Payments shall be made only if the Contracting Officer finds that:

8.4.4.1 The Contractor has submitted bills of sale for the materials or otherwise demonstrates clear title to such materials.

8.4.4.2 The materials are insured for their full replacement value to the benefit of the Department against theft, fire, damages incurred in transportation to the site, and other hazards.

8.4.4.3 The materials are not subject to deterioration.

8.4.4.4 In case of materials stored off the project site, the materials are not commingled with other materials not to be incorporated into the project."

JJ. Under ARTICLE 8 - MEASUREMENT AND PAYMENT, Modify section 8.5 PROMPT PAYMENT, by deleting section 8.5 and related subsections 8.5.1 thru 8.5.6 and substitute the following new section 8.5 and related subsections 8.5.1 thru 8.5.9:

"8.5.1 Any money paid to a Contractor for work performed by a subcontractor shall be disbursed to such subcontractor within ten (10) days after receipt of the money in accordance with the terms of the subcontract; provided that the subcontractor has met all the terms and conditions of the subcontract and there are no bona fide disputes on which the Contracting Officer has withheld payment.

8.5.2 Upon final payment to the Contractor, full payment to all subcontractors shall be made within ten (10) days after receipt of the money, provided there are no bona fide disputes over the subcontractor's performance under the subcontract.

8.5.3 All sums retained or withheld from a subcontractor and otherwise due to the subcontractor for satisfactory performance under the subcontract shall be paid by the contracting officer to the contractor and subsequently, upon receipt from the contracting officer, by the contractor to the subcontractor within the applicable time periods specified in subsection 8.5.2 and section 103-10 HRS:

8.5.3.1 Where a subcontractor has provided evidence to the contractor of satisfactorily completing all work under their subcontract and has provided a properly documented final payment request as described in subsection (8.5.5) of this section, and:

8.5.3.1.a Has provided to the contractor an acceptable performance and payment bond for the project executed by a surety company authorized to do business in the State, as provided in section 8.6 RETAINAGE; or

8.5.3.1.b The following has occurred:

8.5.3.1.b.1 A period of ninety days after the day on which the last of the labor was done or performed and the last of the material was furnished or supplied has elapsed without written notice of a claim given to contractor and the surety, as provided for in section 103D-324 HRS; and

8.5.3.1.b.2 The subcontractor has provided to the contractor:

8.5.3.1.b.2.1 An acceptable release of retainage bond, executed by a surety company authorized to do business in the State, in an amount of not more than two times the amount being retained or withheld by the contractor;

8.5.3.1.b.2.2 Any other bond acceptable to the contractor; or

8.5.3.1.b.2.3 Any other form of mutually acceptable collateral.

8.5.4 If the contracting officer or the contractor fails to pay in accordance with this section, a penalty of one and one-half per cent per month shall be imposed upon the outstanding amounts due that were not timely paid by the responsible party. The penalty may be withheld from future payment due to the contractor, if the contractor was the responsible party. If a contractor has violated subsection 8.5.2 three or more times within two years of the first violation, the contractor shall be referred by the contracting officer to the contractor license board for action under section 444-17(14) HRS.

8.5.5 Final Payment Request. A properly documented final payment request from a subcontractor, as required by subsection 8.5.3, shall include:

8.5.5.1 Substantiation of the amounts requested;

8.5.5.2 A certification by the subcontractor, to the best of the subcontractor's knowledge and belief, that:

8.5.5.2.a The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the subcontract;

8.5.5.2.b The subcontractor has made payments due to its subcontractors and suppliers from previous payments received under the subcontract and will make timely payments from the proceeds of the payment covered by the certification, in accordance with their subcontract agreements and the requirements of this section; and

8.5.5.2.c The payment request does not include any amounts that the subcontractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of their subcontract; and

8.5.5.2.d The submission of documentation confirming that all other terms and conditions required under the subcontract agreement have been fully satisfied.

8.5.6 The contracting officer shall return any final payment request that is defective to the contractor within seven days after receipt, with a statement identifying the defect.

8.5.7 A payment request made by a contractor to the Contracting Officer that includes a request for sums that were withheld or retained from a subcontractor and are due to a subcontractor may not be approved under subsection 8.5.3 unless the payment request includes:

8.5.7.1 Substantiation of the amounts requested; and

8.5.7.2 A certification by the contractor, to the best of the contractor's knowledge and belief, that:

8.5.7.2.a The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

8.5.7.2.b The subcontractor has made payments due to its subcontractors and suppliers from previous payments received under the contract and will make timely payments from the proceeds of the payment covered by the certification, in accordance with their subcontract agreements and the requirements of this section; and

8.5.7.2.c The payment request does not include any amounts that the contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of their subcontract.

8.5.8 The contracting officer shall return any final payment request that is defective to the contractor within seven days after receipt, with a statement identifying the defect.

8.5.9 This section shall not be construed to impair the right of a contractor or a subcontractor at any tier to negotiate and to include in their respective subcontracts provisions that provide for additional terms and conditions that are requested to be met before the subcontractor shall be entitled to receive final

payment under subsection 8.5.3 of this section; provided that any such payments withheld shall be withheld by the contracting officer.”

KK. Under ARTICLE 8 - MEASUREMENT AND PAYMENT, modify section 8.6 RETAINAGE, by deleting section 8.6 and related subsections 8.6.1 thru 8.6.3 and substituting the following new section 8.6 and related subsections:

“8.6 RETAINAGE - The Department will retain a portion of the amount due under the contract to the contractor, to ensure the proper performance of the contract.

8.6.1 The sum withheld by the Department from the contractor shall not exceed five per cent of the total amount due the contractor and that after fifty per cent of the contract is completed and progress is satisfactory, no additional sum shall be withheld; provided further that if progress is not satisfactory, the contracting officer may continue to withhold as retainage, sums not exceeding five per cent of the amount due the contractor

8.6.2 The retainage shall not include sums deducted as liquidated damages from moneys due or that may become due the contractor under the contract.

8.6.3 General Obligation Bonds - The contractor may withdraw retainage monies in whole or in part by providing a general obligation bond of the State or its political subdivisions suitable to the Department. The contractor shall endorse over to the Department and deposit with the Department any general obligation bond suitable to the Department, but in no case with a face value less than the value established by law, of the amount to be withdrawn. The Department may sell the bond and use the proceeds in the same way as it may use monies directly retained from progress payments or the final payment.

8.6.4 Any retainage provided for in this section or requested to be withheld by the contractor shall be held by the contracting officer.

8.6.5 A dispute between a contractor and subcontractor of any tier shall not constitute a dispute to which the State or any county is a party, and there is no right of action against the State or any county. The State and a county may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

8.6.6 The retention amount withheld by the contractor from its subcontractor shall be not more than the same percentage of retainage as that of the contractor (also applies to subcontractors who subcontract work to other subcontractors) where a subcontractor has provided evidence to the contractor of:

8.6.6.1 A valid performance and a payment bond for the project that is acceptable to the contractor and executed by a surety company authorized to do business in this State;

8.6.6.2 Any other bond acceptable to the contractor; or

8.6.6.3 Any other form of collateral acceptable to the contractor.

8.6.7 A written notice of any withholding shall be issued to a subcontractor, with a copy to the procurement officer, specifying the following:

8.6.7.1 The amount to be withheld;

8.6.7.2 The specific causes for the withholding under the terms of the subcontract; and

8.6.7.3 The remedial actions to be taken by the subcontractor to receive payment of the amounts withheld.

8.6.8 The provisions of this section shall not be construed to require payment to subcontractors of retainage released to a contractor pursuant to an agreement entered into with the contracting officer meeting the requirements of subsection 8.6.3.”

LL. Under Article 8 – MEASUREMENT AND PAYMENT, modify section 8.7 WARRANTY OF CLEAR TITLE, by deleting section and substitute the following new section 8.7:

“8.7 WARRANTY OF CLEAR TITLE - The Contractor warrants and guarantees that all work and materials covered by progress payments made thereon shall be free and clear of all liens, claims, security interests or encumbrances, and shall become the sole property of the Department. This provision shall not, however, be construed as an acceptance of the work nor shall it be construed as relieving the Contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work, or as waiving the right of the Department to require the fulfillment of all the items of the contract.”

MM. Under Article 8 – MEASUREMENT AND PAYMENT, modify section 8.9 – CLAIMS ARISING OUT OF PAYMENT FOR REQUIRED WORK, by deleting section and substitute the following new section 8.9:

“8.9 CLAIMS ARISING OUT OF PAYMENT FOR REQUIRED WORK - If the Contractor disputes any determination made by the Contracting Officer regarding the amount of work satisfactorily completed, or the value thereof, or the manner in which payment therefore is made or calculated, it shall notify the Contracting Officer in writing of the specific facts supporting the Contractor’s position. Such notice shall be delivered to the Contracting Officer no later than thirty (30) days after the Contractor has been tendered payment for the subject work, or, if no payment has been tendered, not later than fifty (50) days after it has submitted the Monthly Payment Application required under Section 8.4 PROGRESS PAYMENTS herein to the Contracting Officer for the work that is the subject of the dispute. The delivery of the written notice cannot be waived and shall be a condition precedent to the filing of the claim. No claim for additional compensation for extra work or change work shall be allowed under this provision, unless the notice requirements of Article 4 SCOPE OF WORK have been followed. Acceptance of partial payment of a Monthly Payment Application amount shall not be deemed a waiver of the right to make a claim described herein provided the notice provisions are followed. The existence of or filing of a payment claim herein shall not

relieve the Contractor of its duty to continue with the performance of the contract in full compliance with the directions of the Contracting Officer. Any notice of claim disputing the final payment made pursuant to Section 8.8 FINAL PAYMENT must be submitted in writing not later than thirty (30) days after final payment that is identified as such has been tendered to the Contractor.”

NN. Add the attached Certification of Compliance for Employment of State Residents form to the Appendix.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**CERTIFICATION OF COMPLIANCE
FOR
EMPLOYMENT OF STATE RESIDENTS
HRS 103B**

Project Title: _____

Agency Project No: _____

Contract No.: _____

As required by Hawaii Revised Statutes 103B – Employment of State Residents on Construction Procurement Contracts, I hereby certify under oath, that I am an officer of _____ and for the Project Contract indicated

(Name of Contractor or Subcontractor Company)

above, _____ was in compliance with

(Name of Contractor or Subcontractor Company)

HRS 103B 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** to this contract.

CORPORATE SEAL

(Name of Company)

(Signature)

(Print Name)

(Print Title)

Subscribed and sworn to me before this
____ day of _____, 2010.

Doc. Date: _____ # of Pages ____ 1st Circuit

Notary Name: _____

Doc. Description: _____

Notary Public, 1st Circuit, State of Hawaii
My commission expires: _____

Notary Signature Date

NOTARY CERTIFICATION

END OF SECTION

GENERAL CONDITIONS

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GENERAL CONDITIONS

1. Coordination of Services by the STATE. The head of the purchasing agency ("HOPA") (which term includes the designee of the HOPA) shall coordinate the services to be provided by the CONTRACTOR in order to complete the performance required in the Contract. The CONTRACTOR shall maintain communications with HOPA at all stages of the CONTRACTOR'S work, and submit to HOPA for resolution any questions which may arise as to the performance of this Contract. "Purchasing agency" as used in these General Conditions means and includes any governmental body which is authorized under chapter 103D, HRS, or its implementing rules and procedures, or by way of delegation, to enter into contracts for the procurement of goods or services or both.
2. Relationship of Parties: Independent Contractor Status and Responsibilities, Including Tax Responsibilities.
 - a. In the performance of services required under this Contract, the CONTRACTOR is an "independent contractor," with the authority and responsibility to control and direct the performance and details of the work and services required under this Contract; however, the STATE shall have a general right to inspect work in progress to determine whether, in the STATE'S opinion, the services are being performed by the CONTRACTOR in compliance with this Contract. Unless otherwise provided by special condition, it is understood that the STATE does not agree to use the CONTRACTOR exclusively, and that the CONTRACTOR is free to contract to provide services to other individuals or entities while under contract with the STATE.
 - b. The CONTRACTOR and the CONTRACTOR'S employees and agents are not by reason of this Contract, agents or employees of the State for any purpose, and the CONTRACTOR and the CONTRACTOR'S employees and agents shall not be entitled to claim or receive from the State any vacation, sick leave, retirement, workers' compensation, unemployment insurance, or other benefits provided to state employees.
 - c. The CONTRACTOR shall be responsible for the accuracy, completeness, and adequacy of the CONTRACTOR'S performance under this Contract. Furthermore, the CONTRACTOR intentionally, voluntarily, and knowingly assumes the sole and entire liability to the CONTRACTOR'S employees and agents, and to any individual not a party to this Contract, for all loss, damage, or injury caused by the CONTRACTOR, or the CONTRACTOR'S employees or agents in the course of their employment.
 - d. The CONTRACTOR shall be responsible for payment of all applicable federal, state, and county taxes and fees which may become due and owing by the CONTRACTOR by reason of this Contract, including but not limited to (i) income taxes, (ii) employment related fees, assessments, and taxes, and (iii) general excise taxes. The CONTRACTOR also is responsible for obtaining all licenses, permits, and certificates that may be required in order to perform this Contract.
 - e. The CONTRACTOR shall obtain a general excise tax license from the Department of Taxation, State of Hawaii, in accordance with section 237-9, HRS, and shall comply with all requirements thereof. The CONTRACTOR shall obtain a tax clearance certificate from the Director of Taxation, State of Hawaii, and the Internal Revenue Service, U.S. Department of the Treasury, showing that all delinquent taxes, if any, levied or accrued under state law and the Internal Revenue Code of 1986, as amended, against the CONTRACTOR have been paid and submit the same to the STATE prior to commencing any performance under this Contract. The CONTRACTOR shall also be solely responsible for meeting all requirements necessary to obtain the tax clearance certificate required for final payment under sections 103-53 and 103D-328, HRS, and paragraph 17 of these General Conditions.
 - f. The CONTRACTOR is responsible for securing all employee-related insurance coverage for the CONTRACTOR and the CONTRACTOR'S employees and agents that is or may be required by law, and for payment of all premiums, costs, and other liabilities associated with securing the insurance coverage.

- g. The CONTRACTOR shall obtain a certificate of compliance issued by the Department of Labor and Industrial Relations, State of Hawaii, in accordance with section 103D-310, HRS, and section 3-122-112, HAR, that is current within six months of the date of issuance.
- h. The CONTRACTOR shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs, State of Hawaii, in accordance with section 103D-310, HRS, and section 3-122-112, HAR, that is current within six months of the date of issuance.
- i. In lieu of the above certificates from the Department of Taxation, Labor and Industrial Relations, and Commerce and Consumer Affairs, the CONTRACTOR may submit proof of compliance through the State Procurement Office's designated certification process.

3. Personnel Requirements.

- a. The CONTRACTOR shall secure, at the CONTRACTOR'S own expense, all personnel required to perform this Contract.
- b. The CONTRACTOR shall ensure that the CONTRACTOR'S employees or agents are experienced and fully qualified to engage in the activities and perform the services required under this Contract, and that all applicable licensing and operating requirements imposed or required under federal, state, or county law, and all applicable accreditation and other standards of quality generally accepted in the field of the activities of such employees and agents are complied with and satisfied.

4. Nondiscrimination. No person performing work under this Contract, including any subcontractor, employee, or agent of the CONTRACTOR, shall engage in any discrimination that is prohibited by any applicable federal, state, or county law.

5. Conflicts of Interest. The CONTRACTOR represents that neither the CONTRACTOR, nor any employee or agent of the CONTRACTOR, presently has any interest, and promises that no such interest, direct or indirect, shall be acquired, that would or might conflict in any manner or degree with the CONTRACTOR'S performance under this Contract.

6. Subcontracts and Assignments. The CONTRACTOR shall not assign or subcontract any of the CONTRACTOR'S duties, obligations, or interests under this Contract and no such assignment or subcontract shall be effective unless (i) the CONTRACTOR obtains the prior written consent of the STATE, and (ii) the CONTRACTOR'S assignee or subcontractor submits to the STATE a tax clearance certificate from the Director of Taxation, State of Hawaii, and the Internal Revenue Service, U.S. Department of Treasury, showing that all delinquent taxes, if any, levied or accrued under state law and the Internal Revenue Code of 1986, as amended, against the CONTRACTOR'S assignee or subcontractor have been paid. Additionally, no assignment by the CONTRACTOR of the CONTRACTOR'S right to compensation under this Contract shall be effective unless and until the assignment is approved by the Comptroller of the State of Hawaii, as provided in section 40-58, HRS.

- a. Recognition of a successor in interest. When in the best interest of the State, a successor in interest may be recognized in an assignment contract in which the STATE, the CONTRACTOR and the assignee or transferee (hereinafter referred to as the "Assignee") agree that:

- (1) The Assignee assumes all of the CONTRACTOR'S obligations;
- (2) The CONTRACTOR remains liable for all obligations under this Contract but waives all rights under this Contract as against the STATE; and
- (3) The CONTRACTOR shall continue to furnish, and the Assignee shall also furnish, all required bonds.

- b. Change of name. When the CONTRACTOR asks to change the name in which it holds this Contract with the STATE, the procurement officer of the purchasing agency (hereinafter referred to as the "Agency procurement officer") shall, upon receipt of a document acceptable or satisfactory to the

Agency procurement officer indicating such change of name (for example, an amendment to the CONTRACTOR'S articles of incorporation), enter into an amendment to this Contract with the CONTRACTOR to effect such a change of name. The amendment to this Contract changing the CONTRACTOR'S name shall specifically indicate that no other terms and conditions of this Contract are thereby changed.

- c. Reports. All assignment contracts and amendments to this Contract effecting changes of the CONTRACTOR'S name or novations hereunder shall be reported to the chief procurement officer (CPO) as defined in section 103D-203(a), HRS, within thirty days of the date that the assignment contract or amendment becomes effective.
 - d. Actions affecting more than one purchasing agency. Notwithstanding the provisions of subparagraphs 6a through 6c herein, when the CONTRACTOR holds contracts with more than one purchasing agency of the State, the assignment contracts and the novation and change of name amendments herein authorized shall be processed only through the CPO's office.
7. Indemnification and Defense. The CONTRACTOR shall defend, indemnify, and hold harmless the State of Hawaii, the contracting agency, and their officers, employees, and agents from and against all liability, loss, damage, cost, and expense, including all attorneys' fees, and all claims, suits, and demands therefore, arising out of or resulting from the acts or omissions of the CONTRACTOR or the CONTRACTOR'S employees, officers, agents, or subcontractors under this Contract. The provisions of this paragraph shall remain in full force and effect notwithstanding the expiration or early termination of this Contract.
 8. Cost of Litigation. In case the STATE shall, without any fault on its part, be made a party to any litigation commenced by or against the CONTRACTOR in connection with this Contract, the CONTRACTOR shall pay all costs and expenses incurred by or imposed on the STATE, including attorneys' fees.
 9. Liquidated Damages. When the CONTRACTOR is given notice of delay or nonperformance as specified in paragraph 13 (Termination for Default) and fails to cure in the time specified, it is agreed the CONTRACTOR shall pay to the STATE the amount, if any, set forth in this Contract per calendar day from the date set for cure until either (i) the STATE reasonably obtains similar goods or services, or both, if the CONTRACTOR is terminated for default, or (ii) until the CONTRACTOR provides the goods or services, or both, if the CONTRACTOR is not terminated for default. To the extent that the CONTRACTOR'S delay or nonperformance is excused under paragraph 13d (Excuse for Nonperformance or Delay Performance), liquidated damages shall not be assessable against the CONTRACTOR. The CONTRACTOR remains liable for damages caused other than by delay.
 10. STATE'S Right of Offset. The STATE may offset against any monies or other obligations the STATE owes to the CONTRACTOR under this Contract, any amounts owed to the State of Hawaii by the CONTRACTOR under this Contract or any other contracts, or pursuant to any law or other obligation owed to the State of Hawaii by the CONTRACTOR, including, without limitation, the payment of any taxes or levies of any kind or nature. The STATE will notify the CONTRACTOR in writing of any offset and the nature of such offset. For purposes of this paragraph, amounts owed to the State of Hawaii shall not include debts or obligations which have been liquidated, agreed to by the CONTRACTOR, and are covered by an installment payment or other settlement plan approved by the State of Hawaii, provided, however, that the CONTRACTOR shall be entitled to such exclusion only to the extent that the CONTRACTOR is current with, and not delinquent on, any payments or obligations owed to the State of Hawaii under such payment or other settlement plan.
 11. Disputes. Disputes shall be resolved in accordance with section 103D-703, HRS, and chapter 3-126, Hawaii Administrative Rules ("HAR"), as the same may be amended from time to time.
 12. Suspension of Contract. The STATE reserves the right at any time and for any reason to suspend this Contract for any reasonable period, upon written notice to the CONTRACTOR in accordance with the provisions herein.
 - a. Order to stop performance. The Agency procurement officer may, by written order to the CONTRACTOR, at any time, and without notice to any surety, require the CONTRACTOR to stop all or any part of the performance called for by this Contract. This order shall be for a specified

period not exceeding sixty (60) days after the order is delivered to the CONTRACTOR, unless the parties agree to any further period. Any such order shall be identified specifically as a stop performance order issued pursuant to this section. Stop performance orders shall include, as appropriate: (1) A clear description of the work to be suspended; (2) Instructions as to the issuance of further orders by the CONTRACTOR for material or services; (3) Guidance as to action to be taken on subcontracts; and (4) Other instructions and suggestions to the CONTRACTOR for minimizing costs. Upon receipt of such an order, the CONTRACTOR shall forthwith comply with its terms and suspend all performance under this Contract at the time stated, provided, however, the CONTRACTOR shall take all reasonable steps to minimize the occurrence of costs allocable to the performance covered by the order during the period of performance stoppage. Before the stop performance order expires, or within any further period to which the parties shall have agreed, the Agency procurement officer shall either:

- (1) Cancel the stop performance order; or
 - (2) Terminate the performance covered by such order as provided in the termination for default provision or the termination for convenience provision of this Contract.
- b. Cancellation or expiration of the order. If a stop performance order issued under this section is cancelled at any time during the period specified in the order, or if the period of the order or any extension thereof expires, the CONTRACTOR shall have the right to resume performance. An appropriate adjustment shall be made in the delivery schedule or contract price, or both, and the Contract shall be modified in writing accordingly, if:
- (1) The stop performance order results in an increase in the time required for, or in the CONTRACTOR'S cost properly allocable to, the performance of any part of this Contract; and
 - (2) The CONTRACTOR asserts a claim for such an adjustment within thirty (30) days after the end of the period of performance stoppage; provided that, if the Agency procurement officer decides that the facts justify such action, any such claim asserted may be received and acted upon at any time prior to final payment under this Contract.
- c. Termination of stopped performance. If a stop performance order is not cancelled and the performance covered by such order is terminated for default or convenience, the reasonable costs resulting from the stop performance order shall be allowable by adjustment or otherwise.
- d. Adjustment of price. Any adjustment in contract price made pursuant to this paragraph shall be determined in accordance with the price adjustment provision of this Contract.

13. Termination for Default.

- a. Default. If the CONTRACTOR refuses or fails to perform any of the provisions of this Contract with such diligence as will ensure its completion within the time specified in this Contract, or any extension thereof, otherwise fails to timely satisfy the Contract provisions, or commits any other substantial breach of this Contract, the Agency procurement officer may notify the CONTRACTOR in writing of the delay or non-performance and if not cured in ten (10) days or any longer time specified in writing by the Agency procurement officer, such officer may terminate the CONTRACTOR'S right to proceed with the Contract or such part of the Contract as to which there has been delay or a failure to properly perform. In the event of termination in whole or in part, the Agency procurement officer may procure similar goods or services in a manner and upon the terms deemed appropriate by the Agency procurement officer. The CONTRACTOR shall continue performance of the Contract to the extent it is not terminated and shall be liable for excess costs incurred in procuring similar goods or services.
- b. CONTRACTOR'S duties. Notwithstanding termination of the Contract and subject to any directions from the Agency procurement officer, the CONTRACTOR shall take timely, reasonable, and

necessary action to protect and preserve property in the possession of the CONTRACTOR in which the STATE has an interest.

- c. Compensation. Payment for completed goods and services delivered and accepted by the STATE shall be at the price set forth in the Contract. Payment for the protection and preservation of property shall be in an amount agreed upon by the CONTRACTOR and the Agency procurement officer. If the parties fail to agree, the Agency procurement officer shall set an amount subject to the CONTRACTOR'S rights under chapter 3-126, HAR. The STATE may withhold from amounts due the CONTRACTOR such sums as the Agency procurement officer deems to be necessary to protect the STATE against loss because of outstanding liens or claims and to reimburse the STATE for the excess costs expected to be incurred by the STATE in procuring similar goods and services.
- d. Excuse for nonperformance or delayed performance. The CONTRACTOR shall not be in default by reason of any failure in performance of this Contract in accordance with its terms, including any failure by the CONTRACTOR to make progress in the prosecution of the performance hereunder which endangers such performance, if the CONTRACTOR has notified the Agency procurement officer within fifteen (15) days after the cause of the delay and the failure arises out of causes such as: acts of God; acts of a public enemy; acts of the State and any other governmental body in its sovereign or contractual capacity; fires; floods; epidemics; quarantine restrictions; strikes or other labor disputes; freight embargoes; or unusually severe weather. If the failure to perform is caused by the failure of a subcontractor to perform or to make progress, and if such failure arises out of causes similar to those set forth above, the CONTRACTOR shall not be deemed to be in default, unless the goods and services to be furnished by the subcontractor were reasonably obtainable from other sources in sufficient time to permit the CONTRACTOR to meet the requirements of the Contract. Upon request of the CONTRACTOR, the Agency procurement officer shall ascertain the facts and extent of such failure, and, if such officer determines that any failure to perform was occasioned by any one or more of the excusable causes, and that, but for the excusable cause, the CONTRACTOR'S progress and performance would have met the terms of the Contract, the delivery schedule shall be revised accordingly, subject to the rights of the STATE under this Contract. As used in this paragraph, the term "subcontractor" means subcontractor at any tier.
- e. Erroneous termination for default. If, after notice of termination of the CONTRACTOR'S right to proceed under this paragraph, it is determined for any reason that the CONTRACTOR was not in default under this paragraph, or that the delay was excusable under the provisions of subparagraph 13d, "Excuse for nonperformance or delayed performance," the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to paragraph 14.
- f. Additional rights and remedies. The rights and remedies provided in this paragraph are in addition to any other rights and remedies provided by law or under this Contract.

14. Termination for Convenience.

- a. Termination. The Agency procurement officer may, when the interests of the STATE so require, terminate this Contract in whole or in part, for the convenience of the STATE. The Agency procurement officer shall give written notice of the termination to the CONTRACTOR specifying the part of the Contract terminated and when termination becomes effective.
- b. CONTRACTOR'S obligations. The CONTRACTOR shall incur no further obligations in connection with the terminated performance and on the date(s) set in the notice of termination the CONTRACTOR will stop performance to the extent specified. The CONTRACTOR shall also terminate outstanding orders and subcontracts as they relate to the terminated performance. The CONTRACTOR shall settle the liabilities and claims arising out of the termination of subcontracts and orders connected with the terminated performance subject to the STATE'S approval. The Agency procurement officer may direct the CONTRACTOR to assign the CONTRACTOR'S right, title, and interest under terminated orders or subcontracts to the STATE. The CONTRACTOR must still complete the performance not terminated by the notice of termination and may incur obligations as necessary to do so.

- c. Right to goods and work product. The Agency procurement officer may require the CONTRACTOR to transfer title and deliver to the STATE in the manner and to the extent directed by the Agency procurement officer:

- (1) Any completed goods or work product; and
- (2) The partially completed goods and materials, parts, tools, dies, jigs, fixtures, plans, drawings, information, and contract rights (hereinafter called "manufacturing material") as the CONTRACTOR has specifically produced or specially acquired for the performance of the terminated part of this Contract.

The CONTRACTOR shall, upon direction of the Agency procurement officer, protect and preserve property in the possession of the CONTRACTOR in which the STATE has an interest. If the Agency procurement officer does not exercise this right, the CONTRACTOR shall use best efforts to sell such goods and manufacturing materials. Use of this paragraph in no way implies that the STATE has breached the Contract by exercise of the termination for convenience provision.

- d. Compensation.

- (1) The CONTRACTOR shall submit a termination claim specifying the amounts due because of the termination for convenience together with the cost or pricing data, submitted to the extent required by chapter 3-122, HAR, bearing on such claim. If the CONTRACTOR fails to file a termination claim within one year from the effective date of termination, the Agency procurement officer may pay the CONTRACTOR, if at all, an amount set in accordance with subparagraph 14d(3) below.
- (2) The Agency procurement officer and the CONTRACTOR may agree to a settlement provided the CONTRACTOR has filed a termination claim supported by cost or pricing data submitted as required and that the settlement does not exceed the total Contract price plus settlement costs reduced by payments previously made by the STATE, the proceeds of any sales of goods and manufacturing materials under subparagraph 14c, and the Contract price of the performance not terminated.
- (3) Absent complete agreement under subparagraph 14d(2) the Agency procurement officer shall pay the CONTRACTOR the following amounts, provided payments agreed to under subparagraph 14d(2) shall not duplicate payments under this subparagraph for the following:
 - (A) Contract prices for goods or services accepted under the Contract;
 - (B) Costs incurred in preparing to perform and performing the terminated portion of the performance plus a fair and reasonable profit on such portion of the performance, such profit shall not include anticipatory profit or consequential damages, less amounts paid or to be paid for accepted goods or services; provided, however, that if it appears that the CONTRACTOR would have sustained a loss if the entire Contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss;
 - (C) Costs of settling and paying claims arising out of the termination of subcontracts or orders pursuant to subparagraph 14b. These costs must not include costs paid in accordance with subparagraph 14d(3)(B);
 - (D) The reasonable settlement costs of the CONTRACTOR, including accounting, legal, clerical, and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the Contract and for the termination of subcontracts thereunder, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of property allocable to the terminated portion of this Contract. The total sum to be paid the CONTRACTOR under this subparagraph shall not exceed the

total Contract price plus the reasonable settlement costs of the CONTRACTOR reduced by the amount of payments otherwise made, the proceeds of any sales of supplies and manufacturing materials under subparagraph 14d(2), and the contract price of performance not terminated.

- (4) Costs claimed, agreed to, or established under subparagraphs 14d(2) and 14d(3) shall be in accordance with Chapter 3-123 (Cost Principles) of the Procurement Rules.

15. Claims Based on the Agency Procurement Officer's Actions or Omissions.

- a. Changes in scope. If any action or omission on the part of the Agency procurement officer (which term includes the designee of such officer for purposes of this paragraph 15) requiring performance changes within the scope of the Contract constitutes the basis for a claim by the CONTRACTOR for additional compensation, damages, or an extension of time for completion, the CONTRACTOR shall continue with performance of the Contract in compliance with the directions or orders of such officials, but by so doing, the CONTRACTOR shall not be deemed to have prejudiced any claim for additional compensation, damages, or an extension of time for completion; provided:

- (1) Written notice required. The CONTRACTOR shall give written notice to the Agency procurement officer:

- (A) Prior to the commencement of the performance involved, if at that time the CONTRACTOR knows of the occurrence of such action or omission;
- (B) Within thirty (30) days after the CONTRACTOR knows of the occurrence of such action or omission, if the CONTRACTOR did not have such knowledge prior to the commencement of the performance; or
- (C) Within such further time as may be allowed by the Agency procurement officer in writing.

- (2) Notice content. This notice shall state that the CONTRACTOR regards the act or omission as a reason which may entitle the CONTRACTOR to additional compensation, damages, or an extension of time. The Agency procurement officer, upon receipt of such notice, may rescind such action, remedy such omission, or take such other steps as may be deemed advisable in the discretion of the Agency procurement officer;

- (3) Basis must be explained. The notice required by subparagraph 15a(1) describes as clearly as practicable at the time the reasons why the CONTRACTOR believes that additional compensation, damages, or an extension of time may be remedies to which the CONTRACTOR is entitled; and

- (4) Claim must be justified. The CONTRACTOR must maintain and, upon request, make available to the Agency procurement officer within a reasonable time, detailed records to the extent practicable, and other documentation and evidence satisfactory to the STATE, justifying the claimed additional costs or an extension of time in connection with such changes.

- b. CONTRACTOR not excused. Nothing herein contained, however, shall excuse the CONTRACTOR from compliance with any rules or laws precluding any state officers and CONTRACTOR from acting in collusion or bad faith in issuing or performing change orders which are clearly not within the scope of the Contract.

- c. Price adjustment. Any adjustment in the price made pursuant to this paragraph shall be determined in accordance with the price adjustment provision of this Contract.

16. Costs and Expenses. Any reimbursement due the CONTRACTOR for per diem and transportation expenses under this Contract shall be subject to chapter 3-123 (Cost Principles), HAR, and the following guidelines:

- a. Reimbursement for air transportation shall be for actual cost or coach class air fare, whichever is less.
- b. Reimbursement for ground transportation costs shall not exceed the actual cost of renting an intermediate-sized vehicle.
- c. Unless prior written approval of the HOPA is obtained, reimbursement for subsistence allowance (i.e., hotel and meals, etc.) shall not exceed the applicable daily authorized rates for inter-island or out-of-state travel that are set forth in the current Governor's Executive Order authorizing adjustments in salaries and benefits for state officers and employees in the executive branch who are excluded from collective bargaining coverage.

17. Payment Procedures; Final Payment; Tax Clearance.

- a. Original invoices required. All payments under this Contract shall be made only upon submission by the CONTRACTOR of original invoices specifying the amount due and certifying that services requested under the Contract have been performed by the CONTRACTOR according to the Contract.
- b. Subject to available funds. Such payments are subject to availability of funds and allotment by the Director of Finance in accordance with chapter 37, HRS. Further, all payments shall be made in accordance with and subject to chapter 40, HRS.
- c. Prompt payment.
 - (1) Any money, other than retainage, paid to the CONTRACTOR shall be disbursed to subcontractors within ten (10) days after receipt of the money in accordance with the terms of the subcontract; provided that the subcontractor has met all the terms and conditions of the subcontract and there are no bona fide disputes; and
 - (2) Upon final payment to the CONTRACTOR, full payment to the subcontractor, including retainage, shall be made within ten (10) days after receipt of the money; provided that there are no bona fide disputes over the subcontractor's performance under the subcontract.
- d. Final payment. Final payment under this Contract shall be subject to sections 103-53 and 103D-328, HRS, which require a tax clearance from the Director of Taxation, State of Hawaii, and the Internal Revenue Service, U.S. Department of Treasury, showing that all delinquent taxes, if any, levied or accrued under state law and the Internal Revenue Code of 1986, as amended, against the CONTRACTOR have been paid. Further, in accordance with section 3-122-112, HAR, CONTRACTOR shall provide a certificate affirming that the CONTRACTOR has remained in compliance with all applicable laws as required by this section.

18. Federal Funds. If this Contract is payable in whole or in part from federal funds, CONTRACTOR agrees that, as to the portion of the compensation under this Contract to be payable from federal funds, the CONTRACTOR shall be paid only from such funds received from the federal government, and shall not be paid from any other funds. Failure of the STATE to receive anticipated federal funds shall not be considered a breach by the STATE or an excuse for nonperformance by the CONTRACTOR.

19. Modifications of Contract.

- a. In writing. Any modification, alteration, amendment, change, or extension of any term, provision, or condition of this Contract permitted by this Contract shall be made by written amendment to this Contract, signed by the CONTRACTOR and the STATE, provided that change orders shall be made in accordance with paragraph 20 herein.
- b. No oral modification. No oral modification, alteration, amendment, change, or extension of any term, provision, or condition of this Contract shall be permitted.

- c. Agency procurement officer. By written order, at any time, and without notice to any surety, the Agency procurement officer may unilaterally order of the CONTRACTOR:
 - (A) Changes in the work within the scope of the Contract; and
 - (B) Changes in the time of performance of the Contract that do not alter the scope of the Contract work.
 - d. Adjustments of price or time for performance. If any modification increases or decreases the CONTRACTOR'S cost of, or the time required for, performance of any part of the work under this Contract, an adjustment shall be made and this Contract modified in writing accordingly. Any adjustment in contract price made pursuant to this clause shall be determined, where applicable, in accordance with the price adjustment clause of this Contract or as negotiated.
 - e. Claim barred after final payment. No claim by the CONTRACTOR for an adjustment hereunder shall be allowed if written modification of the Contract is not made prior to final payment under this Contract.
 - f. Claims not barred. In the absence of a written contract modification, nothing in this clause shall be deemed to restrict the CONTRACTOR'S right to pursue a claim under this Contract or for a breach of contract.
 - g. Head of the purchasing agency approval. If this is a professional services contract awarded pursuant to section 103D-303 or 103D-304, HRS, any modification, alteration, amendment, change, or extension of any term, provision, or condition of this Contract which increases the amount payable to the CONTRACTOR by at least \$25,000.00 and ten per cent (10%) or more of the initial contract price, must receive the prior approval of the head of the purchasing agency.
 - h. Tax clearance. The STATE may, at its discretion, require the CONTRACTOR to submit to the STATE, prior to the STATE'S approval of any modification, alteration, amendment, change, or extension of any term, provision, or condition of this Contract, a tax clearance from the Director of Taxation, State of Hawaii, and the Internal Revenue Service, U.S. Department of Treasury, showing that all delinquent taxes, if any, levied or accrued under state law and the Internal Revenue Code of 1986, as amended, against the CONTRACTOR have been paid.
 - i. Sole source contracts. Amendments to sole source contracts that would change the original scope of the Contract may only be made with the approval of the CPO. Annual renewal of a sole source contract for services should not be submitted as an amendment.
20. Change Order. The Agency procurement officer may, by a written order signed only by the STATE, at any time, and without notice to any surety, and subject to all appropriate adjustments, make changes within the general scope of this Contract in any one or more of the following:
- (1) Drawings, designs, or specifications, if the goods or services to be furnished are to be specially provided to the STATE in accordance therewith;
 - (2) Method of delivery; or
 - (3) Place of delivery.
- a. Adjustments of price or time for performance. If any change order increases or decreases the CONTRACTOR'S cost of, or the time required for, performance of any part of the work under this Contract, whether or not changed by the order, an adjustment shall be made and the Contract modified in writing accordingly. Any adjustment in the Contract price made pursuant to this provision shall be determined in accordance with the price adjustment provision of this Contract. Failure of the parties to agree to an adjustment shall not excuse the CONTRACTOR from proceeding with the Contract as changed, provided that the Agency procurement officer promptly and duly makes the provisional adjustments in payment or time for performance as may be reasonable. By

proceeding with the work, the CONTRACTOR shall not be deemed to have prejudiced any claim for additional compensation, or any extension of time for completion.

- b. Time period for claim. Within ten (10) days after receipt of a written change order under subparagraph 20a, unless the period is extended by the Agency procurement officer in writing, the CONTRACTOR shall respond with a claim for an adjustment. The requirement for a timely written response by CONTRACTOR cannot be waived and shall be a condition precedent to the assertion of a claim.
- c. Claim barred after final payment. No claim by the CONTRACTOR for an adjustment hereunder shall be allowed if a written response is not given prior to final payment under this Contract.
- d. Other claims not barred. In the absence of a change order, nothing in this paragraph 20 shall be deemed to restrict the CONTRACTOR'S right to pursue a claim under the Contract or for breach of contract.

21. Price Adjustment.

- a. Price adjustment. Any adjustment in the contract price pursuant to a provision in this Contract shall be made in one or more of the following ways:
 - (1) By agreement on a fixed price adjustment before commencement of the pertinent performance or as soon thereafter as practicable;
 - (2) By unit prices specified in the Contract or subsequently agreed upon;
 - (3) By the costs attributable to the event or situation covered by the provision, plus appropriate profit or fee, all as specified in the Contract or subsequently agreed upon;
 - (4) In such other manner as the parties may mutually agree; or
 - (5) In the absence of agreement between the parties, by a unilateral determination by the Agency procurement officer of the costs attributable to the event or situation covered by the provision, plus appropriate profit or fee, all as computed by the Agency procurement officer in accordance with generally accepted accounting principles and applicable sections of chapters 3-123 and 3-126, HAR.
- b. Submission of cost or pricing data. The CONTRACTOR shall provide cost or pricing data for any price adjustments subject to the provisions of chapter 3-122, HAR.

22. Variation in Quantity for Definite Quantity Contracts. Upon the agreement of the STATE and the CONTRACTOR, the quantity of goods or services, or both, if a definite quantity is specified in this Contract, may be increased by a maximum of ten per cent (10%); provided the unit prices will remain the same except for any price adjustments otherwise applicable; and the Agency procurement officer makes a written determination that such an increase will either be more economical than awarding another contract or that it would not be practical to award another contract.

23. Changes in Cost-Reimbursement Contract. If this Contract is a cost-reimbursement contract, the following provisions shall apply:

- a. The Agency procurement officer may at any time by written order, and without notice to the sureties, if any, make changes within the general scope of the Contract in any one or more of the following:
 - (1) Description of performance (Attachment 1);
 - (2) Time of performance (i.e., hours of the day, days of the week, etc.);
 - (3) Place of performance of services;

- (4) Drawings, designs, or specifications when the supplies to be furnished are to be specially manufactured for the STATE in accordance with the drawings, designs, or specifications;
 - (5) Method of shipment or packing of supplies; or
 - (6) Place of delivery.
 - b. If any change causes an increase or decrease in the estimated cost of, or the time required for performance of, any part of the performance under this Contract, whether or not changed by the order, or otherwise affects any other terms and conditions of this Contract, the Agency procurement officer shall make an equitable adjustment in the (1) estimated cost, delivery or completion schedule, or both; (2) amount of any fixed fee; and (3) other affected terms and shall modify the Contract accordingly.
 - c. The CONTRACTOR must assert the CONTRACTOR'S rights to an adjustment under this provision within thirty (30) days from the day of receipt of the written order. However, if the Agency procurement officer decides that the facts justify it, the Agency procurement officer may receive and act upon a proposal submitted before final payment under the Contract.
 - d. Failure to agree to any adjustment shall be a dispute under paragraph 11 of this Contract. However, nothing in this provision shall excuse the CONTRACTOR from proceeding with the Contract as changed.
 - e. Notwithstanding the terms and conditions of subparagraphs 23a and 23b, the estimated cost of this Contract and, if this Contract is incrementally funded, the funds allotted for the performance of this Contract, shall not be increased or considered to be increased except by specific written modification of the Contract indicating the new contract estimated cost and, if this contract is incrementally funded, the new amount allotted to the contract.
24. Confidentiality of Material.
- a. All material given to or made available to the CONTRACTOR by virtue of this Contract, which is identified as proprietary or confidential information, will be safeguarded by the CONTRACTOR and shall not be disclosed to any individual or organization without the prior written approval of the STATE.
 - b. All information, data, or other material provided by the CONTRACTOR to the STATE shall be subject to the Uniform Information Practices Act, chapter 92F, HRS.
25. Publicity. The CONTRACTOR shall not refer to the STATE, or any office, agency, or officer thereof, or any state employee, including the HOPA, the CPO, the Agency procurement officer, or to the services or goods, or both, provided under this Contract, in any of the CONTRACTOR'S brochures, advertisements, or other publicity of the CONTRACTOR. All media contacts with the CONTRACTOR about the subject matter of this Contract shall be referred to the Agency procurement officer.
26. Ownership Rights and Copyright. The STATE shall have complete ownership of all material, both finished and unfinished, which is developed, prepared, assembled, or conceived by the CONTRACTOR pursuant to this Contract, and all such material shall be considered "works made for hire." All such material shall be delivered to the STATE upon expiration or termination of this Contract. The STATE, in its sole discretion, shall have the exclusive right to copyright any product, concept, or material developed, prepared, assembled, or conceived by the CONTRACTOR pursuant to this Contract.
27. Liens and Warranties. Goods provided under this Contract shall be provided free of all liens and provided together with all applicable warranties, or with the warranties described in the Contract documents, whichever are greater.

28. Audit of Books and Records of the CONTRACTOR. The STATE may, at reasonable times and places, audit the books and records of the CONTRACTOR, prospective contractor, subcontractor, or prospective subcontractor which are related to:
- a. The cost or pricing data, and
 - b. A state contract, including subcontracts, other than a firm fixed-price contract.
29. Cost or Pricing Data. Cost or pricing data must be submitted to the Agency procurement officer and timely certified as accurate for contracts over \$100,000 unless the contract is for a multiple-term or as otherwise specified by the Agency procurement officer. Unless otherwise required by the Agency procurement officer, cost or pricing data submission is not required for contracts awarded pursuant to competitive sealed bid procedures.
- If certified cost or pricing data are subsequently found to have been inaccurate, incomplete, or noncurrent as of the date stated in the certificate, the STATE is entitled to an adjustment of the contract price, including profit or fee, to exclude any significant sum by which the price, including profit or fee, was increased because of the defective data. It is presumed that overstated cost or pricing data increased the contract price in the amount of the defect plus related overhead and profit or fee. Therefore, unless there is a clear indication that the defective data was not used or relied upon, the price will be reduced in such amount.
30. Audit of Cost or Pricing Data. When cost or pricing principles are applicable, the STATE may require an audit of cost or pricing data.
31. Records Retention.
- (1) Upon any termination of this Contract or as otherwise required by applicable law, CONTRACTOR shall, pursuant to chapter 487R, HRS, destroy all copies (paper or electronic form) of personal information received from the STATE.
 - (2) The CONTRACTOR and any subcontractors shall maintain the files, books, and records that relate to the Contract, including any personal information created or received by the CONTRACTOR on behalf of the STATE, and any cost or pricing data, for at least three (3) years after the date of final payment under the Contract. The personal information shall continue to be confidential and shall only be disclosed as permitted or required by law. After the three (3) year, or longer retention period as required by law has ended, the files, books, and records that contain personal information shall be destroyed pursuant to chapter 487R, HRS or returned to the STATE at the request of the STATE.
32. Antitrust Claims. The STATE and the CONTRACTOR recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the purchaser. Therefore, the CONTRACTOR hereby assigns to STATE any and all claims for overcharges as to goods and materials purchased in connection with this Contract, except as to overcharges which result from violations commencing after the price is established under this Contract and which are not passed on to the STATE under an escalation clause.
33. Patented Articles. The CONTRACTOR shall defend, indemnify, and hold harmless the STATE, and its officers, employees, and agents from and against all liability, loss, damage, cost, and expense, including all attorneys fees, and all claims, suits, and demands arising out of or resulting from any claims, demands, or actions by the patent holder for infringement or other improper or unauthorized use of any patented article, patented process, or patented appliance in connection with this Contract. The CONTRACTOR shall be solely responsible for correcting or curing to the satisfaction of the STATE any such infringement or improper or unauthorized use, including, without limitation: (a) furnishing at no cost to the STATE a substitute article, process, or appliance acceptable to the STATE, (b) paying royalties or other required payments to the patent holder, (c) obtaining proper authorizations or releases from the patent holder, and (d) furnishing such security to or making such arrangements with the patent holder as may be necessary to correct or cure any such infringement or improper or unauthorized use.

34. Governing Law. The validity of this Contract and any of its terms or provisions, as well as the rights and duties of the parties to this Contract, shall be governed by the laws of the State of Hawaii. Any action at law or in equity to enforce or interpret the provisions of this Contract shall be brought in a state court of competent jurisdiction in Honolulu, Hawaii.
35. Compliance with Laws. The CONTRACTOR shall comply with all federal, state, and county laws, ordinances, codes, rules, and regulations, as the same may be amended from time to time, that in any way affect the CONTRACTOR'S performance of this Contract.
36. Conflict Between General Conditions and Procurement Rules. In the event of a conflict between the General Conditions and the procurement rules, the procurement rules in effect on the date this Contract became effective shall control and are hereby incorporated by reference.
37. Entire Contract. This Contract sets forth all of the agreements, conditions, understandings, promises, warranties, and representations between the STATE and the CONTRACTOR relative to this Contract. This Contract supersedes all prior agreements, conditions, understandings, promises, warranties, and representations, which shall have no further force or effect. There are no agreements, conditions, understandings, promises, warranties, or representations, oral or written, express or implied, between the STATE and the CONTRACTOR other than as set forth or as referred to herein.
38. Severability. In the event that any provision of this Contract is declared invalid or unenforceable by a court, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining terms of this Contract.
39. Waiver. The failure of the STATE to insist upon the strict compliance with any term, provision, or condition of this Contract shall not constitute or be deemed to constitute a waiver or relinquishment of the STATE'S right to enforce the same in accordance with this Contract. The fact that the STATE specifically refers to one provision of the procurement rules or one section of the Hawaii Revised Statutes, and does not include other provisions or statutory sections in this Contract shall not constitute a waiver or relinquishment of the STATE'S rights or the CONTRACTOR'S obligations under the procurement rules or statutes.
40. Pollution Control. If during the performance of this Contract, the CONTRACTOR encounters a "release" or a "threatened release" of a reportable quantity of a "hazardous substance," "pollutant," or "contaminant" as those terms are defined in section 128D-1, HRS, the CONTRACTOR shall immediately notify the STATE and all other appropriate state, county, or federal agencies as required by law. The Contractor shall take all necessary actions, including stopping work, to avoid causing, contributing to, or making worse a release of a hazardous substance, pollutant, or contaminant, and shall promptly obey any orders the Environmental Protection Agency or the state Department of Health issues in response to the release. In the event there is an ensuing cease-work period, and the STATE determines that this Contract requires an adjustment of the time for performance, the Contract shall be modified in writing accordingly.
41. Campaign Contributions. The CONTRACTOR is hereby notified of the applicability of 11-355, HRS, which states that campaign contributions are prohibited from specified state or county government contractors during the terms of their contracts if the contractors are paid with funds appropriated by a legislative body.
42. Confidentiality of Personal Information.
- a. Definitions.
- "Personal information" means an individual's first name or first initial and last name in combination with any one or more of the following data elements, when either name or data elements are not encrypted:
- (1) Social security number;
 - (2) Driver's license number or Hawaii identification card number; or

- (3) Account number, credit or debit card number, access code, or password that would permit access to an individual's financial information.

Personal information does not include publicly available information that is lawfully made available to the general public from federal, state, or local government records.

"Technological safeguards" means the technology and the policy and procedures for use of the technology to protect and control access to personal information.

b. Confidentiality of Material.

- (1) All material given to or made available to the CONTRACTOR by the STATE by virtue of this Contract which is identified as personal information, shall be safeguarded by the CONTRACTOR and shall not be disclosed without the prior written approval of the STATE.
- (2) CONTRACTOR agrees not to retain, use, or disclose personal information for any purpose other than as permitted or required by this Contract.
- (3) CONTRACTOR agrees to implement appropriate "technological safeguards" that are acceptable to the STATE to reduce the risk of unauthorized access to personal information.
- (4) CONTRACTOR shall report to the STATE in a prompt and complete manner any security breaches involving personal information.
- (5) CONTRACTOR agrees to mitigate, to the extent practicable, any harmful effect that is known to CONTRACTOR because of a use or disclosure of personal information by CONTRACTOR in violation of the requirements of this paragraph.
- (6) CONTRACTOR shall complete and retain a log of all disclosures made of personal information received from the STATE, or personal information created or received by CONTRACTOR on behalf of the STATE.

c. Security Awareness Training and Confidentiality Agreements.

- (1) CONTRACTOR certifies that all of its employees who will have access to the personal information have completed training on security awareness topics relating to protecting personal information.
- (2) CONTRACTOR certifies that confidentiality agreements have been signed by all of its employees who will have access to the personal information acknowledging that:
 - (A) The personal information collected, used, or maintained by the CONTRACTOR will be treated as confidential;
 - (B) Access to the personal information will be allowed only as necessary to perform the Contract; and
 - (C) Use of the personal information will be restricted to uses consistent with the services subject to this Contract.

d. Termination for Cause. In addition to any other remedies provided for by this Contract, if the STATE learns of a material breach by CONTRACTOR of this paragraph by CONTRACTOR, the STATE may at its sole discretion:

- (1) Provide an opportunity for the CONTRACTOR to cure the breach or end the violation; or
- (2) Immediately terminate this Contract.

In either instance, the CONTRACTOR and the STATE shall follow chapter 487N, HRS, with respect to notification of a security breach of personal information.

e. Records Retention.

- (1) Upon any termination of this Contract or as otherwise required by applicable law, CONTRACTOR shall, pursuant to chapter 487R, HRS, destroy all copies (paper or electronic form) of personal information received from the STATE.
- (2) The CONTRACTOR and any subcontractors shall maintain the files, books, and records that relate to the Contract, including any personal information created or received by the CONTRACTOR on behalf of the STATE, and any cost or pricing data, for at least three (3) years after the date of final payment under the Contract. The personal information shall continue to be confidential and shall only be disclosed as permitted or required by law. After the three (3) year, or longer retention period as required by law has ended, the files, books, and records that contain personal information shall be destroyed pursuant to chapter 487R, HRS or returned to the STATE at the request of the STATE.

TECHNICAL SPECIFICATIONS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 11 10 - SUMMARY OF WORK

PART I - GENERAL

1.01 GENERAL REQUIREMENTS AND COVENANTS

The INSTRUCTIONS TO BIDDERS, GENERAL PROVISIONS, General Specifications, SPECIAL PROVISIONS, and other applicable documents preceding these Specifications shall govern all work specified hereinafter in all Divisions and Sections.

1.02 APPLICABLE REGULATIONS

The Contractor shall comply with all local laws, ordinances, rules and regulations pertaining to such work and must obtain all required permits, licenses, and certificates and publish and post all notices required thereby.

1.03 TERMS AND ACRONYMS USED THROUGHOUT THE SOLICITATION

FTZ	=	Foreign-Trade Zone No. 9, a Division of DBEDT, and the entity from which this solicitation is issued. Located at 521 Ala Moana Boulevard, Suite 101, Honolulu, HI 96813
Contact Person	=	FTZ Operations Supervisor, as identified in this Invitation for Bid
Contractor	=	The Bidder awarded a contract under this Invitation for Bid
CPO	=	Chief Procurement Officer
State	=	State of Hawaii, including each department and political subdivision
DBEDT	=	Department of Business, Economic Development, and Tourism
Procurement Officer	=	The Director of DBEDT
HAR	=	Hawaii Administrative Rules
HRS	=	Hawaii Revised Statutes
IFB	=	Invitation for Bid
GC	=	General Conditions, AG-008
GET	=	General Excise Tax
Bidder	=	Any individual, partnership, firm, corporation, joint venture, or representative or agent, submitting an offer in response to this solicitation.

1.04 SUMMARY

The CONTRACTOR shall furnish all labor, tools, equipment, materials, supplies, supervision, and all other items to satisfactory replacement of the existing chillers

chillers (3 each) with new high efficiency air cooled chillers (2 each). The Construction work includes but not limited to the followings:

1. Replace the existing chillers (three chillers will be removed and two .
2. Replace connected piping as required to accommodate the new chiller equipment.
3. Replace the existing chilled water pumps
4. Provide two new chemical pot feeders and two new expansion tanks.
5. Provide Direct Digital Controls (DDC) to operate the plant that is expandable for future expansion into the building.
6. Phase the work to minimize air conditioning outages to the building.
7. Modify equipment pad and fence for the new chiller equipment and piping layout.
8. Replace the power connections to the equipment and provide new disconnects and feeders as required.

1.05 WORK COVERED BY CONTRACT DOCUMENTS

- A. Perform operations and furnish equipment, tools, materials, related items and labor necessary to execute, complete and deliver the Work as required by the Contract Documents.
- B. These Specifications are divided for convenience into titled divisions and Sections as set forth in the TABLE OF CONTENTS preceding these Specifications and shall not be considered an accurate or complete segregation of the several units of labor and materials. No responsibility, either direct or implied is assumed by the Foreign Trade Zone (FTZ) for omissions or duplications of the subject matter. The Contractor will be held responsible for the complete work whenever or wherever the parts are described in one or more trades groups. Any mention in these sections or indication on the Drawings or articles, materials, operations, or methods, require that the Contractor furnish each item so mentioned or indicated, of the kind, type, or design and quality of each item so mentioned on the Drawings, and that the Contractor furnish all labor, materials, equipment, incidentals and supervision necessary to complete the work in accordance with the Drawings and the true meaning and intent of these Specifications, even though such mention or articles, materials, operations, methods, quality, qualifications or condition is not expressed in complete sentences
- C. The Contractor shall not alter from the Drawings and Specifications. In the event of errors or discrepancies, the Contractor shall immediately notify the Construction Manager. All figured dimensions take precedence over scaled measurements. No important dimension shall be determined by scale.

- D. The CONTRACTOR shall provide, in a satisfactory and proper manner, as determined by the STATE, construction support for the replacement of three (3) air cooled chillers, including chilled water pumps, related piping and appurtenances, serving the makai office wing at the Foreign-Trade Zone Pier 2, Honolulu facility located at 521 Ala Moana Blvd., Honolulu, Hawaii.

1.06 SPECIFICATION FORMATS AND CONVENTIONS

- A. General: These Specifications are intended to cover all labor, materials and standard of workmanship employed in the work indicated on the plans and called for in the Specifications or reasonably implied therein. The plans and Specifications complement one another. Any part of the work mentioned in one and not represented in the other, shall be done the same as if it had been mentioned or represented in both.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
9. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated and include incomplete sentences. Omission of words or phrases such as “the Contractor shall”, “as shown on the Drawings”, “a”, “an”, and “the” are intentional. Omitted words and phrases shall be provided by inference to form complete sentences. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates. Where devices, or items, or parts thereof are referred to in the singular, it is intended that such reference shall apply to as many such devices, items or parts as are required to properly complete the Work.
10. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
- a. The words “shall”, “shall be”, or “shall comply with”, depending on the context, are implied where a colon (:) is used within a sentence or phrase.
11. Abbreviations and Acronyms for Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Document, they shall mean the recognized name of the entities indicated in Gale Research’s “Encyclopedia of Associations” or in Columbia Books’ “National Trade & Professional Associations of the U.S.”.

C. Terms:

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

D. Industry Standards:

1. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
2. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
3. Conflicting Requirements: If compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Construction Manager for a decision before proceeding.

1.07 CONTRACT

Refer to GENERAL PROVISIONS and SPECIAL PROVISIONS for other contract conditions.

1.08 USE OF PREMISES AND WORK RESTRICTIONS

- A. General: Contractor shall have full use of the construction zone for construction operations, including use of the project site during the construction period. The Contractor's use of the premises is limited only by FTZ's right to perform work or to retain other Contractors on portions of the project site.
- B. Contractor's use of premises is restricted as follows:
 - 1. Construction Times and Schedule:
 - a. Construction Times: Night, weekend and overtime work is allowed when approved by the Construction Manager unless restricted elsewhere.
 - b. Schedule: No on-site work shall be performed during holidays unless approved by the Construction Manager.
 - 2. Site Access and Parking:
 - a. Access: Access to the Project shall be through existing driveway aprons, chain link gate openings, or as directed by the Construction Manager.
 - b. Parking: Parking for the Contractor's employees (or Subcontractors) shall be offsite.
 - 3. Noise and Dust Control:
 - a. Contractor shall address dust control in accordance SECTION 01 35 43 - ENVIRONMENTAL PROCEDURES.
 - b. Noise Control
 - 1) Keep noise within acceptable levels at all times in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 46 - Community Noise Control. Obtain and pay for the Community Noise Permit when construction equipment or other devices emit noise at levels exceeding the allowable limits.
 - 2) Ensure mufflers and other devices are provided on equipment, internal combustion engines and compressors to reduce loud disruptive noise levels and maintain equipment to reduce noise to acceptable levels.
 - 3) The Contractor is forewarned that failure to employ best management noise limiting practices could lead to complaints from the public and/or penalties by the State of Hawaii Department of Health as provided in Section 342F-1 1, HRS, and Section 11-46-1 8, HAR Title 11 Chapter 46. The Contractor is responsible for all monetary fines or corrective

action required as a result of complaints from the public and/or penalties from FTZ, State or Federal agencies at no additional cost to FTZ.

- 4) The Contractor is forewarned that failure to employ best management noise limiting practices could lead to complaints from the public. The State of Hawaii Department of Health is empowered to reduce the allowable hours of work or to revoke the noise variance in its entirety on the basis of public complaints, even if the Contractor is monitored to be within the preceding numerical noise limits. The Contractor shall not be given a time extension or compensated for additional costs or damages due to a reduction of work hours or revocation of the variance
 - 5) Construction activities shall not emit noise in excess of the maximum permissible sound levels for the hours before 7:00 am. and after 6:00 p.m. of the same day, Monday through Friday.
 - 6) The Construction Manager will notify the Contractor of any non-compliance with the foregoing provisions and the action to be taken. If the Contractor fails or refuses to comply promptly, the Construction Manager may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No extension of time or payment for excess costs or damages shall be made for the time lost due to such stop action.
 - 7) Compliance with the provisions of this Section by the subcontractors will be the responsibility of the Contractor.
 - 8) Blasting and use of explosives will not be permitted.
4. Other Conditions:
- a. Arrange for construction debris and trash to be removed from the Project site weekly.
 - b. Contractor shall at all times conduct his operations to ensure the least inconvenience to the public. Operate machinery and equipment with discretion and with minimum interference to driveways and walkways. Do not leave machinery and equipment unattended on roads and driveways.
 - c. Store materials in the areas as designated by the Construction Manager. Locate construction equipment, machinery, equipment and supplies within Project Contract Limits.
 - d. Keep access roads to the project site free of dirt and debris. Provide, erect and maintain lights, barriers, signs, etc. when working on driveways and walkways to protect pedestrians and moped/bicycle riders. Obey facility traffic and safety regulations.

- e. Contractor shall comply with all legal load restrictions in the hauling of materials.

1.09 FIELD VERIFICATION

Field verify all existing structures and pavements, new and existing utilities, survey benchmarks/controls and dimensions affecting the work of this Contract before ordering products and materials.

PART 2 - PRODUCTS

2.01 ASBESTOS PROHIBITION

No asbestos containing materials and equipment shall be used on this project. The Contractor shall ensure that all materials and equipment incorporated in the project are asbestos-free.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART I - GENERAL

1.01 SUMMARY

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

1.02 PERFORMANCE AND COORDINATION

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

4. Provide concrete foundations, pads, supports, bases, and grouting for trades as needed to install their work.
5. Equipment, appliances, fixtures, and systems requiring plumbing and mechanical services, rough-in, and connections, or other utilities and services shall be provided with such services, rough-in, and final connections.
6. Equipment, appliances, fixtures, hardware, and systems requiring electrical services shall be provided with such electrical services, including outlets, switches, overload protection, interlocks, panelboard space, disconnects, circuit breakers, and connections.
7. Materials, equipment, component parts, accessories, incidental items, connections, and services required to complete the Work which are not provided by Subcontractors shall be provided by the Contractor.
8. Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1.03 COOPERATION WITH OTHER CONTRACTORS

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

1.04 SUBMITTALS

Submittals shall be provided in accordance with SECTION 01 33 00 - SUBMITTAL PROVISIONS.

Photo Documentation: Prior to the start of jobsite work, the Contractor shall photo document the existing conditions at the site and file with the Construction Manager one complete set of documents.

1.05 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences as directed by the Construction Manager at the project site unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Construction Manager of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: The Contractor shall record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including the Construction Manager, within seven (7) days of the meeting.
- B. Preconstruction Conference: The Construction Manager shall schedule a preconstruction conference before the start of construction, at a time convenient to the Construction Manager, but no later than 7 days before the Project start date or jobsite start date whichever is later. Conference will be held at the Project site or another convenient location. The Construction Manager shall conduct the meeting to review responsibilities and personnel assignments.
1. Attendees: The Construction Manager, and design consultants; Facility Users; Contractor and its superintendent; major Subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Hazards and risks.
 - b. Tentative construction schedule.
 - c. Critical work sequencing and coordination.
 - d. Designation of responsible personnel.
 - e. Submittal procedures.
 - f. Work scope.
 - g. Use of the premises.
 - h. Parking availability.
 - i. Office, work, and storage areas.
 - j. Equipment deliveries and priorities.
 - k. First aid.
 - l. Security.
 - m. Progress cleaning.
 - n. Working hours.
- C. Progress Meetings: Conduct progress meetings at weekly or other intervals as determined by the Construction Manager. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to the Construction Manager, each Contractor, Subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Outstanding Requests for Information (clarification).
 - 2) Interface requirements.
 - 3) Sequence of operations.
 - 4) Status of outstanding submittals.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site utilization.
 - 9) Temporary facilities and controls.
 - 10) Work hours.
 - 11) Hazards and risks.
 - 12) Progress cleaning.
 - 13) Quality and work standards.
 - 14) Force Account work.
 - 15) Change Orders and Change Proposals.

16) Documentation of information for payment requests.

3. Corrective Action Plan: Contractor shall provide a plan of corrective action for any item which is delayed or expected to be delayed, then that item impacts the contractual dates.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART I - GENERAL

1.01 SUMMARY

- A. General Requirements: This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Contractor's Construction Schedule.
 2. Submittals Schedule.
 3. Schedule of Prices.
 4. Payment Application.
- B. Related Sections:
1. SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION for preparing a combined Contractor's Construction Schedule.
 2. SECTION 01 33 00 - SUBMITTAL PROCEDURES for submitting schedules and reports.

1.02 DEFINITIONS

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

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

1.03 SUBMITTALS

- A. Required Submittals: Submit set(s) of the list of the required submittals, by Specification Section, within 15 days after award of the Contract or upon earlier written instructions from the Construction Manager. A general listing is provided under SECTION 01 33 00 SUBMITTAL PROCEDURES. All submittals shall be provided in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.
1. The listing shall indicate and include the following:
 - a. The number of copies required for submittal.
 - b. Planned submittal date.
 - c. Approval date required by the Contractor.
 - d. A space where the "date of submittal" can be inserted.
 - e. A space where the "date of approval" can be inserted.
 - f. A space where an "action code" can be inserted.
- B. Construction Schedule: Submit 7 sets of the Construction Schedule for review within 15 days after the award of the Contract or upon earlier written instructions from the Construction Manager.
- C. Schedule of Prices: Submit 3 sets of the Schedule of Prices integrated with the Construction Schedule for review within 15 days after the award of the Contract or upon earlier written instructions from the Construction Manager.
1. Use the FTZ-approved forms for Payment Applications.
- D. Payment Application: Submit the payment application at earliest possible date and no sooner than the last day of the month after all payroll affidavits, updated submittal registers, and schedules have been submitted.

1.04 COORDINATION

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

PART 2 - PRODUCTS

2.01 SUBMITTALS SCHEDULE

- A. Comply with the GENERAL PROVISIONS "Shop Drawings and Other Submittals" section. Furnish required submittals specified in this Section and in the Technical Sections. Submittals include one or more of the following: shop drawings, color samples, material samples, technical data, material safety data information, schedules of materials, schedules of operations, guarantees, certifications, operating and maintenance manuals, and field posted as-built drawings.
- B. Furnish a schedule of submittals per Construction Manager.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Prices, and Contractor's Construction Schedule.
 - 2. The schedule shall accommodate a minimum of twenty-one (21) calendar days for the FTZ's review, as applicable for the island the project is located.
 - 3. Prepare and submit an updated list to the Construction Manager at monthly intervals or as directed by the Construction Manager. The listing shall reflect all approvals received since the last update.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE - GANTT CHART METHOD

- A. The construction schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. The progress chart shall indicate the order in which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment).
- B. Upon completion of the Construction Manager's review, the Contractor shall amend the schedule as necessary to reflect the comments. If necessary, the Contractor shall participate in a meeting with the Construction Manager to discuss the proposed schedule and changes required. Submit the revised schedule for review within seven (7) calendar days after receipt of the comments.
- C. Use the reviewed schedule for planning, organizing and directing the work, for reporting progress, and for requesting payment for the work completed. Unless providing an update, do not make changes to the reviewed schedule without the Construction Manager's approval.
- D. If, in the opinion of the Construction Manager, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve progress, including those that may be required by the Construction Manager. The Construction Manager may require the Contractor to increase the number of shifts, overtime operations, days of work, or amount of construction plant, and to submit for approval any supplemental schedule or schedules in chart form as the Construction Manager deems necessary to demonstrate how the approved rate of progress will be regained.
- E. Update the construction schedule at monthly intervals or when directed by the Construction Manager to revise the schedule. Reflect any changes occurring since the last update with each invoice for progress payment. Submit copies of the purchase orders and confirmation of the delivery dates as directed. The Construction Manager's review of the updated schedule is to check that the updated schedule does not alter the construction performance period unless the period was revised through a change order or contract modification.
- F. At the Contractor's option a PERT chart may be used.

2.03 SCHEDULE OF PRICES

- A. Furnish a schedule of prices per Construction Manager.
- B. Provide a breakdown of the Contract Sum in enough detail to facilitate developing and the continued evaluation of Payment Applications. Provide several line items for principal subcontract amounts, or for materials or equipment purchased or fabricated and stored, but not yet installed, where appropriate. Round amounts to nearest whole dollar; total shall equal the Contract Price.

- C. Each item in the Schedule of Prices and Payment Application shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

2.04 PAYMENT APPLICATION

- A. Use the Schedule of Prices as the Monthly Construction Progress Report. Each Payment Application shall be consistent with previous applications and payments. The Construction Manager shall determine the appropriateness of each payment application item.
- B. The date for each progress payment is the last day of each month. The period covered by each Payment Application starts on the first day of the month or following the end of the preceding period and ends on the last day of the month.
- C. Update the schedule of prices listed in the Payment application when Change Orders or Contract Modifications result in a change in the Contract Price.
- D. Provide a separate line item for each part of the Work where Payment Application may include materials or equipment purchased or fabricated and stored, but not yet installed.
- E. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
- F. Provide separate line items for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
- G. Use and submit copies of the Payment Application and Construction Progress forms used by DAGS. Forms are to be approved by the FTZ. Furnish one (1) original and four (4) copies.
- H. Complete every entry on form. Execute by a person authorized to sign legal documents on behalf of the Contractor.
 - 1. Entries shall match data on the Schedule of Prices and Contractor's Construction Schedule. Use updated schedules if revisions were made. Include amounts of Change Orders and Contract Modifications issued before last day of construction period covered by application.
- I. No payment will be made until the following are submitted each month:
 - 1. Monthly Estimate, 5 copies.
 - 2. Monthly Progress Report, 5 copies.
 - 3. Statement of Contract Time, 5 copies.
 - 4. Updated Submittal Register, 1 copy.
 - 5. Updated Progress Schedule, 1 copy.

- 6. All Daily Reports, 1 copy.
- 7. All Payroll Affidavits for work done, 1 copy.
- J. The FTZ will withhold 5% retainage in compliance with the GENERAL PROVISIONS Section 8.6.
- K. Submit the signed original and 6 copies of each Payment Application for processing.

2.05 CONTRACTOR DAILY PROGRESS REPORTS

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

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. General: Comply with the GENERAL PROVISIONS "Shop Drawings and Other Submittals" section and "Material Samples" section.
- B. Requirements: This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- C. Related Sections:
 - 1. SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 2. SECTION 01 77 00 - CLOSEOUT PROCEDURES for submitting warranties, project record documents and operation and maintenance manuals.

1.02 SUBMITTAL PROCEDURES

- A. Coordinate Work and Submittals: The Contractor is responsible for the coordination of all contractual work and submittals and shall certify the submittals were reviewed and coordinated.
- B. Submittal Certification: Provide in MS Word when submitting electronically. Construction Manager will provide an electronic copy of the Submittal Certification. Provide a reproduction (or stamp) of the "Submittal Certification" and furnish the required information with all submittals. Include the certification on:
 - 1. The title sheet of each shop drawing, or on
 - 2. The cover sheet of submittals in 8-1/2 inch x 11-inch format, or on
 - 3. One face of a cardstock tag (minimum size 3-inch x 6-inch) tied to each sample. On the sample tag, identify the sample to ensure sample can be matched to the tag if accidentally separated. The opposite face of the tag will be used by the Construction Manager to receive, review, log stamp and include comments.
- D. Ordering of Materials and Equipment: All submittals for material, equipment, and shop drawings listed in the Contract Documents, including dimensioned plumbing shop drawings, shall be required and shall be reviewed by the Construction Manager prior to any ordering of materials and equipment.
- E. Variances: The Contractor shall request approval for a variance. Clearly note any proposed deviations or variances from the Specifications, Drawings, and other

Contract Documents on the submittal and also in a separately written letter accompanying the submittal.

F. Submittal Certification Form (stamp or digital):

CONTRACTOR'S NAME: _____

PROJECT: _____

FTZ JOB NO.: _____

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

SUBMITTAL NUMBER _____ DATE RECEIVED _____

REVISION NUMBER _____ DATE RECEIVED _____

SPECIFICATION SECTION NUMBER /PARAGRAPH NUMBER _____

DRAWING NUMBER _____

SUBCONTRACTOR'S NAME _____

SUPPLIER'S NAME _____

MANUFACTURER'S NAME _____

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

CERTIFIED BY

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SUBMITTAL REGISTER AND TRANSMITTAL FORM

- A. Contractor shall use submittal register and transmittal forms as directed by the Construction Manager.
- B. The listing of required submittals within this Section is provided for the Contractor's convenience. Review of the specification technical sections and prepare a comprehensive listing of required submittals to the Construction Manager for review.

- C. The Contractor shall separate each submittal item by listing all submittals in the following groups with the items in each group sequentially listed by the specification section they come from:
1. Administrative
 2. Data
 3. Tests
 4. Closing
- D. The Contractor shall separate all different types of data as separate line items all with the column requirements.
- E. Contractor shall send monthly updates and reconciled copies electronically to the Construction Manager and the Design Consultant in MS Word or MS Excel or other format as accepted by the Construction Manager.

Section No. - Title (List in numerical order of the Spec Section No.)	Shop Drawings & Diagrams	Samples	Certificates (Material, Treatment, Applicator, etc)	Guaranty / Warranty	Mfr. Guaranty / Warranty (>1 yr)	Product Data, Mfr. Technical Literature and Brochures	MSDS Sheets	Calculations	Reports (Testing, Maintenance, Inspection, etc.)	Test Plan	O & M Manual	Equipment / Fixture Listing	Schedules (Project / Installation)	Maint. Service Contract	Field Posted As-Built Dwgs.	Others
23 00 00 - General Mechanical Requirements	•															
23 05 93 - Testing, Adjusting, and Balancing																
23 08 00 Mechanical HVAC Commissioning																
23 09 23 - Direct Digital Control System																
23 30 00 Air Conditioning and Ventilation																
23 73 00 - Maintenance Service for Air Handling and Ventilation System																
26 20 00 Electrical Work																

END OF SECTION

SECTION 01 45 00 - QUALITY CONTROL

PART 1 - GENERAL

1.01 DEFINITION

Specific quality control requirements for the work are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the work beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.02 INSPECTION AT PLACE OF MANUFACTURE

- A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the Construction Manager at the place of manufacture.
- B. The presence of the Construction Manager at the place of manufacture, however, shall not relieve the Contractor of the responsibility for furnishing products, materials, and equipment that comply with all requirements of the Contract Documents. Compliance is the duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the Construction Manager.

1.03 SAMPLING AND TESTING

- A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards as applicable to the class and nature of the article or material considered.
- B. The Construction Manager reserves the right to make independent investigations and tests, and failure of any portion of the work to meet any of the requirements of the Contract Documents, shall be reasonable cause for the Construction Manager to require the removal or correction and reconstruction of any such work in accordance with the General Provisions.

1.04 INSPECTION AND TESTING LABORATORY SERVICE

- A. Inspection and testing laboratory service shall comply with the following:
 - 1. The contractor shall appoint, employ, and pay for services of an independent firm to perform inspection and testing or services.
 - 2. The Construction Manager will perform inspections as specified in individual Specification Sections.
 - 3. Reports will be submitted by the independent firm to the Construction Manager in duplicate, indicating observations and results of tests and indicating compliance or noncompliance with Contract Documents.

4. The Contractor shall cooperate with the Construction Manager and independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
5. The Contractor shall notify Construction Manager 24 hours prior to the expected time for operations requiring inspection and laboratory testing services.
6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Construction Manager. The Contractor shall bear all costs from such retesting at no additional cost to FTZ.
7. For samples and tests required for Contractor's use, the Contractor shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the Contractor's use shall be included in the Contract Price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Inspection: The Contractor shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.
- B. Measurements: The Contractor shall verify measurements and dimensions of the work, as an integral step of starting each installation.
- C. Manufacturer's Instructions: Where installations include manufactured products, the Contractor shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in the Contract Documents.

END OF SECTION

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.01 SUMMARY

- A. General: This Section includes general procedural requirements governing execution of the Work including the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

- B. Related Sections:

1. SECTION 01 77 00 - CLOSEOUT PROCEDURES.

1.02 SUBMITTALS

- A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- B. O & M Manuals: Submit for review preliminary O & M Manual(s) at 50% project completion.

1.03 NOTIFICATION

Contact the Construction Manager at least 3 working days prior to starting any onsite work.

1.04 PROJECT AND SITE CONDITIONS

- A. Contract Zone Limits: Project Contract Limits (Contract Zone Limits) indicate only in general the limits of the work involved. Perform necessary and incidental work, which may fall outside of these demarcation lines. Confine construction activities within the Project Contract Limits and do not spread equipment and materials indiscriminately about the area.
- B. Contractor's Operations: Provide means and methods to execute the Work and minimize interruption or interference to the facility's operations. Rearrange the

construction schedule when construction activities result in interruptions that hamper the operations of the facilities.

- C. Access: Maintain safe passageway to and from the facility's occupied buildings, rooms, and other occupied spaces for the use of FTZ personnel, residents, and the public at all times.
- D. Parking: Contractor, Subcontractor(s) and their employees will not be allowed to park in the facilities parking lots for residents, guests, or facility personnel. Subject to availability, the Construction Manager may designate areas outside of the Contract Zone Limits to be used by the Contractor. Restore any area damaged by construction activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 EXAMINING THE SITE

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

3.02 FIELD MEASUREMENTS

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

3.03 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the existing conditions. If discrepancies are discovered, notify the Construction Manager promptly.
- B. General: Lay out the Work using accepted construction and surveying practices.
 - 1. Establish benchmarks, control points, lines and levels as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify the Construction Manager when deviations from required lines and levels exceed allowable tolerances.
- C. Site Improvements: Locate and lay out site improvements, including walls pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

3.04 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent or temporary benchmarks, control points and similar reference points before beginning the Work. Preserve and protect permanent control points during construction operations.
 - 1. Do not change or relocate existing control points without the Construction Manager's approval. Report lost or destroyed permanent control points promptly. Report the need to relocate permanent control points to the Construction Manager before proceeding.

2. Replace lost or destroyed permanent control points promptly. Base all replacements on the original survey control points.

3.05 INSTALLATION

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

3.06 CUTTING AND PATCHING

- A. Oversee cutting and patching of concrete, masonry and other materials where indicated on Drawings and as required by job conditions.
- B. Provide patch materials and workmanship of equal quality to that indicated on the Drawings or specified for new work.

3.07 CLEANING

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

not recommended, use only cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

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

3.08 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.09 PROTECTION OF INSTALLED CONSTRUCTION

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

3.10 CORRECTION OF THE WORK

- A. Repair or replace defective construction. Restore damaged substrates and finishes. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- C. Repair defective components that do not operate properly. Remove and replace operating components that cannot be repaired.

END OF SECTION

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART I - GENERAL

1.01 SUMMARY

- A. General: This Section includes administrative and procedural requirements for contract closeout, including the following:

1. Project Record Documents.
2. Warranties.
3. Instruction for the FTZ's personnel.

- B. Related Sections:

1. SECTION 01 73 00— EXECUTION.

1.02 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting a Final Inspection to determine Substantial Completion, complete the following items in addition to requirements of GENERAL PROVISIONS, Article 7, "Prosecution and Progress".

1. Advise the Construction Manager of pending insurance changeover requirements.
2. Submit specific warranties, final certifications, and similar documents.
3. Arrange to deliver tools, spare parts, extra materials, and similar items to a location designated by the Construction Manager. Label with manufacturer's name and model number where applicable.
4. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
5. Advise the Construction Manager of changeover in other utilities.
6. Submit changeover information related to the FTZ's occupancy, use, operation, and maintenance.
7. Complete final cleaning requirements, including touch up painting.
8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects. Repair, patch or replace new or existing work including pavement, sidewalks, curbs, gutters, catch basins, gratings, manholes, covers, landscaping, plant materials and other items that have been damaged, broken, cracked or chipped as a result of performing this Work.

1.03 FINAL COMPLETION

- A. Preliminary Procedures: Within ten (10) calendar days from the Project Acceptance Date, complete the following items in addition to requirements of the GENERAL PROVISIONS, Article 7, "Prosecution and Progress":
1. Instruct the FTZ's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training media materials.

1.04 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit 2 copies of the initial and any updated and action taken list. In addition to requirements of the GENERAL PROVISIONS, Article 7, "Prosecution and Progress", include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, proceeding from lowest lot number to highest lot number.
 2. Organize items applying to each space by major element, including categories for pavements, fences, utilities, and equipment.
 3. Include the following information at the top of each page:
 - a. Project Name and Title.
 - b. FTZ Job No.
 - c. Date and page number.
 - d. Name of Contractor.

1.05 PROJECT RECORD DOCUMENTS AND REQUIREMENTS

- A. General:
1. Definition: "Project Record Documents", including Record Drawings, shall fulfill the requirements of "Field-Posted As-Built Drawings" listed in the GENERAL PROVISIONS.
 2. Do not use Project Record Documents for daily construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Construction Manager's reference during normal working hours. Maintain these documents as specified in paragraph entitled "Record Drawings" hereinafter.
 3. The Designer, under contract with FTZ, will update the Drawings to show all addendum, PCD, and sketch changes. The Construction Manager will

transmit these Drawings (mylar or vellum) to the Contractor who will make all "red-line" corrections to these Drawings to record the changes depicted on the Contractor's Field Posted Record ("As-Built") by accepted drafting practices as approved by the Construction Manager.

4. Where the recorded changes depicted on the Contractor's Field Posted Record ("As-Built") Drawings are in the form of shop drawings, the Contractor shall provide those shop drawings on mylar or vellum sheets in the same material and size as the Drawings transmitted to the Contractor. The new drawing sheets shall be titled and numbered to conform to the construction Drawings and clearly indicate what information they supersede in the actual construction Drawings. For example a new drawing that replaces drawing M-3, could be numbered M3a.
5. The Contractor shall bring to the attention of the Construction Manager any discrepancy between the changes made by the Designer and those depicted on addendum, PCD, and sketch changes. The Construction Manager will resolve any conflicts.
6. Submit final Record Documents (Field Posted Record Drawings) within 10 days after the Final Inspection Date but no later than the Contract Completion Date.
7. The Contractor shall guarantee the accuracy of its final Record Documents. FTZ shall hold the Contractor liable for costs that FTZ incurs as a result of inaccuracies in the Contractor's Record Documents.
8. Prepare and submit construction photographs and electronic files, damage or settlement surveys, property surveys, and similar final record information as required by the Construction Manager.
9. Deliver tools, spare parts, extra materials, and similar items to a location designated by the Construction Manager. Label with manufacturer's name and model number where applicable.

B. Record Drawings:

1. Maintain two (2) full-size sets of Field Posted Record ("As-Built") Drawings at the job site. Clearly and accurately record all deviations from alignments, elevations and dimensions, which are stipulated on the Drawings and for changes directed by the Construction Manager that deviate from the Drawings.
2. Record changes immediately after they are constructed in place and where applicable, refer to the authorizing document (Field Order, Change Order, or Contract Modification). Use red pencil to record changes. Make Field Posted Record Drawings available to the Construction Manager at any time so that its clarity and accuracy can be monitored.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.

- b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark the Contract Drawings or the shop drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where shop drawings are marked, show cross-reference on Contract Drawings.
 - e. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - f. Locate concealed utilities by dimension from bench marks or permanent structures. Locate site utilities by dimensions, azimuth and lengths from benchmarks or permanent structures.
 - g. Note field order numbers, Change Order numbers, Contract Modification numbers, Alternate numbers, post-construction drawing numbers (PCD) and similar identification (RFI numbers) where applicable.
 - h. The Contractor shall initial each deviation and each revision marking.
3. Use the final updated Contract Drawing set plus applicable shop drawings for making the final Field Posted Record Drawings submittal.
 4. Certify drawing accuracy and completeness. Label and sign the record drawings.
 5. Label the title sheet and on all sheets in the margin space to the right of the sheet number, written from the bottom upward, with the title "FIELD POSTED RECORD DRAWINGS" and certification information as shown below. Provide a signature line and company name line for each subcontractor that will also certify the respective drawing. Adjust size to fit margin space.

FIELD POSTED Certified By: _____ Date: _____
 RECORD DRAWINGS [Contractor's Company Name]

6. Revise the Drawing Index and label the set "FIELD POSTED RECORD DRAWINGS". Include the label "A COMPLETE SET CONTAINS [1 SHEETS" in the margin at the bottom right corner of each sheet. Quantify the total number of sheets comprising the set.
7. If the Construction Manager determines a drawing does not accurately record a deviation or omits relevant information, the Designer will correct any FIELD POSTED RECORD DRAWINGS sheet. The Contractor will be charged for the cost to correct the error or omission.
8. Use the final Field Posted Record Drawings sheets to create an electronic version of the set. The set shall be recorded in Adobe Acrobat PDF (Portable

Document Format). Create a single indexed, bookmarked PDF file of the entire set of drawings and record on the CD. Submit one set of the final Field Posted Record Drawings sheets and the complete electronic CD set(s).

1.06 WARRANTIES

- A. Submittal Time: Submit written manufacturer's warranties at request of the Construction Manager for designated portions of the Work where commencement of warranties other than Project Acceptance date is indicated.
- B. Partial Occupancy: Submit properly executed manufacturer's warranties within 45 days of completion of designated portions of the Work that are completed and occupied or used by the FTZ during construction period by separate agreement with Contractor.
- C. Organization: Organize manufacturer's warranty documents into an orderly sequence based on the table of contents of the Specifications.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 inch x 11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer and prime Contractor.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES", Project Name and Title, FTZ Job Number, and name of Contractor.
 - 4. Use the final submittal of the warranties to create an electronic Adobe Acrobat PDF (Portable Document Format) version of the bound warranty document files. Each sheet shall be separately scanned, at 600 DPI or better into a PDF file, indexed and recorded on a recordable compact disc (CD).
- D. Supplementary Warranties: Provide 2 sets of manufacturer's warranties that exceed one year as part of the closing document submittals. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.01 MATERIALS

Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct the FTZ's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually accepted times.
 - 3. Schedule training with the FTZ's users, through the Construction Manager with at least 7 days advanced notice.
 - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
 - 1. System design and operational philosophy.
 - 2. Review of documentation.
 - 3. Operations.
 - 4. Adjustments.
 - 5. Troubleshooting.
 - 6. Maintenance.
 - 7. Repair.

3.02 FINAL CLEANING

- A. General: Provide final cleaning. In addition to requirements of Article 7, GENERAL PROVISIONS, conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal and local environmental and antipollution regulations. Perform cleaning using personnel specializing in and skilled in cleaning and maintenance work. Perform repair work using personnel skilled in executing the type of work being repaired. Perform all work to the highest trade standards applicable to that type of work.
- B. Cleaning: Comply with manufacturers written instructions unless noted otherwise. Complete the following cleaning operations before requesting final inspection for entire Project or for a portion of Project:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits resulting from construction activities.
 3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 4. Remove tools, construction equipment, machinery, temporary construction, and surplus material from Project site.
 5. Remove all lumps, splatters, spots and stains caused by paint, adhesive, asphalt, concrete, mortar, sealant or other foreign material from exposed or finished surfaces. Remove all temporary labels.
 6. Clean exposed exterior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 7. Leave Project clean and ready for occupancy.
- C. Safety Requirements: Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the property. Do not discharge volatile, harmful, or dangerous materials into drainage and sewer systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

SECTION 01 89 13 - SITE PREPARATION PERFORMANCE REQUIREMENTS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

As specified in SECTION 01 11 00— SUMMARY OF WORK.

1.02 DESCRIPTION OF WORK

Furnish all labor, materials and equipment necessary to clear and grub the entire construction area; to accumulate and dispose of all debris and waste materials; to lay out the entire work; all as shown on the Plans and as herein specified.

1.03 REQUIREMENTS, CODES

All applicable portions of Division 01 - GENERAL REQUIREMENTS are to be considered as included with this Section.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 GENERAL

- A. Conditions of Premises: The Contractor shall examine the site and become familiar with the existing conditions and the amount and kind of work to be performed.
- B. Permits: The Contractor shall obtain and pay for necessary permits prior to the commencement of work.
- C. Maintenance of Traffic: The Contractor shall conduct operations with minimum interference to streets, driveways, sidewalks, passageways, etc.
- D. Public Safety: When necessary, the Contractor shall provide and erect barriers, etc., with special attention to protection of residents, public, and personnel.
- E. Protection: Throughout the progress of the work, protection shall be provided for all property and equipment, and temporary barricades shall be provided as necessary. Work shall be done in accordance with the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, and the State of Hawaii's Occupational Safety and Health Standards, Rules and Regulations.
- F. Fires: No burning of fires of any kind will be allowed.
- G. Reference Points: Bench marks, etc., shall be carefully maintained, but if disturbed or destroyed, shall be replaced as directed, at the Contractor's expense.

- H. Disposal: All materials resultant from operations under this Section shall become the property of the Contractor and shall be removed from the site at his expense. Loads of materials shall be trimmed to prevent droppings.

3.02 EXISTING UTILITY LINES

The existence of active underground utility lines within the construction area is not definitely known other than those indicated in their approximate locations on the Demolition Drawings. Should any unknown line be encountered during excavation, the Contractor shall immediately notify the Construction Manager of such discovery. The Construction Manager shall then investigate and issue instructions for the preservation or disposition of the unknown line. Authorization for extra work shall be issued by the Construction Manager only as he deems necessary.

3.03 CLEAN UP OF PREMISES

Clean up and remove all debris accumulated from operations from time-to-time or as directed by the Construction Manager. Upon completion of the construction work and before final acceptance of the contract work, remove all surplus materials, equipment, etc., and leave entire job site to the satisfaction of the Construction Manager.

END OF SECTION

DIVISION 23 - MECHANICAL

SECTION 23 00 00 - GENERAL MECHANICAL REQUIREMENTS

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

As specified in Division 1, Special Conditions, and General Conditions.

1.02 SUMMARY

- A. The Contractor shall provide all labor, materials, tools and equipment and perform all work and services necessary for a complete and properly operating mechanical work, equipment and systems, as shown in drawings and as specified in accordance with provisions of the Contract Documents and completely coordinated with work of all other trades.
- B. The Contractor shall completely examine the Contract Documents and shall report to the State any error, inconsistency or omission he discovers prior to submitting a bid.
- C. Provide all supplementary or miscellaneous items, details, appurtenances and devices incidental to or necessary for a sound, secure and complete mechanical system where work required is not specifically indicated.
- D. Drawings and specifications shall be taken together. Provide work specified and not indicated or work indicated and not specified as though mentioned in both.
- E. The Contractor shall warrant that all materials and equipment furnished under this Contract will be new and that all work will be good quality, free from faults and defects and in conformance with Contract Documents for a guaranteed period of one year.
- F. The Contractor shall maintain at the site one copy of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders and other modifications in good order and marked to record all changes made during construction. These shall be made available to the Contracting Officer at all times.
- G. The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the work, he shall remove all his waste materials and rubbish from and about the project as well as all his tools, construction equipment, machinery and surplus materials and shall clean all new equipment and accessories.
- H. The Contractor shall give the State timely notice of its readiness for testing any work including the data arranged so that the Contracting Officer may observe such testing. The Contractor shall bear all cost of such tests.

1.03 SUBMITTALS

- A. Submit in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.
- B. Submit shop drawings, manufacturers' data and certificates for equipment, materials, finish and pertinent details for each system and have them approved before procurement, fabrication or delivery of the items to the job site. Partial submittals will not be acceptable and will be returned without review. Partial submittal for long lead equipment shall be accepted prior to complete submittal. Submittals shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable industry and technical society publication references and other information necessary to establish contract compliance of each item the Contractor proposes to furnish.
 - 1. Shop Drawings: Drawings shall be 24 inches by 36 inches in size, except as specified otherwise. Drawings shall include floor plans, sectional views, installation details of equipment; and equipment spaces identifying and indicating proposed location, layout and arrangement of items of equipment, accessories, piping and other items that must be shown to assure a coordinated installation. Drawings shall indicate adequate clearance for operation, maintenance and replacement of operating equipment devices. If equipment is disapproved, drawings shall be revised to show acceptable equipment and be resubmitted.

The Contractor shall review, stamp with his approval and submit, all Shop Drawings required by the Contract Documents or subsequently by the State as covered by modifications. At the time of submission, the Contractor shall inform the State in writing of any deviation in the Shop Drawings from the requirements of the Contract Documents. By approving and submitting Shop Drawings, the Contractor certifies that he has determined and verified all field measurements and obstructions, field construction criteria, materials, catalog numbers and similar data, that he has checked and coordinated each Shop Drawing with the requirements of the work and of the Contract Documents and that all equipment fits within designated spaces.

- 2. Manufacturers' Data: Submittals for each manufactured item shall be manufacturers' descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves and catalog cuts. Submittals shall include equipment certification terms and conditions, applicable self-diagnostic testing and start-up procedures. Equipment submittals shall specifically indicate the specified equipment assembly configurations with all specified standard and optional features, above and beyond general catalog products technical literature.
- 3. Standards Compliance: When materials or equipment must conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA) and Underwriters Laboratories (UL), American Society of Heating, Refrigeration and Air-Conditioning (ASHRAE), proof of such conformance shall be submitted to the State for

approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization, which is competent to perform acceptable test and is approved by the State. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item conforms to the specified organization's standard.

4. **Certified Test Reports:** Before delivery of materials and equipment, certified copies of all test reports specified in the individual section shall be submitted for approval. Furthermore, submit a written certificate, dated and signed by an authorized corporate officer of the Contractor who is either a full-time employee, principal, or a full-time partner delegated with the authority to bind the Contractor in all matters relating to its professional work of the Contractor, evidencing the performance of any portion of the work, or any testing; as a condition precedent to the acceptance of any work or the result of any test. Corporate credentials shall be furnished concurrently with applicable written certificates. Whenever a regulatory agency performs inspections or tests of any portion of the work, a written certificate shall be furnished by the Contractor to validate the results from the respective inspection test.
5. **Certificates of Conformance or Compliance:** Submit all certificates applicable to all specified equipment assemblies and parts for the Contracting Officer's approval prior to equipment delivery and commencement of equipment on-site installation. A certification from the manufacturer attesting that materials and equipment to be furnished for this project comply with the requirements of this specification and of the reference publications. Preprinted certifications will not be acceptable; certifications shall be in the original. The certification shall not contain statements that could be interpreted to imply that the product does not meet all requirements specified, such as "as good as"; "achieve the same end use and result as materials formulated in accordance with the referenced publication," "equal or exceed the service and performance of the specified material." The certification shall simply state that the product conforms to the requirements specified. Furthermore, submit a written certificate, dated and signed by an authorized corporate officer of the Contractor who is either a full-time employee, principal, or a full-time partner delegated with the authority to bind the Contractor in all matters relating to its professional work of the Contractor, evidencing the performance of any portion of the work, or any testing; as a condition precedent to the acceptance of any work or the result of any test. Corporate credentials shall be furnished concurrently with applicable written certificates. Whenever a regulatory agency performs inspections or tests of any portion of the work, a written certificate shall be furnished by the Contractor to validate the results from the respective inspection test.
6. **Manufacturers' Certified Full Standard Product Warranty:** Submit the manufacturer's certified Full Standard Product Warranty terms and conditions applicable to all specified equipment assemblies and parts for the Contracting Officer's approval prior to equipment delivery and commencement of equipment on-site installation, as approved by the Contracting Officer. All

manufacturers' Full Standard Product Warranty certificates are to be provided to the State at the time of equipment delivery and prior to the commencement of equipment on-site installation.

Warranty shall cover all costs for parts, labor, associated travel, and expenses for a period of one year from project acceptance.

7. Operation and Maintenance Manuals: Submit manuals on all equipment and the overall system upon successful completion of equipment on-site installation and start-up and prior to final inspection, as approved by the Contracting Officer. Evidence of the respective manufacturers' certification of all personnel responsible for installation, testing, and start-up of the equipment.

1.04 LAWS, REGULATIONS AND CODES

- A. All work shall be in accordance with government laws, ordinances, rules and regulations and orders.
- B. The following shall govern where applicable; the Uniform Plumbing Code as adopted by the City and County of Honolulu, the International Building Code as adopted by the City and County of Honolulu, State of Hawaii Department of Health Regulations, Applicable National Fire Protection Association Standards, OSHA, Rules and Regulations and all other codes and standards referenced in these specifications. Where requirements differ in these codes and standards, the more stringent shall apply.

1.05 TRADE NAME

Mentioning of a trade name in the plans and specifications indicates that the manufacturer is acceptable to the State. However, certain specified construction and details may not be regularly included in the manufacturer's catalogued product. The Mechanical Contractor shall provide the material or equipment complete as specified.

1.06 PERMITS AND INSPECTIONS

- A. Applications for permits will be done by the State. The Mechanical Contractor shall pay for all necessary permits and fees.
- B. The Mechanical Contractor shall apply and pay for all necessary inspections required by any public authority having jurisdiction.

1.07 DISCREPANCIES

- A. The Drawings and Specifications are intended to be cooperative. Any materials, equipment or system exhibited on the Drawings but not mentioned in the Specifications or vice versa are to be executed to the intent and meaning thereof, as if it were both mentioned in the Specifications and set forth on the Drawings.

- B. In case of differences between the Drawings and Specifications, the Specifications shall govern first, and then the Drawings. Large scale details shall take precedence over small scale Drawings as to the shape and details of construction. Specifications shall govern as to materials.
- C. Drawings and Specifications are intended to be fully cooperative and complementary and to agree, but should any discrepancy or apparent difference occur between Drawings and Specifications or should error occur in the work of others affecting the work, the Contractors shall notify the Contracting Officer at once. If the Contractor proceeds with the work affected without instructions from the State, he shall make good any resultant damage or defect. All interpretations of Drawings and specifications shall be clarified by the State.

1.08 WORKMANSHIP AND MATERIALS

- A. Workmanship shall be of the best quality and none but competent mechanics skilled in their trades shall be employed. The Contractor shall furnish the services of an experienced superintendent, who will be constantly in charge of the erection of the work, until completed and accepted.
- B. Unless otherwise hereinafter specified, each article of its kind shall be the standard product of a single manufacturer.
- C. Whenever the words "or approved equal" or other words of similar intent or meaning are used, implying that judgment is to be exercised, it is understood that it is the judgment of the Contracting Officer that is referred to.
- D. The Contracting Officer shall have the right to accept or reject material, equipment and/or workmanship and determine when the Contractor has complied with the requirements herein specified.
- E. All manufactured materials shall be delivered and stored in their original containers. Equipment shall be clearly marked or stamped with the manufacturer's name and rating. Equipment and materials shall be carefully handled, properly stored and adequately protected to prevent damage before and during installation, in accordance with the manufacturer's recommendations and as approved by the Contracting Officer. Damaged or defective items, in the opinion of the Contracting Officer, shall be replaced.
- F. Reference to standards are intended to be the latest revision of the standard specified.

1.09 MANUFACTURER'S RECOMMENDATIONS

Equipment installed under this Division of the Specifications shall be installed according to manufacturer's recommendations, unless otherwise shown on the drawings or herein specified. Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished to the Contracting Officer, prior to the installation. Installation of the

item will not be allowed to proceed until the recommendations are received.
Failure to furnish these recommendations can cause rejection of the material.

1.10 INSPECTION OF SITE

This Contractor is required to attend a prebid meeting and site visit and examine the conditions affecting his work before submitting his proposal. The submission of the proposal shall be considered evidence that the Contractor has visited the site and no extra payments will be allowed to the Contractor on account of extra work made necessary by his failure to visit the site. If there are any questions or discrepancies in the design, the Contractor shall bring it to the attention of the Contracting Officer before submitting his proposal.

1.11 CONTINUITY OF SERVICES, PHASING

- A. Disruption to the building is not allowed. All work shall be performed during normal working hours since a temporary chiller will be provided. Any AC outage shall be during night time and weekends only.
- B. Examine all Drawings and Specifications (i.e. work from other trades) and become familiar with the types and systems of construction to be used. Determine how such types and systems will affect the installation of mechanical work.
- C. Investigate, determine and verify locations of any overhead utilities on or near the site. Determine such locations in conjunction with all public and private utility companies and with all authorities having jurisdiction.

1.12 OPENINGS, CUTTING AND REPAIRING

- A. The Mechanical Contractor shall cooperate with the work to be done under other sections in providing information as to openings required in walls and slabs for all piping including sleeves where required.
- B. Any drilling or cutting required for the performance of work under this Section shall be the responsibility of this Contractor and the cost shall be borne by him.
- C. Holes in Concrete: The Mechanical Contractor shall pay all costs for cutting holes. All holes through existing concrete shall be either core drilled or saw cut. All holes required shall have the approval of the Contracting Officer prior to cutting and drilling.
- D. It shall be the responsibility of this Contractor to ascertain that all openings are properly located.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. As specified in all sections of DIVISION 23 - MECHANICAL.

- B. Materials and equipment shall be cataloged products of manufacturers regularly engaged in production of such materials or equipment and shall be the manufacturer's latest design that complies with the specifications requirements. Materials and equipment shall be duplicate items that have been in satisfactory commercial or industrial use at least 2 years prior to bid opening. Where two or more items of the same class of equipment are required these items shall be products of a single manufacturer; however, the component parts of the items need not be the products of the same manufacturer. Each item of equipment shall have the manufacturer's name, address, model number and serial number on the nameplate.
- C. The mechanical contractor shall provide all necessary options and/or accessories to comply with the applicable equipment specification requirements. Installation of the options and/or accessories shall be in accordance with the manufacturer's requirements and the complete assembly shall be warranted by the respective equipment manufacturer.
- D. The Mechanical contractor shall provide certified manufacturer's representatives and/or service technicians for any field modification to mechanical equipment. The Contractor shall ensure that any modification to the equipment will not invalidate the manufacturer's warranty.

2.02 SUBSTITUTIONS

- A. The materials, products, and equipment described in these specifications establish a standard of required function, quality, dimension, capacity, performance and appearance to be met by any proposed substitution.
- B. Specific product listings in these specifications shall not preclude alternative product selections of equivalent or superior quality. Contractor may make reasonable substitutions, provided that these are submitted to the Contracting Officer for acceptance in accordance with the INTERIM GENERAL CONDITIONS. The Contractor shall be responsible for design changes to accommodate the substituted product, at no additional cost to the State.

PART 3 - EXECUTION

3.01 INSTALLATION AND WORKMANSHIP

- A. Provide competent and qualified manufacturer's factory trained and certified field service personnel on-site to be responsible for execution of all diagnostic testing in accordance with equipment manufacturer's installation and start-up certification requirements and warranty terms and conditions. Perform work using adequate numbers of personnel skilled in the appropriate trades, and provide adequate supervision and management of the work.
- B. All workmanship shall be of the highest standard. The piping systems shall be laid out to insure a neat, systematic and orderly arrangement of all work. Vertical piping lines shall be plumb and lines that are grouped shall be parallel and as direct as possible. Exposed pipe where indicated, shall be run parallel with walls.

3.02 PROTECTION OF MATERIALS AND EQUIPMENT

Pipe openings shall be closed with caps or plugs during installation. Fixtures and equipment shall be tightly covered and protected against dirt, water, and chemical or mechanical injury. Upon completion of all work the fixtures, materials and equipment shall be thoroughly cleaned, repainted as required, adjusted and operated.

3.03 CUTTING AND PATCHING

The Contractor shall arrange for all cutting, fitting and patching necessary to accommodate the plumbing work as the job progresses and such cutting and patching shall be done by that trade experienced in the particular type of work required.

3.04 PIPING IDENTIFICATION

- A. Identification of all new pipe lines shall be by means of colored, waterproof, all temperature, self-adhering labels and directional arrow.
- B. All exposed pipes, whether insulated or not shall be identified. Labels may be omitted from piping where the use is obvious, due to its connection to equipment and where the appearance would be objectionable in finished rooms, as approved by direction.
- C. Identification labels shall be placed as follows:
 - 1. Near each valve and branch connection.
 - 2. Wherever piping merges or disappears from view from the floor of the room in which it is installed.
 - 3. Labels shall not be more than 50 feet apart.

3.05 EQUIPMENT IDENTIFICATION

Identify all equipment with symbol and service conforming to that indicated on the drawings. Identification shall be on 1-1/4 inch by 3 inch laminated plastic nameplates securely fastened to the equipment. Leave manufacturer's nameplate clean, legible, and unpainted.

3.06 COORDINATION OF WORK AS SPECIFIED IN OTHER SECTIONS

The Mechanical Contractor is responsible for coordination with the General Contractor to assure proper layout, size, and location of mechanical equipment. Mechanical Contractor shall ensure that power and control wiring are provided and installed.

3.07 INSPECTIONS

- A. All work and materials are subject to field observation at any and all times by the Contracting Officer.
- B. Contractor shall notify the Contracting Officer a minimum of two days prior to testing any piping which must be witnessed and approved before they are covered up or enclosed. Should the Contractor fail to notify the Contracting Officer at the times prescribed, it shall then be the Contractor's responsibility to make accessible any concealed lines, or demonstrate the acceptability of any part of the system. Any extra cost caused by the removal of such work shall be borne by the Contractor.
- C. If observer finds any material or work not conforming to these Specifications, Contractor within three days of being notified shall remove said materials from the premises and replace with approved material, at no cost to the State.

3.08 OPERATIONAL ACCEPTANCE TESTS

The Mechanical Contractor shall perform all tests of the installed work and shall provide all services, labor, equipment, materials and instruments needed for the tests. During pressure tests all items in the system to be tested, not designed for test pressures, shall be removed or isolated from the system and shall be reconnected or unblocked after tests are completed. Should operating tests require the presence of manufacturers' representatives, the Mechanical Contractor shall cooperate with them and shall place at their disposal all assistance, materials and services required to perform such test. The Mechanical Contractor shall certify in writing that all work has passed all required tests and shall complete the attached Operational Performance Tests form.

3.09 POSTED OPERATING INSTRUCTION

Furnish approved operating instructions for each principal item of equipment for the use of the operation and maintenance personnel. Operating instruction shall be printed or engraved and shall be framed under glass or in approved laminated plastic and posted where directed by the Contracting Officer. Operating instructions shall be attached to or posted adjacent to each principal item of equipment including start up, procedure in the event of equipment failure and other items of instruction as recommended by the manufacturer of each item of equipment. Operating instructions exposed to the weather shall be made of weather-resistant materials or shall be suitably enclosed and weather protected. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

3.10 INSTRUCTION TO STATE PERSONNEL

- A. The Contractor shall furnish the services of competent instructors who will give full instruction to the designated personnel in the adjustment, operation and maintenance, including pertinent safety requirements, of the equipment or system specified. Each instructor 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.

- B. Instruction shall be given during the first regular work week after the equipment or system has been accepted and turned over to the State for regular operation. The number of man-days (8 hours) of instruction furnished shall be as specified in other sections. When more than 4 man-days of instruction are specified, approximately half of the time shall be used for classroom instruction. All other time shall be used for instruction with the equipment or system. When significant changes or modifications in the equipment or systems are made under the term of the contract, additional instruction shall be provided to acquaint the operating personnel with the changes or modifications.

3.11 LOCAL TECHNICAL SUPPORT

- A. The mechanical equipment supplier shall have an Oahu office within 50 miles of the project site, staffed with factory trained engineers fully capable of providing instruction, routine maintenance and emergency maintenance service on all system components.
- B. The control system supplier shall have an Oahu office within 50 miles of the project site, staffed with factory trained engineers fully capable of providing instruction, routine maintenance and emergency maintenance service on all system components.

3.12 SAFETY REQUIREMENTS

- A. Belts, pulleys, chains, gears, couplings, projecting setscrews, keys and other rotating parts located so that any person can come in close proximity thereto shall be fully enclosed or properly guarded. 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 a type as specified herein.
- B. Items such as catwalks, ladders and guardrails shall be provided where required for safe operation and maintenance of equipment.

3.13 CLEANUP AND REPAIRS

- A. Debris shall not be allowed to accumulate as a result of this work. Upon completion of this work, remove all debris and excess materials, tools, etc. resulting from this work from the jobsite and leave the location of this work broom-clean in a manner acceptable to the Contracting Officer.
- B. This Contractor shall clean all fixtures and equipment set by him of oil, grease, stains, etc. All plates, trim, etc. shall be polished. Traps and drains shall be clean and unobstructed.
- C. All fixture piping and lines shall be thoroughly cleaned before leaving the work.

3.14 FINAL INSPECTION

Final inspection shall be requested by the Mechanical Contractor only after submittal of all required certificates. No final inspection will be made until all moving parts of equipment are properly guarded, all controls and safety devices tested and operative, all painting required done and the site cleaned up.

3.15 GUARANTEE

The Mechanical Contractor shall guarantee the installation for a period of two (2) years after 30 consecutive days of trouble-free operation after the date of acceptance of the project by the State against any defects due to faulty materials, equipment, workmanship or installation. Upon notice of defect, the Mechanical Contractor shall correct; replace defective item at no additional cost to the State.

3.16 TWO-YEAR GUARANTEE AND MAINTENANCE SERVICE CONTRACT

- A. In addition to the Guaranty on materials and workmanship, the Installer shall submit seven (7) copies of the Maintenance Service Contract, countersigned by the Contractor that will validate the Guaranty.
- B. The Guarantee and maintenance service shall extend for a period of one (1) year 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 subsection Maintenance Schedule, 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 Guaranty 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 require correction in excess to those described for the monthly service which is included in the Schedule of Maintenance.
 - 2. The system is maintaining operational conditions and other parameter as measured during acceptance tests.
- D. The Installer shall include a listing of the following items along with the Maintenance Service Contract:
 - 1. Names of the servicing contractor.
 - 2. Air conditioning system acceptance date.
 - 3. Service contract expiration date.

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).
- E. Maintenance service contractor shall have a local office, staffed with competent and qualified manufacturer's factory trained and certified field service personnel and stocked with full inventory of replacement repair parts, to perform specified service and maintenance tasks on all equipment in accordance with the One-Year Maintenance Service Contract and terms and conditions of all equipment manufacturer's warranties and recommendations. Field service personnel shall be fully capable of providing technical assistance instruction, routine maintenance and emergency maintenance service on all system equipment components.
 - F. The Maintenance Service Contract shall be submitted along with the Operations and Maintenance Manual on/or before the Project Acceptance Date.
 - G. Refer to Section 23 73 00 - MAINTENANCE SERVICE FOR AIR HANDLING AND VENTILATION SYSTEMS for more detail on the maintenance requirements.

3.17 OPERATION AND MAINTENANCE MANUAL

Submit hard bound copy(ies) and CD(s) of the Operating and Maintenance Manual on all equipment and control systems for the system as a whole to the State. The manual shall identify project name and number, contractor, consultant, date and all equipment provided, It shall include the equipment manufacturer's name, model and serial number, tag no., capacity, quantity of units, their location and area (room) served and shall include the manufacturer's operation and maintenance manuals including control and wiring diagrams and source of service and replacement parts. When standard manufactures' brochures are used, adequately indicate (highlight, arrow, etc.) the project related information and delete (X or cross-out) the non applicable information.

SERVICE MAINTENANCE REPORT

Date _____ SHEET NO. _____

Name of Service Personal: _____

Name of Facility and Location: _____

Date of Service Call: _____

Time In at Site: _____ Time Out at Site: _____

Person(s) Contacted: _____

Nature of Service Call - (Routine Maintenance or Emergency - Explain and Cost Break-down):

Equipment Readings and Maintenance Performed.

Remarks: _____

END OF SECTION

SECTION 23 05 93 - TESTING, ADJUSTING AND BALANCING

PART 1 – GENERAL

1.01 GENERAL CONDITIONS

As specified in Division 1, Special Conditions, and General Conditions.

1.02 SUMMARY

This section includes the following for testing, adjusting and balancing:

1. Balancing Water Distribution Systems
2. Chiller water systems.

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 such as dampers, gauges, and sensors that will inhibit the proper Testing, Adjusting and Balancing (TAB) process, the Contractor shall call the attention of the Engineer 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.
- B. Standards: Applicable standard published by the National Environmental Balancing Bureau (NEBB) and/or the Associated Air Balance Council (AABC).

1.04 QUALITY ASSURANCE

- A. Independent TAB Agency and Personnel Qualifications: To secure approval for the proposed agency, submit information certifying that the TAB agency is a first tier subcontractor who is not affiliated with any other company participating in work on this contract, including design, furnishing equipment, or construction. Further, submit the following, for the agency to the Engineer.
- B. Independent AABC or NEBB or TABB TAB Agency:
 1. TAB agency: AABC registration number and expiration date of current certification; or NEBB certification number and expiration date of current certification; or Testing, Adjusting and Balancing Bureau (TABB) certification number and expiration date of current certification.
 2. TAB team supervisor: Employee of the TAB contractor and certified by AABC or NEBB or TABB. Name and copy of the supervisor's certificate and expiration date of current certification.

3. TAB Technician: Name and documented evidence that each field technician has satisfactorily assisted a TAB team field for not less than one year immediately preceding this contract's bid opening date.
- C. TAB Standard: Perform TAB in accordance with the requirements of the standard under which the TAB Firm's qualifications are approved, unless otherwise specified herein. All recommended and suggested practices contained in the TAB Standard are considered mandatory. Use the provisions of the TAB standard including checklists, report forms, etc., as nearly as practical, to satisfy the Contract requirements. Use the TAB standard for all aspects of TAB, including qualifications for the TAB firm and calibration of TAB instruments. Where the instrument manufacturer calibration recommendations are more stringent than those listed in the TAB standard, adhere to the manufacturer's recommendations.
- D. Instrumentation: List all test equipment to be used, including its manufacturer, model number, calibration date and serial number, as described in ASHRAE 111, Section 5, "Instrumentation".
- E. Certified TAB Report:
 1. Review field data reports to validate accuracy of data and to prepare certified TAB report.
 2. Certify that the TAB team complied with the TAB standard and the procedures specified and referenced in this specification.

1.05 SUBMITTALS

- A. Submit in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.
- B. Independent TAB Agency and Personnel Qualifications: Within 30 days of contractor's notice to proceed, submit documentation that the TAB contractor and this project's TAB team members meet the qualifications specified in "Quality Assurance" article.
- C. Certified TAB Reports: Within 30 days of contractor's notice to proceed.
- D. Instrumentation: Within 30 days of contractor's notice to proceed, submit documentation in accordance with the "Quality Assurance" article.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 PRE-TAB FIELD WORK

- A. Examine the contract documents and become familiar with project requirements. Report deficiencies discovered before and during performance of TAB procedures.

B. Ensure the systems are ready and operational. Verify the following:

1. Automatic temperature control systems are operational.
2. Equipment doors are closed.
3. Electrical wiring is complete.
4. All mechanical equipment is operational.

3.02 TAB FIELD WORK – GENERAL

- A. Comply with the requirements of AABC National Standards for Total System Balance, latest edition, NEBB Procedural Standards, latest edition, ASHRAE 111, latest edition or SMACNA HVAC Systems – Testing, Adjusting and Balancing, latest edition. Comply with ASHRAE 62.1, latest edition, Section 7.2.2, “Air Balancing”.
- B. Cut insulation, ducts, pipes and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
 2. Install and join new insulation that matches removed materials. Restore insulation coverings, vapor barrier and finish according to Insulation specifications.
- C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed control levers and similar controls and devices with paint or other suitable permanent identification material to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP).

3.03 PROCEDURES FOR MOTORS

- A. Test at final balanced conditions and record the following:
1. Manufacturer’s name, model number and serial number
 2. Motor HP rating, RPM and efficiency rating.
 3. Nameplate and measured voltage/ampereage each phase.
 4. Starter thermal protection element rating.
- B. If the motor is driven by a variable frequency drive, test for proper operation at speeds from minimum to maximum. Test the manual bypass. Record observations including the manufacturer, model number, serial number and nameplate data.

3.04 CERTIFIED TAB REPORT

- A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems. Include a certification sheet, signed and sealed by the certified testing and balancing engineer.
- B. General Data
 - 1. Title page
 - 2. Name and address of the TAB contractor
 - 3. Project name, location
 - 4. Architect, Engineer and Contractor's name and address
 - 5. Report date.
 - 6. Notes to explain why final data in the body of reports vary from indicated values.
 - 7. Water System Diagrams: Include schematic layouts of the chilled water and condenser water systems with the following information:
 - a. Quantity of water flow (gpm).
 - b. Water flow setpoint.
- C. Test Reports: Typewritten schedules of readings taken during the balancing and testing operations indicating the required or specified reading, and the final balanced reading shall be provided for the following items: Complete standard AABC, NEBB, SMACNA equipment test reports for the following equipment:
 - 1. Motors
 - 2. Pumps:
 - a. Flow in gpm
 - b. Pressure differential in ft'
 - c. Motor/Pump RPM
 - d. Discharge and suction pressure (psi)
 - e. Motor BHP
 - 3. Chiller:
 - a. Chilled water supply/return temperature

- b. Chilled water flow and differential pressure
- c. Evaporator and condenser refrigerant temperatures and pressures, using instruments furnished by chiller manufacturer.
- d. Motor Amps and KW.
- e. Calculated tonnage.
- f. Verify condenser-fan rotation and record fan and motor data including number of fans and entering and leaving air temperatures.

END OF SECTION

SECTION 23 08 00 - MECHANICAL HVAC COMMISSIONING

PART 1 – GENERAL

1.01 GENERAL CONDITIONS

As specified in Division 1, Special Conditions, and General Conditions.

1.02 SUMMARY

- A. The certified commissioning agent acting as the owner's representative is designated as the commissioning authority. The contractor shall provide labor and services to the commissioning authority to accomplish the work specified herein as they apply to the commissioning of the project. The commissioning work shall include the following systems supported by the responsible party indicated:
- B. Mechanical HVAC Systems:
 - 1. Scope of Work
 - a. Replace the existing air cooled chillers and associated accessories, water pumps with new energy efficient equipment.
 - b. Provide power and controls to the new equipment.
 - c. Provide fundamental commissioning services as part of the project to comply with the Energy Code.

1.03 SUBMITTALS

Submit in accordance with DIVISION 1.

1.04 GENERAL REQUIREMENTS

It is the intent to provide a complete installation. Should there be omissions or discrepancies in the plans and specifications such as dampers, gauges, and sensors that will inhibit the proper commissioning process, the Contractor shall call the attention of the Engineer to such omissions and discrepancies so that the necessary corrections can be made.

- 1. Standards:
 - a. All work shall be done in accordance with applicable ordinances and codes of State of Hawaii and in accordance with authorities having jurisdictions.
 - b. Work shall comply with applicable regulations of State of Hawaii, National Fire Protection Association (NFPA), American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 202-2013, Guideline 0-2005 and Guideline 1.1-2007.

2. Drawings and Specifications: The drawings and specifications are intended to cover the complete installation of systems to function as described. The omission of reference to any necessary item of labor or material shall not relieve the Contractor from providing such labor or material. Drawings do not attempt to show exact details of piping and ductwork.
 - a. Contract Drawings: Mechanical are essentially diagrammatic, showing locations of ducts, pipes and equipment. Where locations are not dimensioned, they are approximate; Contractor shall study existing conditions and plan his work in the most logical manner.
 - b. Shop Drawings: As soon as practical, the contractor shall provide the commissioning agent with a set of shop drawings and data submittals including the automatic control diagrams that have been reviewed by the Engineers. Coordinate with the commissioning agent to provide all pertinent information on the building systems.

1.05 COMMISSIONING PROCEDURES

- A. Overview: This section of the specification describes the process for commissioning building systems, defines the responsibilities of the commissioning authority and contractor, and outlines the duties of other members of the commissioning team.

The commissioning process shall be applied to all equipment, components, and systems, including specified interfaces to and from equipment and systems provided under other divisions.

- B. Subcontractors: The contractor confirms that the appropriate subcontractors include the commissioning work in their respective scope of work. The appropriate subcontractors shall be responsible for cooperating and coordinating their work with the commissioning agent as indicated. They shall also be responsible for carrying out all the physical activities required for physical installation of components and systems, and for operating them during the commissioning process, and including providing and operating measuring devices as required.
- C. Commissioning Authority: The designated commissioning authority acting as the Owner's representative shall observe any or all of the systems functional performance tests as an important element in the operator familiarization and instruction process. If outside air temperature, lack of full occupancy, or other factors prevent full performance testing of some functions, then testing, verifying and documenting the performance of these functions shall be carried out at an appropriate, and mutually agreed upon, time during the 12 months after substantial completion.
- D. Appropriate checklist from the SMACNA HVAC Commissioning Manual or the approved equivalent, designated by the mechanical engineer who is the commissioning authority, shall be used for this project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 THE COMMISSIONING PROCESS

The commissioning team shall consist of:

1. The owner's representative(s)
2. Design engineer(s)
3. The commissioning authority.
4. The construction manager's representative(s)
5. The quality control manager or representative(s).
6. The contractor's representative(s).
7. The controls subcontractor's representative(s).
8. The mechanical contractor's representative.
9. The TAB contractor's representative.
10. The electrical contractor's representative(s).
11. The manufacturer's representative(s).

3.02 COMMISSIONING RESPONSIBILITIES

A. The commissioning authority (CA) or his representative shall:

1. Plan, organize, and implement the commissioning process as specified herein.
2. Prepare the commissioning plan and ensure its distribution for review and comment.
3. Revise the commissioning plan as required during construction.
4. Chair commissioning meetings and prepare and distribute minutes to all commissioning team members, whether or not they attended the meeting.
5. Coordinate commissioning activities among all contractors, sub-trades, and suppliers.
6. Carry out all required system readiness checks and document the results as the checks are done.
7. In cooperation with the controls contractor, ensure all control point checkouts are carried out and the results documented as the checks are done.

8. Observe or verify all start-ups and initial system operations tests and checks, which shall encompass all specified functional performance tests, ensuring the results are documented as the tests and checks are done.
 9. At the direction of the mechanical design engineer, ensure equipment and systems are operated for functional performance verification purposes.
 10. Ensure all required instruction and demonstrations are provided to the owner's designated operating staff.
- B. Contractor: The general contractor (GC), and all his sub-trades (SUBS) and manufacturers (MFR), shall cooperate with the commissioning authority in carrying out the commissioning process. In this context, the contractor shall:
1. Provide equipment and systems start-up as required.
 2. Operate equipment and systems as required for both initial systems operations and final functional performance tests.
 3. Attend commissioning meetings, and attend to action items arising from them, as required to allow the commissioning process to proceed on schedule.
 4. Provide instruction and demonstrations for the owner's designated operating staff, in conjunction with the commissioning authority, in order to meet all specified requirements in this regard.
- C. Owner (OR): The owner will ensure the availability of operating staff for all scheduled instruction and demonstration sessions.
- D. Construction Manager (CM) and Quality Control Manager (QC): The Construction Manager and Quality Control Manager are the primary communication contact for all commissioning work, and shall:
1. Provide communication between the owner, commissioning authority, architect and design engineer, contractors, sub-contractors and suppliers.
 2. Schedule and holds commissioning and coordination meetings.
 3. Coordinate all commissioning schedules from the commissioning authority to the contractors doing the start-up and commissioning tasks.
 4. Coordinate and tracks all corrective work required to complete the commissioning.
 5. Provide all required drawings, submittals, O&M manuals and test records to commissioning authority.
- E. Mechanical Engineer (M/E): The mechanical is the primary communication contact for all design professions and shall:
1. Provide communication and operational assistance with commissioning issues, conflicts and design questions with the design professions.

2. Attend periodic commissioning meetings and performance tests.
 3. Review contractor's submittal in cooperation with the Commissioning Authority to conformance to the design intent.
 4. Provide training and training assistance concerning the design intent and the basis of design.
- F. Control subcontractor (CC): The control subcontractor is the Commissioning Team's primary authority on the materials and methods used to implement the controls project scope of work.
1. Attends commissioning meetings and provides commissioning coordination for all controls systems commissioning activities.
 2. Provides all required submittal information required for the design of commissioning tests by the commissioning authority. They shall include:
 - a. Sequences of Operation submittals: The Controls Contractor's submittals of control drawings shall include complete detailed sequences of operation for each piece of equipment, regardless of the completeness and clarity of the sequences in the specifications. They shall include:
 - (1) An overview narrative of the system (1 or 2 paragraphs) generally describing its purpose, components and function.
 - (2) All interactions and interlocks with other systems.
 - (3) Detailed delineation of control between any packaged controls and the energy management control system and direct digital control system, listing what points the EMCS and DDC monitor only and what points are control points and are adjustable.
 - (4) Written sequences of control for packaged controlled equipment. (Equipment manufacturers' stock sequences may be included, but will generally require additional narrative).
 - (5) Start-up sequences.
 - (6) Warm-up mode sequences.
 - (7) Normal operating mode sequences.
 - (8) Unoccupied mode sequences.
 - (9) Shutdown sequences.
 - (10) Capacity control sequences and equipment staging.
 - (11) Temperature and pressure control: setbacks, setups, resets, etc.
 - (12) Detailed sequences for all control strategies, e.g., optimum start/stop, staging, optimization, demand limiting, etc.

- (13) Effects of power or equipment failure with all standby component functions.
- (14) Sequences for all alarms and emergency shut downs.
- (15) Initial and recommended values for all adjustable settings, setpoints and parameters that are typically set or adjusted by operating staff; and any other control settings or fixed values, delays, etc. that will be useful during testing and operating the equipment.
- (16) Schedules, if known.
- (17) To facilitate referencing in testing procedures, all sequences shall be written in small statements, each with a number for reference. For a given system, numbers will not repeat for different sequence sections, unless the sections are numbered.

b. Control Drawings submittal:

- (1) The control drawings shall have a key to all abbreviations.
- (2) The control drawings shall contain graphic schematic depictions of the systems and each component.
- (3) The schematics will include the system and component layout of any equipment that the control system monitors, enables or controls, even if the equipment is primarily controlled by packaged or integral controls.
- (4) Provide a full points list with at least the following included for each point:
 - (a) Controlled system
 - (b) Point abbreviation
 - (c) Point description
 - (d) Display unit
 - (e) Control point or setpoint (Yes / No)
 - (f) Monitoring point (Yes / No)
 - (g) Intermediate point (Yes / No)
 - (h) Calculated point (Yes / No)

Key:

- i. Point Description: DB temp, airflow, etc.
- ii. Control or Setpoint: Point that controls equipment and can have its setpoint changed (OSA, SAT, etc.)

- iii. Intermediate Point: Point whose value is used to make a calculation which then controls equipment (space temperatures that are averaged to a virtual point to control reset).
 - iv. Monitoring Point: Point that does not control or contribute to the control of equipment, but is used for operation, maintenance, or performance verification.
 - v. Calculated Point: "Virtual" point generated from calculations of other point values.
 - vi. The Controls Contractor shall keep the CA informed of all changes to this list during programming and setup.
- c. An updated as-built version of the control drawings and sequences of operation shall be included in the final controls O&M manual submittal.
- d. Assist and cooperate with the TC in the following manner:
 - (1) Meet with the TC prior to beginning TAB and review the TAB plan to determine the capabilities of the control system toward completing TAB. Provide the TC any needed unique instruments for setting terminal unit boxes and instruct TC in their use (handheld control system interface for use around the building during TAB, etc.).
 - (2) For a given area, have all required pre-functional checklists, calibrations, startup and selected functional tests of the system completed and approved by the CA prior to TAB.
 - (3) Provide a qualified technician to operate the controls to assist the TC in performing TAB, or provide sufficient training for TC to operate the system without assistance.
- e. Assist and cooperate with the CA in the following manner:
 - 1. Using a skilled technician who is familiar with this building, execute the functional testing of the controls system. Assist in the functional testing of all equipment. Provide means of communication during the testing (e.g. two ways radio).
 - 2. Execute all control system trend logs specified.
- f. The controls contractor shall prepare a written plan indicating in a step-by step manner, the procedures that will be followed to test, checkout and adjust the control system prior to functional performance testing. At minimum, the plan shall include for each type of equipment controlled by the automatic controls:
 - (1) System name.
 - (2) List of devices.

- (3) Step-by-step procedures for testing each controller after installation, including:
 - (a) Process of verifying proper hardware and wiring installation.
 - (b) Process of downloading programs to local controllers and verifying that they are addressed correctly.
 - (c) Process of performing operational checks of each controlled component.
 - (d) Plan and process for calibrating valve and damper actuators and all sensors.
 - (e) A description of the expected field adjustments for transmitters, controllers and control actuators should control responses fall outside of expected values.
- (4) A copy of the log and field checkout sheets that will document the process. This log must include a place for initial and final read values during calibration of each point and clearly indicate when a sensor or controller has “passed” and is operating within the contract parameters.
- (5) A description of the instrumentation required for testing.
- (6) Indicate what tests on what systems should be completed prior to TAB using the control system for TAB work.
- g. Provide a signed and dated certification of Performance to the CA and CM upon completion of the checkout of each controlled device, equipment and system prior to functional testing for each piece of equipment or system, that all system programming is complete as to all respects of the Contract Documents, except functional testing requirements.
- h. Beyond the control points necessary to execute all documented control sequences, provide monitoring, control and virtual points as specified.
- i. List and clearly identify on the as-built piping drawings the locations of all static and differential pressure sensors (air, water and building pressure).
- 3. Assists the CA in reviewing and modifying commissioning check lists for controls systems, for consistency with the materials and methods used in the construction of the controls systems.
- 4. Provides technicians, tools and instrumentation for controls commissioning activities and tests.
- 5. Assists CA in developing commissioning schedules for all controls commissioning activities and complete all controls commissioning activities to those schedules.

6. Completes all corrective action, on a timely basis as required to complete all controls commissioning activities.
 7. Prepares all operating and maintenance manuals and all required as built documents in accordance with the specifications prior to owner training activities as dictated by the commissioning schedule.
 8. Provides owner training in accordance with the owner training agenda and schedule provided by the CA.
- G. Testing, Adjusting and Balancing Contractor (TC): The TC is the Commissioning Team's primary authority on the instruments and methods used to implement TAB project scope of work.
1. Attends commissioning meetings and provides commissioning coordination for all TAB systems commissioning activities.
 2. Provides all required submittal information required for the design of commissioning tests by the commissioning authority.
 3. Submit the outline of the TAB plan and approach for each system and component to the CA, CM and the controls contractor six weeks prior to starting the TAB. This plan will be developed after the TAB has some familiarity with the control system. The submitted plan will include:
 - a. Certification that the TC has reviewed the construction documents and the systems with the design engineers and contractors to sufficiently understand the design intent for each system.
 - b. An explanation of the intended use of the building control system. The controls contractor will comment on feasibility of the plan.
 - c. All field checkout sheets and logs to be used that list each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
 - d. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
 - e. Final test report forms to be used.
 - f. Detailed step-by-step procedures for TAB work for each system and issue: flow calibration, total flow calculations, rechecking, diversity issues, expected problems and solutions, etc. Criteria for relocating flow stations and sensors will be discussed.
 - g. List of all water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
 - h. Details of how total flow will be determined (Water: pump curves, circuit setter, flow station, ultrasonic, etc.).

- i. The identification and types of measurement instruments to be used and their most recent calibration date.
 - j. Specific procedures that will ensure that the water side are operating at the lowest possible pressures and provide methods to verify this.
 - k. Proposed selection points for sound measurements and sound measurement methods.
 - l. Details of methods for making any specified coil or other system plant capacity measurements.
 - m. Details of any TAB work to be done in phases (by floor, etc.), or of areas to be built out later.
 - n. Details of any specified false loading of systems to complete TAB work.
 - o. Plan for hand-written field technician logs of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests (scope and frequency).
 - p. Plan for formal progress reports (scope and frequency).
 - q. Plan for formal deficiency reports (scope, frequency and distribution).
4. A running log of events and issues shall be kept by the TAB field technicians. Submit hand-written reports of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests to the CA and CM at least twice a week.
 5. Communicate in writing to the controls contractor all setpoint and parameter changes made or problems and discrepancies identified during TAB which affect the control system setup and operation.
 6. Provide a draft TAB report within two weeks of completion. A copy will be provided to the CA. The report will contain a full explanation of the methodology, assumptions and the results in a clear format with designations of all uncommon abbreviations and column headings. The report should follow the latest and most rigorous reporting recommendations by AABC, NEBB or ASHRAE Standard 111.
 7. Provide the CA with any requested data, gathered, but not shown on the draft reports.
 8. Provide a final TAB report for the CA with details, as in the draft.
 9. Conduct functional performance tests and checks on the original TAB.
 10. Assists the CA in reviewing and modifying commissioning check lists for TAB systems, for consistency with the methods used in the construction and TAB of mechanical systems.
 11. Provides technicians, tools and instrumentation for TAB commissioning activities and tests.

12. Assists CA in developing commissioning schedules for all TAB commissioning activities and complete all TAB commissioning activities to those schedules. Complete all corrective actions, on a timely basis as required to complete all TAB commissioning activities.
13. Prepares all TAB reports and all required as built documents in accordance with the specifications prior to owner training activities as dictated by the commissioning schedule.

3.03 COMMISSIONING PLAN

- A. Commissioning Phases: The on-site commissioning process shall be organized and carried out in four phases, as follows:
 1. Phase 1 - system readiness and start-up.
 2. Phase 2 - initial operation.
 3. Phase 3 - functional performance verification.
 4. Phase 4 - demonstration and instruction.

Each phase is applicable to each separate system and its components, including all related controls and specified interfaces to other divisions.

3.04 PHASE 1 - SYSTEMS READINESS AND START-UP

- A. Before starting any equipment or systems, complete the system readiness or pre-start checks. Deficiencies or incomplete work shall be corrected, and the checks repeated until the installation is ready for operation. The following conditions and items shall be completed as applicable:
 1. Piping systems have been pressure tested as specified, found to be tight, with reports submitted.
 2. Piping systems have been flushed and cleaned as specified, any required reports submitted, and then filled or charged as applicable.
 3. Equipment has been lubricated to specification.
 4. Vibration isolation and seismic restraints have been installed to specification and adjusted.
 5. Equipment drives have been aligned.
 6. Electrical services have been installed and checked.
 7. Control point checkouts have been completed.
 8. Safety controls have been installed and operation checked.

9. Major equipment start-up has been carried out by manufacturers representatives (when specified), and required startup reports completed and submitted.

3.05 PHASE 2 - INITIAL OPERATION

- A. The contractor completes the testing, balancing, and calibration of all components and systems. They also operate all systems through all specified modes of operation, and test system responses to specified abnormal or emergency conditions.
- B. All checks shall be documented. Deficiencies or incomplete work shall be corrected, and the checks repeated until the installation is ready for operation.
- C. Work carried out during this phase of commissioning shall include the following, as applicable:

Mechanical Contractor:

1. Hydronic systems balancing, including positioning of all balance valves.
2. Correction of problems revealed during balancing.
3. Ensuring final adjustments to vibration isolation and seismic restraints are carried out as necessary.

Controls Contractor:

1. Setting up and calibrating all automatic temperature controls devices, including adjustments to control valves.
2. Setting up or programming controls for accurate response and precise sequencing to meet specified performance.

3.06 PHASE 3 - FUNCTIONAL PERFORMANCE VERIFICATION

- A. All equipment and systems shall be operated through the entire sequence of operations, as directed by the engineer for witnessing and verifying acceptable operation.
- B. During this phase of commissioning, the following checks and tests may be required by the commissioning authority and shall be allowed for:

Mechanical Contractor:

1. Demonstration of acceptable noise and vibration levels from any equipment under its full range of operational conditions.
2. Operation of equipment and systems under every specified mode of operation and sequence of control.
3. Operation of equipment and systems under normal, abnormal, and emergency conditions.

4. Once acceptable performance of the building systems has been verified, then operation under specified interfaces to/from equipment and systems provided under other divisions.

Controls Contractor:

1. Operation of all controls system devices, both sensors and actuators.
2. Proper physical response of all controlled devices and components to setpoint changes or other relevant adjustments.
3. Operation of randomly selected fire or smoke dampers.

3.07 DEMONSTRATION AND INSTRUCTION

- A. The formal demonstration and instruction for operating staff shall commence once the Phase 3 commissioning is complete and substantial completion achieved. Demonstration and instruction shall cover all equipment and systems, and their controls.

3.08 EXECUTION

- A. The following building systems and their accessories and connecting equipment shall be commissioned:

1. Controls: Installation and operation of all devices; complete operation of all controls sequences in coordination with commissioning of all controlled systems.
2. Make-up Water Connections: Installation check; pressure test; backflow preventer checks.
3. Piping and Valves: Installation checks (including supports and alignment); flow balancing verification; leak testing as applicable.
4. Chiller: Insulation, flow, inlet and outlet temperatures, flow balancing, controls.
5. Pump: Insulation, flow, inlet strainer, flow balancing, gages, isolation valves, supports, and starter controls.

- B. Commissioning Team and Checklists: The Contractor shall designate team members to participate in the pre-functional checklist and the functional performance testing specified. The team members are:

1. Symbol Function

QC Quality Control Manager Representative

S Specialist Quality Control Representative (e.g. Radon)

M Contractor's Mechanical Representative

E Contractor's Electrical Representative

- T Contractor's Testing, Adjusting, and Balancing Representative
- C Contractor's Controls Representative
- F Contractor's Manufacturer Representative
- CA Commissioning Authority
- OR Owner's (Government's) Representative

- C. The commissioning team shall complete each checklist in appendices located at the end of this section. Each commissioning team member shall accept each pre-functional checklist item, by initials and date. Items noted with an "X" (or blacked out) indicates that participation by that individual is not required. Also, each commissioning team member shall accept each functional performance test checklist by signature and date.
- D. The pre-functional checklist and functional performance tests shall be performed in a manner which essentially duplicates the checking, testing, and inspection methods established in the related Sections. Where checking, testing, and inspection methods are not specified in other Sections, methods shall be established which will provide the information required. Testing and verification required by this Section shall be performed during the Commissioning phase. Requirements in related Sections are independent from the requirements of this Section and shall not be used to satisfy any of the requirements specified in this Section. The Contractor shall provide all materials, services, and labor required to perform the pre-functional checklist and functional performance tests. A pre-functional checklist or functional performance test shall be aborted if any system deficiency prevents the successful completion of the test. The Contractor shall reimburse the expenses and costs associated with effort lost due to tests that are aborted. These costs shall include salary, travel costs and per diem (where applicable) for commissioning team members.
- E. Pre-Functional Checklist: Perform for the items indicated on the checklists in Appendix A. Deficiencies discovered during these checks shall be corrected and retested in accordance with the applicable contract requirements.
- F. Functional Performance Tests: Perform for the items indicated on the checklists in Appendix B. Functional performance tests shall begin only after all pre-functional checklists have been successfully completed. Tests shall prove all modes of the sequences of operation, and shall verify all other relevant contract requirements. Tests shall begin with equipment or components and shall progress through subsystems to complete systems. Upon failure of any functional performance test checklist item, the Contractor shall correct all deficiencies in accordance with the applicable contract requirements. The checklist shall then be repeated until it has been completed with no errors.

Commissioned Equipment and Systems:

Commissioned Equipment/System	Pre-Functional Checklist & Functional Performance Test Checklist
Chilled water plant	Required
Energy Management Control System and Direct Digital Control System	Required

Pre-functional Checklists (Appendix A)

1. Pre-functional checklist: Piping For Piping System _____

Check items

	QC	CA	OR	M	E	T	C		
1. Installation									
a. Piping complete and tested as specified					X		X		
b. As-built shop drawings submitted					X		X		
c. Piping flushed and cleaned					X		X		
d. Strainers cleaned					X		X		
e. Valves installed as required					X		X		
f. Piping insulated as required					X		X		
g. Instrumentation and gauges installed as required									
h. Verify operation of valves									
i. Air vents, Relief valves and Tempering valves installed as specified					X		X		
j. Flexible connectors installed as specified					X		X		
k. Pipe and valves labeling and identification installed as specified					X		X		
2. Testing, Adjusting and Balancing (TAB)	QC	CA	OR	M	E	T	C		
TAB operation complete					X		X		

2. Pre-functional checklist: Pumps For Pump _____

Check items

	QC	CA	OR	M	E	T	C	F	
1. Installation									
a. Pump grouted in place					X	X	X		
b. Pump vibration isolation devices functional					X	X	X		
c. Pump / motor coupling alignment verified					X	X	X		
d. Piping system installed					X	X	X		
e. Piping system pressure tested					X	X	X		
f. Pump not leaking					X	X	X		
g. Field assembled couplings aligned to meet manufacturer's prescribed tolerances					X	X	X		
2. Electrical	QC	CA	OR	M	E	T	C	F	
a. Power available to pump disconnect						X	X		
b. Pump rotation verified							X		
c. Control system interlocks functional						X			
d. Power disconnect is located within sight of the unit controls						X			
e. Overload protection is set per						X			

	QC	CA	OR	M	E	T	C	F	
manufacturer's recommendation									
3. Testing, Adjusting and Balancing (TAB)	QC	CA	OR	M	E	T	C	F	
a. Instrumentation and gauges installed					X	X			
b. Piping system flushed and cleaned					X		X		
c. Water balance complete					X		X		
d. Water balance with design maximum flow					X		X		
e. TAB report submitted					X		X		

3. Pre-functional checklist: Chillers For Chiller _____

Check items

1. Installation	QC	CA	OR	M	E	T	C	F	
a. Chilled water connection properly piped					X				
b. Instrumentation and gauges are installed					X				
c. Chilled water pipe leak tested					X	X	X		
d. Refrigerant leak detector installed						X			
e. Refrigerant relief vents are installed					X	X	X		
2. Electrical	QC	CA	OR	M	E	T	C	F	
1. Power available to chiller starter						X	X		
2. Power available to chiller control panel						X	X		
3. Control system interlocks functional						X			
4. Power disconnect is located within sight of the unit controls						X			
3. Chiller Controls	QC	CA	OR	M	E	T	C	F	
a. Factory startup, witness tests and checkout complete						X			
b. Chiller safety protection devices installed and tested						X			
c. Chilled water flow switch installed and tested						X			
d. Chilled water pump interlock installed and tested						X			

4. Pre-functional checklist: DDC system For DDC system _____

Check items

1. Installation	QC	CA	OR	M	E	T	C	F	
a. As-built shop drawings submitted					X	X			
b. Layout of control panel matches drawings					X	X			
c. Framed or laminated instructions mounted in or near control panel					X	X			
d. Components properly labeled on inside and outside of panel					X	X			
e. Control components piped and /or wired to each labeled terminal strip					X	X			
f. DDC system connection made to each labeled terminal strip as shown					X	X			
g. Control wiring and tubing labeled at all terminations, splices, and junctions.					X	X			
h. Shielded wiring used on electronic sensors					X	X			

i. Work stations and printer are permanently installed and protected					X	X			
j. Portable / hand held devices are provided as submittal					X	X			
2. Programming / graphics	QC	CA	OR	M	E	T	C		
a. DDC point lists are 100% checked and verified their I/O values, setpoints and logic					X	X			
b. Graphic print out of all equipment function parameter as specified					X	X			
c. Trending print out of all equipment and space condition parameter as specified					X	X			
d. Time clock setting					X	X			
e. Visual and audible alarm as specified					X	X			
f. Print out of equipment operation scheduling and setting as specified.					X	X			
g. Backup of programming as specified					X	X			
3. Electrical	QC	CA	OR	M	E	T	C		
a. Power available to all control panels, controllers and workstation						X			
4. Testing, Adjusting and Balancing (TAB)	QC	CA	OR	M	E	T	C		
a. TAB report submitted					X				

Functional performance test checklist (Appendix B)

1. Functional Performance Test – Pumps: For Pump: _____

Prior to performing these checks, ensure that for closed loop systems, system is pressurized and the make-up water system is operational or, for open loop systems, that the sumps are filled to the proper level.

- A. Energize and de-energize pump start using control system commands (all possible combinations, on/auto, etc.). Verify pump starts and stops as expected.

	ON	OFF
Manual switch:	_____	_____
AUTO Start/Stop: Initiating device _____	_____	_____

1. Record Pressure drop across strainer:

Strainer inlet pressure	_____ psig
Strainer outlet pressure	_____ psig
Strainer differential pressure	_____ psig

2. Annotate pump inlet/outlet design conditions and compare to Testing, Adjusting and Balancing Report (TAB)

	DESIGN	TAB
Pump inlet pressure	_____ psig	_____ psig
Pump outlet pressure	_____ psig	_____ psig
Pump flow rate	_____ gpm	_____ gpm

3. Operate pump at shutoff and at 100 percent of design flow when all components are in full flow. Plot test readings on pump curve and compare results against readings taken from flow measuring devices.

	SHUTOFF	100 %
Pump inlet pressure	_____ psig	_____ psig
Pump outlet pressure	_____ psig	_____ psig
Pump flow rate from flow measuring device	_____ gpm	_____ gpm
Pump flow rate from pump curve	_____ gpm	_____ gpm

- B. Verify motor amperage each phase and voltage phase to phase and phase to ground for both the full flow and the minimum flow conditions.

1. Full flow:

Running current	Ph 1 = _____ A	Ph 2 = _____ A	Ph 3 = _____ A
Voltage across phases	Ph 1 & 2 = _____ V	Ph 2 & 3 = _____ V	Ph 3 & 4 = _____ V
Voltage to Ground	Ph 1 = _____ V	Ph 2 = _____ V	Ph 3 = _____ V

2. Minimum flow:

Running current	Ph 1 = _____ A	Ph 2 = _____ A	Ph 3 = _____ A
Voltage across phases	Ph 1 & 2 = _____ V	Ph 2 & 3 = _____ V	Ph 3 & 4 = _____ V
Voltage to Ground	Ph 1 = _____ V	Ph 2 = _____ V	Ph 3 = _____ V

- C. Unusual vibration, noise, and other similar items. _____

- D. Certification: We the undersigned have witnessed the above functional performance tests and certify that the item tested has met the performance requirements in this section of the specifications.

	Signature	Date
Quality Control Manager	_____	_____
Contractor's Mechanical Representative	_____	_____
Contractor's Electrical Representative	_____	_____
Pump Manufacturer's Representative Testing, Adjusting and Balancing Representative	_____	_____
Contractor's Controls Representative	_____	_____
Commissioning Authority	_____	_____
Owner's Representative	_____	_____

2. Functional Performance Test – Chillers

For Chiller: _____

- A. Functional performance test: Contractor shall demonstrate operation of chilled water system as per specifications including the following:

Start all building's AHUs, PCCs and FCUs to provide maximum load for the chiller. Set each AHU, PCC and FCU control valve to full cooling. DESIGN

1. Time of day startup program initiates chiller start sequence (start initiated by entering start time in startup program).

Satisfactory _____

2. Start condenser fans and establish condenser air flow. Verify condenser air proof-of-flow switch operation allows chiller startup.

Satisfactory _____

3. Start primary chilled water pump and establish flow. Verify chiller water proof-of-flow switch operation allows chiller startup.

Satisfactory _____

4. Verify chiller control system energizes chiller start sequence. Record time of day startup initiated and time of day compressor starts. Check against chiller startup instructions from manufacturer.

Satisfactory _____

Time start-up initiated : _____
Time compressor starts : _____

5. Verify chiller senses chilled water temperature above set point and chiller control system activates chiller start.

Chilled water return temperature : _____ °F
Chilled water supply temperature : _____ °F
Chilled water set point temperature : _____ °F

6. Verify functioning of "soft start" sequence.

Set point of VFD acceleration (ramp up time) _____
Record actual time from start to constant speed _____
Final compressor speed _____ rpm
Record peak current during start up: Ph1= _____ A Ph2= _____ A Ph3= _____ A

7. Shut off air handling equipment to remove load on chilled water system.
Verify chiller shutdown sequence is initiated and accomplished after
load is removed.

Satisfactory _____

8. Restart air-handling equipment one minute after chiller down.

Record time compressor reaches 0 rpm. _____
Record time AHU restarted. _____

9. Verify chilled water pump, condenser air fans, and chiller restart
sequence.

Chilled water pump starts	Satisfactory	_____
Condenser fans starts	Satisfactory	_____
Chiller starts	Satisfactory	_____

- B. Unusual vibration, noise, and other similar items. _____

- C. Certification: We the undersigned have witnessed the above functional performance tests
and certify that the item tested has met the performance requirements in this section of
the specifications.

	Signature	Date
Quality Control Manager	_____	_____
Contractor's Mechanical Representative	_____	_____
Contractor's Electrical Representative	_____	_____
Pump Manufacturer's Representative	_____	_____
Testing, Adjusting and Balancing Representative	_____	_____
Contractor's Controls Representative	_____	_____
Commissioning Authority	_____	_____
Owner's Representative	_____	_____

3. Functional Performance Test – EMCS & DDC: For EMCS & DDC: _____

- A. The owner's representative will select the number of points from the EMCS & DDC control system to undergo functional performance testing. The number of testing points shall not exceed ten percent of the total shown on the point lists.
- B. Functional performance test: Contractor shall demonstrate operation of EMCS & DDC by performing the following tests and measurements:

<p>1. Verify that controller is maintaining the set point by manually measuring the controlled variable with a thermometer, sling psychrometer, inclined manometer, etc. or other calibrated device or meter that does not rely on the DDC system for the reading.</p> <p>2. Verify sensor and controller combination by manually measuring the controlled medium using a separate device from the permanently installed system device. Take readings from control panel display or the equivalent readings from a remote lap top computer and compare readings taken manually. Take reading from the sensor that supplies the reading to the system and convert to the variable being displayed. Record all readings.</p>			
Point	Sensor Reading	Manual Measurement	Panel Reading

1. Verify system stability by changing the control variable set point as follows:
The control system shall be observed for 10 minutes after the change in set point. Instability or excessive hunting will be unacceptable. Report findings.
a. Water temperature-10°F Satisfactory _____
2. Verify interlock with other HVAC controls such as exhaust fan interlocks.
Satisfactory _____
3. Verify interlock with refrigerant alarm control panel.
Satisfactory _____
4. Change controller set point by 10 percent with the DDC system or remote lap top computer and verify the system responds correctly
Satisfactory _____
- C. Verify that the operation of the EMCS & DDC system conforms to that specified in the sequence of operation for start-up, shutdown and load variations.
Satisfactory_____

- D. Certification: We the undersigned have witnessed the above functional performance tests and certify that the item tested has met the performance requirements in this section of the specifications.

	Signature	Date
Quality Control Manager	_____	_____
Contractor's Mechanical Representative	_____	_____
Contractor's Electrical Representative	_____	_____
Pump Manufacturer's Representative	_____	_____
Testing, Adjusting and Balancing Representative	_____	_____
Contractor's Controls Representative	_____	_____
Commissioning Authority	_____	_____
Owner's Representative	_____	_____

END OF SECTION

SECTION 23 09 23 - DIRECT DIGITAL CONTROL SYSTEMS

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

As specified in Division 1, Special Conditions, and General Conditions.

1.02 SUMMARY

- A. This Section includes control equipment for HVAC systems and components.
- B. The control system shall consist of a high-speed, peer-to-peer network of DDC controllers and a web based operator interface. Depict each mechanical system and building floor plan by a point-and-click graphic. A web server with a network interface card shall gather data from this system and generate web pages accessible through a conventional web browser on each PC connected to the network. Operators shall be able to perform all normal operator functions through the web browser interface.
- C. The Direct Digital Control (DDC) system must be based on the native BACnet protocol. Provide all necessary hardware and software to provide web based access and control via a Microsoft Windows operating system and Internet Explorer browser.

1.03 DEFINITIONS

- A. DDC: Direct digital control.
- B. I/O: Input/output.
- C. LAN: Local Area Network.
- D. MS/TP: Master slave/token passing.
- E. PC: Personal computer.
- F. PID: Proportional plus integral plus derivative.
- G. RTD: Resistance temperature detector.

1.04 SYSTEM PERFORMANCE

Comply with the following performance requirements:

- 1. Graphic Display: Display graphic with minimum 20 dynamic points with current data within 10 seconds.
- 2. Graphic Refresh: Update graphic with minimum 20 dynamic points with current data within 8 seconds.

3. Object Command: Reaction time of less than two seconds between operator command of a binary object and device reaction.
4. Object Scan: Transmit change of state and change of analog values to control units or workstation within six seconds.
5. Alarm Response Time: Annunciate alarm at workstation within 45 seconds. Multiple workstations must receive alarms within five seconds of each other.
6. Program Execution Frequency: Run capability of applications as often as five seconds, but selected consistent with mechanical process under control.
7. Performance: Programmable controllers shall execute DDC PID control loops, and scan and update process values and outputs at least once per second.
8. Reporting Accuracy and Stability of Control: Report values and maintain measured variables within tolerances as follows:
 - a. Water Temperature: Plus or minus 1 deg F (0.5 deg C).
 - b. Water Flow: Plus or minus 5 percent of full scale.
 - c. Water Pressure: Plus or minus 2 percent of full scale.
 - d. Electrical: Plus or minus 5 percent of reading.

1.05 SEQUENCE OF OPERATION

See descriptions in the drawings and specifications to determine how the HVAC system is to be operated, monitored and controlled by the DDC system.

1.06 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 - SUBMITTAL PROCEDURES.
- B. Product Data: Include manufacturer's technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.
 1. DDC System Hardware: Bill of materials of equipment indicating quantity, manufacturer, and model number. Include technical data for operator workstation equipment, interface equipment, control units, transducers/transmitters, sensors, actuators, valves, relays/switches, control panels, and operator interface equipment.
 2. Control System Software: Include technical data for operating system software, operator interface, color graphics, and other third-party applications. Operator interface shall be graphically based and shall include at least one graphic per piece of equipment or occupied zone.

3. Controlled Systems: Instrumentation list with element name, type of device, manufacturer, model number, and product data. Include written description of sequence of operation including schematic diagram.
- C. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
1. Bill of materials of equipment indicating quantity, manufacturer, and model number.
 2. Schematic flow diagrams showing fans, pumps, coils, dampers, valves, and control devices.
 3. Wiring Diagrams: Power, signal, and control wiring.
 4. Details of control panel faces, including controls, instruments, and labeling.
 5. Written description of sequence of operation.
 6. Schedule of valves including flow characteristics.
 7. DDC System Hardware:
 - a. Wiring diagrams for control units with termination numbers.
 - b. Schematic diagrams and floor plans for field sensors and control hardware.
 - c. Schematic diagrams for control, communication, and power wiring, showing trunk data conductors and wiring between operator workstation and control unit locations. Description of the various types of wire or cables with the designated function shall be provided.
 8. Control System Software: List of color graphics indicating monitored systems, data (connected and calculated) point addresses, output schedule, and operator notations.
 9. Controlled Systems:
 - a. Schematic diagrams of each controlled system with control points labeled and control elements graphically shown, with wiring.
 - b. Scaled drawings showing mounting, routing, and wiring of elements including bases and special construction.
 - c. Written description of sequence of operation including schematic diagram.
 - d. Points list.

1.07 DATA COMMUNICATION PROTOCOL CERTIFICATES:

Certify that each proposed DDC system component complies with ASHRAE 135.

1.08 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Manual/Documentation: This manual or documentation is intended to provide a complete description of the HVAC system and DDC control system. The following information shall be provided in a 3-ring binder(s) unless mentioned otherwise:

1. Description of HVAC System: Provide a general description of the HVAC system and major equipment that it is comprised of. Provide a list of installed equipment with the manufacturer's name and model/part number. The listed items shall be labeled such that it can be referenced to a particular piece of equipment on the as-built drawing (example: AHU-1, CHWP-2, SF-3, Cooling Tower#3, 2-way chilled water valve for AHU-1, etc.). Information for the HVAC equipment should be furnished by catalog data or other submittals in Division 23 specification sections.
2. Description of DDC Control System: Provide a general description of the DDC control system with list of parts with name of manufacturer and model/part number unless every item in the DDC as-built drawings already contain this information. Refer to DDC controls as-built drawings.
3. Control equipment catalog cuts providing description of equipment specifications (if applicable), software specifications, power and communication signal information, etc.
4. Maintenance instructions and lists of spare parts for each type of control device.
5. Printout of pre-programmed operating parameters such as equipment start-stop times, leaving chilled water temperature set point, alarm set points, etc.
6. Service Organization: Qualified service organization list that shall include the names and telephone numbers of an organization(s) located in the State of Hawaii qualified to troubleshoot and service the DDC control system.

B. Software and Firmware Operational Documentation: Include the following:

1. DDC Software operating and upgrade manuals.
2. DDC Program Software Backup: On a magnetic media or compact disc, complete with data files.
3. Device address list.
4. Listing of all software applications required for operation of and accessing into the DDC control system.

5. Software license required by and installed for DDC workstations and control systems.
- C. As-Built Drawings: A complete set of as-built drawings for the HVAC system is to be a combination of as-built design drawings and as-built control drawings which should show locations of all HVAC equipment and field installed accessories, how the systems are intended to operate and DDC control shop drawings which should show the manufacturer of equipment, network diagrams, communication protocols, all components, list of materials, etc.

1.09 QUALITY ASSURANCE

- A. Installer Qualifications: DDC control system manufacturer's authorized representative who is trained and approved for installation of system components is required for this project.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with ASHRAE 135 for DDC system components
- D. The DDC Contractor shall have a minimum of 5 years experience with the complete installation of the DDC control system they are going to install on this project. The DDC Contractor shall provide a list of comparably sized and/or technically complex control systems installed for 3 other buildings or facilities which are still in operation at the time for bidding on this project.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Factory-Mounted Components: Where control devices specified in this Section are indicated to be factory mounted on equipment, arrange for shipping of control devices to equipment manufacturer.
- B. System Software: Update to latest version of software at Project completion.

1.11 COORDINATION

Coordinate electrical power supply for all mechanical equipment, motors, field devices and DDC control components with the Electrical Consultant.

1.12 WARRANTY

- A. Warranty labor and materials for specified control system free from defects for a period of 1 year after final acceptance. Control systems failure during warranty period shall be adjusted, repaired or replaced at no additional cost or reduction in service
- B. Work shall have a single warranty date even if the building or facility receives beneficial use due to early system start-up but without final completion, inspection and acceptance

- C. The DDC Contractor shall have a local facility in the State of Hawaii. Emergency service shall be available on a 24 hour/7 day a week basis.

PART 2 - PRODUCTS

2.01 CONTROL SYSTEM

Control system shall consist of sensors, indicators, actuators, final control elements, interface equipment, other apparatus, accessories, and software connected to distributed controllers operating in multi-user, multitasking environment on token-passing network and programmed to control mechanical systems. An operator workstation permits interface with the network via dynamic color graphics with each mechanical system, building floor plan, and control device depicted by point-and-click graphics.

2.02 DDC EQUIPMENT

- A. Control Units: Modular, comprising processor board with programmable, nonvolatile, random-access memory; local operator access and display panel; integral interface equipment; and backup power source.
1. Units monitor or control each I/O point; process information; execute commands from other control units, devices, and operator stations; and download from or upload to operator workstation or diagnostic terminal unit.
 2. Stand-alone mode control functions operate regardless of network status. Functions include the following:
 - a. Global communications.
 - b. Discrete/digital, analog, and pulse I/O.
 - c. Monitoring, controlling, or addressing data points.
 - d. Software applications, scheduling, and alarm processing.
 - e. Testing and developing control algorithms without disrupting field hardware and controlled environment.
 3. Standard Application Programs:
 - a. Electric Control Programs: Demand limiting, duty cycling, automatic time scheduling, start/stop time optimization, night setback/setup, on-off control with differential sequencing, staggered start, antishort cycling, PID control, DDC with fine tuning, and trend logging.
 - b. Chiller Control Programs: chilled-water reset, and equipment sequencing.
 - c. Programming Application Features: Include trend point; alarm processing and messaging; weekly, monthly, and annual scheduling; energy calculations; run-time totalization; and security access.
 - d. Remote communications.

- e. Maintenance management.
 - f. Units of Measure: Inch-pound and SI (metric).
4. Local operator interface provides for download from or upload to operator workstation or diagnostic terminal unit.
 5. ASHRAE 135 Compliance: Control units shall use ASHRAE 135 protocol and communicate using ISO 8802-3 (Ethernet) datalink/physical layer protocol.
- B. Local Control Units: Modular, comprising processor board with electronically programmable, nonvolatile, read-only memory; and backup power source.
1. Units monitor or control each I/O point, process information, and download from or upload to operator workstation or diagnostic terminal unit.
 2. Stand-alone mode control functions operate regardless of network status. Functions include the following:
 - a. Global communications.
 - b. Discrete/digital, analog, and pulse I/O.
 - c. Monitoring, controlling, or addressing data points.
 3. Local operator interface provides for download from or upload to operator workstation or diagnostic terminal unit.
 4. ASHRAE 135 Compliance: Control units shall use ASHRAE 135 protocol and communicate using ISO 8802-3 (Ethernet) datalink/physical layer protocol.
- C. I/O Interface: Hardwired inputs and outputs may tie into system through controllers. Protect points so that shorting will cause no damage to controllers.
1. Binary Inputs: Allow monitoring of on-off signals without external power.
 2. Pulse Accumulation Inputs: Accept up to 10 pulses per second.
 3. Analog Inputs: Allow monitoring of low-voltage (0- to 10-V dc), current (4 to 20 mA), or resistance signals.
 4. Binary Outputs: Provide on-off or pulsed low-voltage signal, selectable for normally open or normally closed operation with three-position (on-off-auto) override switches and status lights.
 5. Analog Outputs: Provide modulating signal, either low voltage (0- to 10-V dc) or current (4 to 20 mA) with status lights, two-position (auto-manual) switch, and manually adjustable potentiometer.
 6. Tri-State Outputs: Provide two coordinated binary outputs for control of three-point, floating-type electronic actuators.
 7. Universal I/Os: Provide software selectable binary or analog outputs.

- D. Power Supplies: Transformers with Class 2 current-limiting type or overcurrent protection; limit connected loads to 80 percent of rated capacity. DC power supply shall match output current and voltage requirements and be full-wave rectifier type with the following:
1. Output ripple of 5.0 mV maximum peak to peak.
 2. Combined 1 percent line and load regulation with 100-mic.sec. response time for 50 percent load changes.
 3. Built-in overvoltage and overcurrent protection and be able to withstand 150 percent overload for at least 3 seconds without failure.
- E. Power Line Filtering: Internal or external transient voltage and surge suppression for workstations or controllers with the following:
1. Minimum dielectric strength of 1000 V.
 2. Maximum response time of 10 nanoseconds.
 3. Minimum transverse-mode noise attenuation of 65 dB.
 4. Minimum common-mode noise attenuation of 150 dB at 40 to 100 Hz.

2.03 UNITARY CONTROLLERS

Unitized, capable of stand-alone operation with sufficient memory to support its operating system, database, and programming requirements, and with sufficient I/O capacity for the application.

1. Configuration: Local keypad and display; diagnostic LEDs for power, communication, and processor; wiring termination to terminal strip or card connected with ribbon cable; memory with bios; and 72 -hour battery backup.
2. Operating System: Manage I/O communication to allow distributed controllers to share real and virtual object information and allow central monitoring and alarms. Perform scheduling with real-time clock. Perform automatic system diagnostics; monitor system and report failures.
3. ASHRAE 135 Compliance: Communicate using read (execute and initiate) and write (execute and initiate) property services defined in ASHRAE 135. Reside on network using MS/TP datalink/physical layer protocol and have service communication port for connection to diagnostic terminal unit.
4. Enclosure: Dustproof rated for operation at 32 to 120 deg F (0 to 50 deg C).
5. Enclosure: Waterproof rated for operation at 40 to 150 deg F (5 to 65 deg C).

2.04 ALARM PANELS

- A. Unitized cabinet with suitable brackets for wall or floor mounting. Fabricate of 0.06-inch- (1.5-mm-) thick, furniture-quality steel or extruded-aluminum alloy,

totally enclosed, with hinged doors and keyed lock and with manufacturer's standard shop-painted finish.

- B. Indicating light for each alarm point, single horn, acknowledge switch, and test switch, mounted on hinged cover.
 - 1. Alarm Condition: Indicating light flashes and horn sounds.
 - 2. Acknowledge Switch: Horn is silent and indicating light is steady.
 - 3. Second Alarm: Horn sounds and indicating light is steady.
 - 4. Alarm Condition Cleared: System is reset and indicating light is extinguished.
 - 5. Contacts in alarm panel allow remote monitoring by independent alarm company.

2.05 ANALOG CONTROLLERS

- A. Step Controllers: 6- or 10-stage type, with heavy-duty switching rated to handle loads and operated by electric motor.
- B. Electric, Outdoor-Reset Controllers: Remote-bulb or bimetal rod-and-tube type, proportioning action with adjustable throttling range, adjustable set point, scale range minus 10 to plus 70 deg F (minus 23 to plus 21 deg C) , and single- or double-pole contacts.
- C. Electronic Controllers: Wheatstone-bridge-amplifier type, in steel enclosure with provision for remote-resistance readjustment. Identify adjustments on controllers, including proportional band and authority.
 - 1. Single controllers can be integral with control motor if provided with accessible control readjustment potentiometer.
- D. Fan-Speed Controllers: Solid-state model providing field-adjustable proportional control of motor speed from maximum to minimum of 55 percent and on-off action below minimum fan speed. Controller shall briefly apply full voltage, when motor is started, to rapidly bring motor up to minimum speed. Equip with filtered circuit to eliminate radio interference.
- E. Receiver Controllers: Single- or multiple-input models with control-point adjustment, direct or reverse acting with mechanical set-point adjustment with locking device, proportional band adjustment, authority adjustment, and proportional control mode.
 - 1. Remote-control-point adjustment shall be plus or minus 20 percent of sensor span, input signal of 3 to 13 psig (21 to 90 kPa) .
 - 2. Proportional band shall extend from 2 to 20 percent for 5 psig (35 kPa).
 - 3. Authority shall be 20 to 200 percent.

5. Gages: 3-1/2 inches (89 mm) in diameter, 2.5 percent wide-scale accuracy, and range to match transmitter input or output pressure.

2.06 TIME CLOCKS

- A. Solid-state, programmable time control with 4 separate programs each with up to 100 on-off operations; 1-second resolution; lithium battery backup; keyboard interface and manual override; individual on-off-auto switches for each program; 365-day calendar with 20 programmable holidays; choice of fail-safe operation for each program; system fault alarm; and communications package allowing networking of time controls and programming from PC.

2.07 ELECTRONIC SENSORS

- A. Description: Vibration and corrosion resistant; for wall, immersion, or duct mounting as required.
- B. Thermistor Temperature Sensors and Transmitters:
 1. Accuracy: Plus or minus 0.5 deg F (0.3 deg C) at calibration point.
 2. Wire: Twisted, shielded-pair cable.
 3. Insertion Elements for Liquids: Brass or stainless-steel socket with minimum insertion length of 2-1/2 inches (64 mm).
- C. RTDs and Transmitters:
 1. Accuracy: Plus or minus 0.2 percent at calibration point.
 2. Wire: Twisted, shielded-pair cable.
 3. Insertion Elements for Liquids: Brass socket with minimum insertion length of 2-1/2 inches (64 mm).
- D. Pressure Transmitters/Transducers:
 1. Static-Pressure Transmitter: Nondirectional sensor with suitable range for expected input, and temperature compensated.
 - a. Accuracy: 2 percent of full scale with repeatability of 0.5 percent.
 - b. Output: 4 to 20 mA.
 - c. Building Static-Pressure Range: 0- to 0.25-inch wg (0 to 62 Pa).
 - d. Duct Static-Pressure Range: 0- to 5-inch wg (0 to 1240 Pa) .
 2. Water Pressure Transducers: Stainless-steel diaphragm construction, suitable for service; minimum 150-psig (1034-kPa) operating pressure; linear output 4 to 20 mA.

3. Water Differential-Pressure Transducers: Stainless-steel diaphragm construction, suitable for service; minimum 150-psig (1034-kPa) operating pressure and tested to 300-psig (2070-kPa) ; linear output 4 to 20 mA.
4. Differential-Pressure Switch (Air or Water): Snap acting, with pilot-duty rating and with suitable scale range and differential.
5. Pressure Transmitters: Direct acting for gas, liquid, or steam service; range suitable for system; linear output 4 to 20 mA.

2.08 STATUS SENSORS

- A. Status Inputs for Pumps: Differential-pressure switch with pilot-duty rating and with adjustable pressure-differential range of 8 to 60 psig (55 to 414 kPa), piped across pump.
- B. Status Inputs for Electric Motors: Comply with ISA 50.00.01, current-sensing fixed- or split-core transformers with self-powered transmitter, adjustable and suitable for 175 percent of rated motor current.
- C. Voltage Transmitter (100- to 600-V ac): Comply with ISA 50.00.01, single-loop, self-powered transmitter, adjustable, with suitable range and 1 percent full-scale accuracy.
- D. Power Monitor: 3-phase type with disconnect/shorting switch assembly, listed voltage and current transformers, with pulse kilowatt hour output and 4- to 20-mA kW output, with maximum 2 percent error at 1.0 power factor and 2.5 percent error at 0.5 power factor.
- E. Current Switches: Self-powered, solid-state with adjustable trip current, selected to match current and system output requirements.
- F. Electronic Valve/Damper Position Indicator: Visual scale indicating percent of travel and 2- to 10-V dc, feedback signal.
- G. Water-Flow Switches: Bellows-actuated mercury or snap-acting type with pilot-duty rating, stainless-steel or bronze paddle, with appropriate range and differential adjustment, in NEMA 250, Type 1 enclosure.

2.09 ACTUATORS

- A. Electric Motors: Size to operate with sufficient reserve power to provide smooth modulating action or two-position action.
 1. Provide reversible shaded pole, split capacitor, synchronous, or stepped type electric motor.
 2. Permanent Split-Capacitor or Shaded-Pole Type: Gear trains completely oil immersed and sealed. Equip spring-return motors with integral spiral-spring mechanism in housings designed for easy removal for service or adjustment of limit switches, auxiliary switches, or feedback potentiometer.

3. Nonspring-Return Motors for Valves Larger Than NPS 2-1/2 (DN 65): Size for running torque of 150 in. x lbf (16.9 N x m) and breakaway torque of 300 in. x lbf (33.9 N x m).
 4. Spring-Return Motors for Valves Larger Than NPS 2-1/2 (DN 65) : Size for running and breakaway torque of 150 in. x lbf (16.9 N x m) .
 5. Nonspring-Return Motors for Dampers Larger Than 25 Sq. Ft. (2.3 sq. m) : Size for running torque of 150 in. x lbf (16.9 N x m) and breakaway torque of 300 in. x lbf (33.9 N x m) .
 6. Spring-Return Motors for Dampers Larger Than 25 Sq. Ft. (2.3 sq. m) : Size for running and breakaway torque of 150 in. x lbf (16.9 N x m) .
- B. Electronic Actuators: Direct-coupled type designed for minimum 60,000 full-stroke cycles at rated torque.
1. Valves: Size for torque required for valve close off at maximum pump differential pressure.
 2. Coupling: V-bolt and V-shaped, toothed cradle.
 3. Overload Protection: Electronic overload or digital rotation-sensing circuitry.
 4. Fail-Safe Operation: Mechanical, spring-return mechanism. Provide external, manual gear release on nonspring-return actuators.
 5. Power Requirements (Two-Position Spring Return): 120 -V ac.
 6. Power Requirements (Modulating): Maximum 10 VA at 24-V ac or 8 W at 24-V dc.
 7. Proportional Signal: 2- to 10-V dc or 4 to 20 mA, and 2- to 10-V dc position feedback signal.
 8. Temperature Rating: 40 to 104 deg F (5 to 40 deg C).
 9. Run Time: 12 seconds open, 5 seconds closed.

2.10 CONTROL VALVES

- A. Control Valves: Factory fabricated, of type, body material, and pressure class based on maximum pressure and temperature rating of piping system, unless otherwise indicated.
- B. Hydronic system globe valves shall have the following characteristics:
1. NPS 2 (DN 50) and Smaller: Class 125 bronze body, bronze trim, rising stem, renewable composition disc, and screwed ends with backseating capacity repackable under pressure.
 2. NPS 2-1/2 (DN 65) and Larger: Class 125 iron body, bronze trim, rising stem, plug-type disc, flanged ends, and renewable seat and disc.

3. Internal Construction: Replaceable plugs and stainless-steel or brass seats.
 - a. Single-Seated Valves: Cage trim provides seating and guiding surfaces for plug on top and bottom.
 - b. Double-Seated Valves: Balanced plug; cage trim provides seating and guiding surfaces for plugs on top and bottom.
4. Sizing: 5-psig (35-kPa) maximum pressure drop at design flow rate or the following:
 - a. Two Position: Line size.
 - b. Two-Way Modulating: Either the value specified above or twice the load pressure drop, whichever is more.
 - c. Three-Way Modulating: Twice the load pressure drop, but not more than value specified above.
5. Flow Characteristics: Two-way valves shall have equal percentage characteristics; three-way valves shall have linear characteristics.
6. Close-Off (Differential) Pressure Rating: Combination of actuator and trim shall provide minimum close-off pressure rating of 150 percent of total system (pump) head for two-way valves and 100 percent of pressure differential across valve or 100 percent of total system (pump) head
- C. Butterfly Valves: 200-psig (1380-kPa) , 150-psig (1034-kPa) maximum pressure differential, ASTM A 126 cast-iron or ASTM A 536 ductile-iron body and bonnet, extended neck, stainless-steel stem, field-replaceable EPDM or Buna N sleeve and stem seals.
 1. Body Style: Wafer.
 2. Disc Type: Nickel-plated ductile iron
 3. Sizing: 1-psig (7-kPa) maximum pressure drop at design flow rate.

2.11 CONTROL CABLE

- A. Control wiring for 24 volt circuits shall be insulated copper 18 AWG minimum and shall be rated for 300 VAC service.
- B. Analog signal wiring shall be 18 AWG single or multiple twisted pair. Each cable shall be 100 per cent shielded and have 20 AWG drain wire. Each wire shall have insulation rated to 300 VAC. Cables shall have an overall aluminum-polyester or tinned-copper (cable-shield tape), overall 20 AWG tinned copper cable drain wire and overall cable insulation rated to 300 VAC. Install analog signal wiring in conduit separate from AC power circuits. Circuits operating at more than 100 volts shall be in accordance with Division 26 - Electrical
- C. Optical cables shall be duplex 900 mm tight-buffer construction designed for intra-building environments. Sheath shall be UL listed OFNP in accordance with

NEC Article 770. Optical fiber shall meet the requirements of FDDI, ANSI X3T9.5 PMD for 62.5/125mm. Field terminate optical fibers with ST type connectors. Connectors shall have ceramic ferrules and metal bayonet latching bodies.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that power supply is available to control units and operator workstation.
- B. Verify that pipe-, and equipment-mounted devices are installed before proceeding with installation.

3.02 INSTALLATION

- A. Install software in control units and operator workstation(s). Implement all features of programs to specified requirements and as appropriate to sequence of operation.
- B. Connect and configure equipment and software to achieve sequence of operation specified.
- C. Install labels and nameplates to identify control components. Nameplates shall be permanently attached to HVAC control panel doors. For each field mounted piece of equipment, a plastic or metal engraved tag with equipment name and point identifier shall be attached.

3.03 ELECTRICAL WIRING AND CONNECTION INSTALLATION

- A. Install raceways, boxes, and cabinets according to Division 26 for Raceways and Boxes.
- B. Install building wire and cable according to Division 26 - ELECTRICAL.
- C. Install signal and communication cable as indicated below:
 - 1. Conceal cable, except in mechanical rooms and areas where other conduit and piping are exposed.
 - 2. Install exposed cable in raceway.
 - 3. Install concealed cable in raceway.
 - 4. Bundle and harness multiconductor instrument cable in place of single cables where several cables follow a common path.
 - 5. Fasten flexible conductors, bridging cabinets and doors, along hinge side; protect against abrasion. Tie and support conductors.
 - 6. Number-code or color-code conductors for future identification and service of control system, except local individual room control cables.

7. Install wire and cable with sufficient slack and flexible connections to allow for vibration of piping and equipment.
- D. Connect manual-reset limit controls independent of manual-control switch positions.
- E. Connect hand-off-auto selector switches to override automatic interlock controls when switch is in hand position.

3.04 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.
- B. Perform the following field tests and inspections and prepare test reports:
 1. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove and replace malfunctioning units and retest.
 2. Test and adjust controls and safeties.
 3. Test calibration of electronic controllers by disconnecting input sensors and stimulating operation with compatible signal generator.
 4. Test each point through its full operating range to verify that safety and operating control set points are as required.
 5. Test each control loop to verify stable mode of operation and compliance with sequence of operation. Adjust PID actions.
 6. Test each system for compliance with sequence of operation.
 7. Test software and hardware interlocks.
- C. DDC Verification:
 1. Verify that instruments are installed before calibration, testing, and loop or leak checks.
 2. Check instruments for proper location and accessibility.
 3. Check instrument installation for direction of flow, elevation, orientation, insertion depth, and other applicable considerations.
 4. Check flow instruments. Inspect tag number and line and bore size, and verify that inlet side is identified and that meters are installed correctly.
 5. Check pressure instruments, piping slope, installation of valve manifold, and self-contained pressure regulators.

6. Check temperature instruments and material and length of sensing elements.
7. Check control valves. Verify that they are in correct direction.
8. Check DDC system as follows:
 - a. Verify that DDC controller power supply is from emergency power supply, if applicable.
 - b. Verify that wires at control panels are tagged with their service designation and approved tagging system.
 - c. Verify that spare I/O capacity has been provided.
 - d. Verify that DDC controllers are protected from power supply surges.
- D. Replace damaged or malfunctioning controls and equipment and repeat testing procedures.

3.05 ADJUSTING

A. Calibrating and Adjusting:

1. Calibrate instruments.
2. Make three-point calibration test for both linearity and accuracy for each analog instrument.
3. Calibrate equipment and procedures using manufacturer's written recommendations and instruction manuals. Use test equipment with accuracy at least double that of instrument being calibrated.
4. Control System Inputs and Outputs:
 - a. Check analog inputs at 0, 50, and 100 percent of span.
 - b. Check analog outputs using milliampere meter at 0, 50, and 100 percent output.
 - c. Check digital inputs using jumper wire.
 - d. Check digital outputs using ohmmeter to test for contact making or breaking.
 - e. Check resistance temperature inputs at 0, 50, and 100 percent of span using a precision-resistant source.
5. Flow:
 - a. Set differential pressure flow transmitters for 0 and 100 percent values with 3-point calibration accomplished at 50, 90, and 100 percent of span.
 - b. Manually operate flow switches to verify that they make or break contact.

6. Pressure:
 - a. Calibrate pressure transmitters at 0, 50, and 100 percent of span.
 - b. Calibrate pressure switches to make or break contacts, with adjustable differential set at minimum.
 7. Temperature:
 - a. Calibrate resistance temperature transmitters at 0, 50, and 100 percent of span using a precision-resistance source.
 - b. Calibrate temperature switches to make or break contacts.
 8. Stroke and adjust control valves without positioners, following the manufacturer's recommended procedure, so that valve or damper is 100 percent open and closed.
 9. Stroke and adjust control valves with positioners, following manufacturer's recommended procedure, so that valve and damper is 0, 50, and 100 percent closed.
 10. Provide diagnostic and test instruments for calibration and adjustment of system.
 11. Provide written description of procedures and equipment for calibrating each type of instrument. Submit procedures review and approval before initiating startup procedures.
- B. Adjust initial temperature set points.
- C. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to three visits to Project during other than normal occupancy hours for this purpose

3.06 COMMISSIONING

The Commissioning Agent shall be responsible for commissioning the DDC system as specified in the commissioning section of the specifications.

3.07 TRAINING

The controls contractor shall provide the following training services:

1. One (1) day of on-site orientation by a field engineer who is fully knowledgeable of the specific installation details of the project. This orientation shall, at a minimum, consist of a review of the project as-built drawings, the control system software layout and naming conventions, and a walk through of the facility to identify panel and device locations.
2. General: Provide training course schedule, syllabus, and training materials 15 days prior to the start of training. Conduct training courses for designated

personnel in the maintenance and operation of the HVAC and DDC system. Orient training to the specific system being installed under this contract. Use operation and maintenance manual as the primary instructional aid. Operational and maintenance manuals shall be provided for each trainee with four additional sets, two sets delivered for archiving at the project site, one set for the mechanical contractor, and one set for the design engineer. Training manuals shall include an agenda, defined objectives and a detailed description of the subject matter for each lesson. Furnish audio-visual equipment and all other training materials and supplies. A training day is defined as 8 hours of classroom or lab instruction, excluding break and lunch periods, Monday thru Friday, during the daytime shift in effect at the training facility. For guidance, assume the attendees will have a high school education and are familiar with HVAC systems. The minimum amount of training for this project shall be 16 hours.

3. Operator Training: Operator training shall include the detailed review of the control installation drawings, points list, and equipment list. The instructor shall then walk through the building identifying the location of the control devices installed. For each type of systems, the instructor shall demonstrate how the system accomplishes the sequence of operation.
4. From the workstation, the operator shall demonstrate the software features of the system. As a minimum, the operator demonstrate and explain logging on, setting passwords, setting up a schedule, trend, point history, alarm, and archiving the database.
5. Maintenance Training: The system maintenance course shall be taught at the project site within one month after the completion of the operators training. The course shall last for one 8 hour training day. The course shall include answering questions from the last training session, trouble shooting and diagnostics, repair, instructions, preventive maintenance procedures and schedules, and calibration procedures.

END OF SECTION

SECTION 23 30 00 - AIR CONDITIONING AND VENTILATION

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

As specified in Division 1, Special Conditions, and General Conditions.

1.02 SUMMARY

Provide a complete and operating air conditioning system. "Provide" shall mean "Furnish and Install" when used herein. The air conditioning and ventilation systems shall include all equipment and all related items necessary to complete the work as shown on the drawings and herein specified. The work shall include the following:

1. Replace existing Air Cooled Chillers (three existing chillers will be replaced by two new chillers).
2. Replace existing Chilled Water Piping and Accessories.
3. Replace existing Chilled water pumps (three new pumps will be replaced by two new pumps).
4. Variable Frequency Drives (VFD)
5. Controls and control wiring.
6. Corrosion protection.
7. Adjusting, balancing and testing.
8. Painting and finishing.
9. Operating and maintenance instructions.
10. Manufacturer's literature, shop drawings, record drawings.
11. Maintenance Contract.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. SECTION 23 09 23 – DIRECT DIGITAL CONTROL SYSTEM
- B. SECTION 23 05 93 - TESTING, ADJUSTING AND BALANCING
- C. SECTION 23 08 00 - MECHANICAL HVAC COMMISSIONING
- D. Line voltage wiring and conduit is specified in DIVISION 26 – ELECTRICAL.

1.04 GENERAL REQUIREMENTS

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 Architect 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.

1.05 SUBMITTALS

- A. Submit in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.
- B. All work shall be done in accordance with applicable ordinances and codes of the County of Honolulu and in accordance with State Department of Health regulations.
- C. Work shall comply with applicable regulations of the State of Hawaii, National Fire Protection Association (NFPA) Pamphlet No. 90A, and American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 15-1994.
- D. Contractor shall obtain all permits, licenses and certificates and pay for all fees.
- E. Drawings and Specifications: The drawings and specifications are intended to cover the complete installation of systems to function as described. The omission of reference to any necessary item of labor or material shall not relieve the Contractor from providing such labor or material. Drawings do not attempt to show exact details of piping and ductwork. Provide offsets as necessary to avoid local obstructions or interferences with other trades.
 - 1. Contract Drawings: Mechanical plans are essentially diagrammatic, showing locations of ducts, and other mechanical equipment. Where locations are not dimensioned, they are approximate, and before installing, Contractor shall study existing conditions and make installation in most logical manner.
 - 2. Shop Drawings: As soon as practical, and within 30 days after award of contract and before commencement of installation of any materials and equipment, Six (6) sets of shop drawings shall be submitted. Submittals shall consist of a complete list of equipment and materials, including manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions. Incomplete and partial submittals will be returned unreviewed. Shop drawings shall also be submitted which contain layout drawings of ductwork and piping showing locations of hangers and supports, capacity curves or ratings to assure balanced refrigeration at the design conditions, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Where piping and equipment are to be supported other than as indicated, the details shall include loadings and types of frames, brackets, stanchions, or other supports. Control diagrams shall be submitted which identify each component and show all interconnected or interlocked components and the control sequences.

3. Record Drawings: Contractor shall keep a record set of drawings available at the jobsite on which all changes and additions in the Mechanical Work are shown. Contractor shall furnish the Architect and Owner with reproducible drawings of each installation showing the exact location of all items which are different from the original drawings.

1.06 WARRANTY

- A. All work in this Section shall be under warranty for a period of two (2) year from the date of acceptance of the work as a whole by the Owner. Should any equipment or material fall within this period, the Contractor shall replace or repair that item at no cost for material and/or services, if such is due to faulty workmanship or quality of material furnished.
- B. The Contractor shall be responsible for all damage to any part of the premises caused by failure in the equipment furnished under this section for a period of one year after the final acceptance of the work as a whole.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All materials delivered to the job site and installed shall be new, best of their respective grades and as specified on the drawings. Materials shall be of the same brand or manufacturer throughout for each class of material or equipment.
- B. Condenser and Chilled Water Piping, and Accessories:
 1. Pipe (4" and Smaller): Black steel, schedule 40, ASTM 120, or copper tubing, hard drawn, Type L, ASTM B88.
 2. Pipe (Over 4"): Black steel, schedule 40, ASTM A120.
 3. Fittings, Steel Pipe: Threaded for 2" and smaller, malleable iron, 125 pound class, ANSI B16.3. Threaded or welded for 2" and 3". Butt-weld type over 3", ANSI B16.9. Flanges for steel pipe shall be welded neck type, ANSI B16.5. Fittings shall be suitable for 150 psi cold water service.
 4. Fittings, Copper Tubing: Cast brass or wrought copper, solder joint type, ANSI B16.18 or B16.22. Solder shall be Type 95/5 tin-antimony, ASTM B32.
 5. Valves: Valves 2 inches and smaller shall be bronze body, with threaded connections for black steel pipe and soldered connections for copper tubing. Valves 2-1/2 and 3 inches shall be either bronze or cast iron with threaded, soldered, or flanged ends as required. Valves 4 inches and larger shall be iron body bronze mounted with flanged ends. Valves shall be designed for 150 psi service and 250o F. Bronze gate valves and check valves shall conform to MSS SP-80. Cast iron gate valves shall conform to MSS SP-70.
 - a. Butterfly valves shall be cast iron body, lug type, bubble-tight shut off, 150 pound class. Valves shall have corrosion resistant steel stems and corrosion resistant or bronze discs with molded elastomer seats.

Operators shall be manual throttling handles with minimum seven locking positions.

- b. Check valves shall be cast iron body silent check type, wafer style, spring actuated, bronze trim, 150 pound class.
- 6. Strainers: Cast bronze body Y-pattern type with monel or stainless steel and blow off connection fitted with a bronze hose bibb.
- 7. Flexible Connections: Flexible neoprene connectors with control rods, Mason Type MFNC or approved equal.
- 8. Hangers: MSS SP-58 and SP-69, types 1, 6, 9, or 11 for suspended piping. Provide turnbuckles type 13 and 15 where required for vertical adjustment. Maximum spacing shall be as specified in SP-69.
- 9. Thermometers: Dial type, 3-1/2 inch diameter, chrome plated case, white face with black digits, 2-degree increments, 0 - 100°F range.
- 10. Pressure Gages: Bronze bourdon tube, 4-1/2 inch round face, scale 0-100 lbs. with bronze gauge cocks.
- 11. Air Vent Valves: Automatic type, cast iron body with corrosion resistant steel float, linkage, and removable seat. Provide at all high points.
- 12. Drain Valves: Cock-valve, center drain, internal or external seat, 150 psi, brass, NPTF-1 threads. Provide at all low points.
- 13. Dielectric Unions: Provide dielectric unions between ferrous and non-ferrous piping.
- C. Insulation: Insulation, adhesives, coatings and accessories shall have surface burning characteristics as determined by ASTM E84, NFPA 255 and UL 723, not to exceed 25 for flame spread and 50 for smoke developed.
 - 1. Pipe Insulation Finishes:
 - a. All Purpose Jacket: Provide factory applied all purpose jacket with integral vapor barrier. Jackets in exposed locations shall have smooth, white surface suitable for painting.
 - b. Vapor Barrier Material: Fed. Spec. HH-B-100, Type I.
 - 2. Chilled Water Piping and Equipment Insulation:
 - a. Cellular Glass: ASTM C552, Type II, Class 1 or 2, preformed.
 - 3. Equipment Insulation (CHWPs):
 - a. Cellular Glass: ASTM C552, Type I.
 - b. Rigid Fiberglass: ASTM C612, Class 2 with vapor barrier.

2.02 EQUIPMENT

A. Air Cooled Screw Chiller with Copper Tube and Copper Fins (Part of 1st and 7th choices)

1. Provide and install as shown on the plans two air-cooled liquid chillers for outdoor installation, utilizing screw compressors, low sound fans, electronic expansion valve, with single point connection and constant flow capability. Each unit shall include: compressor, motor, starter, lubrication system, cooler, condenser, initial oil and refrigerant operating charges, microprocessor control system. The unit shall be factory assembled, single piece chassis. Contained within the package shall be all factory wiring, piping, controls, refrigerant charge, and special features & documentation required prior to field start-up.
2. Unit shall be rated in accordance with AHRI (Air-Conditioning, Heating and Refrigeration Institute) Standard 550/590, latest edition (U.S.A.) and all units shall be ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) 90.1 compliant. Unit construction shall comply with ASHRAE 15 Safety Code, UL (Underwriters Laboratories) latest edition, and ASME (American Society of Mechanical Engineers) applicable codes (U.S.A. codes). AHRI 370 – Standard for Sound rating of Large Outdoor Refrigerating and Air-Conditioning Equipment.
3. Unit shall be Underwriters Laboratories (UL) 1995 – Standard for Heating and Cooling Equipment listed. Unit shall be manufactured in a facility registered to ISO (International Organization for Standardization) 9001 Manufacturing Quality Standard. The chiller shall be pressure tested, evacuated and fully charged with HFC R-134A refrigerant and oil. In addition, a factory functional test to verify correct operation by cycling condenser fans, closing compressor contacts and reading data points from temperature pressure sensors. Chiller manufacturer shall have a factory trained and supported service organization within a 75 mile radius of the site.
4. Units shall be delivered to job site fully assembled and charged with refrigerant and oil by the manufacturer. Unit shall be stored and handled per manufacturer's instructions. During shipment, provide protective covering over vulnerable components. Fit nozzles and open pipe ends with enclosures. Unit controls shall be capable of withstanding 158°F storage temperature in the control compartment for an indefinite period of time.
5. The base rail is industrial-quality, 7 ga, zinc-dipped galvanized frame (with Magni-coated screws). Cabinet shall be galvanized steel casing with a baked enamel powder or pre-painted finish. Provide with a factory applied corrosion resistance coating. The coating or paint system shall withstand no less than 5,500-consecutive-hour salt spray application in accordance with standards ASTM B117.
6. Semi hermetic twin screw type compressors. Compressor motor shall be direct drive, 3500 rpm, protected by motor temperature sensors, suction gas

cooled motor. Capacity control shall utilize an infinitely modulating slide valve to modulate capacity from 100% to 15% full load.

7. The flooded evaporator shall be mechanically cleanable tubes in a shell-and-tube type cooler with removable heads. Tubes shall be internally enhanced seamless-copper type rolled into tube sheets. Shall be equipped with Victaulic-type water connections. Shell and cooler heads shall be insulated with 3/4-in. PVC foam (closed-cell) with a maximum K factor of 0.28. Design shall incorporate a minimum of 2 or 3 independent refrigerant circuits. Cooler shall be tested and stamped in accordance with ASME Code for a refrigerant working side pressure of 220 psig. Cooler shall have a maximum water-side pressure of 300 psig. Cooler shall have a cooler drain and vent. Cooler shall be provided with a factory-installed flow switch.
8. The condenser coils shall consist of copper tubes mechanically bonded into plate-type copper fins. A sub cooling coil shall be an integral part of the main condenser coil. The assembled condenser coils shall be leak tested and pressure tested at 656 psi. Provide factory mounted louver panels, panel louvers shall cover the condenser coils and protect from hail. Provide factory corrosive-resistant coating on condenser that can withstand the corrosive environment at close proximity of the sea. Corrosion durability shall be confirmed through testing to no less than 3000 hours salt spray per ASTM B117-90. A polymer strip shall prevent coil assembly from contacting sheet metal coil pan to maintain coating integrity and minimize corrosion potential between the coil and pan.
9. Refrigerant circuit components shall include replaceable-core filter drier, moisture indicating sight glass, electronic expansion valve, discharge service valves and liquid line service valves, and complete operating charge of both refrigerant R-134a and compressor oil.
10. The microprocessor-based unit controller shall be factory-installed and factory-tested.
11. The unit controls shall include following minimum components:
 - a. Microprocessor with non-volatile memory. Battery backup system shall not be accepted.
 - b. Separate terminal block for power and controls.
 - c. Separate 115-v power supply to serve all controllers, relays, and control components
 - d. ON/OFF control switch.
 - e. Replaceable solid-state controllers.
 - f. Pressure installed to measure suction, oil, economizer, and discharge Pressure. Thermistors installed to measure cooler entering and leaving fluid temperatures and outside air temperature.

12. The unit controls shall include following functions:

- a. Automatic circuit lead/lag.
- b. Capacity control based on leaving chilled fluid temperature and compensated by rate of change of return-fluid temperature with temperature set point accuracy to 0.1° F.
- c. Limiting the chilled fluid temperature pulldown rate at start-up to an adjustable range of 0.2° F to 2° F per minute to prevent excessive demand spikes at start-up
- d. Seven-day time schedule.
- e. Leaving chilled fluid temperature reset from return fluid and outside air temperature
- f. Chilled water pump start/stop control.
- g. Chiller control for parallel chiller applications without addition of hardware modules and control panels (requires thermistors).
- h. Timed maintenance scheduling to signal maintenance activities for strainer maintenance and user-defined maintenance activities.

13. The unit control panel shall include, as standard, a display:

- a. Touch screen display consisting of ¼ VGA LCD (liquid crystal display) with adjustable contrast and backlighting.
- b. Display shall allow a user to navigate through menus, select desired options and modify data.
- c. Shall be customizable and allow up to 72 data points
- d. Shall support both local equipment or network made for remote mount
- e. Shall allow access to configuration, maintenance, service, set point, time schedules, alarm history and status data
- f. Shall have one button for chiller on/off.
- g. Shall include three levels of password protection against unauthorized access to configuration and maintenance information, and display set up parameters
- h. Shall allow for easy connection of a portable hand held technician tool to access information and upload and/ or download chiller settings.
- i. Shall be compatible with the Carrier Comfort Network® (CCN) system and provide network alarm acknowledgement or indication and provide capability to fully monitor and control chiller.

- j. Alarms and parameters shall be capable of being displayed in full text.
 - k. shall be capable of displaying the last 50 alarms and will store a snapshot of a minimum of 20 status data parameters for each alarm.
 - l. Compressor run hours, number of starts, compressor current.
14. The unit control panel shall provide following protection:
- a. Loss of refrigerant charge.
 - b. Reverse rotation.
 - c. Low chilled fluid temperature.
 - d. Motor over temperature.
 - e. High pressure.
 - f. Electric overload.
 - g. Loss of phase.
 - h. Loss of chilled water flow.
15. Condenser-fan motors shall be totally enclosed, air over, single speed, 3-phase type with permanently lubricated bearings and Class F insulation.
16. Unit shall have single power connection. Control points shall be accessed through terminal block. Unit shall be shipped with factory control and power wiring installed.
17. Chilled water circuit shall be rated for 300 psig.
18. Unit shall be equipped with field-installed accessory consisting of hinged, louvered panels, which cover both ends of the unit. This accessory provides complete protection from hail.
19. Provide Product Data Including:
- a. Manufacturer's data for air cooled screw liquid chiller, at least 4 weeks prior to order a particular component, highlighted to show material, size, options, performance charts and curves, etc. in adequate detail to demonstrate compliance with contract requirements. Data shall include manufacturer's recommended installation instructions and procedures. Data shall be adequate to demonstrate compliance with contract requirements as specified within the paragraphs.
 - b. Spare Parts: Spare parts data for each different item of equipment specified.

- c. **Posted Instructions:** Posted instructions, at least 2 weeks prior to construction completion, including equipment layout, wiring and control diagrams, piping, valves and control sequences, and typed condensed operation instructions. The condensed operation instructions shall include preventative maintenance procedures, methods of checking the system for normal and safe operation, and procedures for safely starting and stopping the system. The posted instructions shall be framed under glass or laminated plastic and be posted where indicated by the Contracting Officer.
 - d. **Verification of Dimensions:** A letter, at least 2 weeks prior to ordering of the equipment and prior to the issuing of shop drawings, including the date the site was visited, conformation of existing conditions, and any discrepancies found.
20. **Manufacturer's Two Year Warranty:** Provide a complete parts and labor warranty for two year extended warranty after the chiller installation has been approved. Also provide a manufacturer's two year warranty for compressor shaft seal as applicable including one year inspections for open drive compressors.
21. As part of the Chiller Control package provided with the Chiller by the Chiller Manufacturer, provide a communications system that will allow a BACnet-based Direct Digital Control (DDC) system to access each Chiller's Microprocessor/Control Panel's vast array of point information (such as pressures, temperatures, status, runtimes, suction, Amps, KW, and others), without installing any duplicate sensors.

The BACnet Chiller translator will communicate to the DDC system bi-directionally, utilizing standard ASHRAE BACnet Protocol, and will allow full Monitoring and Reset control of the Chillers by the BACnet DDC system.

The Chiller Manufacturer is to provide all as necessary to accomplish this Chiller interface, such as complete list of all available Chiller Points, all BACnet Protocol Implementation Conformance Statements (PICS) files, any necessary Software, all necessary Passwords, Labor as needed, and all interface Hardware as necessary for complete and operational connection to the BACnet DDC System.

22. **Verification of Chiller Capacity and Efficiency:**

- a. Each chiller shall be factory witnessed performance tested with the proposed refrigerant under full load conditions in an ARI certified test facility. The manufacturer shall supply a certified test report to confirm performance as specified. Proper ARI certification documents for the test loop shall be made available upon request from the manufacturer for inspection.
- b. The performance test shall be run with clean tubes in accordance with ARI 550/590-98 to include the following:

- (1) A downward temperature adjustment per Section A6.3 shall be made to the design leaving evaporator water temperature to adjust from the design fouling to the clean tube condition.
 - (2) The load test shall be conducted with an entering condenser water temperature maintained at a constant 80 F. No condenser water relief is allowed.
 - (3) There shall be no exceptions to conducting the performance test with clean tubes and with temperature adjustments in (a) and (b). The manufacturer shall clean tubes, if necessary, prior to test to obtain a test fouling factor of 0.0000 hr·ft²·°F/Btu.
- c. The factory test instrumentation shall be per ARI Standard 550/590-98, and the calibration of all instrumentation shall be traceable to the National Institute of Standards and Technology.
 - d. Witnessed Factory Performance Test shall be conducted in accordance with ARI Standard 550/590-98 procedures and tolerances (unless directed otherwise).
 - e. Witnessed Performance Test: The chiller manufacturer shall provide a factory certified APLV point performance test per the latest version of ARI-550 test procedures. Test points shall be taken at 100% load, 75%, 50% and 25% of full load.
- (1) A certified test report of all data shall be submitted to the Engineer and Owner prior to completion of the project. The factory certified test report shall be signed by an officer of the manufacturer's company. Preprinted certification will not be acceptable; certification shall be in the original.
 - (2) The equipment will be accepted if the chillers pass the test when conducted in accordance with ARI Standard 550/590-98 and ARI allowed tolerances.
 - (3) If the equipment fails to perform within proposed tolerances, the manufacturer will be allowed to make necessary revisions to his equipment and retest as required. The equipment manufacturer shall not invoice for the air-cooled chillers(s) until successful completion of the performance test. The owner retains the right to accept a mutually agreed upon penalty deduction from the contract or rejection of the equipment.

B. Air Cooled Centrifugal Chiller with Copper Tube and Copper Fins (Part of 2nd and 8th choices)

1. Provide and install as shown on the plans a factory assembled, charged, and run tested, air-cooled packaged chiller. Each unit shall include one MagLev®, oil-free, magnetic bearing, variable speed two stage centrifugal compressor equipped with inlet guide vanes and load balance valve. Compressors to utilize its integrated variable speed drive in conjunction with the compressors

inlet guide vanes and load balancing valve, to optimize the chillers part load efficiency. The chiller evaporator, condenser, and electronic expansion valves shall be common to the compressor. The chiller shall operate with one refrigerant circuit. The chiller shall utilize R-134A refrigerant only.

2. Unit shall be rated in accordance with AHRI (Air-Conditioning, Heating and Refrigeration Institute) Standard 550/590, latest edition (U.S.A.) and all units shall be ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) 90.1 compliant. Unit construction shall comply with ASHRAE 15 Safety Code, UL (Underwriters Laboratories) latest edition, and ASME (American Society of Mechanical Engineers) applicable codes (U.S.A. codes). ASME Section VIII, NEC, ETL, CE, CSA, OSHA.
3. Each chiller shall be equipped with One flooded evaporator heat exchanger, one air cooled condenser equipped with high efficiency ECM condenser fan motors, one MagLev® Compressors with integrated variable speed drive, soft start, magnetic bearings, and inlet guide vanes, electronic expansion valves, one liquid level refrigerant sensor, one load balance valve per compressor, one master chiller control with necessary operating controls and system safeties, with all mechanical pressure safeties to be located at each individual compressor. Sound data shall be measured in accordance with AHRI 370 Standard. Unit sound performance data shall be measured at the highest level recorded at all load points. Unit sound performance shall not exceed a level of 100 dBA (total). Chiller shall feature single-point power connection not utilizing adjoining power cabinets as pull boxes. Lowest evaporator saturated suction temperature shall not be below 34F. Lowest leaving chilled water temperature shall not be below 38F
4. Chiller shall have one MagLev®, magnetic bearing, oil-free, two-stage, hermetical centrifugal compressor. Compressor shall contain integrated variable speed drive with soft start and movable inlet guide vane assembly. Compressor shall be microprocessor controlled. Compressor shall be networked to master controller via Etherbus connection with a refresh rate of 50 microseconds and the micro processor of the compressor to control the variable speed drive and inlet guide vanes on the compressor to maximize unit efficiency. The compressor shall be capable of coming to a controlled safe stop in the event of a power outage. Unit shall be capable of auto restart in the event of a power outage, once power has been restored. The compressor shall be mechanically and electrically isolated to facilitate proper maintenance, service, and or removal.
5. All heat exchangers shall be built in accordance to Section VIII of the ASME code and carry a manufacturer's name plate certifying ASME compliance. The evaporator shall be of shell and tube construction. Evaporator shall be constructed of a single shell. Evaporator shall be flooded type with refrigerant surrounding the tubes and water passing through the tubes. Tubes shall be enhanced and rifled. Internal intermediate tube supports, liquid eliminator baffle plate, pressure relief vent, water drains and vents required. Pressure relief to be spring loaded self seating type in accordance to ASHRAE 15 standard. Evaporator to be pressure tested at a test pressure of 1.1 times the operating pressure however no less than 100 PSIG. Evaporator, water boxes, suction piping, and any other component subject to condensate shall be

insulated with a UL recognized 1 ½" closed cell insulation. All joints and seams shall be sealed so a vapor barrier is created. Factory mounted differential pressure transmitters shall be provided for flow safety. Paddle flow switches are not acceptable. Heat Exchangers shall feature enhanced and rifled individual tubes. Tubes shall be individually replaceable. Tubes shall be mechanically rolled into steel tube sheets and sealed with Loctite® or equivalent sealant. Waterside to be designed to a minimum of 150 psig. Piping connections shall be either mechanical grooved connection. Evaporator tubes shall be serviceable without removing water connections when an even number of passes is specified.

6. The condenser shall be of aluminum fin with copper tubes. Condenser shall be constructed in a "V" configuration. Condensers shall be equipped with no fewer than six (6) and no greater than sixteen (16) ECM type condenser fan motor assemblies. Motors shall incorporate integrated active temperature management to ensure motor protection. Blades shall be of aluminum construction. Fans must be designed to ensure proper acoustical and energy performance. Condenser coil shall be provided with factory applied corrosion resistance coating. Corrosion durability shall be confirmed through testing to no less than 3,000 hours salt spray per ASTM B117-90.
7. Chiller shall have one electronic expansion valve. Fixed orifice and float controls are not acceptable. The electronic expansion valve shall operate from minimum chiller capacity to the full load of the chiller's capacity. A low side refrigerant level sensor, constructed out of stainless steel, with a stainless steel canister with sight glass shall be used to provide feedback to the expansion valves for proper control. This ensures that a proper liquid seal is always present on the compressors power electronics. A refrigerant sight glass shall be provided on the main liquid line feeding the electronic expansion valves. Isolation valves before and after the EXV shall be provided for proper service without removing the entire refrigerant charge.
8. The prime mover shall be of sufficient size to effectively meet the compressor horsepower requirements. Prime mover shall be one liquid refrigerant cooled, hermetically sealed, permanent magnet synchronous motor. Motor shall be controlled by variable speed drive. Motor shall utilize soft start capabilities with an inrush current no greater than two amps. Motor shall have internal thermal overload protection devices embedded in the winding of each phase of the motor.
9. The chiller shall be equipped with a variable speed drive. The variable speed drives shall utilize Insulated Gate Bi-Polar Transistors. Variable speed drive shall create its own simulated AC voltage for the motor connected to it. Acceptable applied voltages are: 460 Volt 60 hertz. Variable Speed drive in conjunction with the compressors inlet guide vanes shall be controlled via compressor microprocessor to optimally match the lift and load requirements. The compressor circuit shall have a line reactor and circuit breaker.
10. The unit shall feature an industrial grade CPU with an Intel-based processor. Processor must compute at a processing speed of 1 Ghz or faster with a minimum of 1 GB of Ram, 2 GB solid state drive capacity with internal battery backup/UPS. All chiller and compressor I/O to be controlled via Etherbus with

an update rate of 50 microseconds. Controller to have a minimum of 5.7 inch touch screen interface that can be disconnected and chillers still runs properly. Controller shall use control logic to optimize loading, unloading, and control of multiple MagLev compressors. User shall operate chiller via HMI located on touch screen or remote web connection. All system parameters, compressor status, alarms, and faults, trend graphing, fault logging, BAS communication window, manuals, wiring diagrams, log book, and control set points shall be viewable. Shall be able to fully commission and adjust all components on the chiller, including the compressors without an auxiliary computer or software.

11. The unit controls shall include following minimum components:
12. Manufacturer's Two Year Warranty: Provide a complete parts and labor warranty for two year extended warranty after the chiller installation has been approved. Also provide a manufacturer's two year warranty for compressor shaft seal as applicable including one year inspections for open drive compressors.
13. As part of the Chiller Control package provided with the Chiller by the Chiller Manufacturer, provide a communications system that will allow a BACnet-based Direct Digital Control (DDC) system to access each Chiller's Microprocessor/Control Panel's vast array of point information (such as pressures, temperatures, status, runtimes, suction, Amps, KW, and others), without installing any duplicate sensors.

The BACnet Chiller translator will communicate to the DDC system bi-directionally, utilizing standard ASHRAE BACnet Protocol, and will allow full Monitoring and Reset control of the Chillers by the BACnet DDC system.

The Chiller Manufacturer is to provide all as necessary to accomplish this Chiller interface, such as complete list of all available Chiller Points, all BACnet Protocol Implementation Conformance Statements (PICS) files, any necessary Software, all necessary Passwords, Labor as needed, and all interface Hardware as necessary for complete and operational connection to the BACnet DDC System.

14. Verification of Chiller Capacity and Efficiency:
 - a. Each chiller shall be factory witnessed performance tested with the proposed refrigerant under full load conditions in an ARI certified test facility. The manufacturer shall supply a certified test report to confirm performance as specified. Proper ARI certification documents for the test loop shall be made available upon request from the manufacturer for inspection.
 - b. The performance test shall be run with clean tubes in accordance with ARI 550/590-98 to include the following:
 - (1) A downward temperature adjustment per Section A6.3 shall be made to the design leaving evaporator water temperature to adjust from the design fouling to the clean tube condition.

- (2) The load test shall be conducted with an entering condenser water temperature maintained at a constant 80 F. No condenser water relief is allowed.
- (3) There shall be no exceptions to conducting the performance test with clean tubes and with temperature adjustments in (a) and (b). The manufacturer shall clean tubes, if necessary, prior to test to obtain a test fouling factor of 0.0000 hr·ft²·°F/Btu.
- c. The factory test instrumentation shall be per ARI Standard 550/590-98, and the calibration of all instrumentation shall be traceable to the National Institute of Standards and Technology.
- d. Witnessed Factory Performance Test shall be conducted in accordance with ARI Standard 550/590-98 procedures and tolerances (unless directed otherwise).
- e. Witnessed Performance Test: The chiller manufacturer shall provide a factory certified APLV point performance test per the latest version of ARI-550 test procedures. Test points shall be taken at 100% load, 75%, 50% and 25% of full load.
 - (1) A certified test report of all data shall be submitted to the Engineer and Owner prior to completion of the project. The factory certified test report shall be signed by an officer of the manufacturer's company. Preprinted certification will not be acceptable; certification shall be in the original.
 - (2) The equipment will be accepted if the chillers pass the test when conducted in accordance with ARI Standard 550/590-98 and ARI allowed tolerances.
 - (3) If the equipment fails to perform within proposed tolerances, the manufacturer will be allowed to make necessary revisions to his equipment and retest as required. The equipment manufacturer shall not invoice for the air-cooled chillers(s) until successful completion of the performance test. The owner retains the right to accept a mutually agreed upon penalty deduction from the contract or rejection of the equipment.

C. Air Cooled Scroll Chiller with Copper Tube and Copper Fins (Part of 3rd and 9th choices)

- 1. Provide and install as shown on the plans two air-cooled liquid chillers for outdoor installation, utilizing scroll compressors, low sound fans, electronic expansion valve, with single point connection and constant flow capability. Each unit shall include: compressor, motor, starter, lubrication system, cooler, condenser, initial oil and refrigerant operating charges, microprocessor control system. The unit shall be factory assembled, single piece chassis. Contained within the package shall be all factory wiring,

pipng, controls, refrigerant charge, and special features & documentation required prior to field start-up.

2. Unit shall be rated in accordance with AHRI (Air-Conditioning, Heating and Refrigeration Institute) Standard 550/590, latest edition (U.S.A.) and all units shall be ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) 90.1 compliant. Unit construction shall comply with ASHRAE 15 Safety Code, UL (Underwriters Laboratories) latest edition, and ASME (American Society of Mechanical Engineers) applicable codes (U.S.A. codes). AHRI 370 – Standard for Sound rating of Large Outdoor Refrigerating and Air-Conditioning Equipment.
3. Unit shall be Underwriters Laboratories (UL) 1995 – Standard for Heating and Cooling Equipment listed. Unit shall be manufactured in a facility registered to ISO (International Organization for Standardization) 9001 Manufacturing Quality Standard. The chiller shall be pressure tested, evacuated and fully charged with HFC R-410A refrigerant and oil. In addition, a factory functional test to verify correct operation by cycling condenser fans, closing compressor contacts and reading data points from temperature pressure sensors. Chiller manufacturer shall have a factory trained and supported service organization within a 75 mile radius of the site.
4. Units shall be delivered to job site fully assembled and charged with refrigerant and oil by the manufacturer. Unit shall be stored and handled per manufacturer's instructions. During shipment, provide protective covering over vulnerable components. Fit nozzles and open pipe ends with enclosures. Unit controls shall be capable of withstanding 158°F storage temperature in the control compartment for an indefinite period of time.
5. Frame shall be heavy-gage, with a powder coated paint finish for both aesthetic appeal and to offer more resistance to corrosion. Units shall be constructed out of galvanized steel frame with galvanized steel panels and access doors. Component surfaces shall be finished with a powder-coated paint. The coating or paint system shall withstand a minimum of 5500 consecutive-hour salt spray application in accordance with standards ASTM B117.
6. Fully hermetic, direct-drive, scroll type compressors. Compressor motors shall be cooled by refrigerant gas passing through motor windings and shall have internal line break thermal and current overload protection internal to the compressor. Each compressor shall include: centrifugal oil pump, oil level sight glass and oil charging valve. Each compressor will have crankcase heaters installed and properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. Compressors shall be mounted on rubber in shear vibration isolators. Staging of compressors shall provide unloading capability.
7. The evaporator shall be a high efficiency, brazed plate-to-plate type heat exchanger consisting of parallel plates. Braze plates shall be stainless steel with a copper braze material. The water side working pressure shall be rated at 150 psig and tested with 1.5 times maximum allowable water side working pressure. The refrigerant side working pressure shall be rated at 430 psig

and tested at 1.1 maximum allowable refrigerant side working pressure. Unit shall be provided with a factory-installed flow switch. All connections shall use standard Victaulic-type fittings. Cooler fluid inlet line shall have a 40 mesh strainer just ahead of the cooler.

8. The condenser coils shall consist of copper tubes mechanically bonded to copper tube sheets. A polymer strip shall prevent coil assembly from contacting sheet metal coil pan to maintain coating integrity and minimize corrosion potential between the coil and pan. A sub cooling coil shall be an integral part of the main condenser coil. The assembled condenser coils shall be leak tested and pressure tested at 656 psi. Provide factory mounted louver panels, panel louvers shall cover the condenser coils and protect from hail. Provide factory corrosive-resistant coating on condenser that can withstand the corrosive environment at close proximity of sea. Corrosion durability shall be confirmed through testing to no less than 3000 hours salt spray per ASTM B117-90.
9. Refrigerant circuit components shall include filter drier, moisture indicating sight glass, electronic expansion device, liquid line service valves, and complete operating charge of both refrigerant R-410A and compressor oil.
10. Mount starters in a UL1995 rated panel for outdoor use. The starter shall be an across-the-line configuration, factory-mounted and fully pre-wired to the compressor motor(s) and control panel. Unit shall have a single point power connection for main incoming unit power. A control power transformer shall be factory-installed and factory-wired to provide unit control power. Power line connection type shall be standard with terminal block. Unit wiring shall run in liquid-tight conduit.
11. The microprocessor-based unit controller shall be factory-installed and factory-tested.
12. The unit display shall provide following data:
 - a. Water and air temperatures.
 - b. Refrigerant levels and temperatures.
 - c. Flow Switch Status.
 - d. Compressor starts and run times.
 - e. Display Diagnostics.
13. The unit controller shall provide chilled water reset based on return water as an energy saving options.
14. Chilled water temperature control shall be microprocessor-based, proportional and integral controller to show water and refrigerant temperature, refrigerant pressure and diagnostics. This microprocessor-based controller is to be supplied with each chiller by the chiller manufacturer. Controls shall include the following readouts and diagnostics:

- a. Low Evaporator refrigerant temperature and/or pressure.
 - b. High condenser refrigerant pressure.
 - c. Low oil flow.
 - d. Motor current overload.
 - e. High compressor discharge temperature.
 - f. Electronic distribution faults: phase loss, phase imbalance or phase reversal.
 - g. Unit shall be shipped with factory control and control power wiring installed.
 - h. On chiller, mount weather proof control panel, containing starters, power and control wiring, factory wired with terminal block power connection.
15. The unit controller shall utilize the following components to automatically take action to prevent unit shut down due to abnormal operating conditions which will perform as follows:
- a. High pressure switch that is set 20 psig lower to automatically shut off a compressor to help prevent a high pressure condenser control trip. One switch is required for each compressor and indicating light shall also be provided.
 - b. Motor surge protector that is set at 95% of compressor RLA that will automatically shut off a compressor to help prevent an over current trip. One protector is required for each compressor and indicating light shall also be provided.
 - c. Low pressure switch that is set at 5 psig above the factory low pressure switch that will automatically shut off a compressor to help prevent a low evaporator temperature trip. One switch is required for each compressor and indicating light shall also be provided.
16. Provide the following safety controls with indicating lights or diagnostic readouts:
- a. Low chilled water temperature protection.
 - b. High refrigerant pressure.
 - c. Low oil flow protection.
 - d. Loss of chilled water flow.
 - e. Contact for remote emergency shutdown.

- f. Motor current overload.
- g. Phase reversal/unbalance/single phasing.
- h. Over/under voltage.
- i. Failure of water temperature sensor used by controller.
- j. Compressor status (on/off)

17. Provide following operating control:

- a. Chilled water pump output relay that closes when the chiller is given a signal to start.
- b. High ambient pressure controller that shuts off a compressor to keep head pressure under control and help prevent high pressure nuisance trip outs on days when outside ambient is above design.
- c. Compressor current sensing limit that shuts off a compressor to help prevent current overload nuisance trips.
- d. Auto lead-lag functions that constantly even out run hours and compressor starts automatically.

18. Provide user interface on the front of the panel. If display is on the inside of the panel, then a control display access door shall be provided to allow access to the display without removal of panels. Provide user interface with a minimum of the following features:

- a. Leaving chilled water set point adjustment from LCD input.
- b. Entering and leaving chilled water temperature output.
- c. Percent RLA output for each compressor.
- d. Pressure output of condenser for each circuit.
- e. Pressure output of evaporator for circuits one and two.
- f. Ambient temperature output.
- g. Voltage output.
- h. Current limit set point adjustment from LCD input.

19. Provide Product Data Including:

- a. Manufacturer's data for air cooled scroll liquid chiller, at least 4 weeks prior to order a particular component, highlighted to show material, size, options, performance charts and curves, etc. in adequate detail to demonstrate compliance with contract requirements. Data shall include

manufacturer's recommended installation instructions and procedures. Data shall be adequate to demonstrate compliance with contract requirements as specified within the paragraphs.

- b. Spare Parts: Spare parts data for each different item of equipment specified.
 - c. Posted Instructions: Posted instructions, at least 2 weeks prior to construction completion, including equipment layout, wiring and control diagrams, piping, valves and control sequences, and typed condensed operation instructions. The condensed operation instructions shall include preventative maintenance procedures, methods of checking the system for normal and safe operation, and procedures for safely starting and stopping the system. The posted instructions shall be framed under glass or laminated plastic and be posted where indicated by the Contracting Officer.
 - d. Verification of Dimensions: A letter, at least 2 weeks prior to ordering of the equipment and prior to the issuing of shop drawings, including the date the site was visited, conformation of existing conditions, and any discrepancies found.
20. Manufacturer's Two Year Warranty: Provide a complete parts and labor warranty for two year extended warranty after the chiller installation has been approved. Also provide a manufacturer's two year warranty for compressor shaft seal as applicable including one year inspections for open drive compressors.
21. As part of the Chiller Control package provided with the Chiller by the Chiller Manufacturer, provide a communications system that will allow a BACnet-based Direct Digital Control (DDC) system to access each Chiller's Microprocessor/Control Panel's vast array of point information (such as pressures, temperatures, status, runtimes, suction, Amps, KW, and others), without installing any duplicate sensors.

The BACnet Chiller translator will communicate to the DDC system bi-directionally, utilizing standard ASHRAE BACnet Protocol, and will allow full Monitoring and Reset control of the Chillers by the BACnet DDC system.

The Chiller Manufacturer is to provide all as necessary to accomplish this Chiller interface, such as complete list of all available Chiller Points, all BACnet Protocol Implementation Conformance Statements (PICS) files, any necessary Software, all necessary Passwords, Labor as needed, and all interface Hardware as necessary for complete and operational connection to the BACnet DDC System.

22. Verification of Chiller Capacity and Efficiency:

- a. Each chiller shall be factory witnessed performance tested with the proposed refrigerant under full load conditions in an ARI certified test facility. The manufacturer shall supply a certified test report to confirm performance as specified. Proper ARI certification documents for the test

loop shall be made available upon request from the manufacturer for inspection.

- b. The performance test shall be run with clean tubes in accordance with ARI 550/590-98 to include the following:
 - (1) A downward temperature adjustment per Section A6.3 shall be made to the design leaving evaporator water temperature to adjust from the design fouling to the clean tube condition.
 - (2) The load test shall be conducted with an entering condenser water temperature maintained at a constant 80 F. No condenser water relief is allowed.
 - (3) There shall be no exceptions to conducting the performance test with clean tubes and with temperature adjustments in (a) and (b). The manufacturer shall clean tubes, if necessary, prior to test to obtain a test fouling factor of 0.0000 hr-ft²·°F/Btu.
- c. The factory test instrumentation shall be per ARI Standard 550/590-98, and the calibration of all instrumentation shall be traceable to the National Institute of Standards and Technology.
- d. Witnessed Factory Performance Test shall be conducted in accordance with ARI Standard 550/590-98 procedures and tolerances (unless directed otherwise).
- e. Witnessed Performance Test: The chiller manufacturer shall provide a factory certified APLV point performance test per the latest version of ARI-550 test procedures. Test points shall be taken at 100% load, 75%, 50% and 25% of full load.
 - (1) A certified test report of all data shall be submitted to the Engineer and Owner prior to completion of the project. The factory certified test report shall be signed by an officer of the manufacturer's company. Preprinted certification will not be acceptable; certification shall be in the original.
 - (2) The equipment will be accepted if the chillers pass the test when conducted in accordance with ARI Standard 550/590-98 and ARI allowed tolerances.
 - (3) If the equipment fails to perform within proposed tolerances, the manufacturer will be allowed to make necessary revisions to his equipment and retest as required. The equipment manufacturer shall not invoice for the air-cooled chillers(s) until successful completion of the performance test. The owner retains the right to accept a mutually agreed upon penalty deduction from the contract or rejection of the equipment.

D. Air Cooled Screw Chiller with Copper Tube and Aluminum Fins (Part of 4th and 10th choices)

Provide Aluminum fins in lieu of Copper fins for the screw chiller described above under bid options 1st and 7th choices. Coils shall have a factory applied corrosion resistance coating that can withstand no less than 3,000 hour salt spray test per ASTM B117. All other information provided under bid options 1st and 7th choices will be applicable for these bid options.

E. Air Cooled Centrifugal Chiller with Copper Tube and Aluminum Fins (Part of 5th and 11th choices)

Provide Aluminum fins in lieu of Copper fins for the centrifugal chiller described above under bid options 2nd and 8th choices. Coils shall have a factory applied corrosion resistance coating that can withstand no less than 3,000 hour salt spray test per ASTM B117. All other information provided under bid options 2nd and 8th choices will be applicable for these bid options.

F. Air Cooled Scroll Chiller with Copper Tube and Aluminum Fins (Part of 6th and 12th choices)

Provide Aluminum fins in lieu of Copper fins for the scroll chiller described above under bid options 3rd and 9th choices. Coils shall have a factory applied corrosion resistance coating that can withstand no less than 3,000 hour salt spray test per ASTM B117. All other information provided under bid options 3rd and 9th choices will be applicable for these bid options.

G. Chilled Water Pumps

1. Drip-rim base mounted end suction centrifugal pumps, bronze fitted, with totally enclosed motors and coupling guards. TACO, Aurora, PACO or approved equal.
2. Suction and discharge shall be flanged. Casing shall have bronze replaceable wear rings. Impeller shall be bronze, statically, dynamically, and hydraulically balanced. Motor shaft shall be one piece stainless steel. Pump shall have mechanical shaft seal, and be properly vented to the suction connection. Pump shall be electric motor operated, 1750 rpm maximum. Pump shall be selected to be non-overloading operation along any point on its characteristic curve. Motor starters shall be electronic soft start type. Pumps shall be installed on existing concrete pump base, properly leveled, grouted-in, and realigned before operation, in accordance with the manufacturer's instructions. Flexible couplings shall be installed at the suction and discharge connections to the pump where indicated on the drawings. Gages and gage cocks shall be provided at pump suction and discharge connections as indicated. The pump performance shall conform to the schedule indicated. Provide pump with drain connection. Provide TEFC, class F motor. Motor shall be premium efficiency and inverter rated.

H. Electric Motors

1. Provide motors, controllers, integral disconnects, contactors, and controls that matches the pumps. Provide electrical equipment, including motors and wiring, as specified in Section 26 20 00. Automatic control and protective or signal devices required for the operation specified and control wiring required for controls and devices specified, but not shown, shall be provided. For packaged equipment, the manufacturer shall provide controllers including the required monitors and timed restart.
 2. Provide squirrel-cage medium induction motors, including motors that are part of a system and that meet the efficiency ratings for premium efficiency motors in accordance with NEMA MG 1.
 3. Provide motor in the hp, voltage, and phase indicated and in accordance with NEMA MG 1. Motors shall be TEFC, insulation class F, SF of 1.15 rated for continuous duty variable frequency drive service. Motor duty requirements shall allow for maximum frequency start-stop operation and minimum encountered interval between start and stop. Motor torque shall be capable of accelerating the connected load within 20 seconds with 80 percent of the rated voltage maintained at motor terminals during one starting period. Motor bearings shall be fitted with grease supply fittings and grease relief to outside of the enclosure. Provide Baldor Super-E EM premium efficient motors or approved equal.
- I. Variable Frequency Drives: Provide VFD matched to equipment size with BACnet card and combination starter.

J. Controls Devices:

1. General: The control system shall be as indicated on the drawings and described in the specifications. Controls shall be DDC in accordance with Section 23 09 23 that will provide the required sequence of operation control. Schematic control diagrams shall be submitted. All control work shall be performed by an experienced and licensed controls sub-contractor.
2. Automatic Valves: Sized by manufacturer for indicated flow and pressure drop, 150 psi rated, with close-off ratings exceeding maximum upstream pressure. Valves shall be 2-way or 3-way, modulating or 2 position, as indicated. Modulating valves shall have valve-stem indicators.
3. Valve Operators: Sized by manufacturer for the conditions to be encountered, full-proportioning or 2-position type, with spring return to normal position. Electric and electronic modulating operators shall be hydraulic or oil-immersed gear-train type.
4. Control Relays: General purpose type, with plug in socket screw terminal connections, with 2 normally open and 2 normally closed sets of contacts unless otherwise indicated, and coil voltage as indicated.

5. Wiring and Accessories: Provide all required interconnecting wiring to complete the system. Provide transformers as required. Electrical work shall comply with local codes and the electrical section of this specification.
6. Motor Starters: Horsepower rated manual starters shall be provided, as indicated. Starters shall conform to NEMA ICS and shall have thermal overload protection and other appurtenances necessary and as indicated. Shall be new and as specified for variable speed drives.
7. Programmable Controllers:
 - a. The Control System shall be composed of one or more independent, stand-alone, microprocessor based Programmable Controllers to manage the local strategies. Programmable Controllers shall be able to execute DDC PID control loops at a selectable frequency from at least once every 5 seconds. The controller shall scan and update the process value and output generated by this calculation at this same frequency.
 - b. Controller hardware shall be suitable for the anticipated ambient conditions.
 - (1) Controller used in conditioned ambient shall be mounted in NEMA 1 type enclosures, and shall be rated for operation at 32°F to 120°F.
 - c. The Controller shall have sufficient memory to support its operating system, database, and programming requirements.
 - d. Controllers that perform scheduling shall have a real time clock.
 - e. The Controller shall continually check the status of its processor and memory circuits. If an abnormal operation is detected, the controller shall
 - (1) Assume a predetermined failure mode.
 - (2) Generate an alarm notification.
8. Temperature Sensors:
 - a. Temperature sensors shall be Resistance Temperature Device (RTD) or Thermistor.
 - b. Immersion sensors shall be provided with a separable stainless steel well. Pressure rating of well is to be consistent with the system pressure in which it is to be installed.
 - c. Provide matched temperature sensors for differential temperature measurement. Differential accuracy shall be within 0.2 F.
9. Flow liquids not harmful to the specified materials and shall prove liquid flow. Provide with NEMA1 enclosures.

10. Chiller manufacturer shall provide AHRI 550/590 Certified factory test report prior to shipping the chiller to the job site. Factory test report shall confirm and verify that the chiller meets the specified chiller performance requirement under the specified operating condition as indicated in the contract drawings.

PART 3 – EXECUTION

3.01 COOPERATION WITH OTHER TRADES AND CONFLICT IN WORK

- A. Contractor shall examine all drawings of proposed work and coordinate his work with other trades. Work conflicts shall be brought to attention of Contracting Officer and work rearranged or modified in accordance with his decision.
- B. If changes in indicated locations or arrangements of work are required, they shall be made by Contractor without additional charge to the State provided that these changes were ordered before work is installed and no extra material or labor is required.
- C. Should the Contractor determine that extra material and labor will be required to accommodate any rearrangement, he shall first submit detailed estimates of cost for required changes and proceed with work only upon written approval by the State.

3.02 EQUIPMENT INSTALLATION

- A. Equipment shall be installed as indicated and in accordance with all manufacturer's recommendations and instructions.
- B. Provide controls as indicated for proper operation of the equipment. Provide all necessary relays, contactors, enclosures and transformers to ensure proper system operation.

3.03 INSTALLATION REQUIREMENTS

Necessary supports and vibration isolators shall be provided for equipment and appurtenances as required. Equipment shall be installed in accordance with manufacturer's instructions.

3.04 CHILLED WATER PIPING INSTALLATION

- A. Piping: Pipe and fitting installation shall conform to the requirements of ANSI B31.1. Pipe shall be cut accurately to measurements established at the jobsite, and worked into place without springing or forcing, completely clearing all windows, doors, and other openings. Pipe or tubing shall be cut square, shall have burrs removed by reaming, and shall be so installed as to permit free expansion and contraction. Changes in direction shall be made with fittings. Horizontal mains shall be sloped to drain not less than 1 inch in 40 feet. Reducing fittings shall be used for changes in pipe sizes. Open ends of pipelines and equipment shall be capped or plugged during installation to keep foreign materials out of the systems. Connections to equipment shall be made with malleable iron unions for steel pipe 2-1/2 inches or less in diameter, and with flanges for pipe 3 or more inches in diameter. Unions for copper pipe or tubing

shall be brass or bronze. Connections between ferrous and copper piping shall be electrically isolated from each other with dielectric unions.

- B. Joints: Joints between sections of pipe and between pipe and fittings shall be threaded, flanged, or welded as specified.
 - i. Threaded joints shall be made with tapered threads and made tight with a stiff mixture of graphite and oil or polytetrafluoroethylene tape or equivalent thread joint compound or material, applied to the male threads only.
 - ii. Joints in copper tubing shall be cut square, ends shall be reamed, and all filings and dust wiped from interior of pipe. Joints shall be soldered with solder applied and drawn through the full fitting length. Excess solder shall be wiped from joint before solder hardens.
 - iii. Welded joints shall be fusion-welded unless otherwise required. Beveling, alignment, heat treatment, and inspection of weld shall conform to ANSI B31.1. Weld defects shall be removed and repairs made to the weld, or the weld joints shall be entirely removed and rewelded. Electrodes shall be stored and dried in accordance with AWS D1.1 or as recommended by the manufacturer. Electrodes that have been wetted or that have lost any of their coating shall not be used.
- C. Flanges And Unions: Flanges and unions shall be faced true. Flanges shall be provided with 1/16-inch gasket and made square and tight.
- D. Dielectric Unions: Dielectric unions shall have metal connections on both ends threaded to match adjacent piping. Metal parts of dielectric unions shall be separate with nylon insulator to prevent current flow between dissimilar metals.
- E. Hangers and Supports: Hangers used for support of piping of 2 inches nominal pipe size and larger shall be fabricated to permit adequate adjustment after erection while still supporting the load. Pipe guides and anchors shall be installed, as indicated, to keep pipes in accurate alignment, to direct the expansion movement, and to prevent buckling, swaying and undue strain.
- F. Pipe Penetrations Thru Walls: Pack annular space between pipe and wall with a fire seal of mineral wool or similar non-combustible material. Seal with silicone sealant or caulking.

3.05 CHILLED WATER PUMPS

- A. Support, anchor and guide so that no strains are imposed on pump by weight or thermal movement of piping.
- B. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.
- C. Provide line sized shut-off valve and strainer on pump suction, and line sized silent check valve and balancing valve on pump discharge.

- D. Install close coupled and base mounted pumps on concrete base, with anchor bolts, set and level, and grout in place.
- E. Provide air vent valve on pump casing.
- F. Provide drain piping with cleanout tees.
- G. Provide pig tails or petcocks for pressure gages on suction and discharge for water balancing measurements.

3.06 INSULATION

- A. Insulation shall be installed by an experienced licensed insulation contractor in accordance with best trade practices. Insulation shall be continuous through hangers and penetrations. Insulation shall be sealed to maintain integrity of vapor barrier. Insulate fittings, flanges, valves, etc., with premolded or precut insulation segments, same thickness as adjoining pipe.
 - 1. Pipe Insulation: Insulate all chilled water piping.
 - a. Provide protective galvanized shields on pipes passing through hangers, MSS SP-69, Type 40.
 - b. Thickness of pipe insulation shall be as follows:
 - (1) Chilled Water Piping:
 - (a) Cellular Glass and Polystyrene: 1-1/2" thick on pipes up to 3 inches; 2" thick on pipes over 3 inches. K-factor 0.75 or better.
 - 2. Vapor Barrier Jacket: Insulation shall be covered with vapor barrier jackets.
 - 3. Pipe: Insulation shall be applied with joints tightly butted and ends sealed with vapor barrier coating. Jackets shall overlap and be sealed. Factory self-sealing lap systems may be used. All breaks and punctures in jackets shall be sealed. Fittings, Flanges, Valves: Insulation of the same thickness and type shall be placed around the item, either premolded or segmented. Voids shall be filled with loose insulation or cement. Insulation shall be coated with glass tape embedded in two coats of vapor barrier coating or with premolded PVC fitting covers applied over a layer of vapor barrier coating. Equipment Insulation: Insulate pumps by forming a box around the pump housing. The box shall be constructed by forming the bottom and sides using joints that do not leave raw ends of insulation exposed. Joints between sides and between sides and bottom shall be joined by adhesive with lap strips for rigid mineral fiber and contact adhesive for flexible elastomeric cellular insulation. The box shall conform to the requirements of MICA Insulation Std's plate No. 49 when using flexible elastomeric cellular insulation. Joints between top cover and sides shall fit tightly forming a female shiplap joint on the side pieces and a male joint on the top cover, thus making the top cover removable.

Exposed insulation corners shall be protected with corner angles.

Upon completion of installation of the insulation, including removable sections, two coats of vapor retarder coating shall be applied with a layer of glass cloth embedded between the coats. The total dry thickness of the finish shall be 1/16 inch. A parting line shall be provided between the box and the removable sections allowing the removable sections to be removed without disturbing the insulation coating. Flashing sealant shall be applied to parting line, between equipment and removable section insulation, and at all penetrations.

3.07 INSTALLATION OF SENSORS

- A. Install sensors in accordance with the manufacturer's recommendations.
- B. Mount sensors rigidly and adequate for the environment within which the sensor operates.
- C. All wires attached to sensors shall be air sealed in their conduits or in the wall to stop air transmitted from other areas affecting sensor readings.
- D. All pipe mounted temperature sensors shall be installed in wells. Install all liquid temperature sensors with heat conducting fluid in thermal wells.
- E. Mechanical contractor shall coordinate with DDC contractor prior to pipe installation to make sure that all pipe wells are pre-arranged, and coordinated.

3.08 IDENTIFICATION OF HARDWARE AND WIRING

- A. All wiring and cabling, including that within factory fabricated panels, shall be labeled at each end within 2 inches of termination with a cable identifier and other descriptive information.
- B. Permanently label or code each point of field terminal strips to show the instrument or item served.
- C. Identify control panels with minimum 1-cm letters on laminated plastic nameplates.
- D. Identify all other control components with permanent labels. Identifiers shall match record documents. All plug-in components shall be labeled such that removal of the component does not remove the label.

3.09 TESTING, ADJUSTING, AND BALANCING

- A. Cleaning and Adjusting: Pipes, strainers, valves and pumps shall be cleaned free of scale and thoroughly flushed of all foreign matter. Temporary bypass shall be provided for all water coils to prevent flushing water from passing through coils. Strainers and valves shall be thoroughly cleaned. Equipment shall be wiped clean with all traces of oil, dust, dirt, or paint spots removed. Bearings shall be properly lubricated with oil or grease as recommended by the manufacturer. Control valves and other miscellaneous equipment requiring adjustment shall be adjusted to setting indicated or directed.

B. Tests:

1. Water Piping: After cleaning, water piping shall be hydrostatically tested at a pressure equal to 1-1/2 times the total system operating pressure for a period of time sufficient for inspection of every joint in the system and in no case less than 2 hours. No loss of pressure will be allowed. Leaks found during tests shall be repaired by tightening, rewelding joints, or replacing pipe or fittings. Concealed piping shall be tested in place before concealing.

- C. Performance Tests: Testing and balancing of the systems shall be performed by an independent testing agency, by personnel who are not employees of the installing contractor. After cleaning and testing are completed as specified, each system shall be tested as a whole to see that all items perform as integral parts of the system. Corrections and adjustments shall be made as necessary.

- D. Balancing: Water piping systems shall be balanced to produce water quantities as indicated with all manual and automatic control valves open.

- E. Test Reports: Typewritten schedules of readings taken during the balancing and testing operations indicating the required or specified reading, and the final balanced reading shall be provided in a certified report.

1. Pumps: Size, type, pump speed in rpm, total head in feet of water, flow rate in gpm, and motor load in amperes.

3.10 ELECTRICAL WORK

Electric motor driven equipment specified herein shall be provided complete with motors, motor starters, control wiring and controls. Electrical equipment and wiring shall be in accordance with electrical section. Motor starters shall be provided by Mechanical Contractor complete with properly sized thermal overload protection and other appurtenances necessary for the motor control specified. Manual or automatic control and protective devices required for the operation herein specified and any control wiring required for controls and devices but not shown on the electrical plan shall be provided. Electrical work shall conform to NFPA 70.

3.11 PAINTING AND FINISHING

- A. Provide touch-up painting on equipment whose factory finish has been damaged and on all walls, ceilings and other finished surfaces affected by this work. Touch up painting shall match adjacent surfaces.
- B. Clean up all areas around the work installed under this section and remove all debris, dust, and dirt caused by the work.
- C. Paint all exposed black steel piping for most protection.

3.12 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Bound Instructions: Eight complete sets of instructions containing the manufacturer's operating and maintenance instructions for each piece of equipment shall be furnished. Flysheet shall be placed before instructions

covering 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:

1. Wiring and control diagrams, with data to explain the detailed operation and control of each component.
2. A control sequence describing startup, operation and shutdown.
3. Operating and maintenance instructions for each piece of equipment, including lubrication instructions.
4. Manufacturer's bulletins, cuts and descriptive data.
5. Parts lists and recommended spare parts.

3.13 COMMISSIONING

- A. Commissioning is a comprehensive and systematic process to verify that the building's energy related systems are installed, calibrated and perform according to the Owner's project requirements, basis of design, and construction documents.
- B. Commissioning is a part of this project and all contractors performing work governed by this division of the specification shall refer to specification Section 23 08 00 - MECHANICAL HVAC COMMISSIONING for complete commissioning requirements that apply to all of the work within this division.

3.14 CALIBRATION AND ADJUSTMENTS

After completion of the installation, perform final calibrations and adjustments of the equipment provided under this contract and supply services incidental to the proper performance of the unit control panels under warranty.

3.15 ACCEPTANCE PROCEDURE

Provide operational acceptance tests. The tests shall be performed during a normal day of operation after the air conditioning system has been completely installed and made operable. Results of the tests shall be indicated on the attached Operational Performance Test form and shall be part of the submittal for the testing and balancing report.

3.16 FIELD INSTRUCTION

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 8 hours to train and provide technical assistance to no more than 4 representatives of the State in the operation, maintenance and programming of the new control system. These field instructions shall cover all the items contained in the bound instructions. Submit course outline, instructor's name and an on-site training schedule. The training shall be a combination of

classroom and hands on field training. The Contractor shall submit course outline and schedule for approval.

END OF SECTION

SECTION 23 73 00 - MAINTENANCE SERVICE FOR AIR HANDLING AND VENTILATION SYSTEMS

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

As specified in Division 1, Special Conditions, and General Conditions.

1.02 SUMMARY

Contractor shall furnish all labor, materials, parts, tools, lubricants, refrigerant, equipment, transportation and supervision necessary for the complete inspection, maintenance and repairs to the air conditioning and ventilating systems located at Foreign Trade Zone Pier 2. The Contractor shall completely guarantee the satisfactory operation of all air conditioning and ventilating systems within the scope of this contract.

1.03 SUBMITTALS

Submit in accordance with Section 01 33 00 - SUBMITTAL PROCEDURES.

1. For billable repairs over \$1,000, including any work performed by a subcontractor, a written proposal with a cost estimate shall be submitted to the Contracting Officer for approval prior to performing the repairs.
2. A written report of the test results shall be submitted to the Contracting Officer.
3. Within seven calendar days after the award of this contract, the Contractor shall submit to the Contracting Officer a proposed monthly maintenance schedule for all air conditioning and ventilation systems, a proposed Maintenance Logbook for each facility, a proposed Chemical Treatment Logbook, and a Service Report Form.
5. The Contractor shall submit the service reports to the Contracting Officer at the end of each month.

1.04 DESCRIPTION OF WORK

- A. The Contractor shall perform complete maintenance service, repairs, and trouble calls for all the air conditioning and ventilation systems included in this contract. The Contractor is responsible to maintain and repair all mechanical, electrical, and control components of each unit including the circuit breaker in the electric panel. The Contractor shall be responsible for all costs necessary to maintain and repair all air conditioning and ventilation systems for complete satisfactory operation and operational reliability.
- B. The Contractor is not responsible for the repair of damages due to vandalism, fire, severe weather, or unusual events beyond the Contractors' control, the Contractor

shall immediately notify the Contracting Officer, or their designated representative of the situation, document the cause, and recommend repairs. The Contractor shall substantiate all instances due to utility power supply outages, surges and other power fluctuations. These repairs shall be considered billable and shall follow the requirements of paragraph 1.04F.4., Billable Repairs And Authorized Extra Work.

- C. The Contractor is not responsible for the computer and signal portion of the Energy Monitoring and Control System (EMCS). The Contractor is also not responsible for any proprietary sensor or device used to control the air conditioning and ventilating systems through an EMCS controller. The Contractor shall be responsible for all mechanical and electrical portions of the EMCS, including any wiring connected to the EMCS, and all non-proprietary devices.
- D. The satisfactory performance of maintenance service, repairs, and trouble calls, including the satisfactory operation of all equipment and systems, shall be determined by the Contracting Officer. All maintenance services and repairs shall be subject to inspection and approval by the Contracting Officer. This condition does not relieve the Contractor from performing any of the specified scheduled maintenance services.
- E. The Contracting Officer reserves the right to have any work performed on the weekends or after normal operating hours as specified in paragraph 1.07 SERVICE AND WORK SCHEDULE. Should the Contracting Officer exercises this right, the Contractor shall be compensated in accordance with Section 2.02 AFTERHOURS COMPENSATION AND MARK-UPS.
- F. The Contractor shall be fully responsible for all damages caused by the Contractor or the Contractor's failure to properly maintain, repair, close, secure or leave the air conditioning and ventilation systems in proper operating condition.
 - 1. Maintenance Service: The maintenance service shall consist of thorough maintenance work in accordance with paragraph 1.05 ITEMIZED MAINTENANCE SERVICE TASKS and with the best commercial practices governing the maintenance of air conditioning systems. The Contractor shall be responsible for all costs necessary to maintain the air conditioning and ventilation systems listed herein.
 - 2. Repairs: During routine maintenance service and trouble calls, the Contractor shall replace all worn, failed, or doubtful components as necessary to ensure complete satisfactory operation and operational reliability of the air conditioning and ventilation systems. Repairs shall commence upon discovery of the fault or failure. The Contractor shall be responsible for all repair costs including labor, materials, and subcontractors necessary to restore and return the systems to service.
 - 3. Replacement parts and materials shall be in accordance with paragraph 2.01 PARTS AND MATERIAL.

4. Billable Repairs and Authorized Extra Work: Billable repairs that will incur less \$1,000 in total expenses shall be performed upon discovery. For billable repairs over \$1,000, including any work performed by a subcontractor, a written proposal with a cost estimate shall be submitted to the Contracting Officer for approval prior to performing the repairs, except when authorized by the Contracting Officer to perform the work prior to receiving the cost estimate. The Contractor shall commence the repairs within 24 hours after the proposal has been approved by the Contracting Officer.

Written proposals and cost estimates shall be inclusive of all costs necessary to perform the repair and shall include:

- a. Description and nature of the repair;
- b. Reason why the repair is not contractual work;
- c. Documentation to substantiate the cause of the damage;
- d. Parts and materials list with pricing including freight;
- e. Estimated labor;
- f. Estimated subcontractor costs;
- g. Contractor mark-ups; and
- h. Start and completion dates

The Contracting Officer may request the Contractor to perform extra work at any of the facilities covered by this Contract. Upon request by the Contracting Officer, the Contractor shall provide written quotations for any proposed extra work. Written quotations shall be inclusive of all cost necessary to perform the proposed extra work.

Hourly labor rates listed in Offer Form B, Part C shall be used for all billable repairs and authorized extra work. Should the Contracting Officer require the billable repairs and authorized extra work be performed afterhours, the labor rates shall be adjusted pursuant to paragraph 2.02 AFTERHOURS COMPENSATION AND MARK-UPS.

Parts, materials, and subcontractor charges for billable repairs and authorized extra work shall be pursuant to paragraph 2.02 AFTERHOURS COMPENSATION AND MARK-UPS.

5. Trouble Calls: The Contractor shall respond to all trouble calls within two hours after the Contractor is notified by Central Services Division (CSD). Upon arrival at the facility, the Contractor shall immediately investigate and determine the cause of the trouble call. Should it be determined that the cause of the trouble

call is beyond the scope of this Contract, the Contractor shall notify the Contracting Officer immediately upon making that determination.

The Contractor shall provide updates to the Contracting Officer at the end of the working day on the status of all outstanding trouble calls. This notification shall identify the trouble call tracking number, date and time notification received, facility, unit, date and time of response at the site, problems found, actions taken, actions the contractor is intending to take and an estimated completion date.

The CSD is the only State of Hawaii representatives authorized to initiate a trouble call unless authorized by the Contracting Officer. Any billable work performed by the Contractor that was not initiated by the CSD or authorized by the Contracting Officer may not be paid.

1.05 ITEMIZED MAINTENANCE SERVICE TASKS

- A. The Contractor shall perform all maintenance services listed in this section. Any industry-standard maintenance requirement that is not listed, but necessary to ensure the complete satisfactory operation and operational reliability of the air conditioning and ventilation systems shall be performed and immediately brought to the attention of the Contracting Officer.

B. Pumps

Quarterly Service

1. Lubricate and check pump and motor bearings for abnormal temperature and unusual noise or vibration and repair/replace as needed.
2. Check packing glands and seals for excessive leakage. Adjust, tighten or replace as required.
3. Certify performance of quarterly service and correct and report all discrepancies.

Semi-Annual Service

1. Check and blow down strainer to chilled water pumps. Remove and clean strainer.
2. Check condition of all insulation. Upon discovery or after being notified, repair/replace damaged insulation properly and immediately, including all instances when the insulation is disturbed during any service or repair work.
3. Log suction and discharge pressures for all pumps.
4. Clean and remove all dust and foreign matter. Clean all rust spots and scratches and immediately touch up with a durable paint of matching color.

5. Check motor coupling for alignment and ensure mounting bolts are secure.
6. Certify performance of semi-annual service and correct and report all discrepancies.

C. Packaged Water Chiller, Compressor, Air-Cooled Condenser

Monthly Service

1. Measure and record entering and leaving water temperatures and pressures of chilled water and condenser in maintenance book.
2. Measure and record refrigerant compressor suction and discharge and oil pressures.
3. Check for water, refrigerant and oil leakage. Correct or repair as required.
4. Check vibration isolator mounts.
5. Check compressor, fan, and motor bearings for abnormal temperature and unusual noise. Lubricate and/or replace as required.
6. Check refrigerant sight glass. Change filter/drier if moisture indicated. Check compressor oil level and add oil as required.
7. Check air-cooled condenser fans, sheaves, and belts. Verify belt tension. Replace components as required.
8. Adjust alignment of bearings and sheaves for fans, motors, and compressors. Replace worn or noisy bearings or sheaves.
9. Run system operation through a complete operating cycle and adjust for proper operation.
10. Certify performance of monthly maintenance service and correct and report all discrepancies.

Quarterly Service

1. Check chiller response at various cooling load conditions for proper operation and verify the calibration of capacity control system. Record settings.
2. Check operation of freezestat and oil failure switch. Record settings.
3. Test and adjust make-up water and expansion tank.
4. Wash condenser coils and clean all dirt accumulation, using water or steam and a surfactant chemical coil cleaner (alkaline or acidic cleaners not allowed).

5. Certify performance of quarterly maintenance service and correct and report all discrepancies.

Annual Service

1. Test and analyze compressor oil. A written report of the test results shall be submitted to the Contracting Officer.
2. Replace strainer and oil filter. Change oil as recommended by the analysis and manufacturer's recommendations. Properly dispose of all oil.
3. Check refrigerant; replace filter-drier.
4. Megger chiller motor and submit written report of readings. Check starter relay, control contacts and all electrical connections.
5. Test control switches, compressor unloading, and safeties. Calibrate and record settings. Adjust as required.
6. Check and clean all unit housings. Permanently seal any leaks. Remove all rust from exterior components and immediately touch-up with a durable paint of matching color.
7. Check condition of all insulation. Upon discovery or after being notified, repair/replace damaged insulation properly and immediately, including all instances when the insulation is disturbed during any service or repair work.
8. Certify performance of annual maintenance service and correct and report all discrepancies.

D. Standby And Lead-Lag Equipment (Pumps, Chillers, Etc.) Control Switches And Time Clocks

Monthly Service

1. The Contractor shall be responsible for the manual operational change over and rotation of all standby and lead-lag equipment not controlled by a computer.
2. Clean contacts, replace if necessary. Check and adjust time settings as directed or required. Check back-up battery and replace as necessary.
3. Replace non-functional and broken time clocks with electronic, capacitance back-up time clocks. Battery back-up time clocks shall not be used.
4. Replace non-functional and broken bypass timer switches with adjustable electronic, 4-hour programmable timer switch with electronic selector switches or buttons.

Semi-Annual Service

1. Thoroughly clean out all dust and dirt from inside of housing.
2. Check and tighten loose fasteners and adjust spring tensions as required.
3. Check and operate all release mechanisms to ensure proper working order.
4. Clean out all dust and dirt from inside of all electrical panels by using dry compressed nitrogen to blow out dust and foreign matters.

E. Valves And Chilled Water Lines, Equipment and Supports

1. The Contractor shall exercise all equipment shut-off valves quarterly for proper operation and tightness. Repair or place all leaking or non-operational upon discovery or notification.
2. Remove rust from piping, equipment and support surfaces. Apply rust treatment/inhibitor, prime and paint with corrosion protection coating. Paint color shall match existing. Work shall be done immediately upon discovery or notification.

F. Water Treatment Service

1. The Contractor shall meet Water Treatment Service. A subcontractor may be used for water treatment service that shall be provided under this Contract.
2. Record all maintenance and service actions in the Chemical Treatment Logbook.

G. Cleaning of Mechanical Equipment Rooms or Enclosures

Monthly Service

1. Vacuum or wipe clean all equipment surfaces and all related appurtenances.
2. Vacuum clean or sweep complete floor and platform areas.
3. Wet wash complete floor area with tap water where allowed by the Contracting Officer.
4. Remove all trash, scrap, used parts, lubricants and other items not being used.
5. Notify the Contracting Officer of any vandalism, dangerous or hazardous conditions and improper storage of items that impacts the work space within the rooms and enclosures.

1.06 RECORDS AND REPORTS

- A. All documents and records shall be made available to the Contracting Officer upon request.
- B. Logbooks and Service Reports:
 - 1. Within seven calendar days after the award of this contract, the Contractor shall submit to the Contracting Officer a proposed monthly maintenance schedule for all air conditioning and ventilation systems, a proposed Maintenance Logbook for each facility, a proposed Chemical Treatment Logbook, and a Service Report Form for use with every maintenance service. The submittals should contain enough detail to adequately demonstrate that the terms and conditions of this contract will be met. Contractor shall include any other forms to be used in the performance of the contract requirements. The Contracting Officer may reject any submittal and reserves the right to provide the Contractor with preprinted maintenance forms or worksheets to be completed by the Contractor.
 - 2. Maintenance Logbooks, Chemical Treatment Logbooks and Service Reports shall be filled out properly and completely at the time of service. At a minimum, the following information shall be recorded: date, start and end time, service and work performed, materials and parts used, technician(s) name, and any recommendations. Chemical Treatment Logbooks shall also include monthly water analysis, water treatment equipment maintenance and repair, chemical feed set points and adjustments made, and the amount of each chemical used from the previous maintenance period.
 - 3. Service Reports shall be signed by a representative of the building. The Maintenance Logbook and Chemical Treatment Logbook shall be posted in the mechanical room or equipment cabinet at the facility.
 - 4. At the end of the contract period, the Contractor shall submit the Maintenance and Chemical Treatment Logbooks for each air conditioning and ventilating system of all facilities. Final payment shall not be made until all Maintenance and Chemical Treatment Logbooks are received.
- C. Monthly Summary Report: The Contractor shall submit the service reports to the Contracting Officer at the end of each month.
- D. Annual Equipment Inventory Schedule: The annual equipment inventory schedule shall list an up-to-date inventory of all air conditioning and ventilation equipment at each facility. The schedule shall list make, model, serial number, capacity, equipment location, area served, and installation date.
- E. Annual Equipment Replacement Report:
 - 1. The Contractor shall submit a written annual equipment replacement report to the Contracting Officer for review and approval. The annual report shall

identify the unit, justification for replacement, and projected life expectancy of the unit. The projected life shall be a minimum of two years to allow the State to secure funding, design and construct.

2. The Contracting Officer may accept, reject, or modify the projected life of each unit listed in the annual equipment replacement report. For equipment replacements accepted by the Contracting Officer, the Contractor shall remain fully responsible for the maintenance and repair of the unit through the expected life expectancy period.

1.07 SERVICE AND WORK SCHEDULE

- A. All maintenance service and repair work shall be performed during normal operating hours between 7:30 A.M. to 4:00 P.M. on Monday through Friday, excluding State holidays, or as approved by the Contracting Officer. The Contractor shall schedule all maintenance service and repair work to minimize disruption of the building operations. The Contractor may be required to reschedule at no additional cost to the State. The State reserves the right to have maintenance services and repair work performed on the weekends or after normal operating hours. Should the Contracting Officer exercise this right, the Contractor shall be compensated for adjusted hourly labor rates pursuant to Section 7.0. AFTERHOURS COMPENSATION AND MARK-UPS.
- B. Monthly Service: Monthly service tasks shall be not less than three weeks nor more than five weeks from the last service, unless the scheduled service is delayed or approved by the Contracting Officer. There shall be a minimum of 12 monthly maintenance services completed in any 12-month period.
- C. Quarterly Service: Quarterly service tasks shall be performed during regular monthly service and shall be not less than 12 weeks nor more than 14 weeks from the last quarterly service, unless the scheduled quarterly service is delayed or approved by the Contracting Officer. There shall be a minimum of four quarterly maintenance services completed in any 12-month period.
- D. Semi-Annual Service: Semi-annual service tasks shall be performed during regular monthly service and shall be not less than 25 weeks nor more than 27 weeks from the last semi-annual service, unless the scheduled semi-annual service is delayed or approved by the Contracting Officer. There shall be a minimum of two semi-annual maintenance services completed in any 12-month period.
- E. Annual Service: Annual service tasks shall be performed during regular monthly service and shall be not less than 51 weeks nor more than 53 weeks from the last annual service, unless the scheduled annual service is delayed or approved by the Contracting Officer. There shall be a minimum of one annual maintenance service completed in any 12-month period.

PART 2 - PRODUCTS

2.01 PARTS AND MATERIALS

- A. All parts and materials, including refrigerants, required for the Itemized Maintenance Service Tasks and all repairs shall be provided at no additional cost to the State.
- B. The Contractor shall maintain a supply of parts and materials required for the Itemized Maintenance Service Tasks and routine repairs of all air conditioning and ventilation systems. All replacement parts used for maintenance service, repairs, and authorized extra work shall be new original equipment manufacturer (OEM) parts or new aftermarket parts that meet or exceed the OEM specifications. At the discretion and approval of the Contracting Officer, parts may be rebuilt provided the rebuilt part will provide complete satisfactory operation and not compromise operational reliability. The Contractor shall submit a written proposal with a cost estimate to the Contracting Officer for approval prior to rebuilding any part.
- C. Obsolescence, discontinuance, or any other circumstance that affect the availability of replacement parts does not relieve the Contractor of any of its' responsibilities to ensure complete satisfactory operation and operational reliability of the air conditioning and ventilation systems. The State shall not provide any compensation.
- D. The Contractor shall notify the Contracting Officer whenever parts are not locally available to accomplish any repair. The Contracting Officer may request the part to be shipped by air freight at the expense of the State. The State shall be responsible only for the additional costs to use air freight in lieu of typical freight. The Contractor shall not mark-up the additional air freight charges.
- E. The Contractor shall provide and maintain a supply of refrigerants for the life of the contract. The Contractor shall maintain records of refrigerant usage for each location and shall comply with all government regulations. The Contractor shall support and protect the State legally and financially with regard to these regulations. Recovery and storage of refrigerants shall be included at no additional cost to the State.
- F. The State, its employees, or any of building occupants, shall not be responsible for nor accept any deliveries made to the facilities. The Contractor shall be present to receive any parts, material, or equipment deliveries.

2.02 AFTERHOURS COMPENSATION AND MARK-UPS

- A. Should the Contracting Officer require the Contractor to perform any work on the weekends or after normal works hours, the State shall compensate the Contractor as follows:
 - 1. Maintenance Services: Maintenance services performed on the weekends or afterhours shall be compensated at 0.5 times the hourly rate provided by

Contractor on Offer Form B, Part C. No further compensation shall be provided.

2. Repairs, Trouble Calls, Authorized Extra Work: Repairs, trouble calls, and authorized extra work performed on the weekends or afterhours shall be compensated at 1.5 times the hourly rate provided by Contractor on Offer Form B, Part C. Except for parts, materials, and subcontractors, no further compensation shall be provided.
- B. The Contractor shall be compensated for parts and materials required for billable repair work and authorized extra work. Parts and materials for billable repair work and authorized extra work may be marked up, up to 20 percent above the Contractors' total cost. Work performed by Subcontractors and equipment rentals may be marked up, up to 10 percent above the Contractors' total cost. The mark-ups shall include shipping, overhead, profit, taxes, and any other incidental expenses. No further compensation greater than the listed mark-ups shall be provided. The Contractor shall substantiate all costs by submitting copies of all invoices with their payment request to the State.
 - C. The labor rate listed on Offer Form B, Part C. shall be used for all billable repairs and authorized extra work. Invoices for these services shall be submitted per instance and separately from the monthly invoice.

PART 3 – EXECUTION

3.01 CLEANUP AND WORK PRACTICES

- A. The Contractor shall keep the jobsite free of debris, litter, refuse, etc. and shall clean up all spills. The Contractor shall remove all trash, used parts, fluids, lubricants, and equipment from the service area upon completion of the work. The Contractor shall dispose of all used parts, fluids, and lubricants off-site and in accordance with all applicable regulations. All written records required by any regulation shall be submitted to the Contracting Officer. The Contractor shall support and protect the State legally and financially with regard to these regulations.
- B. The Contractor shall exercise caution during the progress of all maintenance service and repair work to prevent damage to any of the buildings. The Contractor shall be responsible to repair all damages caused by the Contractor's negligence or failure to properly maintain the air conditioning and ventilation systems.
- C. The Contractor shall not store parts or materials at the facilities except while performing work tasks.

3.02 CONTRACT COMMENCEMENT AND COMPLETION

- A. Upon commencement of this Contract, the Contractor may submit to the Contracting Officer an itemized list of units that are not operating satisfactorily, require repair, or have not been routinely maintained and serviced. The list shall

include a description of the equipment, the nature and severity of the deficiency, and the impacts of the deficiency. The list shall be submitted within 30 days after this Contract is executed.

- B. The Contracting Officer shall determine which of the listed units are the responsibility of the previous Contractor and shall provide the revised list to the Contractor. Units on the revised list are not the Contractor's responsibility until notified by the Contracting Officer. The Contracting Officer shall solely determine if and when the deficiencies have been resolved and remedied.
- C. Within 45 days after the completion of this Contract, the Contracting Officer may notify and submit to the Contractor an itemized list of units that were determined to be deficient at the time this Contract ended. The Contractor shall resolve and remedy all items on the list within 30 days of notification. Until the Contracting Officer determines that the deficiencies have been resolved and remedied, the Contractor shall be responsible for all maintenance services, repairs and trouble calls, as detailed in this Contract, for the units listed. The Contracting Officer shall solely determine if and when the deficiencies have been resolved and remedied. All corrective work and extended services shall be provided by the Contractor at no additional cost to the State. Final payment shall not be made until all deficiencies have been resolved and remedied.

3.03 SAFETY PRECAUTIONS

The Contractor shall not perform any maintenance service and repair work until all safety barricades are in place. The Contractor shall comply with all applicable safety regulations promulgated by HIOSH, USEPA, and other governmental agencies.

END OF SECTION

DIVISION 26 - ELECTRICAL

SECTION 26 20 00 - ELECTRICAL WORK

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

As specified in Division 1, Special Conditions, and General Conditions.

1.02 SUMMARY

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 systems, including branch circuits, outlets, wiring devices, 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. Underground electrical ductline, including all trenching and backfilling.
7. Test the completed installation.

1.03 GENERAL REQUIREMENTS

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. Submit in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.
- b. 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.
- c. 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 Owner 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.

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.

- b. Shop Drawings: Submit for approval six (6) copies of shop drawings or catalog cuts of the following equipment and resubmit until approval is received before placing order.

(1) Circuit breakers, safety switches, and manual motor starter(s).

(2) Cabinets

(3) Any built-to-order equipment.

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.

- c. 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. Each change with explanatory notes shall be entered before the close of the working day, and shall be initialed by the representative of the Contracting Officer. Above reference to deviation shall not be construed to allow deviations without prior approval. Reproducible As-builts shall be submitted prior to final acceptance to Contracting Officer.
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 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.

1.05 WARRANTY

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 Owner. Should any equipment or material fail within this period, the Contractor shall replace or repair that item at no cost to the Owner for material and/or services, if such is due to faulty workmanship or quality of material furnished. The Contractor shall be responsible for all damages to any part of the premises caused by failure in the equipment furnished under this section for a period of one year after the final acceptance of the work as a whole.

PART 2 - PRODUCTS

2.01 GENERAL

- A. 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 90-6 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. Requests for substitutions shall comply with applicable sections. Substitute materials may be used if qualified by written permission from the Contracting Officer. List of substitute materials together with qualifying data shall be submitted for approval.

Example:

<u>Item</u>	<u>Manufacturer and Catalog No. Specified</u>	<u>Substitute Manufacturer & Catalog Number</u>
Cable	Joe Doe - No. 3200	King - No. 3200

Failure to obtain approval of substitute materials prior to bidding shall mean that materials as specified shall be provided. 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.

2.02 MATERIALS

A. Raceways:

1. Rigid Metal Conduit: Rigid steel, hot-dipped galvanized inside and outside, zinc-coated, 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 346. Aluminum conduits not allowed.
2. Rigid Non-metallic Conduit: Non-metallic conduit shall be polyvinyl chloride (PVC) schedule 40 round bore for underground use. Non-metallic conduits shall be permitted only where indicated on Drawings. Manufacture and install according to NEC Article 347.
3. Flexible Metallic Tubing: Flexible, galvanized steel used in conjunction with factory approved fittings. Manufacture and install according to NEC Article 349.
4. Electrical Metallic Tubing (EMT): Zinc coated or galvanized, round bore, thin walled metal tubing, 3/4 inch minimum diameter. Manufacture and install according to NEC Article 348.

5. Liquidtight 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 351.
6. Intermediate Metal Conduit: Steel conduit, zinc-coated inside and outside with additional silicone epoxy-ester lubricating coating inside; 3/4 inches minimum diameter. Manufacture and install according to NEC Article 345.

B. Wires:

1. Conductors shall be copper, 600 volts, No. 12 AWG minimum. Conductors No. 10 and smaller, solid and round. Conductor No. 8 and larger, 7 or 19 strands, concentric. All conductors No. 6 and smaller shall be NEC Type TW, XHHW and THW. All conductors No. 4 and larger shall be NEC Type XHHW or THW.

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.

2. Color Code: Black-Phase "A", Red-Phase "B", Blue-Phase "C", White-Neutral, Green-Ground. (208/120V System) Color coding shall be maintained throughout entire system. Use other colors when more wires than above listed are contained on one raceway and for 480 volt system. 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. Enclosures to have provision for padlocking. Provide NEMA 1 enclosure for interior locations and NEMA 4X 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 ratings as indicated on drawings.

- E. Panelboards: Provide as shown on plans, unit circuit breaker panelboard as indicated. See plans for schedule. Panelboards in this project are existing.

1. 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. A UL-Listed series rating alternative may be provided.
2. Other: A panel directory, neatly typed on factory-card giving branch circuit "USE" and general location of outlets shall be provided. Provide feed-thru

lugs for panelboards larger than 12 poles. Update panel directory as required.

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 commercial white letters on black background. Nameplate all feeder breakers, switches, panels, cabinets and large junction boxes.

Breakers and Switches: By panels or loads served

Panels: By designation, voltages, 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. Boxes shall be code gauge steel with screw cover and NEMA 4X stainless steel construction when installed in locations exposed to rain.
- 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 351.
1. Concealed boxes shall be pressed from NEC gauge steel; galvanized 4" square x 1-1/2" deep minimum. 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" square by 1-1/2" deep minimum. For mounting of single device such as a switch or receptacle, 2" by 3" by 1-1/2" deep minimum.
 2. Exposed boxes and weather exposed boxes, recessed boxes, including lighting outlets on exterior shall be galvanized cast iron. Boxes for exterior locations shall be cast metal, waterproof, with gasketed covers and threaded hubs. Cast metal boxes: In exposed and wet locations, 4" square by 1-1/2" 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, ivory 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, ivory plastic body, with parallel and ground U-shaped slots, NEMA 5-20R; Cooper #5362, Leviton #5362A or approved equal.
 3. GFCI Receptacles: Duplex, 20-amperes, 125 volts, back and side wired, 3 wire, specification grade, ivory plastic body, with parallel and ground U-shaped slots, NEMA 5-20R; Cooper #XGF20I, Hubbell #GF5362I, or approved equal.
 4. Device Plates:
 - a. Plates for interior flush construction shall be stainless steel, satin finish, 18% chrome, 8% nickel, with suitable hole to fit device.
 - 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 406.8. 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. 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.
- L. 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 the 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. 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 the Contracting Officer without additional charge to the Owner.
 - 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 the Contracting Officer.

3.04 TRENCHING AND BACKFILLING

Perform all trenching and backfilling required in connection with work of this Section in strict accordance with provisions of applicable Sections of these Specifications.

3.05 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 not less than 84" above floor. Paint steel conduits in or under ground floor slabs with asphaltic corrosion resistance base paint or compound. Polyvinyl chloride conduit may be used only in below grade installation. Transition to steel conduit elbow shall be made at floor line. All conduits below ground floor level shall be concrete encased.
- 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 with screws or bolts and spaced not more than 7 feet apart, 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 one 90-degree bend 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.
- M. M. Bury all underground conduits, except under concrete slabs placed on fill, to a depth of at least eighteen inches below finish grade unless otherwise indicated on Drawings. Trenchings for all underground conduits shall be excavated to depths required to keep curvature of conduits below top of slab indicated on plans. Bottoms of trenches shall be tamped hard. Rocks, when encountered, shall be excavated to depths of 3" below bottom of conduit jacket and before conduit is laid, space between bottom of conduit jacket and rock surface shall be filled with gravel to the satisfaction of the Contracting Officer. After conduits have been inspected and approved by Contracting Officer and prior to backfilling, forms shall be removed and excavation shall be cleaned of trash and debris. Material for backfilling shall be cleaned of trash and backfilling shall be cleaned of trash and debris. Material for backfilling shall consist of excavated material except adobe, trash, lumber or other debris. Backfill shall be placed in horizontal layers, not exceeding 9" in thickness and properly moistened. Each layer shall be compacted to density equal to that of adjacent undisturbed material that will prevent excessive settlement or shrinkage.
- N. Ductlines shall be polyvinyl chloride (PVC) ducts in concrete jackets and shall be installed by electrician. Lay ducts and/or conduits in trenches on plastic saddles or on concrete spacers. Spacing between ducts shall be as indicated. Slope ducts 4 inches per hundred feet to drain into manholes or pullboxes. After laying, bind ducts with #2 wire and anchor to prevent movement during concrete pouring. Coat tapered ends of ducts or conduits with sealing compound before coupling is applied to insure watertight joint. Concrete shall be poured without the use of mechanical vibrators. Tamp concrete manually with wooden rods. Thickness of concrete encasement is minimum and may be increased to fit actual shape of trench. Changes in direction of runs exceeding 5 degrees shall be accomplished by using special couplings or bends manufactured for this purpose. If it is necessary to cut tapered end of piece of conduit at site, cut shall be made with saw and tapered with lathe designed to match original taper. After ductline is installed, pull a mandrel not less than 12" long having diameter 1/4" less than inside diameter of conduit through each conduit. After this, pull brush with stiff bristles through to make certain that no particles of earth, sand or gravel have been left in line. Install stranded nylon pull line in all empty raceways. Plug all spare raceways with non-corrodible plugs manufactured for the purpose.

3.06 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. [Do not use bolt-on 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.

3.07 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.

3.08 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.

3.09 GROUNDING

All metallic enclosures, raceways, and electrical equipment shall be grounded according to requirements of National Electrical Code, Article 250.

Service entrance, motors, metallic enclosures, raceways and electrical equipment grounded according to requirements of National Electrical Code, Article 250. At service entrance, install copper clad steel ground rods (number as required) to obtain ground to 25 ohms or less as measured by three-point potential method with electrical ground megger. Connect service entrance ground to building service entrance equipment via ground wire (size as per NEC

Article 250-94) and nearest cold water pipe with No. 1/0 bare copper wire. Ground connection to equipment, raceways, motors, grounding type receptacles and other metallic parts directly exposed to ungrounded electric conductors by continuous metal raceways, No. 14 AWG minimum, AWG copper, NEC type TW, green insulated. At water meter and "dielectric" union joints, install pipe clamps, Thomas & Betts Co. No. 3900 series, on both sides of meter on metallic pipes and connect together with No. 1/0 copper. Connection shall not interfere with installation or removal of water meter.

1. All grounding wire runs within buildings shall be in rigid steel 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 with the equipment or 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 the 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. 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."
- E. Mark all control, communication wires and fire alarm wires with wire markers attached to conductors in all enclosures.

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] [an operating test for approval]. 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 Owner 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 the Contracting Officer.
- B. The Contractor shall retape splices which have been bared for inspection. The 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 State.
- 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 Owner (or his representative) 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.

END OF SECTION