Invitation for Bids

Maluhia Renovate Sun Deck Roof
25M-1208

The Hawaii Health Systems Corporation (HHSC) Oahu Region is requesting bids from qualified companies for the renovation and construction of a new roof over the Sun Deck at Maluhia located at 1027 Hala Drive, Honolulu, Hawaii 96817

The IFB may be obtained electronically from the following website:
http://maluhia.hhsc.org/procurement/notices/

A site visit is scheduled for December 23, 2025 at 10:30 a.m. All interested companies shall meet in the Maluhia parking lot entrance area. The deadline for submission of written/emailed questions pertaining to the IFB is December 30, 2025.

All bids must be received by HHSC by January 13, 2026, 2:00 p.m. Hawaii Standard Time. All bids shall be sent digitally to oahucip@hhsc.org. E-mail bids not received by deadline will be disqualified for consideration. No exceptions will be made even if network provider or software (e.g. MS Outlook) delays delivery. Please note that large files (>10MB) may experience network delivery issues.

Addenda to the IFB will be posted on the website listed above.

For any inquiries, please contact Todd Nordstrom, Oahu Region CIP Coordinator, at (808) 767-0526 or by email at tnordstrom@hhsc.org.

Leahi Hospital
3675 Kilauea Ave.
Honolulu, HI 96816

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SECTION 1
ADMINISTRATION

1.0 INTRODUCTION

This Invitation for Bid (hereinafter "IFB") is issued by the Hawaii Health Systems Corporation (hereinafter "HHSC"), a public body corporate and politic and an instrumentality and agency of the State of Hawaii. All procedures and processes will be in accordance with HHSC Oahu Region policy and procedures.

In order for HHSC to accept Bidder's response in a timely manner, please thoroughly read this IFB and follow instructions as presented.

1.1 IFB TIMETABLE AS FOLLOWS

The timetable as presented represents HHSC's best estimated schedule. If an activity of the timetable, such as "Closing Date for Receipt of Bids" is delayed, the rest of the timetable dates may be modified. BIDDER will be advised, by addendum to the IFB, of any such modifications to the timetable. Contract start date will be subject to the issuance of a Notice to Proceed.

	ACTIVITY	**SCHEDULED DATES**
1.	IFB Public Announcement	December 16, 2025
2.	Pre-Bid Orientation Maluhia parking lot entrance 10:30 a.m.	December 23, 2025
3.	Closing Date for Receipt of Questions	December 30, 2025
4.	**Closing Date for Receipt of Bids 2:00 p.m.**	**January 13, 2026**
5.	Contractor Selection/Award Notification (on/about)	January 15, 2026
6.	Contract Start Date (on/about)	January 22, 2026

1.2 AUTHORITY

This IFB is issued following the provisions of Chapter 323F, Hawaii Revised Statutes (HRS), and its administrative rules. 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.

1.2.1 IFB ORGANIZATION

This IFB is organized into four sections:

SECTION 1: ADMINISTRATIVE
Provides information regarding administrative requirements.

SECTION 2: SCOPE OF SERVICES
Provides a detailed description of goods and/or services to be provided and delineates HHSC and CONTRACTOR responsibilities.

SECTION 3: BID FORMS AND GENERAL CONDITIONS
Describes the required format and content for submission of the bid.

SECTION 4: BID EVALUATION AND AWARD
Describes how bids will be evaluation and procedures for selection and award of contract.

1.3 HEAD OF PURCHASING AGENCY (HOPA)

The HOPA for HHSC, or designee, is authorized to execute any and all Agreements (Contracts), resulting from this IFB.

The HOPA for this IFB is:

Derek Akiyoshi
Regional Chief Executive Officer
Hawaii Health Systems Corporation

1.4 DESIGNATED OFFICIALS

The officials identified in the following paragraphs have been designated by the HOPA as HHSC's procurement officials responsible for execution of this IFB, award of Agreement and coordination of CONTRACTOR's satisfactory completion of contract requirements.

1.4.1 ISSUING OFFICER

The Issuing Officer is responsible for administrating/facilitating all requirements of the IFB solicitation process and is the **sole point of contact** for BIDDER from date of public announcement of the IFB until the selection of the successful BIDDER. The Issuing Officer will also be responsible for contractual actions throughout the term of the contract. For purposes of this IFB, the designated Issuing Officer is:

Todd Nordstrom
CIP Coordinator, Oahu Region
e-mail: tnordstrom@hhsc.org
phone: (808) 767-0526

1.5.1 CHARTER

HHSC is a public body corporate and politic and an instrumentality and agency of the State of Hawaii. HHSC is administratively attached to the Department of Health, State of Hawaii and was created by the legislature with passage of Act 262, Session Laws of the State of Hawaii 1996. Act 262 affirms the State's commitment to provide quality health care for the people in the State of Hawaii, including those served by small rural facilities.

1.5.2 STRUCTURE AND SERVICES

HHSC is organized into four operational regions and provides a broad range of healthcare services including acute, long term, rural and ambulatory health care services. As the fourth largest public health system in the country, HHSC is the largest provider of healthcare in the Islands, other than on Oahu. This solicitation is for the Oahu Region.

1.5.3 MISSION

The mission of HHSC is to provide and enhance accessible, comprehensive health care services that are quality-driven, customer-focused and cost-effective.

1.6 FACILITY INFORMATION

Detailed information pertaining to HHSC facilities is located at http://www.hhsc.org.

1.7 SUBMISSION OF QUESTIONS

Questions must be submitted in writing via electronic mail, facsimile or post mail to the Issuing Officer no later than the "Closing Date for Receipt of Questions", identified in paragraph 1.1 in order to generate an official answer. All written questions will receive an official written response from HHSC and become addenda to the IFB.

IMPORTANT

BIDDER may request changes and/or propose alternate language to the HHSC General and Special Terms and Conditions (https://www.hhsc.org/procurement/) during this phase only. All requests will be presented to the HHSC Legal Department for review. No requests to change the HHSC General or Special Terms and Conditions will be entertained after the bids have been submitted or during the contracting process. All written questions and/or approved changes will receive an official written response from HHSC and shall be recorded as addenda to the IFB.

HHSC reserves the right to reject or deny any request(s) made by BIDDER.

Responses by HHSC shall be due to the BIDDER prior to notice of award.

Impromptu, un-written questions are permitted and verbal answers will be provided during pre-bid conferences and other occasions, but are only intended as general direction and will not represent the official HHSC position. The only official position of HHSC is that which is stated in writing and issued in the IFB as addenda thereto.

No other means of communication, whether oral or written, shall be construed as a formal or official response/statement and may not be relied upon.

SEND QUESTIONS TO:

Todd Nordstrom, Issuing Officer
e-mail: tnordstrom@hhsc.org

1.8 SOLICITATION REVIEW

BIDDER should carefully review this solicitation for defects and questionable or objectionable matter. Comments concerning defects and questionable or objectionable matter, **excluding requests to revise the General or Special Conditions**, must be made in writing and should be received by the Issuing Officer, no later than the "Closing Date for Receipt of Bids" as identified in Section 1.1. This will allow issuance of any necessary amendments to the IFB. It will also assist in preventing the opening of bids upon which award may not be made due to a defective solicitation package.

1.9 IFB AMENDMENTS

HHSC reserves the right to amend the IFB any time prior to the deadline date of the IFB. IFB Amendments will be in the form of addenda.

1.10 CANCELLATION OF IFB

The IFB may be canceled when it is determined to be in the best interests of HHSC.

1.11 PROTESTS

Any protest shall be submitted in writing to the HOPA as noted below.

A protest based upon the content of the solicitation shall be submitted in writing within five (5) working days **after** the aggrieved individual/business knows or should have known of the facts giving rise thereto; provided further that the protest shall not be considered unless it is submitted in writing prior to and not later than the "Closing Date for Receipt of Bid" identified in section 1.1.

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 solicitation shall be posted at the following website: http://leahi.hhsc.org/procurement/notices/

Any and all protests shall be submitted in writing to the HOPA, as follows:

Derek Akiyoshi
Hawaii Health Systems Corporation
Oahu Region
3675 Kilauea Avenue
Honolulu, Hawaii 96816

1.12 PERFORMANCE AND PAYMENT BOND

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, 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.

1.13 SPECIALTY CONTRACTOR'S LICENSE

A. Contractor shall be solely responsible to ensure that all specialty licenses required to perform the Work are covered by the Contractor and/or its subcontractor(s).

1.14 WORKING HOURS

A. Regular working hours for this project shall take place between the hours of 8:00 AM to 3:30 PM Monday through Friday, excluding State Holidays, unless otherwise noted or restricted.

B. The Contractor may be given approval to work beyond the regular hours including Saturdays, Sundays, State Holidays, night work, or after hours under the provisions of the GENERAL CONDITIONS.

1.15 SPECIAL PROCEDURES DURING BIDDING

A. All bids shall be submitted to the Issuing Officer.

B. All questions regarding the IFB shall be submitted, in writing, to the Issuing Officer, who shall review the questions and issue any responses via Addendum. Only information received by Addendum shall be binding.

C. Any visitation to the site to examine the scope of work shall be requested through the HHSC Representative. Disruption of facility operations shall not be permitted.

SECTION 2
SCOPE OF SERVICES

2.0 INTRODUCTION

MALUHIA RENOVATE SUN DECK ROOF

Work for this project shall include, but is not limited to the construction of a new roof and supporting structure over the existing Sun Deck at Maluhia, and miscellaneous work as indicated on the drawings.

2.1 CONTRACT PERIOD

The work shall be completed within **150** consecutive calendar days from the Notice to Proceed (NTP).

2.2 SCOPE OF SERVICES

A. The CONTRACTOR shall complete the work specified in the specifications and drawings in APPENDIX C.

B. Qualifications. The CONTRACTOR shall have:

1. A current and valid license to perform the scope of work.
2. Have been in business for the past three (3) consecutive years.
3. A permanent, on-island office location in conducting business which is accessible to telephone calls. An answering service is not acceptable.

C. HOSPITAL shall provide:

Technical Representatives who shall have the authority to oversee the successful completion of contract requirements, including monitoring, coordinating and assessing CONTRACTOR performance; placing requests for services; and, approving completed work/services with verification of same for CONTRACTOR's invoices. Technical Representatives will also serve as points of contact for "technical" matters throughout the term of the contract.

SECTION 3
Bid Forms and General Conditions

General Instructions for Completing Forms

- *Bids shall be submitted in the prescribed format outlined in this IFB*
- *No supplemental literature, brochures or other unsolicited information should be included in the bid packet.*
- *A written response is required for each item unless indicated otherwise.*

3.0 Bid Form

The bid form must be completed and submitted to HHSC by the required due date and time, and in the form prescribed by the HHSC. Facsimile transmissions shall not be accepted.

Interested bidders shall submit their bid under the interested bidder's exact legal name that is registered with the Department of Commerce and Consumer Affairs and shall indicate this exact legal name in the appropriate space on page 1 of the bid form. Failure to do so may delay proper execution of the Contract.

Interested bidders shall certify its ability to provide services on January 22, 2026 or upon execution of the Contract agreement by both parties. The Hospital reserves the right to apply liquidated damages for the delay in Contract execution on the part of the Contractor.

The interested bidder's authorized signature shall certify bid documents. If the Bid Form on Appendix A is unsigned the bid shall be automatically rejected.

The option to extend the Contract shall be at the sole discretion of the Hospital and determined to be in the best interests of the State.

3.1 Bid Security

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.

a. 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.

3.2 General Conditions

The State of Hawaii INTERIM GENERAL CONDITIONS, dated August 1999, and AMENDMENTS shall be read by the Contractor as they form a part of the Agreement to be entered into between the Contractor and HHSC. The Interim General Conditions are not physically included in these specifications, but are included by reference. Copies of the INTERIM GENERAL CONDITIONS may be obtained from the Division of Public works, Department of Accounting and General Services, State of Hawaii at the following website: http://hawaii.gov/pwd/construction_bids/Members/qc/gen_cond_constr

The State of Hawaii General Conditions are hereby amended as follows:

a. The following terms specified in Section 1 are hereby defined:

i) Bidder shall have the same definition as Contractor.

ii) Comptroller shall be the Chief Financial Officer at HHSC or his authorized representative.

iii) Department shall be HHSC or its designee.

iv) Engineer shall be the person so designated by HHSC.

v) State shall be HHSC or its designee.

b. Section 1.20 and 1.25 replace "State of Hawaii" with "State".

c. The last two sentences of the third paragraph of Section 2.1.1.2, in the Interim General Conditions is deleted and is replaced with the following:

" If the notice is faxed, the time of receipt by the CEO's fax machine shall be official. The submittal of intention to bid via fax is acceptable only to this office."

d. Section 2.1.2.1: second sentence is hereby deleted in its entirety.

e. Last sentence of paragraph 2.1.2.3 of the Interim General Conditions is amended to read as follows:

"Failure to submit either the required tax clearance certificate or Bid Form will be sufficient grounds for HHSC to refuse to receive or consider the prospective bidder's proposal."

f. The addresses specified in Section 2.6.1 of the Interim General Conditions shall be changed to Leahi Hospital 3675 Kilauea Avenue Honolulu Hawaii 96816.

g. Sections 2.10 through 2.11 are hereby deleted in their entirety.

h. Paragraph 3.8.1 of the Interim General Conditions is amended to read as follows:

“The contract shall be signed and forwarded to HHSC (Contracts Office), by the successful bidder all within three (3) days of receipt of the contract. The performance and payment bonds shall be received by HHSC (Contracts Office) within ten (10) calendar days after the bidders is awarded the contract. No proposal or contract shall be considered binding until the contract has been fully and properly executed by all parties thereto.”

i. In paragraph 3.9.2 of the Interim General Conditions, “ten (10) calendar days after such award or within such further time as the Comptroller may allow” shall be replaced with, “the time allowed in the previous section.”

j. Section 4.1: the words “accepted bid” is deleted from the first sentence.

k. Section 4.9.3: the words “submission of bids” is replaced with the words “execution of this contract”.

l. Section 5.5: the last sentence is hereby deleted in its entirety and replaced with the following:

"In the event of conflict among the Contract Documents, the order of precedence is listed in paragraph 5 of this contract and is further detailed in the following subparagraphs:"

m. Sections 5.5.1 and 5.5.2 are hereby deleted in their entirety.

n. Section 5.8.1: "twenty-four (24)" is hereby changed to "three (3)".

o. Section 5.11 is hereby deleted in its entirety.

p. Section 5.12.4 is hereby deleted in its entirety.

q. Section 7.3.7.4, subparagraphs a and b: Replace "If the project falls within the State University System, The University of Hawaii" with "HHSC."

r. Section 7.4.1 is hereby deleted in its entirety and replaced with the following:

"The Contractor shall prepare, process, obtain, and pay for all permits necessary for the proper execution of the work."

s. Section 7.7.2 is amended to read as follows: "The wage rate schedule is attached to this contract."

t. Sections 7.14.2, 7.19.2, and 7.19.4: delete "Departments and Agencies and their" and insert "directors" between "officers" and "representatives".

u. Section 7.14.4 is hereby added and reads as follows:

"Contractor warrants that it and none of its employees, agents or subcontractors performing services or providing goods pursuant to this Agreement are excluded from participation in federal health care programs, as defined in the Social Security Act (section 1128 and 1128A), and other federal laws and regulations relating to health care. HHSC reserves the right to verify that the above warranty is true and to immediately cancel this Agreement in the event it is violated."

v. Section 7.15 delete "and its Departments and Agencies".

w. Section 7.21.8.6 — Delete the word "bad" before the words "weather day conditions."

x. Section 7.35.1: the last word "earlier" is changed to "later".

3. CORPORATE COMPLIANCE PROGRAM. A description of the Corporate Compliance Program of HHSC is posted on the HHSC Internet (www.hhsc.org). The CONTRACTOR, by signing this contract, acknowledges that it has read said description, and that the CONTRACTOR knows of the fact and substance of the Corporate Compliance Program, which governs operations at all facilities of the HHSC. The CONTRACTOR understands and agrees that employees, agents, and contractors performing any services at any of the HHSC facilities shall be fully subject to such Corporate Compliance Program, as may be amended from time to time, as well as all federal program requirements and applicable policies and procedures of HHSC and its facilities. The Corporate Compliance Program requires periodic training, including an orientation program, of all people who provide financial, business office, personnel, coding, medical records information systems and clinical services in the facility. The CONTRACTOR agrees to cause its employees, agents, and contractors who provide any services at any financial, business office, personnel, coding, medical records information systems and clinical services at any of the HHSC facilities to participate in the orientation and training programs.

4. CONFIDENTIAL INFORMATION. It is acknowledged and agreed that all of the trade secrets, business plans, marketing plans, know how, data, contracts, documents, scientific and medical concepts, billing records, personnel records, medical records of any kind, and referral resources for existing or future services, products, operations, management, business, pricing, financial status, valuations, business plans, goals, strategies, objectives and agreements of HHSC and any of its facilities, affiliates or subsidiaries, and all patient information, in any form, whether written, verbal, or electronic, are confidential ("Confidential Information"); provided, however, that Confidential Information, with the exception of patient information, shall not include information that is in the public domain.

5. CONTRACTOR EXCLUSION FROM FEDERAL PROGRAMS. CONTRACTOR warrants that it and none of its employees, agents or subcontractors performing services or providing goods pursuant to this Agreement are excluded from participation in federal health care programs, as defined in the Social Security Act (section 1128 and 1128A), and other federal laws and regulations relating to health care. HHSC reserves the right to verify that the above warranty is true and to immediately cancel this Agreement in the event it is violated.

6. CAMPAIGN CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS.
CONTRACTORs are hereby notified of the applicability of Section 11-205.5, 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. For more information, please consult with the Campaign Spending Commission, or visit its website, www.hawaii.govicampaign.

(END OF SECTION)

SECTION 4
BID EVALUATION AND AWARD

4.0 Bid Evaluation

Each bid offer will be reviewed for exact conformity of the requirements in the IFB, known as a responsible bid. Information provided in/with the bid offer will be used to determine whether the interested bidder has the technical and financial capacity to deliver the goods or services, known as a responsive bid.

4.1 Method of Award

A. The contract will be awarded to the lowest responsive and responsible Bidder whose bid (including any alternates which may be selected) meets the requirements and criteria set forth in the solicitation documents.

B. In the event the total lump sum bid of all bidders exceeds the project control budget, HHSC reserves the right to make an award to the apparent Low Bidder if additional funds are available or by reducing the scope of work through negotiation.

4.2 Contract Execution

Upon receipt of the Contract document, the CONTRACTOR shall have ten (10) business days to execute and return the Contract to the Issuing Officer. Explicit execution instructions will accompany the Contract. A copy of the fully executed Contract will be provided the CONTRACTOR within seven (7) business days of Contract execution.

Award of Contract may be withdrawn if the CONTRACTOR is unable to meet Contract execution requirements.

(END OF SECTION)

APPENDIX A

SAMPLE
BID TRANSMITTAL COVER LETTER

Dear Mr. Nordstrom,

(Name of Business) proposes to provide any and all goods and services as set forth in the "Invitation for Bid" for Maluhia Renovate Sun Deck Roof IFB No. 25M-1208, for which fees/costs have been set. The fees/costs offered herein shall apply from XXX, 2026 to XXX, 2026.

It is understood and agreed that (Name of Business) have read HHSC's Scope of Services described in the IFB and that this bid is made in accordance with the provisions of such Scope of Services. By signing this bid, (Name of Business) guarantee and certify that all items included in this bid meet or exceed any and all such Scope of Services. (Name of Business) agree, if awarded the contract, to provide the goods and services set forth in the IFB; and comply with all terms and conditions indicated in the IFB; and at the fees/costs set forth in this bid. The following individual(s) may be contacted regarding this bid:_____

_____

Other information:

Address:		Federal Tax ID #:	
Phone No.:		Hawaii GET ID #:	
E-mail address:			

(Name of Business) is a: ☐ Sole Proprietor ☐ Partnership ☐ Corporation ☐ Joint Venture Other (Specify)_____

State of Incorporation is: (Specify)_____

Year of Business started: _____

The exact legal name of the business under which the contract, if awarded, shall be executed is:_____

_____

(Authorized Bidder's Signature, Printed Name/Title; Corporate Seal or Notarized)

APPENDIX B

IFB No. 25M-1208
Maluhia Renovate Sun Deck Roof

BID FORM

After carefully examining the bid documents, drawings and specifications identified above, the Bidder proposes to furnish at its own expense all necessary labor, materials, tools and equipment to complete the work according to the true intent and meaning of the drawings and specifications, all for the Lump Sum Base Bid of:

_____DOLLARS ($_____)

(Schedule of Values must be submitted with the Bid).

Respectfully Submitted:

_____ _____
Signature / Printed Name Date

_____
Title

OTHER CONDITIONS

1. Bidder agrees to liquidated damages as specified.

2. By submitting this proposal, the Bidder is declaring that its firm has not been assisted or represented on this matter by an individual who has, in a County capacity, been involved in the subject matter of this contract in the past two years;

3. Anti-collusion certification. In accordance with HAR 3-122-192, by submitting this proposal, the Bidder is declaring that the price submitted is independently arrived at without collusion.

4. Certification for Safety and Health Program for bids in excess of $100,000. In accordance with HRS 396-18, the Bidder certifies that its organization will have a written safety and health plan for this project that will be available and implemented by the Notice to Proceed date of this project. Details of the requirements of this plan may be obtained from the Department of Labor and Industrial Relations, Occupational Safety and Health Division (HIOSH); and

5. Upon the acceptance of the proposal by the HHSC, the Bidder must enter into and execute a contract for the same and furnish a Performance and Payment bond, as required by law.

RECEIPT OF ADDENDA
Receipt of the following addenda issued by HHSC is acknowledged by the date (s) of receipt indicated below:

Addendum No. 1 _____ Addendum No. 3 _____
Date
Addendum No. 2 _____ Addendum No. 4_____

It is understood that failure to receive any such addendum shall not relieve the Bidder from any obligation under this Proposal as submitted.

ALL JOINT CONTRACTORS OR SUBCONTRACTORS TO BE ENGAGED ON THIS PROJECT

The Bidder certifies that the following is a complete listing of all joint contractors or subcontractors covered under Chapter 444, Hawaii Revised Statutes, who will be engaged by the Bidder on this project to perform the nature and scope of work indicated and understands that failure to comply with this requirement may be just cause for rejection of the bid.

The Bidder further understands that only those joint contractors or subcontractors listed shall be allowed to perform work on this project and that all other work necessary shall be performed by the Bidder with his own employees. If no joint contractor or subcontractor is listed, it shall be construed that all of the work shall be performed by the Bidder with its own employees.

The Bidder must be sure that it has and that the subcontractor(s) listed in the proposal have all the necessary specialty licenses needed to perform the work for this project. The Bidder shall be solely responsible for assuring that all the specialty licenses required to perform the work are covered in its bid.

The Bidder shall include the license number of the joint contractors or subcontractors listed below. Failure to provide the correct names and license numbers as registered with the Contractor's Licensing Board may cause rejection of the bid submitted.

Complete Firm Name Joint Contractor or Subcontractor for Lump Sum Base Bid	License Number	Nature and Scope of Work to be Performed

Enclosed herewith:

1. Surety Bond (*1))
2. Legal Tender (*2))
3. Cashier's Check (*3))
4. Certified Check (*3))

(Cross Out Those Not Applicable)

in the amount of:

_____ DOLLARS ($_____).

as required by law.

Respectfully submitted,

_____
Name of Company, Joint Venture or Partnership

_____
License

By _____
Signature (*4)

Title _____

Date: _____

(CORPORATE SEAL)
(*5)

NOTES:

1. Surety bond underwritten by a company licensed to issue bonds in this State;

2. Legal tender; or

3. A cashier's or a certified check accepted by, and payable on demand to the HHSC by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation.

    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.

4. Please attach to this page evidence of the authority of this officer to submit bids on behalf of the Company, and also the names and residence addresses of all officers of the Company.

5. Fill in all blank spaces with information asked for or bid may be invalidated. PROPOSAL MUST BE INTACT. MISSING PAGES MAY INVALIDATE YOUR BID.

END OF BID FORM

APPENDIX C

S P E C I F I C A T I O N S

FOR

FURNISHING LABOR AND MATERIALS

REQUIRED FOR

MALUHIA

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, OAHU, HAWAII

TMK: 1-6-009:004

FOR THE

HAWAII HEALTH SYSTEMS CORPORATION (HHSC)

STATE OF HAWAII

ARCHITECT: INK ARCH LLC

STRUCTURAL: I3NGINEERING, INC.

MECHANICAL: MECHANICAL ENTERPRISES, INC.

ELECTRICAL: ALBERT CHONG ASSOCIATES, INC.

ENVIRONMENTAL: ENVIROQUEST, INC.

OCTOBER 2025

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DIVISION 0 – BIDDING AND CONTRACT REQUIREMENTS

SECTION 00210 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.01 GENERAL

A. Only Bidders with the required contractor's license(s) are eligible to submit a Bid.

B. Bidders (Contractors) shall be incorporated or organized under the laws of the State or be registered to do business in the State as a separate branch or division that is capable of fully performing under the contract. The following definitions are used in the solicitation documents.

1. Hawaii Business §3-1222-112 HAR: A bidder who is registered and incorporated or organized under the laws of the State is a "Hawaii Business" and eligible for an award.

2. Compliant non-Hawaii Business §3-122-112 HAR: A bidder not incorporated or organized under the laws of the State, but is registered to do business in the State and complies with or is exempt from the requirements of §3-122-112 HAR, is a "Compliant Non-Hawaii Business" and eligible for an award.

3. Non-compliant Bidder: If a bidder is a non-Hawaii business and is not registered with the DCCA Business Registration Division (BREG) or cannot comply with §3-122-112 HAR, then the bidder in non-compliant and is ineligible for an award.

C. Prospective Bidders shall submit their "Intention to Bid".

D. Bidders shall submit the "Sealed Bid Form", bid bond (if required), tax clearances, Hawaii business certificates, and any other documents required by the bidding documents.

E. The GENERAL CONDITIONS set forth additional terms and conditions for the bid and award process. The GENERAL CONDITIONS will be part of the contract documents by which Hawaii Health Systems Corporation (HHSC) and the bidder (prospective contractor) will be bound. Bidders are directed to the GENERAL CONDITIONS for contract and statutory requirements and for Bidding and Execution of the Contract Requirements. Bidders are also directed to "Section 00800 – Special Conditions" of these specifications for definitions and modifications to the GENERAL CONDITIONS.

1.02 OFFEROR(S) or BIDDER(S)

A. The terms “Offeror” and “Bidder” are synonymous when used in this Section 00210 and other solicitation documents.

1.03 ADDENDA, CLARIFICATIONS

A. Addenda: HHSC may periodically issue an addendum that may increase or decrease the scope of work or contract time, provisions or conditions. HHSC will make the addenda available online on the facility website. Bidders are responsible for the information contained in the addenda or bid clarification whether or not the Bidder receives the addenda or clarification.

B. Bidders discovering an ambiguity, inconsistency or error when examining the bidding documents or the site and local conditions or bidders with questions or clarification requests shall send their written requests (email or fax notification are acceptable) to the Project Architect. Bidders shall comply with the following procedures:

1. Identify each request with the Project Name.

2. Indicate the appropriate section number, paragraph, drawing and detail number, schedule or other identifier.

3. The request should be brief, concise, but complete enough to properly evaluate and determine the merits or non-merits of the question or request.

C. Bidders shall make any requests for clarifications no later than fourteen (14) calendar days prior to the submission date for sealed bids. Refer to the “Notice to Bidders” for submission date.

D. HHSC will respond to important requests or clarifications by way of addenda. HHSC may not address or respond to all bidders inquiries, if the HHSC determines the request is unimportant or not required to disseminate to all Bidders.

1.04 SEALED BID FORM (BID FORM)

A. Bidder shall fill out the “Sealed Bid Form” completely. Write in ink or type. Besides the following paragraphs with instructions, there are supplemental Bidder’s Instructions within the text of the “Sealed Bid Form” and bidders shall comply with the instructions. Do not alter the “Sealed Bid Form”, and maintain the form intact.

B. RECYCLED PRODUCT PREFERENCE is not applicable to this project.

C. OTHER CONDITIONS: Bidder acknowledges and agrees to the provisions and certifications stated in this article.

D. RECEIPT OF ADDENDA: Bidder shall fill in the appropriate dates any addenda were received.

E. LISTING JOINT CONTRACTORS OR SUBCONTRACTORS:

1. Bidder shall complete the "Joint Contractors or Subcontractors List." It is the sole responsibility of the bidder to review the requirements of this project and determine the appropriate specialty contractor's licenses that are required to complete the project. Failure of the bidder to provide the correct names, license numbers, specialty class number, classification description and to indicate that the specialty contractor is required for this project, may cause the bid to be rejected.

2. Bidder agrees the completed listing of joint contractors or subcontractors is required for the project and that the bidder, together with the listed joint contractors and subcontractors, have all the specialty contractor's licenses to complete the work.

3. Based on the Hawaii Supreme Court's January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Hawaii 450 (2002), the bidder as a general contractor ('A' or 'B' license) is prohibited from undertaking any work solely or as part of a larger project, which would require the bidder ('A' or 'B' general contractor) to act as a specialty ('C' license) contractor in any area in which the bidder ('A' or 'B' general contractor) has no specialty contractor's license. Although the 'A' and 'B' contractor may still bid on and act as the "Prime Contractor" on an 'A' or 'B' project (*See, HRS §444-7 for the definitions of an "A" and "B" project*), respectively, the 'A' and 'B' contractor may only perform work in the areas in which they have the appropriate contractor's license. The bidder ('A' or 'B' general contractor) must have the appropriate 'C' specialty contractor's licenses either obtained on its own, or obtained automatically under HAR §16-77-32.

4. General Engineering 'A' Contractors automatically have these 'C' specialty contractor's licenses: C-3, C-9, C-10, C-17, C-24, C-31a, C-32, C-35, C-37a, C-37b, C-38, C-43, C-56, C-57a, C-57b, and C-61.

5. General Building 'B' Contractors automatically have these 'C' specialty contractor's licenses: C-5, C-6, C-10, C-12, C-24, C-25, C-31a, C-42a, and C-42b.

6. The table that lists the specialty contractor' classifications in the bid form is from the Department of Commerce and Consumer Affairs' (DCCA) website www.state.hi.us/dcca/har/index.html. Bidders shall provide the appropriate classifications numbers and descriptions for any specialty contractors that are not included in

the bid form and bidders are directed to the DCCA web site for the latest updated list.

7. Instructions to complete the Joint Contractors or Subcontractors List:

   a. Determine the specialty contractor classification(s) required for this project and provide the complete firm name and license number of the joint contractor or subcontractor in the respective columns. If the bidder is a general contractor and providing the work of the required specialty contractor classification, fill in the bidder's (general contractor's) license number and name.

   b. List only one joint contractor or subcontractor per required specialty contractor's classification.

   c. For projects with alternate(s), fill out the respective "Joint Contractors or Subcontractors List for the Alternate(s)." Bidder shall determine the specialty contractor's classification and description required for the respective alternate. Bidders shall fill in the complete class number, class description, firm name and license number of the respective joint contractor or subcontractor. The bidder shall not include any joint contractor or subcontractor previously listed for the base bid.

F. COST AND TIME: Bidder shall completely fill out the article and enter the cost for the Project Bid Price, and Alternates when provided. Bidder shall tabulate the Project Bid Price, and Alternates when provided, and the Bidders shall then enter the Total Lump Sum Bid Price. **BE SURE TO ENTER THE TOTAL LUMP SUM BID PRICE IN WORDS AND NUMERALS**. Refer to Bidder's Instructions located within the article.

   1. If provided, bidder shall fill in total costs for each alternate.

   2. The bidder is directed to the construction time information paragraph "B" for the list of contract times and dates which may include: contract duration, project start date, jobsite start date, jobsite completion, contract completion date and construction time for alternates. Bidder shall refer to "Section 01100" of these specifications for additional construction time information, as applicable.

G. SIGNATORY PAGE: Bidder shall completely fill out article (page). Bidder shall indicate if it is a "Hawaii Business" or a "Compliant Non-Hawaii Business." Also, bidder shall refer to Bidder's Instructions located within the article.

1.05 EVALUATION CRITERIA

A. EVALUATING BIDS: The lowest responsive, responsible bid is determined by the following procedures:

1. The total lump sum bid price is adjusted to reflect the applicable preferences.

a. For projects with alternates, the total lump sum base bid price and alternates will be adjusted to reflect the applicable preferences.

2. Project control budget is established prior to the submission of bids.

1.06 METHOD OF AWARD

A. The contract will be awarded to the lowest responsive and responsible Bidder whose bid (including any alternates which may be selected) meets the requirements and criteria set forth in the solicitation documents.

B. In the event the total lump sum bid of all bidders exceeds the project control budget, HHSC reserves the right to make an award to the apparent Low Bidder if additional funds are available or by reducing the scope of work through negotiation.

1.07 OTHER CONDITIONS FOR AWARD

A. The Chief Procurement Officer may reject any or all bids and waive any defects if the Chief Procurement Officer believes the rejection or waiver is in the best interest of HHSC.

B. The Chief Procurement Officer may hold all bids up to 60 calendar days from the date bids were opened. Unless otherwise required by law, bids may not be withdrawn without penalty.

C. The award of the contract is conditioned upon funds made available for the project (or projects if applicable)

1.08 COMPLIANCE WITH §3-122-112 HAR:

A. As a condition for award of the contract and as proof of compliance with the requirements of 103D-310(c) HRS, the bidder shall meet the “Hawaii Business” or “Compliant non-Hawaii Business” requirements and shall provide the following documents:

1. Department of Taxation (DOTAX) and the IRS tax clearance certificates.

2. Department of Labor (DLIR) certificate of compliance.

3. Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG) certificate of good standing.

a. A Hawaii business that is a sole proprietorship is not required to register with the BREG and therefore not required to submit the DCCA, BREG "Certificate of Good Standing."

B. The apparent three low bidders shall furnish the required documents to HHSC within seven calendar days from the bid opening date. If a valid certificate is not submitted on a timely basis for award of a contract, a bidder otherwise responsive and responsible may not receive the award. Bidder is responsible to apply for and submit the documents by the required deadlines.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 REQUIRED DOCUMENTATION FOR HAWAII BUSINESS OR COMPLIANT NON-HAWAII BUSINESS (§3-122-112 HAR)

A. TAX CLEARANCE REQUIREMENTS (HRS Chapter 237): Bidder shall obtain a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is valid for six months from the most recently approved stamp date on the certificate; the certificate must be valid on the date received by HHSC.

1. DOTAX *TAX CLEARANCE APPLICATION* Form A-6 (Rev 2003) is available at DOTAX and IRS (State of Hawaii) offices or DOTAX website, and by mail or fax.

a. DOTAX website: http://www.state.hi.us/tax/alphalist.html#a

b. DOTAX forms by fax/mail: (808) 587-7572 or 1-800-222-7572

2. Mail, fax or submit in person completed tax clearance application forms to the Department of Taxation, Taxpayer Services Branch or to the address listed on the application. Facsimile numbers are:

a. DOTAX: (808) 587-1488

b. IRS: (808) 539-1573

3. DOTAX will return the form to the bidder. The bidder is reminded that it is responsible to submit the applications for the tax clearance directly to DOTAX or IRS and not to HHSC.

B. DLIR CERTIFICATE of COMPLIANCE (HRS Chapter 383 - Unemployment Insurance, Chapter 386 - Workers' Compensation, Chapter 392 - Temporary Disability Insurance, and 393 – Prepaid Health Care): Bidder shall obtain a certificate of compliance from the Hawaii State Department of Labor and Industrial Relations (DLIR). The certificate is valid for six months from the date of issue; certificates must be valid on the date received by HHSC.

1. DLIR *APPLICATION FOR CERTIFICATE OF COMPLIANCE WITH SECTION 3-122-112 HAR*, Form LIR#27 is available at DLIR website or at the neighbor island DLIR District Office.

   a. DLIR website: http://www.dlir.state.hi.us/LIR#27

2. Mail, fax or submit in person completed application form to the Department of Labor and Industrial Relations, Administrative Services Office at the address listed on the application.

3. DLIR will return the form to the bidder. The bidder is reminded that it is responsible to submit the application for the certificate directly to DLIR and not to HHSC.

C. DCCA CERTIFICATE OF GOOD STANDING: Bidder shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six months from the date of issue; certificates must be valid on the date received by HHSC.

1. DCCA *CERTIFICATE OF GOOD STANDING* is available from the business registrations website or by telephone. Bidders are advised there are costs associated with registering and obtaining the certificate.

   a. DCCA form website: http//www.BusinessRegistrations.com

   b. DCCA telephone: (808) 586-2727, M - F 7:45 to 4:30 HST

2. Submit the application per DCCA's requirements.

3. DCCA will return the form to the bidder. The bidder is reminded that it is responsible to submit the application for the certificate directly to DCCA and not to HHSC.

END OF SECTION

SECTION 00800 - SPECIAL PROVISIONS

PART 1 - GENERAL

1.01 SUBSTITUTION REQUESTS

A. Written substitution requests must be submitted with your Invitation for Bid (IFB) in accordance with IFG Section 3. All substitutions will be reviewed and approved in accordance with Section 6.3 Substitution of Materials and Equipment.

B. Substitution requests by FAX are not acceptable.

1.02 PROJECT CONTACT PERSON

A. HHSC Representative

NAME:	Mr. Todd Nordstrom
POSITION OR TITLE:	CIP Coordinator
TELEPHONE NUMBER:	(808) 767-0526
Email:	tnordstrom@hhsc.org

B. Consultant

NAME:	Mrs. Margaret Mok
POSITION OR TITLE:	Architect
TELEPHONE NUMBER:	(808) 356-5906
Email:	mmok@inkarch.com

1.03 OFFEROR'S RESPONSIBILITY FOR EXAMINING PLANS, SPECIFICATIONS AND SITE OF WORK

A. Offerors herewith refers to sub-contractors, suppliers, manufacturer's representatives as well as contractors.

1.04 LIQUIDATED DAMAGES

A. The time of completion for the Work shall be within 150 consecutive calendar days from the official commencement date of the Notice to Proceed (NTP).

B. In accordance with the General Conditions, upon failure to complete Work or any portion of the Work within the time or times fixed in the contract or extension thereof, the Contractor shall pay liquidated damages to the Department in the amount of $500.00 per calendar day of delay.

C. In accordance with the General Conditions, PROJECT ACCEPTANCE DATE, for failure to correct punch list deficiencies, within the time or times fixed in the contract or extension thereof, the Contractor shall pay liquidated damages to HHSC, in the amount equal to ten percent (10%) of the liquidated damages per calendar day of delay.

D. In accordance with the General Conditions FINAL SETTLEMENT OF THE CONTRACT, for failure to submit closing documents within the time or times fixed in the contract or extension thereof, it is agreed that the Bidder shall pay liquidated damages to HHSC in the amount equal to five percent (5%) of the liquidated damages per calendar day of delay.

1.05 SPECIALTY CONTRACTOR'S LICENSE

A. Contractor shall be solely responsible to assure that all the specialty licenses required to perform the Work are covered by the Contractor or its subcontractor(s).

1.06 WORKING HOURS

A. The regular working hours for this project is from 8:00 AM to 3:30 PM Monday through Friday, excluding State Holidays, unless otherwise noted or restricted under "Section 01100". The Working Hours provisions of specification "Section 01100" shall govern over this article 1.06.

B. The Contractor may be given approval to work beyond the regular hours including Saturdays, Sundays, State Holidays, night work, or after hours under the provisions of the GENERAL CONDITIONS, "Overtime And Night Work Section" and under specification "Section 01100".

1.07 SPECIAL PROCEDURES DURING BIDDING

A. Bid documents will be available online and from the HHSC Representative's office, at Leahi Hospital, 3675 Kilauea Ave, Honolulu, HI 96816.

B. All bids shall be submitted to the HHSC Representative.

C. All questions regarding the plans and specifications shall be submitted, in writing, to the HHSC Representative and Consultant. The HHSC Representative and Consultant will review the questions and issue any responses via Addendum. Only information received by Addendum shall be binding.

D. All questions regarding the proposal or contractual requirements shall be submitted, in writing to the HHSC Representative. The HHSC Representative will review the questions and issue any responses via Addendum. Only information received by Addendum shall be binding.

E. Any visitation to the site to examine the scope of work shall be requested through the HHSC Representative. Disruption of facility operations shall not be permitted.

1.08 PROCEDURES DURING CONSTRUCTION

A. Upon issuance of the Notice to Proceed, the Contractor shall submit a work schedule for review and discussion. The work schedule shall be up-dated on a weekly or bi-weekly basis as directed by the HHSC Representative.

B. On a weekly or bi-weekly basis, the Contractor shall conduct a progress meeting with the HHSC Representative. The meeting will discuss the progress of the construction, discussion of problems, and review of outstanding issues. The Contractor shall conduct the meeting and prepare the meeting notes and minutes and distribute to all parties.

C. During the construction, submittals and RFIs shall be submitted to the HHSC Representative with copy to the Consultant for review and action. To expedite the review, the Contractor may make submittals via email.

D. Periodic requests for payment shall be submitted to the HHSC Representative for review and confirmation. Upon approval by the HHSC Representative, the request for payment will be forwarded to the appropriate HHSC Contracting Office for processing.

E. Upon substantial completion of the project, the Contractor shall submit in writing to the HHSC Representative a request for a pre-final inspection. The Contractor shall have completed their own inspection and completed all noted discrepancies. Include with the request for the pre-final inspection a list of all outstanding work not completed or corrected.

F. Upon conducting a pre-final inspection, the Consultant shall prepare a punchlist of noted discrepancies for the Contractor's remedial action. Additional items observed and noted by the HHSC Representative during the inspection shall also be included in the punchlist. A final inspection will be performed upon completion of all punchlist items.

1.09 PROJECT RESTRICTIONS

A. The Contractor is informed that the facilities will be fully occupied and work shall be performed in close coordination with the HHSC Representative. Work will require the relocation of clients from the work area. Time shall be allocated for HHSC to conduct this relocation. Scheduling of the work shall be closely monitored and work performed to minimize the disruption to the remaining areas of the facility. All work schedules shall be approved by the HHSC Representative prior to starting.

B. Staging and storage of materials on-site is limited and shall be coordinated with the HHSC Representative. Contractor may be required to store materials off-site at his own expense.

C. Parking on-site is limited and may be restricted to only active delivery of materials and equipment. Coordinate with the HHSC Representative. If on-site parking not be available, the Contractor shall park off-site.

D. The above restrictions shall be considered in the work of this project and shall be included in the Contractor's cost. No additional compensation shall be made for not considering these restrictions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 FINAL PAYMENT REQUIREMENTS

A. In addition to the requirements in the GENERAL CONDITIONS "Final Payment" section, the contractor shall submit"

1. Tax clearance certificate from DOTAX and IRS, current within two months of the issuance date; and

2. An originally signed Certificate of Compliance for Final Payment (SPO Form - 22, modified), affirming that the contractor remained in compliance with all laws as required by (§3-122-112 HAR). A contractor making a false affirmation shall be suspended and may be debarred pursuant to section 103D-702 HRS.

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01019 - GENERAL PROJECT REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY OF WORK

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.

1.02 DIVISION OF WORK

A. The Division and Sections into which these specifications are divided shall not be considered an accurate or complete segregation of work by trades. This also applies to work specified within each section.

B. 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.

C. Specifications and Drawings are prepared in abbreviated form 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.

D. Specifying of interface and coordination in the various Specification Sections is provided for information and convenience only. Such requirements in the various Sections shall complement the requirements of this Section.

1.03 NOTIFICATION

A. Contact the HHSC Representative at least five (5) working days prior to starting any onsite work.

1.04 SAFETY REQUIREMENTS

A. The Hawaii Occupational Safety and Health Law, Chapter 396, Hawaii Revised Statutes, effective May 16, 1972, as amended, is applicable and made a part of the Contract. Carefully read and strictly comply with its requirements.

B. Protect the facility personnel, students, and the public whenever power driven equipment is used. Ensure adequate safety precautions are used when operating any power-driven equipment.

1.05 PERFORMANCE AND COORDINATION

A. Contractor shall be in charge of the Work and the Project Contract Limits, as well as the directing and scheduling of all work. Contractor shall include general supervision, management and control of the Work of this project, and in addition to other areas more specifically noted throughout the Specifications. Final responsibility for performance, interface, and completion of the Work and the Project shall be the Contractor's.

B. Jobsite Administration shall be the responsibility of the Contractor. Provide a competent superintendent on the job and provide an adequate staff to execute the Work. In addition, all workers shall dress neatly 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 HHSC Representative.

C. HHSC will hold the Contractor liable for all the acts of Subcontractors and shall deal only with the Prime Contractor in matters pertaining to other trades employed on the job.

D. Coordination: Provide project interface and coordination to properly and accurately bring together the several parts, components, systems, and assemblies as required to complete the Work.

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 caulking, sealing, and flashing as required to waterproof the building complete and as required to insulate the building thermally and acoustically. Include sealing, flashing, and related work as required to prevent moisture intrusion, air infiltration, and light leakage.

4. Materials, equipment, component parts, accessories, incidental items, connections, and services required to complete the Work which is not provided by subcontractors shall be provided by the Contractor.

1.06 COOPERATION WITH OTHER CONTRACTORS

A. HHSC 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 HHSC Representative, conduct its work so as not to interfere with or hinder the progress or completion of the work performed by HHSC or other contractors.

1.07 SUBMITTALS

A. 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. Record Drawings: Field Posted As-Built Drawings, the intent of which is to record the actual in-place construction so that any future renovations or tie-ins can be anticipated accurately, shall be prepared and submitted by the Contractor. To accomplish this, the following procedure shall be followed by the Contractor:

1. A full-size set of field posted as-built drawings shall be maintained at the job site. All deviations from alignments, elevations and dimensions which are stipulated on the drawings and authorizations given by the HHSC Representative to deviate from the drawings shall be clearly and accurately recorded by the Contractor on this set of record drawings.

2. Changes shall be recorded immediately after they are constructed in place to assure they are not forgotten. Record the changes in red pencil and where applicable, refer to the authorizing document or Change Order. The field posted as-built drawings shall be made available to the Consultant and HHSC Representative at any time so that its clarity and accuracy can be monitored.

3. The words “FIELD POSTED AS-BUILT” shall be labeled on the title sheet and certified by the Contractor as to accuracy and completeness as shown below:

   FIELD POSTED AS-BUILT

   Certified By: _____Date:_____
   Contractor (Include name and company)

4. The words “FIELD POSTED AS-BUILT” shall be labeled on all sheets in the margin space to the right of the sheet number written from the bottom upward.

5. The Index to Drawings shall be revised with the label “FIELD POSTED AS-BUILT” for each sheet. The index shall conclude with the following note: “A COMPLETE SET CONTAINS ____ SHEETS” with the total number of sheets comprising the set to be placed in the blank.

6. Any “FIELD POSTED AS-BUILT” drawing which the HHSC Representative and/or Consultant determines does not accurately record the deviation may be corrected by the Consultant and the Contractor shall be charged for the services.

7. Submit the set of “FIELD POSTED AS-BUILT” drawings to the Consultant and notify the HHSC Representative no later than five (5) calendar days prior to the date of final inspection.

8. “AS-BUILT” drawings will be prepared by the design consultant using the “FIELD POSTED AS-BUILT”. Both sets of drawings will be sent to the Contractor for review and approval. The Contractor shall retain the “FIELD POSTED AS-BUILT” drawings for records, sign the “AS-BUILT” set of drawings, indicating approval, and return the drawings in a timely manner to the Consultant and notify the HHSC Representative.

1.08 CONSTRUCTION SCHEDULE:

A. The Construction Schedule completion date will be approved prior to award. The daily activities of the Construction Schedule will be reviewed within fifteen (15) calendar days after the Notice to Proceed or upon earlier written instruction by HHSC.

B. The schedule shall be related to the entire project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the work. If requested by the HHSC Representative, the Contractor shall participate in a preliminary meeting to discuss the proposed schedule and requirements prior to submission of the schedule.

C. Contractor shall prosecute the work according to the Schedule. The HHSC Representative shall rely on the reviewed Contractor’s Schedule and regular updates for planning and coordination. The HHSC Representative’s review of the Contractor’s Construction Schedule does not relieve the Contractor of its obligation to complete the work within the allotted contract time. Nor does the review grant, reject or in any other way act on the Contractor’s request for adjustment(s)to complete remaining contract work, or for claims of additional compensation. Such requests shall be processed in accordance with other relevant provisions of the contract.

D. If the HHSC Representative issues a Field Order or Change Order or requires Force Account Work that affects the sequence or duration of work activities noted on the construction progress schedule, the Contractor shall promptly update the schedule. This shall be accomplished by adding, deleting or revising the work activities noted, or changing the logic in the schedule to show the Contractor's plan for incorporating the change into the flow of work. All Change Orders and Time Extension requests that affect the construction schedule shall be evaluated based on their impact on the approved Construction Schedule.

1.09 MEETINGS

A. Contractor shall meet with the HHSC Representative, weekly or other interval as determined, to discuss the progress of the Work.

B. For each meeting, Contractor shall take meeting minutes and provide a list stating all items, work or material, which may cause a delay or have an impact on the project's contractual dates. The list shall be inclusive of items requiring action from all responsible parties such as outstanding submittal status, request for information (clarification), force account work, change order, and change proposals. The format of this list shall be at the Contractor's discretion, subject to the HHSC Representative's approval. Submit the list to all parties for discussions as a meeting agenda. Contractor shall provide a plan of corrective action for any item, which is delayed or expected to be delayed, where that item impacts the contractual dates.

1.10 PROJECT AND SITE CONDITIONS

A. Project Contract Limits (Contract Zone Limits) shown on the drawings 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.

1.11 SANITARY FACILITIES

A. The Contractor shall be allowed to utilize on-site restrooms as directed by the HHSC Representative. The Contractor shall maintain the facility in clean and sanitary condition at all time. Failure to do so, may require the Contractor to provide portable temporary toilet facilities for the contractor's use.

1.12 CONSTRUCTION AIDS

A. Provide construction aids and equipment required by construction personnel and to facilitate execution of the Work including: scaffolds, ladders, ramps, platforms, railings, and other such facilities and equipment.

PART 2 - PRODUCTS

2.01 QUALITY

A. Materials, items, equipment and fixtures specified in the various Divisions and Sections shall be new unless otherwise specified.

2.02 STORAGE AND HANDLING

A. Contractor shall supervise jobsite delivery and handling, and assign storage space for materials, items, equipment and fixtures of all trades. Contractor and installer are responsible for delivery, unloading, unpacking, handling, storage, distribution, installation and protection of its materials at the jobsite.

B. Except as otherwise required by these specifications or by HHSC, determine and comply with manufacturer(s) recommendation(s) on product handling, storage and protection.

C. Deliver products to the jobsite in manufacturer's original containers, with labels intact and legible. Maintain packaged material with seals unbroken and labels intact until time of use. Promptly remove damaged materials and unusable items from the jobsite, and promptly replace with material meeting the specified requirements, at no additional cost to HHSC.

D. The Consultant may reject as non-complying such material and products that do not bear identification satisfactory to the Consultant as to manufacturer, grade, quality, and other pertinent information.

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 dimensions and elevations indicated on the drawings before any construction begins. Any discrepancy shall be immediately brought to the attention of the Consultant, and any change shall be made in accordance with the Consultant's instruction. Contractor shall not be entitled to extra payment if it fails to report the discrepancies before proceeding with any work whether within the area affected or not.

C. Obtain all field measurements required for the accurate fabrication and installation of the Work included in this Contract. Exact measurements are the Contractor's responsibility.

D. Furnish or obtain templates, patterns, and setting instructions as required for the installation of all Work. All dimensions shall be verified in the field.

E. The Contractor shall accept the site in the condition which exists at the time access is granted to begin the Work.

1. Verify existing conditions and dimensions shown and other dimensions not indicated but necessary to accomplish the Work.

2. Locate general reference points and take action to prevent their destruction. Lay out work and be responsible for lines, elevations and measurements and the work executed. Exercise precautions to verify figures and conditions shown on drawings before layout of work.

3. Before starting the Work, the Contractor and each Subcontractor, shall verify governing dimensions and shall examine adjoining work on which the Contractor's work is in any way dependent. No additional compensation will be allowed on account of differences between actual measurements and dimensions shown. Submit differences discovered during the verification work to the Consultant for interpretations before proceeding with the associated work.

3.02 UTILITY SERVICE

A. Electricity - Make arrangements with the facilities for temporary use of electricity for construction use.

B. Telephone - Make arrangements with the utility companies for temporary telephone service for construction use or utilize cellular phone service.

C. Water - Make arrangements for temporary water use with the facilities.

3.03 ENVIRONMENTAL

A. General Contractor shall oversee that proper environmental conditions are met regarding temperature, humidity, lighting and ventilation.

3.04 PREPARATION AND PROTECTION

A. Protection of Property: Continually maintain adequate protection of the Work from damage and protect all property, including but not limited to buildings, interior or exterior finishes, equipment, furniture, grounds, vegetation, material, utility systems located at and adjoining the job site.

Repair, replace or pay the expense to repair damages resulting from Contractor's work, fault or negligence.

B. Before starting work to be applied to previously erected constructions, make a thorough and complete investigation of such recipient surfaces and determine their suitability to receive required additional construction and finishes. Contractor, at its expense, shall make whatever repairs and conditioning required to properly prepare such surfaces. Contractor shall coordinate the work to provide a suitable surface to receive following work.

C. Commencement of work by any trade will be construed as acceptance of existing conditions and surfaces as being satisfactory for application of subsequent work, and full responsibility for finished results and assumption of warranty obligations under the Contract.

D. Protect existing work in a manner to prevent damage including interior work from damage by vandals or the elements. Provide temporary protection. Use curtains, barricades, or other appropriate methods. Take positive measures to prevent breakage of glass and damage to plastic, aluminum and other finishes.

E. Repairs and Replacements: In event of damage, promptly make replacements and repairs to the approval of the Consultant and/or HHSC Representative and at no additional cost to HHSC. Additional time required to secure replacements and to make repairs will not be considered to justify an extension in the Contract Time or completion.

3.05 BARRICADE

A. Erect temporary construction barricade(s) to prevent unauthorized persons from entering the project area and to the extent required by the HHSC Representative.

B. Maintain temporary construction barricade(s) throughout the duration of the Work. During the course of the project, the HHSC Representative may require additional barricades be provided for the safety of the public. Contractor shall erect the additional barricade(s) at its own expense.

3.06 INSTALLATION

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

3.07 PATCHING

A. General Contractor shall oversee cutting and patching of concrete, masonry, structural members and other materials where indicated on drawings and as job conditions require. Unless noted elsewhere in the Drawings and Specifications, no cutting or patching of existing or new structural members will be permitted without previously notifying the HHSC Representative and Consultant.

B. Patching materials and workmanship shall be of equal quality to that indicated on the drawings, specified for new work, and/or to match the construction of item to be patched.

3.08 CLEAN-UP

A. Rubbish and debris resulting from work of the various Divisions and Sections of the specifications shall be collected and disposed of by the Contractor at legal disposal areas away from the project site. Clean up and remove from premises all debris accumulated from operations from time to time and as directed by the HHSC Representative. Permission to provide on-site trash containers shall be granted by HHSC and shall be placed where directed by the HHSC Representative.

END OF SECTION

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: The work shall generally consist of installation of a new roof covering over the existing Sun Deck. Demolition work shall include, but not be limited to, demolition of the existing tensile roof covering, rerouting of existing downspouts, and removal of existing lighting. New work shall include, but not be limited to, installation of new steel framing, metal roof panels, gutters, and downspouts, fire sprinklers, electrical devices and miscellaneous related work.

1. Project Location: Maluhia, 1027 Hala Drive, Honolulu, Hawaii.

B. 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.

C. The Division and Sections into which these specifications are divided shall not be considered an accurate or complete segregation of work by trades. This also applies to work specified within each section

D. Contractor shall not alter the Drawings and Specification. If an error or discrepancy is found, notify the Consultant.

E. Specifying of interface and coordination in the various specification sections is provided for information and convenience only. These requirements in the various sections shall complement the requirements of this Section.

1.02 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated and include incomplete sentences. Omission of words or phrases such as “the Contractor shall”, “as shown on the drawings”, “a”, “an”, and “the” are intentional. Omitted words and phrases shall be provided by inference to form complete sentences. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates. Where devices, or items, or parts thereof are referred to in the singular, it is intended that such reference

shall apply to as many such devices, items or parts as are required to properly complete the Work.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

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

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

B. Definitions

1. Directed: Terms such as “directed,” “requested,” “authorized,” “selected,” “approved,” “required,” and “permitted” mean directed by HHSC Representative, requested by HHSC Representative, 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, installation, 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 HHSC Representative and/or Consultant.

C. Industry Standards

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

2. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

3. Conflicting Requirements: If compliance with two 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 HHSC Representative and Consultant for a decision before proceeding.

1.03 WORK SEQUENCE

A. The Work will be conducted in a single construction phase.

1.04 USE OF PREMISES AND WORK RESTRICTIONS

A. General: Contractor shall have full use of construction zone for construction operations, including restricted use of project site, during construction period. Contractor’s use of premises is limited only by State’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. The Contractor shall coordinate the work schedule with the HHSC Representative. An advanced notice of 15 calendar days shall be provided prior to the start of work. Work can be scheduled for weekdays (8:00 AM to 3:30 PM) with advanced notice by the Contractor.

b. The normal operational hours are 8:00 AM to 3:30 PM, Monday through Friday.

c. Unless restricted elsewhere in these specifications, the Contractor may not perform work outside of normal daily operation hours. Weekend or holiday work may be permitted with the approval of the HHSC Representative. Any weekend or holiday work shall require a 15 calendar day advanced notice.

d. Work performed during normal operating hours shall not impede public traffic or office personnel. An alternate route around the work areas may be required.

2. Site Access and Parking:

a. Arrange all on-site parking and access with the HHSC Representative.

b. Permanent use of the loading area is prohibited.

c. Subject to availability, the HHSC Representative will designate other on-site areas that may be used by the Contractor other than assigned stalls. Restore any property damaged by construction activities at the completion of the project.

3. Sanitation and Utilities:

a. Contractor may use designated restrooms, however, shall maintain the facilities in clean condition at all times. Coordinate with the HHSC Representative.

b. Arrange all temporary electricity and water service with the HHSC Representative. There will be no charges for reasonable electricity and water service.

c. Should interruption of any utility services be required, outages shall be coordinated with the HHSC Representative. A minimum five (5) working days notice shall be provided. Contractor is forewarned that the HHSC Representative may require outages to be done at specific times to minimize disruptions to the facility operations.

4. Other Conditions:

a. Noise and other disrupting activities normally resulting from construction operations are detrimental to the conduct of normal activities in adjacent locations surrounding the project area. Accordingly, exercise every precaution to keep noise levels to a minimum. Internal combustion engines and compressors shall be equipped with mufflers to reduce noise to a minimum.

b. Use or application of materials with offensive odors should be avoided and may be restricted from use on this project.

1.05 WORK UNDER OTHER CONTRACTS

A. Separate Contract: The HHSC may execute a separate contract for certain construction at the facility that was not known at the time Offers were submitted.

B. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

1.05 BIDDER'S SPECIAL RESPONSIBILITY FOR COORDINATING CONTRACTURAL WORK AND SUBMITTALS:

A. The General Contractor shall be responsible for the coordination of all contractual work and submittals.

B. The General Contractor shall have a rubber stamp made up in the following format:

Contractor's Name

PROJECT: _____

_____

PROJECT NO.: _____

THIS SUBMITTAL HAS BEEN CHECKED BY THIS GENERAL CONTRACTOR. IT IS CERTIFIED 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.

DATE RECEIVED _____
SPECIFICATION SECTION # _____
SPECIFICATION PARAGRAPH # _____
DRAWING _____
SUBCONTRACTOR _____
SUPPLIER _____
MANUFACTURER _____

CERTIFIED BY: _____

C. This stamp, "filled-in", should appear on the title sheet of each shop drawing, on a cover sheet of submittals in an 8-1/2" x 11" format, or on one face of a cardstock tag (min. 3" x 6") tied to each sample. The tag on the samples should state what the sample is, so that if the tag is accidentally separated from the sample, they can be matched up again. The back of this tag will be used by the Consultant for his receipt, review, and log stamp and for any comments that relate to the sample.

D. All submittals for material and shop drawings listed in the contract documents, shall be required and shall be first reviewed and certified by the General Contractor, then reviewed and approved by Consultant and HHSC Representative, prior to any ordering of materials and equipment. Submittals that have not been reviewed by the General Contractor shall be returned for review.

SECTION 01140 – WORK RESTRICTIONS

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes work restrictions on the Contractor's operations, and construction as required to maintain the facility's operation during the construction period.

B. CONSTRUCTION PROVISIONS

1. Rules and Regulations: Consult with the HHSC Representative at the pre-construction conference and become familiar with the rules and regulations of the facility.

2. Contractor's Operations: Confine all construction operations to the immediate vicinity of the construction activity. Store building materials, equipment, tools and incidentals in an enclosed area as directed by the HHSC Representative. Take precautions and prevent access to power equipment, tools, etc., by other than authorized construction personnel. Perform operations to ensure the safety of the occupants of the buildings at all times.

3. Perform operations to minimize inconvenience or disturbance upon the personnel and residents.

4. Protection of occupants: Special consideration must be made by the Contractor at all times to safely protect the occupants and facility personnel from any and all injuries that may be caused as a result of the work performed under this contract.

5. Caution: The Contractor shall caution his personnel on the job that any association with the occupants be avoided as much as possible, that when spoken to by occupants, normal courtesy shall be maintained at all times.

6. None of the foregoing regulations shall be construed as a restriction on the legal prosecution of the work.

1.02 SEQUENCING OF WORK

A. The Contractor shall schedule his work in general consideration for the on-going operation of the facility. All work shall be coordinated with the HHSC Representative. Contractor shall consider in his proposal interruptions or delays to his schedule of work due to special requirements of HHSC.

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

Where indicated in these specifications, provide submittals to the HHSC Representative and Consultant for review.

1.02 PROCEDURES

A. Unless otherwise specified, deliver submittals to the HHSC Representative with copy to the Consultant.

B. Transmit all items using form which identifies Project, Contractor, Subcontractor, and major supplier. Identify pertinent drawing sheet, detail number, and specification section number, as appropriate. Identify deviations from Contract Documents. Provide space for the Consultant's review stamp.

C. Upon completion of review by the Consultant and HHSC Representative, the HHSC Representative will return submittals to the Contractor with copy to the Consultant.

1.03 SCHEDULE OF WORK

A. Coordinate Schedule with Work Sequence specified in Section 01140.

1.04 SHOP DRAWINGS AND SAMPLE SUBMITTALS

A. All submittals shall be made in accordance with the following unless otherwise specified. Minimum sheet size is 8-1/2" x 11". Maximum sheet size is same size as the Contract Drawings. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet, schedule, and detail shown on Contract Drawings.

B. Mark each copy to identify applicable products, and other data. Supplement manufacturer's standard data to provide information unique to the work. Include manufacturer's installation instructions when required by the specification.

1. The Contractor shall review, stamp with his approval and submit with reasonable promptness and in orderly sequence so as to cause no delay in work of any other Subcontractor, all shop drawings, and product data required by these specifications.

2. Properly identify shop drawings and samples as specified. At the time of submission, the Contractor shall inform the Consultant in writing of any deviation in the shop drawings or submittals from requirements of the Contract Documents.

3. By approving and submitting the shop drawings and submittals the Contractor thereby represents that he has determined and verified all field measurements, field criteria, materials, catalog numbers and similar data, or will do so, and that he has checked and coordinated each shop drawing and sample with the requirements of these specifications.

4. Six (6) copies of the Shop Drawings and submittals shall be submitted for review. Upon review, the Consultant will retain three (3) copies and return the balance to the Contractor.

5. The Consultant will review the shop drawings and submittals with reasonable promptness so as to cause no delay but only for conformance with the design concept of the Project and with the information given in the Contract Documents. The Consultant's review of a separate item shall not indicate approval of an assembly in which the item functions.

6. The Contractor shall make any corrections required by the Consultant and shall resubmit the required number of corrected copies of shop drawings or submittals for review. The Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections requested by the Consultant on previous submissions.

7. The Consultant's review of shop drawings or submittals shall not relieve the Contractor of responsibilities for any deviation from the requirements of the Contract Documents unless the Contractor has informed HHSC in writing of such deviation, at time of submission, and the HHSC Representative and/or Consultant has given written approval to the specific deviation; nor shall the Consultant's review relieve the Contractor from responsibility for errors or omissions in the shop drawings or samples.

8. No portion of the work requiring a shop drawing or sample submission shall be commenced until the submission has been reviewed by the Consultant and HHSC Representative. All such portions of the work shall be in accordance with reviewed shop drawings and samples.

C. Samples: Submit full range of manufacturer's standard textures, colors, and patterns for HHSC's selection. Submit samples as specified in the respective Specification sections and as noted above. Samples shall illustrate functional characteristics of the Product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work. Include identification on each sample, giving full information.

1.06 MANUFACTURER'S CERTIFICATES

Submit certificates, warranties, operating and maintenance instructions in accordance with requirements of each specification section. Submit in triplicate.

1.07 MSDS

MSDS shall be submitted prior to the pre-construction meeting. The Contractor shall submit MSDS log and reference each MSDS to its specification Section number and product system.

PART 2 – PRODUCTS

(Not used.)

PART 3 – EXECUTION

(Not used.)

END OF SECTION

SECTION 01310 – PROJECT COORDINATION

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes the requirements for coordination of construction activities with the ongoing operations of the Maluhia Long-Term Care Facility (HHSC).

B. The Work includes construction of the Sun Deck Roof and associated structural footing modifications located above the existing ground-level loading area and adjacent ADA access ramp.

1.02 RELATED REQUIREMENTS

A. SECTION 00800 – SPECIAL PROVISIONS

B. SECTION 01100 – SUMMARY

C. SECTION 01140 – WORK RESTRICTIONS

1.03 COORDINATION WITH FACILITY OPERATIONS

A. The Contractor shall coordinate all Work with HHSC Representative to minimize disruptions to facility operations, deliveries, and public access areas.

B. The ground-level area below the work zone serves as:

1. The facility's active loading dock for daily deliveries and waste removal.

2. The ADA-accessible route and ramp used for Adult Day Health Care program participant drop-offs in the morning and pick-ups in the afternoon.

C. Contractor shall review all work sequencing, staging, and safety measures with HHSC's designated representative prior to commencing any activities that affect these areas.

1.04 SCHEDULING AND ACCESS REQUIREMENTS

A. Coordinate all excavation, formwork, concrete placement, and material delivery activities that impact the loading dock and ADA paths a minimum of five (5) working days in advance with HHSC.

B. Conduct work affecting the loading dock, driveway, or pedestrian ramp during off-peak hours or as otherwise approved by HHSC to maintain essential facility operations.

C. Maintain access routes for deliveries, staff, and program participants at all times unless a temporary closure is specifically approved by HHSC.

1.05 SAFETY AND TRAFFIC CONTROL

A. Prepare and submit a Site Access and Safety Plan outlining proposed barricades, protected walkways, detours, flagmen, and signage.

B. Maintain a minimum 6-foot-wide clear pedestrian passage at all times unless an alternate route is approved by HHSC.

C. Implement appropriate safety measures to protect the public, facility users, and workers during all construction activities.

1.06 TEMPORARY DISRUPTIONS AND NOTIFICATIONS

A. Any planned disruption, closure, or rerouting of the loading dock or ADA ramp shall be scheduled in advance and approved by HHSC Representative.

B. The Contractor shall provide temporary access provisions, including signage and safe detour routes, to ensure continued facility operations.

C. Provide HHSC Representative with daily updates during periods when access is restricted or rerouted.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01577 - POLLUTION CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. Includes site and environmental control requirements.

1.02 TRASH, REFUSE DISPOSAL

A. Assume all ballast or lamps from removed light fixtures contain mercury and are PCB contaminated. Dispose fixtures properly in accordance with federal, state, and local requirements

B. Burning of debris and/or waste materials on the project site is prohibited.

C. Do not bury debris and/or waste material on the project site, unless specifically allowed elsewhere in these specifications as backfill material.

D. Haul unusable debris and waste material to an appropriate off-site dump area. During loading operations, water down or provide other measures to prevent dust or other airborne contaminants.

E. Vacuum, wet mop, or damp sweep when cleaning rubbish and fines which can become airborne from floors or other paved areas. Do not dry sweep.

F. Use enclosed chutes and/or containers to conveying debris from above the ground floor level.

G. Clean-up shall include the collection of all waste paper and wrapping materials, cans, bottles, construction waste materials and other objectionable materials, and removal as required. Frequency of clean-up shall coincide with rubbish producing events. The Contractor shall be responsible for all clean-up cost.

1.03 DUST

A. Prevent dust from becoming airborne at all times including non-working hours, weekends and holidays in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 60 - Air Pollution Control.

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

C. Construct or erect dust control barriers as required to retain dust within the project site area.

D. Contractor is responsible for all damage claims resulting from failure to control airborne dust during all times that the site is under the Contractor's control.

1.04 NOISE

A. 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. Contractor shall obtain and pay for the Community Noise Permit from the State Department of Health when the construction equipment or other devices emit noise at levels exceeding the allowable limits.

B. To reduce loud disruptive noise levels, ensure mufflers and other devises are provided on equipment, internal combustion engines and compressors. Maintain equipment to reduce noise to acceptable levels.

C. Starting-up of construction equipment meeting allowable noise limits shall not be done prior to 8:00 a.m. without prior approval of the HHSC Representative. Equipment exceeding allowable noise levels shall not be started-up prior to 8:00 a.m.

1.05 SUSPENSION OF WORK

A. Violations of any of the above requirements or any other pollution control requirements which may be specified in the Specifications shall be cause for suspension of the work creating such violation.

B. Reference the General Conditions Construction, dated 3/17/06 for the suspension procedures.

C. The HHSC Representative may also suspend any operations which creates a pollution problems even if the problem does not violate the provisions of this Section. In this instance, the work is considered a Change and subject to the provisions of the contract.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

END OF SECTION

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

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes the results of the State's survey for Asbestos and Lead is provided for the Contractor's information.

B. Related Sections include the following:

1. SECTION 13282 - LEAD PAINT CONTROL MEASURES for requirements of all work which disturbs materials with lead or paint with lead.

2. SECTION 13289 - LEAD TESTING AND AIR MONITORING for lead air monitoring requirements.

1.02 ASBESTOS

A. The structure to be renovated or modified under this contract were surveyed for the presence of asbestos containing materials (ACM). A copy of the initial survey report, as well as any subsequent supplemental survey report if performed, is included in this Section.

1. The report is included, even when no ACM was found, for the Contractor's information. Review the attached report for the basis on which the negative ACM finding was made. The Contractor may perform further surveys at its own expense, if ACM not shown in the report is suspected in the areas of the building in which work will be performed. If ACM is found, notify the HHSC Representative and/ or General Contractor immediately. HHSC will reimburse the Contractor for reasonable costs for the testing cost if ACM is found.

2. If there is ACM outside of the areas in which work will be performed, this ACM shall not be disturbed in any way.

B. If applicable, notify employees, subcontractors, and all other persons engaged on the project of the presence of asbestos in the existing buildings in accordance with the State of Hawaii: Occupational Safety and Health Administration and 29 CFR 1926.1101, Asbestos.

C. In the event that work is required in any building or buildings on the site other than the one designated within this project scope, request copies of the asbestos survey report for such building from the HHSC Representative. Based on the information contained in the additional survey, notify affected personnel.

1.03 LEAD-IN PAINT

A. The structure or structures to be renovated or modified under this contract were surveyed for the presence of lead-based paint (LBP). A copy of the survey report is included in this Section.

B. Lead-based paint (LBP) is not present in the existing building at the job site. However, inform employees, Subcontractors, and all other persons engaged in the project that materials painted with lead (PWL), paint having lead concentration below the EPA guidelines, are present in the existing building. Conduct work in accordance with the requirements of Occupational Safety and Health Administration 29 CFR 1926.62 Lead.

C. Review the attached lead testing data which identify locations PWL was found. Lead testing was for design purposes only and the results do not satisfy any of the requirements of OSHA 29 CFR 1926.62 Lead.

D. The Contractor shall follow all applicable rules and regulations pertaining to the handling, removal and disposal of materials painted with lead.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.01 SURVEY (Attached)

A. Limited Inspection Report for Asbestos and Lead, Maluhia Hospital Sun Deck, 20 pages, dated March 2025, prepared by EnviroQuest, Inc.

END OF SECTION

EnviroQuest

SERVICES

HAZMAT Inspections

Remediation Design

Asbestos Management

Lead Management

Lead Risk Assessment

Industrial Hygiene

Indoor Air Quality

Mold Assessment

Environmental Site Assessments

Subsurface Investigation

Water Sampling

Asbestos Training

Lead Training

OSHA Training

OSHA Compliance

LIMITED HAZARDOUS MATERIAL SURVEY REPORT FOR ASBESTOS AND LEAD

MALUHIA HOSPITAL SUN DECK

EnviroQuest Project: 304103

March 2025

Prepared for:

INK ARCH LLC
650 Iwilei Road #288
Honolulu, HI 96817

Prepared by:

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Industrial Hygienist
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HDOH Lead Inspector PB1198

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1 INTRODUCTION

A limited hazardous material survey for asbestos-containing materials (ACM) and paints containing lead was conducted on February 26, 2024, at Maluhia Hospital in Honolulu, Hawaii. Sampling was limited to the areas impacted by the sun deck renovation.

1.1 SITE LOCATION

The inspection was limited to:

- Sun deck
- 1st floor hallway
- Loading dock

2 ASBESTOS

Nine samples were collected from suspect asbestos-containing materials.

2.1 METHODOLOGY

Sampling methodology generally followed the procedures presented in EPA 40 CFR 763 *Asbestos* Subpart E *Asbestos Containing Materials in Schools* and Hawaii Department of Health (HDOH), Hawaii Administrative Rules (HAR) Titles 11-501 *Asbestos Requirements* and 11-502 *Asbestos Containing Materials in Schools*.

2.2 RESULTS

The samples were submitted to Hawaii Analytical Laboratory, LLC. (HAL) in Honolulu, Hawaii, a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory. The samples were analyzed by EPA method 40 CFR 763, Appendix E to Subpart E *Interim Method of the Determination of Asbestos in Bulk Insulation Samples* and EPA Method 600/R-93-116 *Method for Determination of Asbestos in Bulk Building Materials.* In accordance with the requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 61 Subpart M, samples consisting of distinct layers of materials were analyzed and reported separately by the laboratory.

Based on the laboratory analytical results, asbestos was not identified in the samples.

A sample summary is presented in Table 1. Refer to the accompanying appendices for photographs and laboratory analytical results.

3 LEAD

Six paint film samples were collected for lead analysis.

3.1 METHODOLOGY

Sampling methodology generally followed the procedures presented in the U.S. Department of Housing and Urban Development's document *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* and EPA 40 CFR 745 *Lead-Based Paint Poisoning Prevention in Certain Residential Structures* and ASTM E1729 *Standard Practice for Field Collection of Dried Paint Samples for Subsequent Lead Determination.*

3.2 RESULTS

Samples were submitted to HAL, an American Industrial Hygiene Association (AIHA) accredited laboratory with a specific accreditation for lead analysis under the AIHA Environmental Lead Laboratory Accreditation Program. The paint film samples were analyzed by NIOSH Method 7082m *Lead by Flame Atomic Absorption Spectroscopy.*

Based on the laboratory analytical results, one of the six samples exceeded the EPA guidelines for lead in paint. EPA defines LBP as *paint or other surface coatings that contain lead equal to or in excess of 1.0 milligram per square centimeter or 0.5 percent by weight.* Lead at concentrations below the EPA guidelines was also detected in four samples. For the purpose of this report, these paints are identified as paint with lead (PWL), having a lead concentration greater than the laboratory analytical detection limit but less than 0.5% lead by weight.

A sample summary is presented in Table 2. If any untested paints are disturbed, they should be assumed to contain lead. Refer to the accompanying appendices for photographs and laboratory analytical results.

4 SUMMARY

4.1 ASBESTOS

Asbestos-containing materials were not identified.

4.2 LEAD

The listed paints were identified as containing lead.

Location	Building Component	Color	LBP_1	PWL_2
1st floor hallway, plenum space	Concrete wall/ceiling	Tan over beige	Y	-
Sun deck	Textured concrete wall	Beige	N	Y
Sun deck	Concrete wall	Beige	N	Y
Sun deck	Concrete wall	Blue over beige	N	Y
Sun deck	Metal downspout	Beige	N	Y

1. *LBP = >0.5% lead by weight*
2. *PWL = >laboratory detection limits but <0.5% lead by weight*

Prior to the disturbance to any paint with lead, the contractor's employees disturbing the paint must be informed that it contains lead. Any work disturbing this paint must be conducted in accordance with 29 CFR 1926.62 *Lead*.

If lead paint chips or waste is generated during the renovation and/or demolition work, composite samples of the generated waste must be collected for *Toxicity Characteristic Leaching Procedure* (TCLP) analysis to determine the waste disposal characterization. EPA 40 CFR Part 261 *Identification and Listing of Hazardous Waste* allows a maximum concentration by TCLP of 5.0 mg/L for lead. Concentrations exceeding the thresholds of 5.0 mg/L for lead requires the material to be disposed of as hazardous waste.

5 LIMITATIONS

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

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

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

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

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

TABLE 1: ASBESTOS SAMPLE SUMMARY

Homogenous Material	% Asbestos[1]	ACM (Y/N)	Sampling Location	Sample ID	Friable (Y/N)	Condition[2]	Photo No.
Beige painted textured coating over cementitious material	ND	N	Sun deck – west wall	304103-01A	N	G	1
	ND	N	Sun deck – west wall	304103-01B	N	G	
	ND	N	Sun deck – west wall	304103-01C	N	G	
Beige painted concrete coating over concrete	ND	N	Sun deck – north wall	304103-02A	N	G	2
	ND	N	Sun deck – east wall	304103-02B	N	G	
	ND	N	Sun deck – east wall	304103-02C	N	G	
Beige painted textured coating over concrete	ND	N	Loading dock – column/beam	304103-03A	N	G	3
	ND	N	Loading dock – column/beam	304103-03B	N	G	
	ND	N	Loading dock – column/beam	304103-03C	N	G	

1. *ACM = >1.0% asbestos content; ND = Not Detected; C=Chrysotile; A=Amosite; Cr=Crocidolite; An=Anthophyllite; T=Tremolite; Ac=Actinolite*
2. *Good (G); Damaged (D) <10% distributed or 25% localized; Significant Damage (SD) >10% distributed or 25% localized*

TABLE 2: LEAD SAMPLE SUMMARY

Paint Color	LBP[1] (Y/N)	PWL[2] (Y/N)	Paint Sample Location	Sample ID	Results (% weight)	Condition[3]	Photo No.
Beige	N	Y	Sun deck – textured concrete wall	304103-01P	0.018	Intact	4
Beige	N	Y	Sun deck – concrete wall	304103-02P	0.017	Intact	5
Blue over beige	N	Y	Sun deck – concrete wall	304103-03P	0.069	Intact	6
Beige	N	Y	Sun deck – metal downspout	304103-04P	0.031	Intact	7
Tan over beige	Y	-	1st floor hallway plenum space – concrete wall/ceiling	304103-05P	3.3	Intact	8
Beige	N	N	Loading dock – concrete wall	304103-06P	<0.004	Intact	9

1. *LBP = >0.5% lead by weight*
2. *PWL = >laboratory detection limit but <0.5% lead by weight*
3. *Intact - Entire surface is intact; Fair - ≤10 ft²; Poor - >10 ft²*

EnviroQuest

APPENDIX A

REFERENCE PHOTOGRAPHS

REFERENCE PHOTOGRAPHS

Photo 1: Sun deck.

Non asbestos containing beige painted textured coating over cementitious material.

Photo 2: Sun deck.

Non asbestos containing beige painted concrete coating over concrete

Photo 3: Loading dock.

Non asbestos containing beige painted concrete coating over concrete

Photo 4: Sun deck.

Beige paint with lead on textured cementitious wall.

Photo 5: Sun deck.

Beige paint with lead on concrete wall.

Photo 6: Sun deck.

Blue over beige paint with lead on concrete wall.

Photo 7: Sun deck.

Beige paint with lead on metal downspout.

Photo 8: 1st floor hallway.

Tan over beige lead based paint on concrete wall/ceiling.

Photo 9: Loading dock.

Non lead containing beige painted concrete wall.

EnviroQuest

APPENDIX B

LABORATORY ANALYTICAL REPORTS

Hawaii Analytical Laboratory
ANALYTICAL REPORT

Tuesday, March 4, 2025

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

Phone Number: (808)486-5881
Facsimile: (808) 486-5889
Email: eqi@enviroquestinc.com

Lab Job No: 202501889
Date Submitted: 2/27/2025
Your Project: 304103, Maluhia Hospital Sun Deck, 2/26/25

Bulk Asbestos Determination

Lab Sple No.	Sample ID / Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202512658	**304103-01A**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete							
Comments								
202512658	**304103-01A**		NONE DETECTED		None detected		Other	2/28/2025
Layer	White textured paint							
Comments								
202512659	**304103-01B**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete							
Comments								
202512659	**304103-01B**		NONE DETECTED		None detected		Other	2/28/2025
Layer	White textured paint							
Comments								
202512660	**304103-01C**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete							
Comments								
202512660	**304103-01C**		NONE DETECTED		None detected		Other	2/28/2025
Layer	White textured paint							
Comments								

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

Phone Number: (808)486-5881
Facsimile: (808) 486-5889
Email: eqi@enviroquestinc.com

Lab Job No: 202501889
Date Submitted: 2/27/2025
Your Project: 304103, Maluhia Hospital Sun Deck, 2/26/25

Bulk Asbestos Determination

Lab Sple No.	Sample ID / Description	Asbestos Present?	Type	%v/v	Other Fibrous	%v/v	Matrix	Date Analyzed
202512661	**304103-02A**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray cementitious material / gray paint							
Comments								
202512661	**304103-02A**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete							
Comments								
202512662	**304103-02B**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray cementitious material / gray paint							
Comments								
202512662	**304103-02B**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete							
Comments								
202512663	**304103-02C**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete / gray paint							
Comments								
202512664	**304103-03A**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete / gray paint							
Comments								
202512665	**304103-03B**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete / gray paint							
Comments								
202512666	**304103-03C**		NONE DETECTED		None detected		Calcite + aggregate + other	2/28/2025
Layer	Gray concrete / gray paint							
Comments								

Hawaii Analytical Laboratory is a NIST NVLAP accredited laboratory (NVLAP Lab Code 200655-0) and is accredited in accordance with the recognized ISO/ IEC 17025:2017. Controlled doc.: Asbestos Report, rev. 5 - 20241127

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

Phone Number: (808)486-5881
Facsimile: (808) 486-5889
Email: eqi@enviroquestinc.com

Lab Job No: 202501889
Date Submitted: 2/27/2025
Your Project: 304103, Maluhia Hospital Sun Deck, 2/26/25

General Comments
The bulk sample[s] analysis subject of this analytical report were conducted in general accordance with the procedures outlined in the United States Environmental Protection Agency's "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (EPA-600/M4-82-020, Dec. 1982) and / or "Method for Determination of Asbestos in bulk Building Materials" (EPA-600/R-93-116, July 1993). The analysis of each bulk sample relates only to the material examined, and may or may not represent the overall composition of its original source. Floor tile and other resinously bound materials, when analyzed by the EPA methods referenced above may yield false negative results because of limitations in separating closely bound fibers and in detecting fibers of small length and diameter. Gravimetric treatment, which HAL does not offer, may also be appropriate for certain NOB (non-friable organically bound) materials. Unless specifically requested by clients, NOB samples can be subcontracted to a NVLAP accredited lab, or else, they will be analyzed by HAL using regular PLM technique. In addition, alternative methods of identification, including Transmission Electron Microscopy (TEM) may or may not be applicable. We utilize calibrated visual area estimation on a routine basis and do not conduct point counting unless specifically requested to do so. Estimated error for the visual determinations presented are 75% relative (<1 to 10%), 65% relative (11 to 19%), 50% relative (20 to 34%); 40% relative (35 to 50%), 35% relative (51 to 60%), and 25% relative (>60% v/v). We will not separate layers which in our opinion are not readily discernable. This report is not to be duplicated except in full without the expressed written permission of Hawaii Analytical Laboratory. This report must not be used by the client to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government. Unless otherwise indicated, the sample condition at the time of receipt was acceptable.

Results and Symbols Definitions
> This testing result is greater than the numerical value listed.
< This testing result is less than the numerical value listed.
None Detected = asbestos was not observed in the sample. If trace amount of asbestos was detected below our quantifiable limits of 1.0%, <1% (trace) would be indicated and the asbestos type listed. Point counting, where applicable, are recommended to improve accuracy.

Eva Skogsberg
Laboratory Manager

202501889

EnviroQuest

PLM DATA SHEET

PROJECT NAME: MALUHIA HOSPITAL SUN DECK
PAGE: 1 of 2
DATE: 2/26/25
LOCATION:
PROJECT NO.: 304103

Material Description: Beige painted textured coating over gray cementitious material — Friable / Non-friable

Sample No.	Location	
304103-01A	Sun deck - west wall	202512658
304103-01B	Sun deck - west wall	202512659
304103-01C	Sun deck - west wall	202512660

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

Surfacing Material		TSI		Misc.	
☐ Sig. Damage	% Crumbling -	☐ Sig. Damage	% Gouge/Punct -	☐ Sig. Damage	% Crumbling -
☐ Damaged	% Delaminating -	☐ Damaged	% Crushed -	☐ Damaged	% Delaminating -
☐ Good Cond.	% H_2O/Gouges -	☐ Good Cond.	% H_2O Stains -	☒ Good Cond.	% H_2O/Gouges-

Contact Potential	☐ High	☐ Moderate	☒ Low	
Vibration Potential	☐ High	☐ Moderate	☒ Low	
Air Erosion	☐ High	☐ Moderate	☒ Low	
OVERALL POTENTIAL RATING	☐ Significant Damage	☐ Damage	☒ Minimal Damage	

Material Description: Beige painted concrete coating over concrete — Friable / Non-friable

Sample No.	Location	
304103-02A	Sun deck - north wall	202512661
304103-02B	Sun deck - east wall	202512662
304103-02C	Sun deck - east wall	202512663

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

Surfacing Material		TSI		Misc.	
☐ Sig. Damage	% Crumbling -	☐ Sig. Damage	% Gouge/Punct -	☐ Sig. Damage	% Crumbling -
☐ Damaged	% Delaminating -	☐ Damaged	% Crushed -	☐ Damaged	% Delaminating -
☐ Good Cond.	% H_2O/Gouges -	☐ Good Cond.	% H_2O Stains -	☒ Good Cond.	% H_2O/Gouges-

Contact Potential	☐ High	☐ Moderate	☒ Low	
Vibration Potential	☐ High	☐ Moderate	☒ Low	
Air Erosion	☐ High	☐ Moderate	☒ Low	
OVERALL POTENTIAL RATING	☐ Significant Damage	☐ Damage	☒ Minimal Damage	

Sampled By:Landon Awada *DOH Cert No:5045*	Relinquished By/Date/Time: Landon Awada 2/27/25	Relinquished By/Date/Time:
Delivered to Lab By:	Received By/Date/Time: Savannah Newman	Received By/Date/Time: 02-27-25A09:23 RCVD

Samples picked up at EQI office by Hawaii Analytical Laboratory

TURNAROUND TIME: ☐ < 12 Hours ☐ 24 Hours ☒ 3 Days ☐ 5 Days ☐ _____

Surfacing	<1,000 ft² = 3 Samples	1,000 – 5,000 ft² = 5 Samples	>5,000 ft² = 7 Samples
TSI	Minimum of 3 Samples UNLESS....	<6 In. or ft² = 1 Sample	Minimum of 2 Samples *(Cement/plaster valves, elbows & 'T')*
Misc. Non-Friable	Minimum of 2 Samples (*AHERA*)	Minimum of 3 Samples (*Hawaii*)	
Misc. Friable	Minimum of 2 Samples		

Surfacing	Sig. Damage = *> 10% Dist. or 25% Local*	Damaged = *< 10% Dist. or 25% Local*	*Good = Very Limited Damage*
TSI	Sig. Damage = *>10% Missing Jacket OR >10% Dist. or 25% Local*	Damaged = *< 10% Missing Jacket OR < 10% Dist. or 25% Local*	Good = *Very Limited Damage*
Misc	Sig. Damage = *> 10% Dist. or 25% Local*	Damaged = *< 10% Dist. or 25% Local*	*Good = Very Limited Damage*

98-029 HEKAHA STREET, SUITE 21 AIEA, HAWAII 96701 PHONE: (808) 486-5881
6-15-17 KAMITSURUMA, MINAMI-KU, SAGAMIHARA-SHI, KANAGAWA-KEN 252-0302 PHONE: (042) 851-5675

202501889

EnviroQuest

PLM DATA SHEET

PROJECT NAME: MALUHIA HOSPITAL SUN DECK

DATE: 2/26/25

Material Description: Beige painted concrete coating over concrete — Friable / (Non-friable) [circled]

Sample No.	Location	
304103-03A	Loading dock – pillar/beam	202512664
304103-03B	Loading dock – pillar/beam	202512665
304103-03C	Loading dock – pillar/beam	202512666

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

Surfacing Material		TSI		Misc.	
☐ Sig. Damage	% Crumbling -	☐ Sig. Damage	% Gouge/Punct -	☐ Sig. Damage	% Crumbling -
☐ Damaged	% Delaminating -	☐ Damaged	% Crushed -	☐ Damaged	% Delaminating -
☐ Good Cond.	% H_2O/Gouges -	☐ Good Cond.	% H_2O Stains -	☒ Good Cond.	% H_2O/Gouges-

Contact Potential	☐ High	☐ Moderate	☒ Low
Vibration Potential	☐ High	☐ Moderate	☒ Low
Air Erosion	☐ High	☐ Moderate	☒ Low
OVERALL POTENTIAL RATING	☐ Significant Damage	☐ Damage	☒ Minimal Damage

Material Description: — Friable / Non-friable

Sample No.	Location

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

Surfacing Material		TSI		Misc.	
☐ Sig. Damage	% Crumbling -	☐ Sig. Damage	% Gouge/Punct -	☐ Sig. Damage	% Crumbling -
☐ Damaged	% Delaminating -	☐ Damaged	% Crushed -	☐ Damaged	% Delaminating -
☐ Good Cond.	% H_2O/Gouges -	☐ Good Cond.	% H_2O Stains -	☐ Good Cond.	% H_2O/Gouges-

Contact Potential	☐ High	☐ Moderate	☐ Low
Vibration Potential	☐ High	☐ Moderate	☐ Low
Air Erosion	☐ High	☐ Moderate	☐ Low
OVERALL POTENTIAL RATING	☐ Significant Damage	☐ Damage	☐ Minimal Damage

Material Description: — Friable / Non-friable

Sample No.	Location

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

Surfacing Material		TSI		Misc.	
☐ Sig. Damage	% Crumbling -	☐ Sig. Damage	% Gouge/Punct -	☐ Sig. Damage	% Crumbling -
☐ Damaged	% Delaminating -	☐ Damaged	% Crushed -	☐ Damaged	% Delaminating -
☐ Good Cond.	% H_2O/Gouges -	☐ Good Cond.	% H_2O Stains -	☐ Good Cond.	% H_2O/Gouges-

Contact Potential	☐ High	☐ Moderate	☐ Low
Vibration Potential	☐ High	☐ Moderate	☐ Low
Air Erosion	☐ High	☐ Moderate	☐ Low
OVERALL POTENTIAL RATING	☐ Significant Damage	☐ Damage	☐ Minimal Damage

Samples picked up at EQI office
by Hawaii Analytical Laboratory

98-029 HEKAHA STREET, SUITE 21 AIEA, HAWAII 96701 PHONE: (808) 486-5881
6-15 [illegible] MINAMI-KU, SAGAMIHARA-SHI, KANAGAWA-KEN 252-0302 PHONE: (042) 851-5675

Hawaii Analytical Laboratory
ANALYTICAL REPORT

Monday, March 3, 2025

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

Phone Number: (808)486-5881
Email: eqi@enviroquestinc.com

Lab Job No: 202501881
Total Analyzed: 6
Date Collected: 2/26/2025
Date Submitted: 2/27/2025
Project Name: 304103, Maluhia Hospital Sun Deck

Total Lead (paint chips)

NIOSH Method: 7082m LEAD by FAAS

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202512617	304103-01P	0.018	wt %	2/28/2025
202512618	304103-02P	0.017	wt %	2/28/2025
202512619	304103-03P	0.069	wt %	2/28/2025
202512620	304103-04P	0.031	wt %	2/28/2025
202512621	304103-05P	3.3	wt %	2/28/2025
202512622	304103-06P	< 0.004	wt %	2/28/2025

All Quality Control data are acceptable unless otherwise noted.

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

Phone Number: (808)486-5881
Email: eqi@enviroquestinc.com

Lab Job No: 202501881
Total Analyzed: 6
Date Collected: 2/26/2025
Date Submitted: 2/27/2025
Project Name: 304103, Maluhia Hospital Sun Deck

General Comments
The sample[s] analysis subject of this analytical report were conducted in general accordance with the procedures associated with the "analytical method" referenced above. The analysis of sample relates only to the sample analyzed, and may or may not be representative of the original source of the material submitted for our analysis. All analysts participate in interlaboratory quality control testing to continuously document profiency. This report is not to be duplicated except in full without the expressed written permission of Hawaii Analytical Laboratory. This report should not be construed as an endorsement for a product or a service by the AIHA LAP, LLC or any affiliated organizations. Sample and associated sampling / collection data (e.g. air volume or surface area) is reported as provided by client. TWA values have been calculated based on information supplied by the client that the laboratory has not independently verified. Results have not been corrected for blank determinations unless noted in remarks. Unless otherwise indicated the sample condition at the time of receipt was acceptable. Measurement of uncertainty for lead in paint, dust, airborne particulates, and soil taken from and around buildings and related structures is available upon request. MRL for lead air is 5ug; MRL for lead wipe is 5ug; MRL for lead paint or soil is 40 mg/kg for a 0.25g

Results and Symbols Definitions
> This testing result is greater than the numerical value listed.
< This testing result is less than the numerical value listed.
# = Analytical methods marked with an "#" are not within our AIHA LAP, LLC Scope of Accreditation.
MRL = Method Reporting Limit

Jennifer Hsu Liao
Laboratory Manager

EnviroQuest

202501881

Pb SAMPLE FORM

PROJECT NAME: MALUHIA HOSPITAL SUN DECK

LOCATION:

PAGE: 1 of 1

DATE: 2/26/25

PROJECT NO.: 304103

TURNAROUND TIME		MEDIA		COMMENTS
☐ <12 HRS	☒ 3 DAYS	☒ BULK	☐ WIPE	
☐ 24 HRS	☐ OTHER	☐ SOIL	☐ OTHER	

SAMPLE NO	INT	EXT	FLR	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION
304103-01P		X		Sun deck	Wall	Concrete	Beige	Intact
	202512617							
304103-02P		X		Sun deck	Wall	Concrete	Beige	Intact
	202512618							
304103-03P		X		Sun deck	Wall	Concrete	Blue over	Intact
	202512619							
304103-04P		X		Sun deck	Downspout	Metal	Beige	Intact
	202512620							
304103-05P	X		1	Hallway	Wall	Concrete	Tan over	Intact
	202512621							
304103-06P		X		Loading dock	Wall	Concrete	Beige	Intact
	202512622							

SAMPLED BY	RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
Landon Awada	Landon Awada	2/27/25 8:00 am	Savannah Newman Savannah Newman	
			02-27-25A09:21 RCVD	

SUBSTRATE: B = BRICK; C = CONCRETE; D = DRYWALL; M = METAL; P = PLASTER; W = WOOD
CONDITION: INTACT; PEELING, CHIPPING, CHALKING, FLAKING, OR DETERIORATED PAINT

Samples picked up at EQI office by Hawaii Analytical Laboratory

98-1005 MOANALUA STREET, SUITE 21 AIEA, HAWAII 96701 PHONE: (808) 486-5881
6-15-17 KAMITSURUMA, MINAMI-KU, SAGAMIHARA-SHI, KANAGAWA-KEN 252-0302 PHONE: (042) 851-5675

DIVISION 2 - SITE CONSTRUCTION

SECTION 02070 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Extent of selective demolition work is indicated on drawings. Selective demolition work includes, but is not limited to, removal and subsequent disposal of all materials indicated or required to be removed.

B. All materials resulting from demolition work, except as indicated or specified otherwise, shall become the property of the Contractor at the time of demolition and shall be removed from the limits of the school property and disposed of at an approved facility in accordance with City and County, State, and Federal regulations. Remove rubbish and debris from the job site daily, unless otherwise directed by the HHSC Representative.

C. It shall be the responsibility of the Contractor to examine the project site and determine the existing conditions.

D. Execute all work in an orderly and careful manner with due consideration for all items of work to remain.

E. Obvious conditions which exist at the site shall be accepted as part of the work, even though they may not be clearly indicated on the Drawings and/or described herein, or may vary therefrom.

F. All debris of any kind accumulated from the work of this Section shall be disposed off the site in a State Department of Health (DOH) approved waste, recycle, or asbestos-containing material landfill as applicable.

G. Burning of any debris on-site will not be permitted.

H. Permits, Notice, Etc.:

1. The Contractor shall procure and pay for all necessary permits, certificates, or approvals that may be required in connection with this work.

2. The Contractor shall serve proper notice and consult with the HHSC Representative regarding any temporary barricades and disconnections of electrical or other utility lines in the area which may interfere with the removal work, and all such lines where necessary shall be properly disconnected or relocated before commencing with the work.

1.02 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Schedule: Submit 2 copies of schedule indicating proposed methods and sequence of operations for selective demolition work to the HHSC Representative for review prior to commencement of work. Include coordination for temporary shut-off and continuation of utility services as required, together with details for weather protection, dust and noise control protection.

C. Landfill Disposal or Recycling Site: Submit the name of the approved DOH and Federal disposal facility to be used for this project.

D. Plans and Procedures: Submit a plan and list of procedures for performing the demolition and removal work.

1.03 JOB CONDITIONS

A. Condition of Structure: The HHSC assumes no responsibility for actual condition of items or portions of structure to be demolished.

B. Conditions existing at time of commencement of contract will be maintained by the HHSC insofar as practicable.

C. Do not interfere with use of adjacent occupied spaces or buildings. Maintain free and safe passage to and from occupied spaces or other occupied buildings.

D. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor, may be removed as work progresses. Transport salvaged items from site as they are removed. Storage or sale of removed items on site will not be permitted.

E. Protections: Provide temporary barricades and other forms of protection as required to protect the general public, school, staff, and students from injury due to selective demolition work.

1. Provide shoring, bracing, or support to prevent movement, settlement, or collapse of structure or elements to be demolished, and adjacent facilities or work to remain.

2. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.

3. Life safety procedures and provisions shall be in conformance with all applicable Federal, State, and City and County regulations, including HIOSH.

4. Provide accessibility around temporary structures conforming to Americans with Disabilities Act Accessibility Guidelines (ADAAG) Section 201.3 and Section 206.1.

5. Remove protections, obstructions, and barricades at completion of work.

6. Where barriers are erected or placed to facilitate the work, barriers shall not affect or impact the facility's fire exiting route or alarm systems.

F. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to the HHSC.

G. Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from the HHSC Representative. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations, as directed by the HHSC Representative.

H. Dust Control:

1. Keep dust within acceptable levels at all times, including non-working hours, weekends, and holidays, in conformance with State Department of Health, Title 11, Administrative Rues, Chapter 60.1 - Air Pollution Control, latest edition.

2. Only wet grinding or cutting of concrete will be allowed on exterior surfaces.

3. Mechanical dry sweeping not permitted. Vacuuming, wet mopping, approved limited dry hand, wet or damp sweeping is acceptable.

4. During loading operations, water down debris and waste materials to allay dust.

5. The method of dust control and all costs incurred thereof shall be the responsibility of the Contractor.

6. Enclosed chutes shall be used for removing debris from above the ground floor level.

I. Noise Control:

1. Noise shall be kept within acceptable levels at all times in

conformance with State Department of Health, Title 11, Administrative Rules, Chapter 46 - Community Noise Control, latest edition. The Contractor shall obtain and pay for community noise permit from the State Department of Health when the construction equipment or other devices emit noise at level exceeding the allowable limits.

2. All internal combustion engine powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels.

3. Starting up of on-site vehicular equipment meeting allowable noise limits shall not be done prior to 6:45 AM without prior acceptance of the HHSC Representative. Equipment exceeding allowable noise limits shall not be started prior to 7:00 AM.

J. Fire Safety: Fire safety during demolition shall comply with NFPA 241, "Standard for Safeguarding Construction, Alteration, and Demolition Operations", and 2012 NFPA 1, "Fire Code", as amended.

K. Demolition Work: Conform to State of Hawaii, Occupational Safety and Health Standards; Subtitle 8, Division of Occupational Safety and Health; Part 3, Construction Standards; Chapter 131.1, Demolition.

L. Other Controls:

1. Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being spilled onto the pavement. Waste water shall not be discharged into existing streams, waterways, or drainage systems such as gutter and catch basins unless treated to comply with Department of Health pollution regulations.

2. Trucks hauling materials shall be covered as required by PUC regulation. Trucks hauling fine materials shall be covered.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 INSPECTION

A. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Inventory existing conditions of structure surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work;

photograph, video or otherwise document and file with the HHSC Representative prior to starting work.

3.02 PREPARATION

A. Provide temporary weatherproof covering for exterior openings resulting from demolition work.

3.03 BARRICADES AND ENCLOSURES

A. Erect temporary barricades as required to prevent people from entering into project area to extent accepted by the HHSC Representative. The extent of barricade may be adjusted as necessary with acceptance of the HHSC Representative. This work shall be accomplished at no extra cost to the HHSC.

B. When necessary, the Contractor shall provide, erect, and maintain lights, barriers, etc., as required by traffic and safety regulations with special attention to protection of life.

3.04 SELECTIVE DEMOLITION

A. Perform selective demolition work, including all exterior improvements indicated on the drawings, in a systematic manner. Use such methods as required to complete work indicated on drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete in small sections. Cut concrete at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.

2. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction. All dust shall be suppressed by a fog spray or other approved method.

3. Water and sewer facilities shall be available for the remainder of the building and in operating condition at all times.

4. Extent of demolition and removal as shown are minimum requirements. Contractor shall be responsible for the extent of work required to properly accommodate the methods of construction required for the new work. Additional work required to accommodate construction shall be considered incidental to the new work and shall be done at no additional cost to the HHSC.

B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to the

Consultant and HHSC Representative in written, accurate detail. Pending receipt of directive from the Consultant rearrange selective demolition schedule as necessary to continue overall job progress without delay.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove debris, rubbish, and other materials resulting from demolition operations from building site daily. Transport and legally dispose of materials off site.

1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

2. Burning of removed materials is not permitted on project site.

B. Disposition of Materials: All waste materials shall be disposed of outside the limits of HHSC controlled land at the Contractor's expense to an approved solid waste or recycle disposal site. The Contractor shall provide to the HHSC Representative certified disposal manifests for all materials disposed of off-site. Comply with Federal, State, and local hauling and disposal regulations. The Contractor is encouraged to recycle materials to maximum extent possible to avoid disposal at a landfill.

3.09 CLEAN-UP AND REPAIR

A. Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave areas broom clean.

B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

C. Any existing work which is to remain and which is damaged as a result of demolition work shall be restored to its original condition or as otherwise directed by the HHSC Representative at no cost to HHSC.

D. All existing grass areas disturbed or damaged due to construction or ingress or egress to the site shall be repaired to original conditions. Grass areas shall be recultivated, topsoiled, and then grassed with the same kind and type of material as existing, in a manner accepted by and to the satisfaction of the HHSC Representative.

END OF SECTION

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The work to be done under this section shall include performing all operations and furnishing all plant, labor, equipment, and materials for all concrete work indicated on the drawings and specified herein.

1.02 STORAGE OF MATERIALS

A. Cement and aggregates shall be stored in such a manner as to prevent their deterioration or the intrusion of foreign matter. Any material which has deteriorated or which has been damaged shall not be used for concrete and shall be promptly removed from the site.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Portland cement shall conform to the requirements of ASTM 150,Type IL, for all concrete work.

B. Concrete Aggregates:

1. Fine aggregates: Calcareous or basalt sands or a combination thereof. They shall meet the grading requirements of ASTM C33. If manufactured sands are used, use a water-reducing and/or air-entraining admixture as specified hereinafter to provide satisfactory workability. The cement content of a mix shall in no way be reduced if an admixture is used.

2. Coarse aggregates: Crushed close-grained, blue lava rock of grading sizes 57 or 67 (ASTM D448) or both with a maximum size not larger than 1/5 of the narrowest dimensions between sides of the nor larger than 3/4 of the minimum clear spacing between individual reinforcing bars or bundle of bars.

C. Water: Fresh, clean and drinkable.

D. Reinforcing Steel: Deformed bars conforming to ASTM A 615, as shown on the drawings.

E. Expansion Joint Filler: A pre-molded material of 1/2" thickness, unless otherwise noted, composed of fiberboard impregnated with asphalt conforming to ASTM D 1751.

F. Admixture: If used, shall conform to ASTM C494 or ASTM C260 and shall be mixed in proper amount in accordance with directions of manufacturer.

G. Curing Compound: Compatible with the floor finish to be applied. Unless otherwise required by the floor finish, the compound shall conform to the requirements of ASTM C309.

H. Moisture Barrier: Polyethylene film, minimum 0.006" thick.

I. "Key Kold Joint" shall be galvanized metal or PVC.

J. Formwork: Formwork shall be plywood commercial-standard Douglas Fir, moisture resistant, not less than 5-ply and at least 5/8" thick.

K. Epoxy Grout: Epoxy for grouting dowels into existing concrete shall be Sikadur "Hi Mod Gel" as manufactured by Sika Corporation or approved equal.

PART 3 - EXECUTION

3.01 DESIGN OF CONCRETE MIXES

A. Ingredients for concrete shall be Portland cement, fine and coarse aggregates, and water.

B. Design mix so that the concrete materials will not segregate nor cause excessive bleeding. Slump shall be 4 inches or less if consolidation is to be by vibration, and 5 inches or less if consolidation is to be by other methods. A tolerance of 1" above the indicated maximum will be allowed for individual batches.

C. Concrete cement content and the test results for 28-day compressive strength shall meet the following requirements:

28-Day Compressive Strength Test Results

Class	Min. Cement Contents Per Cubic Yard Sacks	Min. Average for 3 Cylinders, psi	Min. Average for 2 Cylinders, psi
4,000	6.25	4,000	3,750
3,000	5.50	3,000	2,750
2,500	5.00	2,500	2,250

D. The Contractor shall submit for approval by the Owner's Rep the mixes he intends to use at least 14 days before the actual concrete placing operation.

E. The Contractor shall use only approved mixes.

3.02 TESTS

A. As directed by the Owner's Rep. If required, slump tests shall conform to ASTM C 143, and compressive strength tests shall conform to ASTM C 39. Cost of testing, if required will be born by the Contractor.

B. Strength Test: The testing company shall make standard size concrete cylinders for the purpose of determining the compressive strength.

One set of four cylinders shall be made for each day's pour or for every 100 cubic yards.

One cylinder shall be tested at 7 days and the other two tested at 14 days or at the date provided by the Owner's Rep. Hold one cylinder in reserve for testing if the average strength of the three cylinders is below the design strength.

The average of three cylinders shall equal or exceed the concrete design strength. And no cylinder shall be more than 500 psi below the design strength.

C. If the strength of any test specimens ordered by the Owner's Rep fall below the requirements stipulated above, the Owner's Rep shall have the right to require any and all defective concrete to be replaced, and all costs resulting therefrom shall be borne by the Contractor.

3.03 FORMWORK

A. Construct formwork so that the concrete surfaces do not deviate from established lines, grades and dimensions in excess of the following tolerances:

1. Variations in the plumb:

In any 20 feet length	1/4 inch
Maximum for entire length	1/2 inch

2. Variation from level or from the grades indicated:

In any 20 feet length	1/4 inch
Maximum for entire length	1/2 inch

3. Variation in the sizes and location of sleeves, floor openings, and wall openings: plus or minus 1/4 inch

4. Where soil conditions will permit excavation to accurate sizes without bracing, side forms for footings may be omitted if only approved by the by Owner's Rep.

5. Rough concrete finish may be used for all unexposed concrete surfaces, as obtained by using clean, straight lumber of metal forms.

3.04 REINFORCEMENT

A. Provide reinforcing steel bars, as indicated on the drawings, thoroughly cleaned of loose mill scale, loose flaky rust, oil, and all coatings that will destroy or reduce the bond before placing and again before pouring of concrete. Accurately position and secure in place as indicated. Cleaning, bending and placing of reinforcement shall be done in accordance with standard practice of the Concrete Reinforcing Steel Institute.

1. Unless permitted by the Owner's Rep, do not bend reinforcementpartially embedded in hardened concrete. Improperly and/or excessively bent bars shall be replaced.

2. Unless otherwise noted on drawings, provide minimum concrete protection for reinforcement as follows:

a. For footings and where concrete is deposited against the ground:
3 inches

b. For formed surfaces in contact with ground: 2 inches

c. For formed surfaces exposed to weather 1-1/2 inches

d. Minimum concrete protection for any reinforcing shall in all cases be at least equal to the diameter of bar.

3.05 INSERTS AND FASTENING DEVICES EMBEDDED IN CONCRETE

A. Install inserts, anchors, grounds and other fastening devices as required for attachments of the work. Properly locate all embedded items in cooperation with other trades and secure in position before concrete is placed.

3.06 JOINTS

A. Construction joints shall be provided as detailed at locations indicated on the plans. Construction joints not shown on the plans shall be so made as to least impair the strength of the structure and shall be approved by the Owner's Rep. In general, they shall be located near the middle of the spans of slabs, beams and girders unless a beam intersects a girder at this point, in which case the construction joints in the girders shall be offset a distance equal to twice the width of the beam. Joints in columns and walls shall be at the underside of floors, slabs, beams and girders and at the top of footings or floor slabs. Beams, girders, brackets, column capitals,

haunches and drop panels shall be placed at the same time as slabs. Joints shall be perpendicular to the main reinforcement.

B. All reinforcing steel shall be continuous across construction joints. Keys and/or inclined dowels shall be provided as required. Longitudinal keys at least 1-1/2" deep shall be provided in all joints in walls and between walls and slabs or footings. Unless otherwise noted, joints shall be sealed with joint sealing compound.

C. Expansion joints shall be provided as detailed at locations indicated on the plans. Reinforcement or other embedded metal items bonded to the concrete (except dowels in floors or walls bonded on only one side of joint) shall not be permitted to extend continuously through any expansion joint. Joints shall be sealed with expansion joint filler and sealing compound at least 3/8 inch deep.

D. Contraction/control joints shall be provided where shown on the plans and shall be 1/4 the depth of the slab or a minimum of 1" deep. Unless otherwise indicated on the plans, joint may either be tooled, formed-in-place or sawcut. When saw-cut joints are provided, cutting shall be timed properly with the set of the concrete so that it is firm enough not to be torn or damaged by the cutting blade and before random shrinkage cracking can form in the slab. In any case, cutting shall be completed not later than 12 hours after the concrete is placed and finished. Unless otherwise indicated on the plans, joints shall be sealed with joint sealing compound.

3.07 MIXING CONCRETE

A. All concrete throughout shall be either job or plant mixture in an approved type of power operated mixer that will insure uniformity and homogeneity of the concrete produced. Contractor shall provide a sufficient number of mixers to continuously carry on the work.

B. Mixing at jobsite shall be done in accordance with ACI 304 and as follows:

1. Concrete shall be thoroughly mixed in a batch mixer of an approved type and size, which will insure a uniform distribution of materials throughout the mass. The machine shall have a control device to prevent materials from being discharged until they have been mixed for the specified minimum time.

2. The entire contents of the drum shall be discharged before materials of the succeeding batch are placed therein. No mixer shall be used which has a rated capacity of less than a 1-sack batch and no mixer shall be charged in excess of its rated capacity.

3. The first batch of materials placed in the mixer after the machine has been cleaned shall contain a sufficient excess of cement, sand and water to coat the inside of the drum without reducing the

required mortar content of the mix. Upon cessation of mixing, the mixer shall be thoroughly cleaned.

C. Ready-Mixed and Mixed-In-Transit Concrete shall be mixed to conform to the provisions of ASTM C94 and as follows:

1. The plant shall have sufficient capacity and transportation equipment to deliver concrete at the rate desired. The interval between batches for a pour shall not exceed 30 minutes.

2. The time elapsed between the introduction of the mixing water to the cement and aggregates or the cement to the aggregates, and the placing of concrete in its final position shall not exceed 90 minutes.

3. In hot weather (more than 90 degrees F. ambient temperature) or under conditions contributing to quick stiffening of the concrete, the elapsed time in paragraph 2. shall not exceed 60 minutes, if no retarding admixture is used. If an ASTM C494 Type B or D admixture is added to the concrete, the elapsed time 2. shall remain at 90 minutes.

D. Concrete shall be mixed only in such quantity as is required for immediate use. No retempering will be permitted and concrete that has started to harden shall be discarded and promptly removed from the job.

E. Admixture conforming to Paragraph 2.01 F. may be used in the concrete as recommended by the supplier and approved by the Owner's Rep.

F. Hand mixing of concrete will not be permitted except to make up shortages for fence post footings and sidewalks, thresholds, flagpole foundations, curbs and gutters, and thrust blocks.

3.08 PLACING CONCRETE

A. No concrete shall be placed in the absence of the Owner's Rep or thier representative who shall be given one day advance notice of starting time of concrete pour. Place no concrete until foundation, forms, steel, pipes, conduits, sleeves, hangers, anchors, inserts, termite treatment and other work required to be built into or placed ahead of concrete placing have been inspected and approved by the Owner's Rep. Concrete placed without such notice and approval shall be rejected.

B. Preparation:

1. All sawdust, chips and other construction debris and extraneous matter shall be removed from interior of forms. Struts, stays, bracing, or blocks serving temporarily to hold forms in correct shape or alignment shall be removed when the concrete placing has reached an elevation rendering their service unnecessary.

2. Concrete shall be placed upon clean, damp surfaces with no free water, or upon properly compacted fills but never upon soft mud or dry, porous earth. Before pouring footing or foundations, bottoms of excavations shall be properly leveled off and tamped.

3. Before depositing new concrete on or against concrete which has set, all accumulations of mortar splashed upon reinforcing steel and the surfaces of forms shall be removed and the forms shall be retightened. The surfaces of previously set concrete shall be thoroughly roughened and cleaned of all foreign matter and laitance, saturated with water and slushed with a coat of cement grout. New concrete shall be placed before the grout has attained its initial set.

C. Conveying:

1. Concrete shall be conveyed from mixer to forms as rapidly as practicable by methods that will prevent segregation.

2. Concrete shall be deposited as nearly as practicable in its final position. Extensive spading as a means of transportation shall be avoided and in no case shall vibrators be used to transport concrete inside the forms.

3. Open troughs and chutes shall have a slope not to exceed 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 20 feet long and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.

4. The concrete shall not be allowed to drop freely more than 6 feet except where specifically authorized by the Owner's Rep. When placing operations would involve the dropping of concrete from a height of more than 6 feet, it shall be conveyed through pipes or flexible drop chutes.

5. If any appreciable segregation occurs through the conveying methods employed, their use shall be ordered discontinued by the Owner's Rep and some other satisfactory method of placing concrete shall be used.

6. All chutes, troughs, pipes and other means of conveyances shall be kept clean and free from coatings of hardened cement or concrete by thoroughly cleaning with water and chipping after each pour. Water used for flushing shall be discharged away from the vicinity of the concrete or forms already in place.

D. Depositing:

1. Unless adequate protection is provided, concrete shall not be placed during rain. Rainwater shall not be allowed to increase the mixing water nor to damage the surface finish. Fresh concrete that has been deposited but has not attained its initial set shall be protected in the event of rain.

2. Concrete shall be placed so as to avoid segregation of the materials and the displacement of the reinforcement. As nearly as practicable, the concrete shall be dropped vertically without hitting reinforcement, sleeves or forms into its final position in order to avoid separation of coarse aggregates from concrete. After the initial set of concrete, the forms shall not be jarred and no strain shall be placed on the projecting reinforcing.

3. Formed concrete shall be deposited in horizontal layers not deeper than 2 feet avoiding inclined layers and inclined construction joints. The depth of layers shall be shallow enough so that the succeeding layer will be placed before the previous layer has attained its initial set. Concrete shall not be allowed nor shall it be allowed to flow horizontally or on slopes in the form. Concrete placing on a slope shall begin at the lower end of the slope and progress upward.

4. Construction joints shall be made only where located on the drawings or unless approved otherwise by the Owner's Rep. Pours shall be planned to provide for the continuous placing of concrete from one construction joint to another. The face edges of all joints that are exposed to view shall be carefully finished true to line and elevation.

5. In slab construction, placing of the concrete shall be started at the far end of the work so that each batch will be dumped against previously placed concrete, not away from it. The concrete shall not be dumped in separate piles and the piles then leveled and worked together. For floor slabs on earth, additional requirements in Paragraph 3.05 shall apply.

6. Columns shall be placed in approximately 4-foot sections, with each section being vibrated and compacted as placed.

7. If depositing of concrete must be stopped short of a full placement, it shall be leveled to a horizontal plane or stopped against a vertical bulkhead. Such bulkhead or horizontal plane shall be located only as approved by the Owner's Rep.

E. <u>Compaction</u>:

1. All concrete shall be consolidated by vibration so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into corners of forms, eliminating all air or stone pockets which may cause honeycombing, pitting, or planes of weakness. All

compaction shall be done by use of high frequency internal vibrators. Where the vibrator cannot be inserted into the concrete, compaction shall be done by spading, rodding or forking.

2. Frequency of vibrator shall be not less than 7,000 impulses per minute. The Contractor shall provide a sufficient number of vibrators to properly consolidate all concrete immediately after placing. At least one standby vibrator shall be on hand at all times during placement of the concrete.

3. Vibration shall not be applied through contact with reinforcement of forms. Vibration shall penetrate previously deposited concrete sufficiently to prevent pockets or voids or construction joints from occurring between pours, but must not be applied to concrete which has set up sufficiently to cease to be plastic under vibration.

3.09 CURING AND PROTECTION

A. All concrete shall be cured for a period of not less than 7 days by one of the methods listed below. During this curing period, the concrete shall be maintained with minimum moisture loss at a relatively constant temperature. Fresh concrete shall be protected from heavy rains, flowing water, mechanical injury, and injurious action of the sun. Curing method selected must be compatible with the finish to be applied to the concrete.

Curing shall immediately follow the finishing operation.

B. Water Curing: If cured with water, concrete shall be kept wet by mechanical sprinklers, by ponding, or by any other method which will keep the surfaces continuously wet.

C. Saturated Sand Curing: Surfaces cured with sand shall be covered with a minimum of 1-inch thickness of sand which shall be kept uniformly distributed and continuously saturated during the entire curing period.

D. Curing Compounds: Curing compounds shall not be used on concrete surfaces that are to receive paint finish, acid stain or resilient flooring, except those that are recommended by the manufacturer to be compatible with the applied finish. The Contractor shall submit to the Owner’s Rep a letter certifying that the curing compound is compatible with the applied finish. Application shall be in accordance with the manufacturer's recommendations. If curing, sealing or other compounds are used which are incompatible with applied finish, such compound shall be thoroughly removed by grinding with a terrazzo grinder.

E. Waterproof Paper: Waterproof paper or opaque polyethylene film conforming to ASTM C171 may be used. The paper or film shall be anchored securely and all edges sealed or applied in such a manner as to prevent moisture escaping from the concrete. Waterproof paper shall not be used on floors that will be exposed when finished.

3.10 CLEANUP

A. Contractor shall clean up all concrete and cement materials, equipment and debris upon completion of any portion of concrete work and upon completion of the entire concrete and related work.

END OF SECTION

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The extent of structural steel work is shown on the drawings, including schedules, notes and details to show size and location of members, typical connections and type of steel required.

Structural steel is that work defined in the AISC "Code of Standard Practice" and as otherwise shown on the drawings.

B. Related Work Specified Elsewhere: Section 05500 – METAL FABRICATIONS.

1.02 QUALITY ASSURANCE

A. Codes and Standards: Comply with the provisions of the following except as otherwise indicated:

1. AISC "Code of Standard Practice for Steel Buildings and Bridges".

2. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" and including the "Commentary" and Supplements thereto as issued.

3. AWS D1.1 "Structural Welding Code".

4. ASTM A6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use".

5. Standard Specifications for Open Web Steel Joists, H series, as adopted by the Steel Joist Institute and the AISC.

6. ASTM A 123, "Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products".

7. ASTM A 153, "Specifications for Zinc Coating (Hot Dip) on Iron and Steel Hardware".

B. Qualifications for Welding Work:

1. Qualify welding processes and welding processes and welding operators in accordance with the AWS "Standard Qualification Procedure".

2. Provide certification that welders to be employed in the work have satisfactorily passed AWS qualification tests within the previous 12 months. If recertification of welders is required, retesting will be the Contractor's responsibility.

C. Source Quality Control:

1. Materials and fabrication procedures are subject to inspection and tests in the mill, shop, and field, conducted by a qualified inspection agency. Such inspections and tests will not relieve the Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.

2. Promptly remove and replace materials or fabricated components which do not comply.

D. Design of Members and Connections:

1. All details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at the site whenever possible without causing delay in the work.

2. Promptly notify the Consultant whenever design of members and connections for any portion of the structure are not clearly indicated.

1.03 SUBMITTALS

A. General: Submit under provisions of Section 01300 – SUBMITTALS AND SUBSTITUTIONS.

B. Shop Drawings, Structural Steel:

1. Submit shop drawings including complete details and schedules for fabrication and shop assembly of members, and details, schedules, procedures and diagrams showing the sequence of erection.

2. Owner’s Rep’s review of shop drawings will be for general considerations only. Compliance with requirements for materials fabrication and erection of structural steel is the Contractor's responsibility.

3. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols, and show size, length, and type of each weld.

4. Provide setting drawings, templates, and directions for the installation of anchor bolts and other anchorages to be installed by others.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site at such intervals to insure uninterrupted progress of the work. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not delay that work.

B. Store materials to permit easy access for inspection and identification. Keep steel members off the ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration. Do not store materials on the structure in a manner that might cause distortion or damage to the members or the supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Structural wide flange shapes shall conform to ASTM A992. Steel pipes and structural tubing shall conform to ASTM A500, grade B. Angles, plates, bars and miscellaneous steel shapes shall conform to ASTM A-36.

B. Anchor Bolts: ASTM F1554, grade 36, regular hexagon type, galvanized.

C. Unfinished Bolts and Nuts: Shall conform to ASTM Standard A 307 and shall be the regular hexagon-bolt type, galvanized.

D. Washers: Round washers shall conform to Fed. Spec. FF-W-92. Beveled washers shall be square, smooth and sloped so that contact surfaces of bolt head and nut are parallel. The diameter of hole of square-beveled washers shall be l/l6-inch greater than the bolt size for bolts not larger than l inch, and 1/8-inch greater than the bolt size for bolts larger than 1 inch. Washers shall be galvanized.

E. Electrodes for Welding: Comply with AWS Code. Use E70XX electrodes.

F. Structural Steel Primer Paint: Manufacturer's or fabricator's standard, fast curing, lead-free, chromium-free, "universal" primer; selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated and for capability to provide a sound foundation for field applied topcoats despite prolonged exposure; complying with SSPC Paint 5.

G. Galvanizing: Provide hot-dip galvanize coating for items specified to be galvanized as follows:

1. ASTM A 153 for galvanizing iron and steel hardware.

2. ASTM A 123 for galvanized rolled, pressed and forged steel shapes, plates, bars and strip 1/8" thick and heavier.

3. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in galvanized steel, complying with the Military Specifications DOD-P-21035 (Ships) or SSPC-Paint-20.

H. Cement Grout Portland Cement (ASTM C 150, Type I or Type III) and clean, uniformly graded, natural sand (ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 3.0 parts sand, by volume, with only the minimum amount of water required for placement and hydration.

2.02 FABRICATION

A. Shop Fabrication and Assembly:

1. Fabricate and assemble structural assemblies in the shop to the greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on the final shop drawings. Provide camber in structural members as shown.

2. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.

3. Where finishing is required, complete the assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in the final structure free of markings, burrs, and other defects.

B. Connections:

1. Weld shop connections, as indicated.

2. Bolt field connections, except where welded connections or other connections are indicated. Provide unfinished threaded fasteners for only the bolted connections or secondary framing members to primary members (including purlins, girts and other framing members taking only nominal stresses) and for temporary bracing to facilitate erections.

3. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work. Grind welds smooth where exposed as at welded steel column covers and forms.

2.03 SHOP PAINTING

A. General: Shop paint all structural steel work, except those members or portion of members to be embedded in concrete or mortar. Paint

embedded steel which is partially exposed on the exposed portions and the initial 2 inches of embedded areas only.

B. Do not paint surfaces which are to be welded.

C. Do not paint surfaces, which are scheduled to receive sprayed-on fireproofing.

D. Apply 2 coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

E. Shop Painting: Remove all mill scale, rust, dirt and other deleterious materials. As soon as possible after cleaning, all surfaces shall be coated with a pretreatment coating. After pretreatment coating has dried, paint with approved primer. The application shall be made to a uniform dried film thickness of not less than 1.0 mil.

2.04 GALVANIZING

A. Steel components shall be hot-dip galvanizing in accordance with ASTM A 123 and A 153, as applicable. Steel components, including nuts, bolts, washers, etc. which are small enough for hot-dip galvanizing shall be treated. Coordinate with Section 05500 - METAL FABRICATIONS.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine the areas and conditions under which structural steel work is to be installed, and notify the Consultant in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Consultant.

3.02 ERECTION

A. General: Comply with AISC Specifications and Code of Standard Practice, and as herein specified.

B. Surveys: Provide services of a registered surveyor to establish permanent bench marks, check lines and elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices before steel erection proceeds. Discrepancies will be reported immediately to the Owner's Rep. Do not proceed with erection until corrections have been made, or until compensating adjustments to the structural steel work have been agreed upon with the Owner's Rep.

C. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members

are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of the structures as erection proceeds.

D. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete the work.

E. Anchor Bolts: Furnish anchor bolts and other connectors required for securing structural steel to foundations and other in-place work.

F. Furnish templates and other devices as necessary to presetting bolts and other anchors to accurate location.

G. Setting Bases and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean the bottom surface of base and bearing plates.

H. Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.

I. Tighten the anchor bolts after the supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the base or bearing plate prior to packing with grout.

J. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure in strict compliance with the manufacturer's instructions, or as otherwise required.

K. Field Assembly: Set structural frames accurately to the lines and elevations indicated. Align and adjust the various members forming a part of a complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

L. Level and plumb individual members of the structure within specified AISC tolerances.

M. Splice members only where shown or specified.

N. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds, grind smooth at exposed surfaces.

O. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and the removal of paint on surfaces adjacent to field welds. Do not enlarge unfair holes in members by burning or by the use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

P. Gas Cutting: Do not use gas cutting torches in the field for correcting fabrication errors in the structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to the Owner's Rep. Finish gas-cut sections equal to a sheared appearance when permitted.

Q. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of the shop paint. Apply paint to exposed areas with the same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

3.03 FIELD QUALITY CONTROL

A. Correct deficiencies in structural steel work, which inspections have indicated to be not in compliance with requirements. Perform additional tests at Contractor's expense, as may be necessary to reconfirm any non-compliance of the original work, and as may be necessary to show compliance of corrected work.

END OF SECTION

SECTION 05210 - STEEL JOISTS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Extent of steel joists is shown on drawings, including basic layout and type of joists required.

1.02 QUALITY ASSURANCE

A. Provide joists pre-fabricated in compliance with the following, and as herein specified.

1. American National Standards SJI – Standard Specification for K-Series, LH-Series and DLH-Series Open Web Steel Joist and for Joist Girders.

B. Qualification of Field Welding: Qualify welding processes and welding operators in accordance with the American Welding Society (AWS) "Standard Qualification Procedure".

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's specifications and installation instructions for each type of joist and accessories. Include manufacturer's certification that joists comply with SJI "Specification".

B. Shop Drawings: Submit detailed drawings showing layout of joist units, special connections, jointing and accessories. Include mark, number, type, location and spacing of joists and bridging.

C. Provide templates or location drawings for installation of anchor bolts.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver store and handle steel joists as recommended in SJI "Specifications". Handle and store joists in a manner to avoid deforming members and to avoid excessive stresses.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Steel: Comply with SJI "Specifications".

B. Unfinished Threaded Fasteners: ASTM A 307, Grade A, regular hexagon type, low carbon steel.

C. Steel Prime Paint: Comply with SJI "Specifications".

2.02 FABRICATION

A. General: Fabricate steel joists in accordance with SJI Specifications".

B. Holes in Chord Members: Provide holes in chord members where shown for securing other work to steel joists; however, deduct area of holes from the area of cord when calculating strength of member.

C. Extended Ends: Provide extended ends on joists where shown, complying with manufacturer's standards and load tables.

D. Ceiling Extensions: Provide ceiling extensions in areas having ceiling attached directly to joist bottom chord. Provide either an extended bottom chord element or a separate unit, to suit manufacturer's standards, of sufficient strength to support ceiling construction. Extend ends to within 1/2 inch of finished wall surface unless otherwise indicated.

E. Bridging: Provide horizontal or diagonal type bridging for "open web" joists, complying with SJI "Specification".

1. Provide diagonal type bridging for "longspan" joists, complying with SJI "Specification".

2. Provide bridging anchors for ends of bridging lines terminating at walls or beams.

F. End Anchorages: Provide end anchorages to secure joists to adjacent construction, complying with SJI "Specifications" unless otherwise indicated.

G. Header Units: Provide header units to support tall joists at openings in floor or roof system not framed with steel shapes.

H. Shop Painting: Remove loose scale, heavy rust, and other foreign materials from fabricated joists and accessories before application of shop paint.

1. Apply one shop coat of primer paint to steel joists and accessories, by spray, dipping, or other method to provide a continuous dry paint film thickness of not less than 0.50 mil.

PART 3 - EXECUTION

3.01 ERECTION

A. Place and secure steel joists in accordance with SJI "Specifications", final shop drawings, and as herein specified.

B. Anchors: Furnish anchor bolts and other devices to be built into concrete and masonry contraction.

1. Furnish unfinished threaded fasteners for anchor bolts, unless otherwise indicated.

C. Placing Joists: Do not start placement of steel joists until supporting work is in place and secured. Place joists on supporting work, adjust and align in accurate locations and spacing before permanently fastening.

Provide temporary bridging, connections, and anchors to ensure lateral stability during construction.

D. Bridging: Install bridging simultaneously with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords where terminating at walls or beams.

E. Fastening Joists: Field weld joists to supporting steel framework in accordance with SJI "Specification" for type of joists used. Coordinate welding sequence and procedure with placing of joists.

3.02 TOUCH-UP

A. Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on Steel Joist is specified in Division 9 of these specifications.

B. For galvanized surfaces: Clean field welds, bolted connections and abraded area and apply 2 coats of galvanizing repair paint.

END OF SECTION

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Metal fabrications include items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere.

B. Extent of metal fabrications is indicated on drawings and schedules.

C. Types of work in this section include metal fabrications for:

1. Metal support brackets.

2. Rough hardware.

3. Miscellaneous framing and supports.

4. Metal Bollards.

5. Metal Pipe Guards.

D. Related Work Described Elsewhere:

1. Section 05120 – STRUCTURAL STEEL.

1.02 QUALITY ASSURANCE

A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

1.03 SUBMITTALS

A. General: Submit under provisions of Section 01300 – SUBMITTALS.

B. Product Data: Submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products.

C. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.

D. Where materials or fabrications are indicated to comply with certain requirements for design loadings include structural computations, material properties and other information needed for structural analysis.

E. Samples: Submit 2 sets of representative samples of railing materials and finished products as may be requested by Architect.

1.04 SYSTEM PERFORMANCES

A. General: Engineer systems to withstand structural loads indicated, determine allowable design working stress of materials based on the following:

1. For Cold-Formed Structural Steel: AISI "Specification for Design of Cold-Formed Steel Structural Members".

2. For Aluminum: AA 30 "Specifications for Aluminum Structures".

PART 2 – PRODUCTS

2.01 MATERIALS

A. Ferrous Metals:

1. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

2. Structural Steel Plates, Channels, Angles and Bars: ASTM A 36/A 36M.

3. Steel Pipe: ASTM A 53; Type and grade (if applicable) as selected by fabricator and as required for design loading; galvanized finish, G90; standard weight (schedule 40), unless otherwise indicated.

4. Steel tubing as follows:

a. Cold-Formed Steel Tubing: ASTM A 500.

b. Hot-Formed Steel Tubing: ASTM A 501.

1) For exterior installations, including the building seating bowl area, and where indicated, provide tubing with hot-dip galvanized coating per ASTM A 53.

5. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

6. Gray-Iron Castings: ASTM A 48, Class 30.

7. Malleable-Iron Castings: ASTM A 47, Grade 32510 (ASTM A 47M, Grade 22010).

8. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed with a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

   a. Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A 153.

9. Welding Rods and Bare Electrodes: Select according to AWS specification for the metal alloy to be welded.

B. Fasteners:

1. General: Provide zinc-coated fasteners for exterior and interior use. Select fasteners for the type, grade and class required.

2. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A, except where specified of stainless steel.

3. Screws: ANSI B18.2.1, ANSI B18.6.2, and ANSI B18.6.3.

4. Plain Washers: Round, carbon steel, ANSI B18.22.1, except where specified of stainless steel.

5. Expansion Anchors: CID A-A-1924 of Group II, Type 4, Class 1. Provide embedment as required by manufacturer.

6. Toggle Bolts: ANSI B18.2.1 as required.

7. Lock Washers: Helical spring type carbon steel, ANSI B18.21.1.

C. Miscellaneous Steel Backing Plates: Provide adequate steel backing plates as required by architectural and mechanical drawings for the attachment of items such as fixtures, toilets, sinks, railings, equipment, and other items. Securely fasten all plates in precise position to supporting members.

D. Paint:

1. Shop Primer for Ferrous Metal: Fast-curing, abrasion-resistant, rust-inhibitive primer selected for compatibility with substrates and with types of finish paint systems indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure; complying with material and performance requirements of Section 09901 – PAINTING.

2. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in galvanized steel, complying with SSPC-Paint-20.

2.02 FABRICATION, GENERAL

A. Workmanship: Use materials of size and thickness indicated or, if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of work.

B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32-inch unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

C. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.

D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flathead (countersunk) screws or bolts.

E. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

F. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.

G. Galvanizing: Provide a zinc coating for those items shown or specified to be galvanized, as follows:

1. ASTM A 153 for galvanizing iron and steel hardware.

2. ASTM A 123 for galvanizing rolled, pressed and forged steel shapes, plates, bars and strip 1/8-inch thick and heavier, and for assembled steel products.

3. Coating thickness shall be not less than G90 designation.

H. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

I. Shop Painting: Apply shop primer to surfaces of metal fabrications except those which are galvanized or as indicated to be embedded in

concrete or masonry, unless otherwise indicated, and in compliance with requirements of SSPC-PA1 “Paint Application Specification No. 1” for shop painting.

J. Stripe paint all edges, corners, crevices, bolts, welds and sharp edges.

K. Surface Preparation: Prepare ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B): SSPC-SP6 “Commercial Blast Cleaning”.

2. Interiors (SSPC Zone 1A): SSPC-SP3 “Power Tool Cleaning”.

2.03 ROUGH HARDWARE

A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting metal fabrications.

B. Fabricate items of sizes, shapes and dimensions required. Furnish steel washers.

2.04 MISCELLANEOUS FRAMING AND SUPPORTS

A. Provide miscellaneous steel framing and supports which are not a part of structural steel framework reinforcement, and other members as required to complete work.

B. Fabricate miscellaneous units to sizes, shapes and profiles indicated or, if not indicated, of required dimensions to receive adjacent other work to be retained by framing. Except as otherwise shown, fabricate from structural steel shapes, plates, and steel bars, for supports, of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware and similar items.

C. Hot-dip Galvanize all miscellaneous frames and supports.

2.05 PIPE GUARDS

A. Fabricate pipe guards from 3/8-inch thick by 12-inch wide steel plate, bent to fit flat against the wall or column at both ends and to fit around pipe with 2-inch clearance between pipe and pipe guard. Drill each end for two 3/4-inch anchor bolts.

B. Galvanize pipe guards.

C. Prime and finish pipe guards as specified in Section 09901 - PAINTING.

2.06 METAL BOLLARDS

A. Fabricate metal bollards from Schedule 40 steel pipe.

1. Where bollards are indicated to receive controls for door operators, provide necessary cutouts for controls and holes for wire.

2. Where bollards are indicated to receive light fixtures, provide necessary cutouts for fixtures and holes for wire.

B. Prime bollards with primer specified in Section 09901 - PAINTING.

PART 3 – EXECUTION

3.01 PREPARATION

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible, do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

B. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.02 INSTALLATION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through bolts, and other connectors as required.

B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete masonry or similar construction.

C. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

D. Field Welding: Comply with AWS Code for procedures of manual

shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

3.03 INSTALLING PIPE GUARDS

A. Provide pipe guards at exposed vertical pipes in parking garage where not protected by curbs or other barriers or where indicated. Install by bolting to wall or column with expansion anchors. Provide four 3/4-inch bolts at each pipe guard. Mount pipe guards with top edge 26 inches above driving surface.

3.04 INSTALLING BOLLARDS

A. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.

B. Fill bollards solidly with concrete, mounding top surface to shed water.

3.05 ADJUST AND CLEAN

A. Touch-up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

B. For Galvanized Surfaces: Clean field welds, bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. The extent of building insulation work is shown on the drawings, by the generic name.

B. The types of building insulation specified in this Section include, but are not limited to thermal rigid insulation for roof at supported steel deck.

1.02 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Manufacturer's Data: Submit manufacturer's specifications and installation instructions for types of insulation required. Include data substantiating that materials comply with specified requirements.

C. Safety Data Sheets (SDS): Submit SDS for each material.

1.03 QUALITY ASSURANCE

A. Thermal Resistivity: Where thermal resistivity properties of insulation materials are designated by "R"-values they represent the rate of heat flow through a homogenous material exactly one-inch thick, measured by test method included in referenced material standard or otherwise indicated. They are expressed by the temperature difference in degrees Fahrenheit between the 2 exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

B. Fire and Insurance Ratings: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

1. Surface Burning Characteristics: ASTM E84.

2. Fire Resistance Ratings: ASTM E119.

3. Combustion Characteristics: ASTM E136.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in original sealed wrapping bearing manufacturer's name and brand designation, specification number, type, grade, R-value, and class. Store and handle to protect from damage. Do not allow insulation materials to become wet, soiled or crushed. Comply with manufacturer's recommendations for handling, storing, and protecting of materials before and during installation.

B. Inspect materials delivered to the site for damage; unload and store out of weather in manufacturer's original packaging. Store only in dry locations, not subject to open flames or sparks, and easily accessible for inspection and handling.

C. Handle materials as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Rigid Insulation for Roof at Supported (Metal Deck) Framing Below Preformed Metal Roofing with Polyisocyanurate Board: ASTM C1289, Type II, felt faced, or Type I, foil-faced, except minimum compressive strength shall be 20 pounds per square inch, 1-inch thick minimum.

B. Cover Board: ASTM C1177/C1177M, glass mat faced, water resistant treated gypsum core intended for use under metal roofing and recommended by roofing system manufacturer; 1/4-inch thick minimum. Products made with Cellulose may be submitted for acceptance provided that products have passed termite testing by a recognized lab conducting such test.

C. Self-Adhering Underlayment: ASTM D1970/D1970M polymer modified bituminous sheet materials, minimum 40 mils thick as recommended by the roofing manufacturer. Provide with non-slip surface for safety during roofing operations.

2.02 ACCESSORIES

A. Adhesive: As recommended by the insulation or mechanical fastener manufacturer as applicable.

B. Mechanical Fasteners: Corrosion resistant fasteners as recommended by the insulation manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General:

1. Comply with manufacturer's instructions for the particular conditions of installation in each case. If printed instructions are not available or do not apply to the project conditions, consult the manufacturer's technical representative for specified recommendations before proceeding with the work.

2. Extend roof insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

3. Apply a single layer of insulation of the required thickness.

4. Insulation shall be installed after construction has advanced to a point that the installed insulation will not be damaged by remaining work.

B. Thermal Rigid Roof Insulation at Metal Roofing: Install over decking with either mechanical fasteners or adhesive to secure in place prior to installation of roofing. Apply insulation, coverboard and self-adhering underlayment as recommended by the manufacturer for a weathertight condition. Ensure roofing is installed within exposure limits for underlayment.

3.02 PROTECTION

A. Protect installed insulation and facing from harmful weather exposures and from possible physical abuses, where possible by nondelayed installation of concealing work or, where that is not possible, by temporary covering or enclosure.

END OF SECTION

SECTION 07410 - PREFORMED METAL STANDING SEAM ROOFING

PART 1 - GENERAL

1.01 SUMMARY

A. Extent of preformed roofing is indicated on the drawings and by provisions of this Section. Provide all materials, including all flashings for a complete system.

B. Type of panels required include formed sheet panels intended for concealed fastener installation.

C. Related Work Described Elsewhere:

1. Roof insulation is provided under SECTION 07210 - BUILDING INSULATION.

2. Furnish matching prefinished sheet metal matching roof material for indicated prefinished related flashings specified in SECTION 07600 - FLASHING AND SHEET METAL.

1.02 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Manufacturer's Data: Submit manufacturer's product specifications, standard details, installation instructions, and general recommendations, as applicable to materials and finishes for each component and for total system of preformed panels.

C. Shop Drawings: Submit shop drawings of all roofing, flashing, fastenings, supports, anchors, clearances, and connection details to the Consultant for acceptance. Manufacturer shall review and accept shop drawings, with printed acknowledgment on the shop drawings prior to submission to the Consultant.

D. Samples: Furnish 4 each, 4-inch long samples of full width panel materials and samples of all other materials to be used to the Consultant for acceptance.

E. Test Reports: Provide test data demonstrating wind uplift and resistance to water infiltration performance as specified.

F. Warranty: Submit warranty as noted under item entitled "WARRANTY" hereinbelow.

1.03 QUALITY CONTROL

A. Installer: The roofing system installer shall be factory-trained, approved by the metal roofing system manufacturer to install the system, and shall have a minimum of 3 years experience as an approved applicator with that manufacturer. The applicator shall have applied 5 installations of similar size and scope as this project within the previous 3 years.

B. Installation Crew: Provide and maintain same foreman and crew from start to finish of work unless change is accepted by the HHSC Representative and/or Consultant. Workmen who will be walking on roof panels shall wear soft-soled shoes that will not damage the panels.

C. Pre-Roofing Conference: After submittals are received and accepted but before roofing work, including associated work are performed, the Contractor shall hold a pre-roofing conference to review the following:

1. Procedure for on site inspection and acceptance of the roofing substrate and pertinent structural details relating to the roofing system.

2. Contractor's plan for coordination of the work of the various trades involved in providing the roofing system and other components secured to the roofing.

3. Attendees: The pre-roofing conference shall be attended by the Contractor and personnel directly responsible for the roofing installation. Conflicts among those attending the pre-roofing conference shall be resolved and confirmed in writing before roofing work, including associated work, is begun. Prepare written minutes of the pre-roofing conference and submit to the HHSC Representative and Consultant.

1.04 WARRANTY

A. Contractor’s Warranty: Furnish written 2-year warranty to the HHSC Representative and Consultant jointly signed by Roofing Contractor, Sheet Metal Contractor, and General Contractor which shall provide for repairs or replacement of roofing and flashing where leaking occurs due to faulty materials and workmanship at no extra cost to the HHSC from the date of project acceptance.

B. Manufacturer’s Warranty: Furnish manufacturers warranty for coating system under Hawaiian weather conditions, provide following as a guide for expected warranty:

1. The roofing panels and matching flashings with a factory applied Fluropon PVDF paint finish are free from material defects and

shall be warranted for minimum 30 years against peeling, chipping, cracking or color change in excess of 5 NBS units during the term of this warranty. For 30 years in the event that the above paint system fails under normal wind and weathering conditions, the manufacturer/supplier shall replace or repair as necessary any panels whose factory color finish that fails. This paint finish warranty commences upon project acceptance.

2. Additionally, the metal roofing system components for the project as identified by the Contract Drawings for this project, shall be 30 year no-dollar limit warranty from the date of project acceptance. Manufacturer/supplier shall replace or repair as necessary any component of the roof system supplied by them, when installed and maintained according to manufacturer's instructions, which fail to provide a watertight and weatherproof system due to defective materials. All materials required to perform any repair work shall be provided by the manufacturer/supplier. Repair work shall be done in a manner that will not disrupt HHSC's access to the building.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle preformed panels, bulk roofing products, and other manufactured items in a manner to prevent damage or deformation.

B. Provide adequate packaging to protect materials during shipment. Do not uncrate materials until ready for use except for inspection. Immediately upon arrival of materials at jobsite, inspect materials for damage, dampness, and staining. Replace damaged or permanently stained materials that cannot be restored to like new condition with new material. If materials are wet, remove moisture, restack, and protect panels until used.

C. Stack materials stored on the site on platforms or pallets and cover with tarpaulins or other suitable weathertight coverings which prevent water trapping or condensation. Store panels so that water which might have accumulated during transit or storage will drain off. Do not store the panels in contact with materials that might cause staining, such as mud, lime, cement, fresh concrete or chemicals. Protect stored panels from wind damage.

D. Handle material carefully to avoid damage to surfaces, edges, and ends.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Roof Panels: Formed from minimum 0.040-inch thick, 3004 HX6

aluminum alloy conforming to ASTM B209 or ASTM B209M. Panel configuration shall be structural standing seam roofing with concealed fasteners. Pan width shall be 12-inches with 2-3/8 inch vertical leg and intermediate stiffening beads as manufactured by The Garland Company, Inc., R-MER Span or accepted equivalent. Panels shall be prefinished as specified.

B. Flashing and Closures: Formed of prefinished material to match roof panels of manufacturer's standard flashings for the panels specified. Configuration of flashings shown on the drawings are intended to indicate basic intent. Other flashings which accomplish the basic intent will be acceptable if standard with the panel manufacturer. Provide metal flashings for locations indicated. Furnish sheet metal flashing items in 8-foot to 10-foot lengths. Single pieces less than 8-feet long may be used at corners, and at ends of runs. Provide accessories and other items essential to complete the sheet metal installation of the same materials as the items to which they are applied. Connect all pieces of linear flashing by a slip joint to permit thermal movement. Exposed flashings and metal closure strips shall match finish of roof panel.

2.02 METAL FINISH

A. General: Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Provide standard color indicated or, if not otherwise indicated, as selected by the Consultant.

B. For exposed exterior surfaces, provide thick finish of Valspar Fluropan PVDF or equivalent conforming to AAMA 621 with a primer and topcoat from 0.9 to 1.1 dry mils.

C. Interior/underside finish shall be manufacturer's 0.5 mil standard washcoat or better.

2.03 MISCELLANEOUS MATERIALS

A. Fasteners: Fasteners shall be stainless steel with composite metal and neoprene composition washers. Where required, exposed fasteners shall be gasketed on the exterior side of the covering to waterproof the covering and finished to match roof finish. Concealed fastener and clip system shall be manufacturer approved for system provided and uplift specified.

B. Accessories: Except as indicated as work of another specification section, provide components required for a complete roofing system, including stainless steel clips, standoff clips, sidelap clips, and uplift clips; trim, straps for bridging gaps in metal decking, flashings and expansion joint flashing; single component polyurethane sealants, gaskets, fillers,

closure strips, and similar items. All clips shall be stainless steel. Match materials/finish of preformed roof panels where exposed.

C. Closure Strips: Formed specifically for this purpose of laminated cross-linked polyethylene closed cell-foam or neoprene materials and as standard with manufacturer. Molded closure strips shall be free of open voids and shall not absorb or retain water. Closure strips shall be formed to match configurations of the roofing and shall be provided where indicated and where necessary to provide weathertight construction.

D. Sealants: ASTM C920, Type S, Grade NS, Class 25, Use NT, polyurethane or as recommended by the roofing manufacturer. Color, where exposed, shall match roofing.

E. Mastic: As recommended by the roofing manufacturer.

F. Bituminous Coating: Cold-applied asphalt mastic, SSPC paint 12, compounded for 15-mil dry film thickness per coat.

G. Flexible Flashing: Aluminum foil faced 45 mil rubberized asphalt or butyl rubber roll sheet as recommended by roofing manufacturer for waterproofing top set flashings.

2.04 PANEL FABRICATION AND PERFORMANCE REQUIREMENTS

A. General: Fabricate and finish panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, and as required to fulfill performance requirements, which have been demonstrated by factory testing. Comply with indicated profiles and dimensional requirements, and with structural requirements. Fabricate panels in full lengths from ridge to eave to the greatest extent possible.

B. Metal Gages: Thicknesses required for structural performances, but not less than manufacturer's recommended minimums for profiles and applications indicated, and not less than specified under paragraph entitled "Roof Panels" hereinabove.

C. Required Performances: Fabricate panels and other components of roof system for the following installed-as-indicated performances:

1. Roof Wind Component and Cladding Pressures: As indicated.

2. Project Windloads: 160 mph, Exposure B.

D. Performance Criteria:

1. Provide wind uplift resistance in accordance with the current local

ICC IBC as amended and UL 580 Class 1-90.

2. Resistance to Water Infiltration: Roofing system shall show no infiltration at seams, edges, flashings, counterflashings, and penetrations when subjected to a minimum rainfall of 5 gallons per hour with 90 to 110 mph wind.

3. Thermal Movement: The system shall be capable of withstanding thermal movement based on a temperature range of 10 degrees Fahrenheit below design low air temperature and 140 degrees Fahrenheit for light colors.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive standing seam metal roofing and flashing. Provide plumb and true surfaces, clean, even, smooth, and as dry as possible. Ensure that surfaces are free from defects and projections which might affect the installation.

B. Report unsuitable conditions to the Consultant.

3.02 INSTALLATION

A. General: Comply with panel fabricator's and material manufacturers' instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place in full and firm contact with concealed anchor clips with provisions for thermal/structural movement as well as carrying the weight of the panels. Obtain acceptance prior to installation on prefinished panels cut in the field and factory applied coverings or coatings that were repaired after being abraded or damaged during handling or installation. Make repairs with material of same color as weather coating. Completely seal openings through panels. Correct defects or errors in materials in an accepted manner. Replace materials which cannot be corrected in an accepted manner with new materials. Provide molded closure strips where indicated and where necessary for weathertight construction.

B. Apply roofing panels with standing seams parallel to slope of roof. Attach clips with a minimum of 3 stainless steel screws per clip unless manufacturer's data allows otherwise for the required performance specified. Attach panels to structure with concealed clips which are incorporated into the panel seams. Clip attachment shall allow roof to move freely and independently of the structure. With clip screws in place, test all clips for freedom of movement before covering with the next panel. All clips that bind and cannot be moved with hand pressure shall

be replaced.

C. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4-inch in 20-feet on level/plumb/slope and location line as indicated, and within 1/8-inch offset of adjoining faces and of alignment of matching profiles. Layout lines parallel to the rakes at intervals. Use a spacing gage at each row of panels to ensure that panel width is not stretched or shortened.

D. All field cutting of roofing panels shall be done as recommended by manufacturer's written instructions.

E. Joint Sealers: Install joint fillers and sealants where indicated and where required for weatherproof performance of panel system. Provide types of sealants/fillers indicated or, if not otherwise indicted, types recommended by panel manufacturer. Refer to SECTION 07920 - SEALANTS of these specifications for installation requirements applicable to indicated joint sealers.

F. Roof installation shall be for conditions indicated.

G. Flashings: Provide flashing and related closures and accessories in connection with preformed metal panels as indicated and as necessary to provide a weathertight installation. Flash and seal roof at ridge and eave and elsewhere as necessary. Accomplish placement of closure strips, flashing, and sealing material in an accepted manner that will ensure complete weathertightness. Details of installation which are not indicated shall be in accordance with the NRCA CD, SMACNA ASMM, AA 35, panel manufacturer's printed instructions and details of the accepted shop drawings. Installation shall allow for expansion and contraction of flashing.

H. Flashing Fasteners: Fastener spacings shall be in accordance with the panel manufacturer's recommendations and as necessary to withstand the indicated design loads for both pullout and pullover. Install exposed fasteners in panel valleys as recommended by the manufacturer of the panels. Install fasteners in straight lines within a tolerance of 1/2-inch in the length of a bay. Drive exposed penetrating type fasteners normal to the surface and to a uniform depth to seat gasketed washers properly and drive so as not to damage factory applied coating. Exercise extreme care in drilling pilot holes for fastenings to keep drills perpendicular and centered. Do not drill through sealant tapes. After drilling, remove metal filings and burrs from holes prior to installing fasteners and washers. Torque used in applying fasteners shall not exceed that recommended by the manufacturer. Remove panels deformed or otherwise damaged by over-torqued fastenings, and provide new panels.

I. Closure Strips: Install closure strips as indicated and as recommended by

the manufacturer.

J. Apply bituminous coating or other permanent separation materials on concealed panel surfaces where panels would otherwise be in direct contact with wood or other substrate materials which are noncompatible or could result in corrosion or deterioration of either material or finishes.

3.03 CLEAN-UP AND PROTECTION

A. Damaged Units: Replace panels and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures. Touch-up paint shall not be used without the permission of the Consultant.

B. Cleaning: Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction. Remove metal shavings, filings, nails, bolts, and wires from roofs and gutters on completion to prevent discoloration and harm to the panels and flashing.

C. Remove grease and oil films, excess sealants, handling marks, contamination from steel wool, fittings, and drilling debris and scrub the work clean. Exposed metal surfaces shall be free of dents, creases, waves, and scratch marks.

ROOFING INFORMATION CARD

FACILITY

Building Name _____ Building Desig/No. _____

ROOF

Type of Roof System _____ Type of Deck _____

Type of Underlayment _____ No. Of Plies _____

Product Name/Style _____ Product Color _____

INSTALLER (Roofing Contractor)

Company _____ Contact Person _____

INSULATION

Type of Insulation _____ Cover Board _____

Thickness _____ Thickness _____

MANUFACTURER

Company _____ Representative _____

Contact No. _____

COMPLETION DATE _____

DATE INSTALLER'S WARRANTY EXPIRES _____

DATE MANUFACTURER'S WARRANTY EXPIRES _____

Warranty Reference No. _____

Warranty Contact Person _____

Contact No. _____

END OF SECTION

SECTION 07560 - FLUID-APPLIED ROOFING SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Provide a fluid-applied flexible acrylic and polyester roofing system over existing fluid-applied roof surfaces.

B. Related Work Described Elsewhere: Sealants are provided under SECTION 07920 - SEALANTS.

1.03 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Manufacturer's Data: Submittals shall be marked-up as necessary to clearly identify the item being submitted and its conformance to the requirements of these specifications.

1. Provide data for material description, physical properties, recommended storage conditions, shelf life, precautions, flexible flashings, and joint and crack sealant, with temperature range for application of fluid-applied roofing system membrane.

2. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

3. Manufacturer's data indicating the minimum spreading rate in square feet per gallon for foundation coat, and finish coat(s). It shall indicate the number of applications for each respective coat.

C. Samples: Submit 4 sets of samples of each coating intended for use.

D. Certificates:

1. A signed certificate from the manufacturer stating that the Contractor is an approved installer of the manufacturer's complete fluid-applied roofing system for this specific Project.

2. A signed certificate from the manufacturer designating its technical representative for the project and attesting that this person is both qualified and authorized to act on its behalf in regards to design, inspection, and approvals of the complete fluid-applied roofing system to meet the requirements for its warranty.

3. A signed certificate from the manufacturer or its technical

representative stating that the plans and specifications for the project have been reviewed and fully comply with the manufacturer's design standards and meet the requirements for warranty of the complete fluid-applied roofing system for the specified period.

4. Submit manufacturer's certificate to certify that products meet or exceed specified requirements.

E. Safety Data Sheets (SDS): Submit SDS for each material.

F. Warranty: Submit warranty as stipulated in item entitled "WARRANTIES" hereinbelow.

1.04 QUALITY ASSURANCE

A. Manufacturer: Obtain coating materials from a single manufacturer. Manufacturer shall have been in business and shall have had experience in manufacturing products of the type required for this project for a minimum of 10 years.

B. Applicator: Company specializing in performing the work of this Section approved by manufacturer. Certification of this qualification shall be provided in written form from the manufacturer.

C. Regulatory Requirements: Materials shall have been listed for Class I construction and evaluated by UL for Class A construction.

D. Should the manufacturer's installation instruction and/or warranty require deviation from details and specification in the contract documents, the Contractor shall provide shop drawings and provide as-built drawings of these revisions, at no additional cost to the HHSC.

1.05 JOB CONDITIONS

A. The Contractor and roofing manufacturer's technical representative shall attend preconstruction conferences held by the HHSC Representative to review detailing, preparation, installation, and scheduling required with the related work.

B. The Contractor shall be responsible for assuring a watertight and weathertight building for the entire duration of the project. Damages to the building and its contents, including equipment, finishes, and furniture as a result of the work of this Section shall be restored or replaced at no additional cost to the HHSC.

C. The Contractor and roofing manufacturer's technical representative shall inspect and approve the roofing work at the following minimal times:

1. Prior to the start of the application of the foundation coat and fabric to assure the suitability of prepared substrates.

2. After the installation of the foundation coat and fabric.

3. After the installation of the finish coat.

D. All inspections shall be reported in writing by the roofing manufacturer's technical representative to the HHSC Representative within 5 working days. Failure by the manufacturer or by its technical representative to make inspections or provide reports shall be understood to mean that the manufacturer approves of the installation and the warranty shall be valid.

E. It shall be the responsibility of the Contractor to notify the roofing manufacturer's technical representative and the HHSC Representative of these scheduled times at least 5 working days in advance to enable their attendance.

1.06 WARRANTIES

A. Contractor Warranty: Furnish a written warranty on the fluid-applied roofing system for a 2-year period after Project Acceptance Date. This shall be a non-prorated, full-value, no-dollar limit, material-and-labor warranty and shall provide the following at no additional cost to the HHSC:

1. Repair of roofing as necessary to seal and repair all leaks which are attributable to faulty materials and/or workmanship.

2. Repair or replacement of damage to the building and/or its finishes, equipment and/or furnishings, when occasioned by such leaks; and c. Inspection of the roofing by the Contractor and the roofing manufacturer's technical representative together with HHSC Representative and/or Consultant, of the roofing and flashing, on or about the first and second anniversaries of the Project Acceptance Date, and repair or replacement of roofing as necessary to correct any deficiencies in workmanship or materials, such as by eliminating blisters exceeding 12-inch in any dimension or readhering open seams. Such correction work shall be done in a manner which will preserve the integrity of the complete roofing system.

B. Manufacturer’s Warranty: Furnish a 10-year complete roofing system warranty made out to the HHSC. The warranty shall cover both material and workmanship and shall provide that in the event of failure due to normal weathering and wind conditions during the remainder of the warranty period (the 3rd through 10th years after project acceptance) the fluid-applied roofing system manufacturer will make repairs as necessary

to maintain the roof in a watertight condition at no cost to the HHSC. The warranty shall contain a certification by the manufacturer that the complete roofing system has been installed in accordance with the manufacturer's instructions and that the HHSC has been provided maintenance instructions for the roof. The warranty shall contain no exclusions for materials furnished by the manufacturer. The warranty shall include all waterproofing details incorporated on the roof areas, flashings, and sealants.

1.07 DELIVERY STORAGE AND HANDLING

A. Deliver materials to site in manufacturer's unopened and undamaged containers bearing the following information:

1. Name of manufacturer.

2. Name of contents and products code.

3. Net volume of contents.

4. Lot or batch number.

5. Storage temperature limits.

6. Shelf life expiration date.

7. Mixing instructions and proportions of contents.

8. Safety information and instructions.

B. Store and protect materials from damage and weather in accordance with manufacturer's instructions.

C. Store materials at temperatures below 90 degrees Fahrenheit. Keep out of direct sunlight.

D. Store, cover, and protect materials as required by manufacturer.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Proceed with roofing work only when weather conditions comply with manufacturer's recommendations. Do not apply if rain is expected before the application has time to cure per manufacturer's recommendations.

PART 2 - PRODUCTS

2.01 MEMBRANE COMPOUND MATERIAL

A. Multi-stage, fabric reinforced, Premium flexible high solids, 100 percent acrylic elastomer coating; Hydrostop by GAF or accepted equivalent, fluid-applied in successive coats to form one continuous, seamless, watertight membrane; 40 mils minimum cured total system thickness; comprised of the following.

1. Manufacturer's primer for exposed concrete surface and previously painted surfaces.

2. Manufacturer's primer for metal surfaces with and without rust.

3. Manufacturer's approved patching mortar for patching concrete repairs.

4. Primer as required by manufacturer.

5. Foundation Coat With Fabric: Consisting of a premium coating blended of high solids, 100 percent elastomeric acrylic resins coating. Mildewcide and acrylic polymer resins shall be identical to finish coat in composition and quantity. Color of foundation shall vary from the topcoats.

6. Reinforcing Fabric: 100 percent Polyester, 3 ounces per square yard, 0.018-inches, non-woven, stitch bonded, and heat-set fabric with a tensile strength of Warp 74 pounds and Fill 45 pounds.

7. Finish Coat: Ultraviolet resistant blend of high solids and non-migrating fire retardants, 100 percent elastomeric acrylic resin coating. Topcoat color shall be as scheduled or as selected by the Consultant.

8. Provide topcoat with suitable chemical mildewcide to the maximum amount of mildewcide per gallon permitted by the mildewcide manufacturer without adversely affecting the quality of the coatings.

B. Cured Membrane Characteristics:

PROPERTY	TEST	RESULT
Tensile Strength (Cured)	ASTM D412	> 2000 psi

Elongation	ASTM D638 or ASTM D412	> 300 percent elastomeric, 50 percent with reinforcing fabric
Algae Resistance	ASTM G29	No growth supported
Weathering	ASTM G155	No effect after 3000 hours
Salt Spray Test	ASTM B117	No effect
Moisture Vapor	ASTM E96/E96M	3 Perms
Fire Rating	ASTM E108	Class A
Fluid-Applied Acrylic	ASTM D6083	Approved
Susceptibility to Leakage	FM 4470	Passed
Hail (Severe Impact) Resistance	FM 4470	Passed
Foot Traffic Resistance	FM 4470	Passed

2.02 ACCESSORIES

A. Manufacturer's approved patching compound (vertical and horizontal crack filler).

B. Foam Patching Sealant: Dow Froth-Pak foam 2 part polyurethane sealant or accepted equivalent.

C. Sealant: As recommended by the fluid-applied roofing manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that existing fluid-applied roofing is sound; free of loose particles, standing water, cracks, pits, projections, or foreign matter detrimental to adhesion or application of fluid-applied roofing system.

B. Verify that substrate surfaces are smooth and not detrimental to full contact bond of fluid-applied roofing system materials.

3.02 PREPARATION

A. Protect adjacent surfaces not designated to receive fluid-applied roofing system.

B. Pressure wash concrete areas at if recommended by the manufacturer. Protect all openings and any damaged surfaces from water infiltration. Comply with all applicable codes with regard to discharging of pressure wash water and debris.

C. Clean and prepare surfaces to receive fluid-applied roofing system by removing all loose and flaking particles, grease, and laitance as required by the manufacturer.

D. It is the sole responsibility of the Contractor to prepare the roof surface before application of the system begins. Contractor shall immediately inform the Consultant and the manufacturer of any unsuitable surface conditions.

E. Seal all non-moving cracks and joints in accordance with fluid-applied manufacturer's requirements.

F. All moving cracks and joints and all cracks and joints greater than 1/4-inch shall be routed out, primed with concrete primer, and filled in with manufacturer's patching compound and then stripped in with a 6-inch wide polyester fabric and the foundation coat, or as required by manufacturer.

G. The Contractor shall use manufacturer approved methods and standards to prepare all surfaces and components as required by the plans and specifications and to install a complete fluid-applied roofing system, providing watertight flashings, accessories, attachments, and sealed joints and resistance to wind and other normal hazards for the specified warranty period.

H. The fluid-applied roofing system work shall be coordinated with appurtenance work such as roofing and flashing work and once started, the project shall progress expeditiously and without interruption to completion.

I. Fill all voids with foam patching sealant as recommended by the manufacturer. Finish smooth with adjoining surfaces.

3.03 APPLICATION

A. Prime roof surfaces as required by manufacturer.

B. Prime all cementitious and pre-painted surfaces with

manufacturer-approved primer.

C. Foundation Coat:

1. Apply foundation coat as required to meet manufacturer's warranty requirements. Apply foundation coat and 40-inch wide fabric over all surface areas as indicated by the detail drawings and required by the manufacturer.

2. Embed fabric directly into the foundation coating while still wet. Overlap adjacent runs of fabric 4-inch minimum.

D. Finish Coats:

1. Apply a minimum of 2 topcoats over entire area as required to meet manufacturer's warranty requirements.

2. Allow to dry between coats.

E. Total cured thickness of fluid-applied roofing system to be minimum of 40 mil.

3.04 INSPECTION

A. All surfaces shall be inspected for smoothness and cleanliness prior to application of fluid-applied roof coating.

B. The wet film thickness of each coat shall be checked during application by averaging numerous measurements taken with a film gauge. Thickness shall be sufficient that when cured, the dry film thickness will be as specified herein.

C. All surfaces coated shall be visibly checked to ensure areas have not been missed and all holidays in the film are repaired.

D. All fluid-applied roofing system work shall be subject to inspection at any time to ensure strict compliance with the manufacturer's recommendations. Test areas shall be cut whenever requested by the manufacturer's representative to verify conformance to the specifications. Any unsatisfactory area shall be remedied by the applicator at no expense to the HHSC.

E. As soon as practical after completion of the work, a thorough inspection will be made by the Contractor, manufacturer's representative, and the Consultant.

3.05 PROTECTION

A. Completed fluid-applied roofing system shall be properly and adequately protected from damage during the construction period. Plywood, planks, or other approved method of protection shall be provided for traffic or for storage of materials by other trades.

B. Monitor finished system for 7 days, sweeping off bird baths to allow for full cure.

3.06 CLEAN-UP

A. Upon completion of work, remove all excess material and equipment, leave surfaces clean and in satisfactory condition acceptable to the HHSC Representative.

B. Clean all items or work. Examine all work and repair all damage. In the event damage is irreparable remove and replace such item(s) at no additional cost to the HHSC. Do all required "touch-up" to marred or abraded surfaces. Leave entire work in condition acceptable to the HHSC Representative.

END OF SECTION

SECTION 07600 - FLASHING AND SHEET METAL

PART 1 - GENERAL

1.01 SUMMARY

A. Provide all labor, materials, and equipment necessary to fabricate and install flashing, counterflashing, metal gutters, downspouts, and other related work as shown on drawings and as specified herein.

B. Related Work Described Elsewhere:

1. Coordinate installation of sheet metal work with SECTION 07410 - PREFORMED METAL STANDING SEAM.

2. Sealants are specified under SECTION 07920 - SEALANTS.

1.02 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Manufacturer's Data: Submit manufacturer's product data on all manufactured items.

C. Shop Drawings: Submit shop drawings with reference made to detail numbers on the contract drawings to the Consultant for acceptance. Contract drawings are general in nature. Furnish additional details for all the similar and unusual conditions necessary to fabricate the flashing and sheet metal work. Shop drawings shall show all fasteners and relationship to adjacent work. No fabrication will be permitted before acceptance is secured. Tracing or reproducing drawing details is unacceptable.

D. Samples: Submit 4 samples of prefinished metal finishes to match colors as indicated or scheduled.

E. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.

1.03 QUALITY ASSURANCE

A. Sheet metal fabrications shall conform to State and local codes, SMACNA (latest edition), and industry standards.

B. Roof penetrations shall be installed weathertight in such a manner to maintain integrity of the roofing.

C. Fastening and cleating shall withstand all positive and negative wind

pressures for 160 mph, Exposure B winds in accordance with current Honolulu and State of Hawaii ICC IBC, as amended.

1.04 DELIVERY, STORAGE, AND HANDLING

A. All materials shall be delivered and stored in such a manner as to afford adequate protection. Damaged materials shall not be used and shall be removed from the site.

B. Handle manufactured materials as recommended by the manufacturer.

1.05 WARRANTY

A. Contractor's Warranty: The Contractor shall furnish to the Consultant a written warranty on the sheet metal for a 2-year period after the project acceptance date. The warranty shall provide for the repair of all leaks as well as repair and replacement of damage to the building and/or its finishes at no cost to the HHSC. Where flashing is associated with a system with longer warranty period, flashing warranty shall match applicable system.

1.06 PRE-INSTALLATION MEETING

A. The General Contractor, the Sheet Metal Contractor, and Roofing Installer shall attend a pre-installation meeting. Include other related trades as applicable. Confirm the required participants with the HHSC Representative. Notify participants at least 5 days prior to meeting. Intent of the meeting is to review the preparation and installation requirements for the roofing system and associated flashing and sheet metal and to coordinate and schedule the required work.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Flashings Associated with Metal Roofing: Provide materials from the same source, material, and finish as metal roofing provided under SECTION 07410 - PREFORMED METAL STANDING SEAM ROOFING.

B. Fasteners: Use the same metal or a metal compatible with the item. Use stainless steel fasteners to fasten dissimilar metals.

C. Stainless Steel Wire Cloth Strainers: Maximum 1/2-inch mesh 0.063-inch diameter wire for downspout connector head covers at gutters, formed as shown, and removable.

D. Downspouts: ASTM D1785 or ASTM D2665, Schedule 40, PVC pipe and fittings, 4-inch diameter unless indicated otherwise. Provide plastic

primer and joint solvent cement as recommended by the manufacturer.

E. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12 but containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

PART 3 - EXECUTION

3.01 INSTALLATION AND WORKMANSHIP

A. Surface to which sheet metal is to be applied shall be even, smooth, sound, thoroughly clean and dry, and free from defects that might affect the application. Report any unsatisfactory surfaces to the Consultant. In the absence of such a report, the Contractor shall be held responsible for the finished product.

B. All accessories or other items essential for the completeness of the sheet metal installation, though not specifically indicated on the drawings or specified, shall be provided. All such items unless otherwise indicated on the drawings or specified, shall be of the same kind of materials as the item to be applied. Nails, screws, rivets, and bolts shall be of the type best suited for the purpose intended and shall be of a composition that is compatible with the metal to which it will contact.

C. Except as otherwise indicated on the drawings or specified, the workmanship of sheet metal work, method of forming joints, anchoring, cleating, provisions for expansion, etc., shall conform to the standards details and recommendations of the Sheet Metal and Air Conditioning Contractors National Association's "Architectural Sheet Metal Manual", and shall be subject to the acceptance of the Consultant. Exposed edges shall be folded back neatly to form a minimum 1/2-inch hem on the concealed side. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work.

D. Gutters: Provide cross sectional area not less than the size of gutter indicated and complete with mitered corners, end pieces, and special pieces that may be required. Form gutters in sections not less than 8-feet in length. Join ends of each length with one-inch flat locked, riveted, and sealed joints. Expansion-type slip joints shall be provided at the center of the runs and at intervals of not more than 32-feet. Provide hangers of an approved type, spaced not to exceed 36-inches on center. Form hangers and fastenings from a metal compatible with the gutters. Gutter to downspout transition shall be fabricated from same material as gutter.

E. Downspout Leader: Provide cross sectional area not less than the size indicated and complete, including elbow and offsets. Provide

downspouts in approximately 10-foot lengths. Provide gutter outlets with stainless steel wire ball strainers of a standard type. PVC downspouts to be painted shall be cleaned with a cleaner/degreaser to remove forming lubricant and deleterious contaminants and sanded with 150 to 180 grit sandpaper to create a rough profile prior to installation. Position downspouts not less than 1/2-inch away from walls and fasten to the walls at top, bottom, and at not to exceed 5-foot centers intermediately between with manufacturer's standard type leader straps, or concealed type fasteners.

G. Seams: Straight and uniform in width and height with no sealants showing on the face.

1. Flat-Lock Seams: Finish not less than 3/4-inch wide.

2. Lap Seams: Overlap seams not less than 3-inches.

3. Loose-Lock Expansion Seams: Not less than 3-inches wide, and shall provide minimum one-inch movement within the joint. Joint shall be completely filled with exterior sealant, applied at not less than 1/8-inch thick bed.

4. Flat Seams: Make seams in the direction of the flow.

H. All sheet metal work shall be watertight and wind-tight in compliance with the purpose intended for the items indicated on the drawings or specified herein. Sheet metal shall be held firmly in place and shall not rattle.

I. Cleating: Cleats for sheet metal work shall be provided where required, continuous unless otherwise indicated on the drawings. Cleats shall be of the same material and weight as the metal being installed. Hook cleating with 3/4-inch minimum hem on concealed side of flashing.

J. Reglets: Type and size as indicated.

K. Protection from Contact of Dissimilar Materials: Surfaces in contact with dissimilar metal shall be painted with heavy-bodied bituminous paint or shall be separated by means of moisture-proof building felts.

3.02 PROTECTION

A. Protect sheet metal work until final acceptance of the work.

3.03 CLEAN-UP

A. Clean exposed sheet metal work at completion of installation. Grease and oil films, handling marks, contamination from steel wool, fittings, and drilling debris shall be removed, and the work scrubbed clean. Exposed

metal surfaces shall be free of dents, creases, waves, and scratch marks.

B. At completion of the work, clean-up and remove rubbish and debris from the premises which resulted from this work.

END OF SECTION

SECTION 07920 - SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

A. Completely close with sealant all joints indicated or specified to be sealed to a watertight and airtight condition without staining substrates.

1.02 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Manufacturer's Data: Submit copies of manufacturer's product data and specifications for type of sealant required, to the Consultant for acceptance.

C. Safety Data Sheets (SDS): Submit SDS for each sealant product.

D. Color Samples: Submit 4 sets of color finish samples of sealants.

E. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.

2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

F. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized installer who is approved or licensed for installation of elastomeric sealants required for this Project.

B. Source Limitations: Obtain each type of sealant through one source from a single manufacturer.

C. Preconstruction Compatibility and Adhesion Testing: Submit to sealant manufacturers, for testing samples of materials that will contact or affect sealants. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain optimum adhesion of sealants to joint substrates. Testing will not be required if joint-sealant manufacturers submit joint preparation data

that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

D. Stain-Test Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C1248 and have not stained porous joint substrates indicated for Project.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver sealants to the jobsite in sealed containers labeled to show the designated name, formula, or specification number, lot number, color, date of manufacture, shelf life, curing time, manufacturer's directions, and name of manufacturer.

B. Storage: Carefully handle and store all materials to prevent inclusion of foreign materials. Remove from project site all damaged and deteriorated materials and materials exceeding shelf life.

C. Handling: Sealant materials shall be handled in accordance with the manufacturer's specifications and installed prior to expiration of shelf life.

1.05 WARRANTY

A. Manufacturer's Warranty: Furnish a 2-year written warranty from the project acceptance date against leaks, air infiltration, cracks, and other failures of the installation and materials. Where sealant is associated with a system with longer warranty period, sealant warranty shall match applicable system.

1. Repair of sealants to seal leaks caused by faulty materials or workmanship;

2. Repair or replace damage to the building or its finishes, equipment or furniture when occasioned by such leaks at no additional cost to HHSC.

B. The Surety shall not be held liable beyond 2 years from the project acceptance date.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based

on testing and field experience.

B. Sealants:

1. At Exterior Vertical and Overhead Moving Joints: Provide one of the following silicone sealants, or accepted equivalent:

a. Dow Corning 790 and 791, except Dow Corning 795 for structural conditions.

2. At Vertical and Overhead Non-Moving Joints: Non-Elastomeric Sealant; acrylic-emulsion type, conforming to ASTM C834. Provide one of the following, or accepted equivalent:

a. AC-20 Acrylic Latex: Pecora Corp.

b. Tremco Acrylic Latex 834; Tremco, Inc.

c. Chem-Calk 600; Bostik Construction Products Div.

d. NP-420; MasterSeal.

3. At Horizontal Traffic-Bearing Joints: One-part polyurethane based sealant, conforming to ASTM C920, Type S, Grade P, except provide NS at sloped conditions, Class 25, Use T. Provide one of the following, or accepted equivalent:

a. Sikaflex 1c SL; Sika Corp.

b. Vulkem 45; Tremco, Inc.

c. Urexpan NR-201; Pecora Corp.

d. SL-1 or NP-1; MasterSeal.

C. Primer for Sealants: Non-staining, as recommended by the sealant manufacturer.

D. Sealant Backer Rod: Compressible rod stock of polyethylene foam, polyethylene-jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable, nonabsorptive material conforming with ASTM C1330 as recommended for compatibility with sealant by the sealant manufacturer to control the joint depth for sealant placement, to break bond of sealant at bottom of joint, to form optimum shape of sealant bead on back side, and to provide a highly compressible backer which will minimize the possibility of sealant extrusion when joint is compressed. Do not use oakum or other types of absorptive materials as backstops.

E. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer. Provide self adhesive tape where required.

F. Masking Tape: Non-staining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine joint widths, surfaces, and backing, and their anchorage to the structure, and conditions under which joint sealer work is to be performed, and notify Consultant in writing of conditions detrimental to proper completion of the work and performance of sealers. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to installer.

3.02 JOINT PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:

1. Remove foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and accepted for sealant adhesion and compatibility by sealant manufacturer; oil; grease; waterproofing; water repellants; water; and surface dirt.

2. Clean concrete and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form release agents from concrete.

4. Steel Surfaces in Contact with Sealant: Scrape and wirebrush to remove loose mill scale. Remove dirt, oil, or grease by solvent cleaning, and wipe surfaces with clean cloths.

5. Clean metal and other nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.

6. Do not permit solvents to air dry. Wipe surfaces free of solvent using clean, dry white cloth or white lintless paper.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

D. Examine joint size and correct to achieve depth ratio of 1/2 of joint width with a minimum width and depth of 1/4-inch, maximum width of one-inch unless specifically allowed otherwise by the sealant manufacturer.

3.03 INSTALLATION OF JOINT SEALERS

A. General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

B. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions. Proceed with the work only when weather conditions are favorable for proper cure and development of high early bond strength.

C. Sealant Installation Standard: Comply with recommendations of ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.

a. Do not leave gaps between ends of joint fillers.

b. Do not stretch, twist, puncture, or tear joint fillers.

c. Remove absorbent joint fillers which have become wet

prior to sealant application and replace with dry material.

2. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.

3. Install compressible seals serving as sealant backings to comply with requirements indicated above for joint fillers.

E. Primer: Immediately prior to application of the sealant, clean out all loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete, masonry units, wood, and other porous surfaces in accordance with compound manufacturer's instructions. Do not apply primer to exposed finish surfaces.

F. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

G. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide concave joint configuration per Figure 5A in ASTM C1193, unless otherwise indicated.

2. Provide flush joint configuration per Figure 5B in ASTM C1193, where indicated.

3.04 CLEAN-UP

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

3.05 PROTECTION

A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of project acceptance. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or

deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION

DIVISION 8 - DOORS AND WINDOWS

SECTION 08620 - UNIT SKYLIGHTS

PART 1 - GENERAL

1.01 SUMMARY

A. The extent and locations of skylights are indicated on the drawings. Work shall include all flashing and accessories for a complete skylight system.

B. The type of skylights specified in this Section include, but are not limited to, fixed curb mounted skylight units with operable shade.

C. Related Work Described Elsewhere: Coordinate with adjacent pre-manufactured curbs and roofing.

1.02 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Manufacturer's Data: Submit manufacturer's technical product data, rough-in diagrams, details, installation instructions, and general product recommendations.

C. Shop Drawings: Submit shop drawings along with product data, indicating fabrication and erection of unit skylights. Include plans, elevations, and large scale details showing anchorage and accessory items.

1.03 GENERAL PRODUCT REQUIREMENTS

A. Provide manufacturers' standard units, modified as necessary to comply with requirements. Shop fabricate each unit to greatest extent possible.

1. Wind Loading: Fabricate exterior components from manufacturer's stock systems which have been tested at 1.5 times design load in accordance with ASTM E330/E330M, "Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference", to withstand wind velocity of 160 mph, Exposure B in accordance with current adopted ICC IBC as amended and ASCE 7, with a deflection of not more than 1/175 times the length of the member. Provide internal reinforcement if required to withstand all design loads.

1.04 DELIVERY, STORAGE, AND HANDLING

Deliver, store, and handle materials in strict conformance of the manufacturer's instructions and recommendations.

PART 2 - PRODUCTS

2.01 FIXED SKYLIGHT UNITS

A. Model/Manufacturer: Velux FCM Fixed Curb-Mounted Skylight, 4646, manufacturer’s standard grey finish or accepted equivalent with shade and remote control. Skylights shall have gray tinted laminated insulated safety glass.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Comply with manufacturer's instructions and recommendations and AAMA 1607, "Voluntary Installation Guidelines for Unit Skylights". Coordinate with installation of roof curb and other substrates to receive skylight unit as required to ensure that each element of the work performs properly, and that combined elements are waterproof and weathertight. Anchor units securely to supporting curb, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.

B. Test shade controls and adjust as required.

3.02 CLEANING AND PROTECTION

A. Clean exposed metal surfaces in accordance with manufacturer's instructions. Touch-up damaged metal coatings.

END OF SECTION

DIVISION 9 - FINISHES

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.01 SUMMARY

A. The work includes painting and finishing of exterior items and surfaces throughout the project, whether scheduled or not, except as otherwise indicated. Painting shall include new work and existing new surfaces made bare or damaged during construction. Surface preparation, priming, and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of the work and is included in this Section.

B. The work includes field painting of exposed bare and covered pipes and conduits (including color coding), and of hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under the electrical work, such as junction boxes, raceways, and cabinets, except as otherwise indicated.

C. "Paint" as used herein means all coating systems materials, including primers, enamels, sealers, and fillers, and other applied materials whether used as prime, intermediate, or finish coats, except as specifically noted herein.

D. Paint all exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint these the same as adjacent similar materials or areas. If color or finish is not designated, the Consultant will select these from standard colors available for the materials systems specified.

E. Related Work Specified Elsewhere: Removal of existing lead-containing paint and preparation of surfaces with existing lead-containing paint are provided under SECTION 13282 - LEAD PAINT CONTAINING MATERIALS.

1.03 PAINTING NOT INCLUDED

A. The following categories of work are not included as part of the field-applied finish work, or are included in other sections of these specifications.

1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for miscellaneous metal, hollow metal work, and similar items. Also, for fabricated components such as shop-fabricated or factory-built

mechanical and electrical equipment or accessories.

2. Mechanical and Electrical Work: The prime coat for mechanical and electrical work is specified in DIVISION 15 - MECHANICAL and DIVISION 16 - ELECTRICAL, respectively. Finish coats are as specified herein.

3. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items as (but not limited to) high performance organic coated metal, and finished mechanical and electrical equipment, including light fixtures, switchgear, and distribution cabinets.

4. Concealed Surfaces (Present and Future): Unless otherwise indicated, painting is not required on surfaces such as walls in concealed areas and generally inaccessible areas, furred areas, and pipe spaces.

5. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, and similar finished materials will not require finish painting, unless otherwise indicated.

6. Labels: Do not paint over any code-required labels, such as Underwriters' Laboratories, or any equipment identification, performance rating, name, or nomenclature plates.

1.03 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Schedule of Finishes: Submit sets of the proposed painting finish schedule to the Consultant or acceptance. The schedule shall indicate the wet film thickness (mils) at which the proposed paints/coatings will be applied that are necessary to achieve the final dry film thickness indicated on the Schedule of Finishes under item entitled "SCHEDULE OF FINISHES" hereinbelow.

C. Color Samples: Submit the following to the Consultant for acceptance:

1. Four sets of each color finish sample.

2. After the color finish sample has been accepted, one set of color finish samples painted onto 8-1/2 inch x 11-inch cardboard shall be submitted. The cardboard shall be divided into 3 horizontal strips and painted as follows:

a. Prime 3 strips.

b. First coat bottom 2 strips.

c. Second coat bottom strip.

D. Schedule of Operations: Before work on the project is commenced, submit complete sets of a work schedule showing Contractor's sequence of operations and dates.

E. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.

F. Certifications: Submit copies of asbestos-free, lead-free, zinc-chromate-free, strontium-chromate-free, cadmium-free, and mercury free paint certificates.

G. Manufacturer's Product Data Sheets: Submit copies of the manufacturer's product data sheets for the primers, paints, coatings, solvents, sealing and patching materials, sealants and caulking, and other materials being used. Data sheets shall indicate thinning and mixing instructions, required film thickness (mil) and application instructions.

H. Manufacturer's Safety Data Sheets (SDS): Submit copies of the manufacturer's material safety data sheets for coatings, solvents, and other hazardous materials.

I. Comprehensive Spray Plan: Where the Contractor proposes to employ airless spraying, submit a Comprehensive Spray Plan, including the following information for acceptance:

1. Documentation that the individual spray applicator(s) on the project have completed an accepted "Spray Applicator Certification Program".

2. The overspray protection methods proposed.

3. The spray application instructions and recommendations of the paint manufacturer he proposes to use.

J. Certificate of Public Liability and Property Damage Insurance.

1.04 ANALYZING AND TESTING

A. All paints and their applied thickness shall be subject to testing whenever the Consultant deems necessary to determine conformation to the requirements of these specifications. Should testing by a laboratory be required, the laboratory shall be selected by the Consultant and the cost of testing shall be borne by the Contractor. However, should test

results show that the paint is in compliance with this specifications, the cost will be borne by the HHSC.

B. All rejected material shall be removed from the job site immediately. Surfaces painted with the rejected material shall be redone at no additional cost to the HHSC.

C. Where the required paint thickness is deficient, the affected surface(s) shall be recoated as necessary to provide the required paint thickness at no additional cost to the HHSC.

1.05 QUALITY ASSURANCE

A. Painting Terminology: Refer to ASTM D16, "Standard Terminology for Paint, Related Coatings, Materials, and Applications".

B. Gloss/Sheen Levels: ASTM D523, "Specular Gloss", as follows:

Description	Units at 60 Degrees	Units at 85 Degrees
Matte or Flat	0 to 5	10 max
Velvet	0 to 10	10 to 35
Eggshell	10 to 25	10 to 35
Satin	20 to 35	35 min
Semi-Gloss	35 to 70	
Gloss	70 to 85	
High Gloss	more than 85	

C. Where the Contractor proposes to employ airless spraying, the applicator(s) shall have completed an accepted "Spray Applicator Certification Program" conducted by the Painting Industry of Hawaii.

D. As a minimum, the certification shall include material and equipment selection, use and maintenance, hands-on application, and safety training.

1.06 WARRANTY

A. The Contractor shall warrant that the work performed under this Section conforms to the contract requirements and is free of any defect in the materials used and workmanship performed by the Contractor. Such warranty shall continue for a period of 2 years from the project acceptance date and the Contractor shall remedy any such defect which is discovered during that period at no cost to the HHSC.

B. The HHSC Representative will notify the Contractor in writing within a reasonable time after discovery of any failure or defect.

C. Should the Contractor fail to remedy any failure or defect described in Paragraph A above within 10 working days after receipt of notice thereof, the HHSC Representative shall have the right to repair or otherwise remedy such failure or defect and charge the Contractor for the cost of same.

1.07 SPECIAL REQUIREMENTS

A. Codes: The Contractor shall comply with the State OSHL (Occupational Safety and Health Law) and all pollution control regulations of the State Department of Health.

B. Safety methods used during coating application shall comply with SSPC-PA Guide 3.

C. Protection:

1. Persons:

a. The Contractor shall take all necessary precautions to protect public pedestrians, including tenants from injury.

b. The Contractor shall provide, erect, and maintain safety barricades around scaffolds, hoists, and wherever Contractor's operation create hazardous conditions in order to properly protect the public and workmen.

2. Completed Work: The Contractor shall provide all necessary protection for wet paint surfaces.

3. Protective Covering: The Contractor shall provide and install protective covering over equipment, floor, and other areas that are not scheduled for treatment. Protective covering shall be clean, sanitary drop cloth or plastic sheets. Paint applied to surfaces not scheduled for treatment shall be completely removed and surfaces shall be returned to original condition. Where paint application will be performed by use of airless spraying, the Contractor shall ensure that protective enclosures are erected to prevent the escape of overspray from the work area.

4. Safeguarding of Property: The Contractor shall take whatever steps may be necessary to safeguard his work and also the property of the HHSC and other individuals in the vicinity of the work area during the execution of this Contract. Contractor shall be responsible for and make good on any and all damages and for losses to work or property caused by his or his employee's negligence. Where the damaged property cannot be cleaned and restored to its original condition (i.e. prior to being damaged) it shall be replaced with a new product of equal quality. No

proration or use of "used" products will be permitted.

a. The Contractor shall assume that cars will not be temporarily relocated from parking areas during spray painting work.

b. Paint overspray shall not carry more than 5 linear feet beyond the building eave line nor within 10 linear feet of pedestrians or property and surfaces not scheduled to be painted. Spray painting shall immediately cease when overspray carries beyond these specified limits and will not continue until protective barriers are erected to properly contain the overspray and damages caused by the overspray have been corrected.

c. The Contractor shall be assessed $500.00 for each incidence of property or personal damage caused by overspray until such time that a satisfactory settlement has been agreed upon by the damaged party and corrective action has been completed. All corrective action shall be settled within 24 hours from the time the damage is discovered. Should the Contractor fail to take corrective action in a timely and expeditious manner, the HHSC Representative will contact the Contractor's Insurance company to seek resolution on the matter.

d. The HHSC Representative will withhold payment due the Contractor until damages have been corrected or damage claims resolved. The amount of payment withheld shall be equal to a minimum of $2,000.00 plus the estimated cost of corrective action as determined by the HHSC Representative.

5. Fire Safety: The Contractor shall direct his employees not to smoke in the vicinity and to exercise precautions against fire at all times. Waste rags, plastic (polyester sheets), empty cans, etc., shall be removed from the site at the end of each day.

D. Right of Rejection: The HHSC Representative and/or Consultant will have the right to reject all work which is not in compliance with the plans and specifications. Rejected work will be redone at no additional cost to the HHSC. In addition, the HHSC Representative and/or Consultant will have the right to require the immediate removal of any paint applicator who demonstrates negligence, lack of competence or repeated non-compliance with the contract requirements.

E. Sequence of Operations: The sequence of operations shall divide the surfaces into work areas and present a schedule for:

1. Surface preparation and spot prime.

2. Prime coat.

3. First finish coat.

4. Second finish coat.

F. Inspection and Acceptance: The Contractor shall obtain written acceptance from the HHSC Representative upon completion of each phase of work (phases of work are surface preparation and spot prime, prime, first finish coat, and second finish coat) before proceeding into the next phase of work. The Contractor shall give the HHSC Representative one day (24 hoursminimum) advance notice of completion of any phase of work for a work area only when he deviates from the previously submitted work schedule. The Contractor shall provide necessary access to areas to be inspected. Failure to obtain acceptance of any phase of work for a work area may result in redoing the operation at no cost to the HHSC.

G. Sample Panels: Prior to commencing with the work, the Contractor shall prepare a sample panel(s) of approximately 10 square feet indicative of the specified surface preparation and required number of paint coats to be applied for acceptance by the Consultant. The intent of this requirement is to ensure adequate coverage/thickness and/or hiding value of the paint and proper hue. The location where the sample panel(s) is to be prepared will be selected by the Consultant.

H. Tinted Primers: Provide tinted primers for dark tone finish paints, when repainting color changes require primer, or as recommended by the manufacturer to achieve final color of manufacturer's paint chip sample.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver paint materials to the job site in original unopened containers with original labels intact.

B. No paint material, empty cans and paint brushes and rollers, drop cloths and rags, may be stored in buildings, but shall be stored in separate storage facilities away from the buildings. Receiving, opening, and mixing of painting materials shall be done in this area.

C. The Contractor may furnish a job site storage facility. Such facility shall comply with requirements of the local Fire Department. The storage area shall be kept clean and facility shall be locked when not in use or when no visual supervision is possible.

D. Ensure the safe storage and use of paint materials and the safe storage or disposal of waste at the end of each work day.

E. Handle manufactured materials as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Asbestos Prohibition: All paint shall be asbestos-free.

B. Lead Prohibition: All paint shall be lead-free.

C. Mercury Prohibition: All paint shall be mercury-free.

D. Chromate Prohibition: All paint shall be free of zinc-chromate and/or strontium-chromate.

E. Cadmium Prohibition: All paint shall be cadmium-free.

F. Material shall be equal in quality to that specified under the Schedule of Finishes and any given finish shall be as labeled by one manufacturer.

G. All materials shall be delivered to the job site in undamaged original containers bearing the manufacturer's label and shall be stored in such a manner as to prevent damage. All rejected materials shall be removed from the job site immediately.

H. Paints shall be as manufactured by Sherwin-Williams or accepted equivalent.

I. Thinning of paint shall be done using material recommended by the manufacturer. Mix proprietary products according to manufacturer's printed specifications. Compound thinner, mineral oil, kerosene, refined linseed oil, or gasoline shall not be used for thinning.

J. Except for metal primers, all paint shall contain maximum amount of mildewcide per gallon of paint permitted by the mildewcide manufacturer without adversely affecting the quality of the paint.

K. The supplier shall submit a signed certificate indicating the amounts of mildewcide added by both the paint manufacturer and the paint supplier. Mercurial fungicide shall not be used.

2.02 SCHEDULE OF FINISHES

A. The Schedule of Finishes is made for the convenience of the Contractor and indicates the types and quality of finishes to be applied to the surfaces. Refer to Finish Schedule for symbols indicating location for various finishes. Provide additional systems for surfaces to be painted not listed hereinafter.

B. All paints unless otherwise noted, are the products of Sherwin Williams

and are so named to establish desired quality and standard of materials. Painting materials, equal to those mentioned by trade name under the various treatments may be used, provided they meet with the acceptance of the Consultant.

C. Treatments shall be applied on exposed surfaces of designated materials, in conformity with instructions of the paint product used.

D. Exterior Painting: Spread rates are approximate.

1. Concrete:

Prime Coat: LX02W00500 Loxon Concrete & Masonry Primer
2.6 mils DFT @ 260 sf/gal

2nd and
3rd Coats: K33W00251 Duration Exterior Acrylic Satin
1.8 mils DFT @ 275 sf/gal/coat

2. Steel:

Prime Coat: B66W01310 Pro Industrial Pro-Cryl Universal Primer
2.9 mils DFT @ 240 sf/gal

2nd and
3rd Coats: B53W05151 Pro Industrial WB Alkyd Urethane Enamel Semi-Gloss
1.5 mils DFT @ 360 sf/gal/coat

3. PVC Downspouts:

Prime Coat: B51-450 Multi-Purpose Interior-Exterior Latex Primer- Sealer
1.4 mils DFT @ 400 sf/gal
2nd and
3rd Coats: K33W00251 Duration Exterior Acrylic Satin
1.8 mils DFT @ 275 sf/gal/coat

Note: Lightly roughen surface of PVC with Scotch Brite pads prior to priming. This work may be accomplished under SECTION 07600 - FLASHING AND SHEET METAL prior to installation.

2.03 COMPATIBILITY OF PAINTING SYSTEMS AND SUBSTRATES

A. The Contractor shall ensure that painting systems specified are compatible with existing painted surfaces. Alkyd paints shall not be applied over existing latex coating. Alkyd paints shall not be used over cementitious surfaces. Latex paints shall not be applied directly over

alkyd paints without proper conditioner and accepted by the Consultant.

B. Field Tests for Alkyd or Latex Paints: The Contractor shall perform the following field tests for compatibility of substrates to new paint systems prior to ordering paint:

1. Latex films will dissolve when wiped with rubbing alcohol; alkyd films will not.

2. When sanded, latex films will "clog" sandpaper; alkyd films will sand clean.

3. Alkyds will soften after applying a 10 percent solution of Drano in water; latex films will not soften.

4. Alkyds will burn when exposed to a flame; latex film will not burn.

5. Paints which do not respond to 2 or more of these tests are probably epoxy, urethane, or other type of coating.

6. Provide a packaged swab test in accordance with the package directions.

7. Existing paint identified or suspect of having lead-containing paint shall be tested in a manner that does not produce airborne or uncontrolled lead debris.

C. Should there be any discrepancies between the specified Schedule of Finishes and the existing paint systems, the Contractor shall notify the Consultant in writing of any incompatible systems specified and submit a revised Schedule of Finishes for acceptance when necessary. With the acceptance of the revised Schedule of Finishes, the Contractor shall make any corrections and/or revisions necessary to resolve the discrepancies and/or inconsistencies. The Contractor shall not proceed with any painting systems that are incompatible, although specified otherwise, until all incompatible conditions detrimental for the proper application and performance of the painting systems have been corrected. The failures due to the application of the incompatible paint systems shall be corrected at no additional cost to the HHSC. Proceeding with the work shall imply acceptance of the specified Schedule of Finishes and the compatibility with the existing painted surfaces by the Contractor.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

A. General:

1. Surface preparation shall be in accordance with the Painting and Decorating Contractors of America, "Architectural Specification Manual", methods are applicable to all substrates.

2. Scrub surfaces with stiff nylon bristle brush and Trisodium Phosphate (TSP) solution at rate of 3/4 cup TSP per gallon of warm water to remove accumulated film of wax, oil, grease, smoke, dust, dirt, chalky, or other foreign matter which would impair bond or bleeding through new finish. Thoroughly sponge wipe surfaces with clean water. Allow surfaces to thoroughly dry before priming, painting, calking, or sealing. Following sponge wiping, the surfaces shall be allowed to dry for a minimum of 24 hours.

3. Cracks and openings found at joints and where different materials abut each other shall be sealed with a caulking compound compatible with the substrate and primer/paint. The caulking shall be applied and allowed to set in accordance with the manufacturer's recommendations and instructions.

4. Mildew Removal: Remove all mildew and sterilize the surface to be painted using one of the following methods:

a. Apply a treatment solution composed of the following ingredients and in the noted proportions to the affected surface using a sponge of low-pressure sprayer:

2/3 cup TSP
One quart household bleach
3 quarts warm water

Note: Household bleach shall not be mixed with ammonia or any detergents or cleaners containing ammonia as this will create a poisonous gas.

Scrub the surface as necessary to completely remove the mildew.

b. Apply a commercial mildew treatment solution such as Purex, Jomax Remover or equal in strict accordance with the manufacturer's recommendations and instructions.

c. Following treatment, the surface shall be cleaned with potable water and allowed to thoroughly dry before

priming, painting or the applying of sealing and caulking compounds.

B. The Painting Contractor shall be wholly responsible for the finish of his work and shall not commence any part of it until surfaces are in proper condition. If Painting Contractor considers any surfaces unsuitable for proper finish of his work, he shall notify the Consultant of this fact in writing and he shall not apply any material until the unsuitable surfaces have been made satisfactory, or until the Consultant has instructed him to proceed. Major defects shall be restored by the proper trades. In general, follow paint manufacturer's directions for surface preparation for the paint to be applied.

C. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space or area, reinstall the removed items by workmen skilled in the trades involved.

D. Puttying of nail holes, cracks, and blemishes shall be done after priming coat has become hard and dry and before second coat is applied.

E. Concrete surfaces shall be wire brushed and cleaned to remove all dust and loose mortar.

F. Alkalinity and Moisture Testing of Cementitious Surfaces:

1. Prior to paint application, interior and exterior concrete and masonry scheduled to receive paint shall be tested to determine the alkalinity level of the surface. Testing shall be performed in strict accordance with the test kit manufacturer's instructions.

2. Perform alkalinity and moisture content tests of surfaces to be painted. Cementitious surfaces shall be cured for not less than 30 days prior to painting, but no less than 14 days and then only if the moisture meter tests indicated moisture of less than 17. Make surface moisture test by use of a commercially available moisture meter. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition as specified before application of paint. Efflorescence is caused on cementitious surfaces by moisture entering or contained in the substrate. Water-soluble salts are brought to the surface where the water evaporates, leaving a deposit of residual salts, a white, salty deposit. Here they carbonate and destroy the bond within

the substrate components, causing the surface to crumble and break away.

3. Where the alkalinity level exceeds the resistance level of the primer proposed for use, the surface shall be neutralized (e.g. muriatic acid wash) as necessary to reduce the levels to within that acceptable by the primer and thoroughly rinsed with clean water.

G. Surfaces adjacent to areas being finished shall be protected and left clean of paints, stains, etc. Clean drop cloths shall be used until completion of job.

H. Unprimed galvanized metal shall be washed with a solution of chemical phosphoric metal etch and allowed to dry.

I. Metal surfaces shall be made clean and free of any defects or condition that may produce unsatisfactory finish. Touch-up any chipped or abraded places on surfaces that have been shop coated with the proper primer.

3.02 PAINT APPLICATION

A. General:

1. Apply coating materials in accordance with SSPC-PA 1. SSPC-PA 1 methods are applicable to all substrates, except as modified herein. Thoroughly work coating materials into joints, crevices, and open spaces. Touch-up damaged coatings before applying subsequent coats.

2. Work shall be done in a workmanlike manner by skilled and experienced mechanics and shall conform to the best painting practices.

3. Materials shall be applied in accordance with the manufacturer's specifications and the finished surfaces shall be free from runs, sags, drips, ridges, waves, laps, streaks, brush marks, and variations in color, texture, and finish (glossy or dull). The coverage shall be complete and each coat shall be so applied as to produce a film of uniform thickness. No paint, varnish or enamel shall be applied until the preceding coat is thoroughly dry and acceptance.

4. No exterior painting of unprotected surfaces shall be done in rainy, damp weather. Coats shall be applied only to surfaces that are thoroughly dry.

5. Mixing shall be done outside the building.

B. Application:

1. Paint application shall be by brush, roller, airless spray painting, or combination thereof or as required by manufacturer. Nuts and bolts shall be brush painted in lieu of spray-painted. Airless spraying may be permitted only with the acceptance of the HHSC Representative and/or Consultant for otherwise inaccessible areas.

2. Where airless spraying is provided, a nozzle of the proper size in accordance with the paint manufacturer's recommendations to properly apply the paint shall be used.

3. Spray painting method shall be used only under accepted conditions. Spraying shall be done only when there is no wind, or under very low wind velocity. When wind velocity increases, all spraying operation shall be stopped. Before start of spraying, all surfaces that do not require painting shall be completely masked and protected. Adequate drop cloths shall be provided over floors, adjacent sidewalks, and over all cars parked nearby that may be stained or damaged from the spray work.

4. Drying Time: Allow time between coats, as recommended by the coating manufacturer, to permit thorough drying. Provide each coat in specified condition to receive the next coat.

5. Primers and Intermediate Coats: Do not allow primers or intermediate coats to dry more than 30 days, or longer than recommended by the manufacturer, before applying subsequent coats. Follow manufacturer's recommendations for surface preparation if primers or intermediate coats are allowed to dry longer than recommended by manufacturers of subsequent coatings. Each coat shall cover the surface of the preceding coat or surface completely, and there shall be a visually perceptible difference in shades of successive coats.

6. Finished Surfaces: Provide finished surfaces free from runs, drops, ridges, waves, laps, brush marks, and variations in selected colors.

C. Colors: Each coat shall be tinted a different shade from the preceding coat. Colors shall be in accordance with the color schedule on the drawings or as selected by the Consultant.

D. Finish Film Thickness: Apply primer, intermediate, and finish coats to not less than 1.5 mils dry film thickness, 4 mils wet unless recommended otherwise in writing by the manufacturer, for each coat and in accordance

with the manufacturer's recommendations. Verify mil thickness by use of a suitable wet film gauge. Use a Tooke or other dry film gauge to test for total dry film thickness.

3.03 MISCELLANEOUS

A. Installation of Removed Items: After completion of final paint coat, removed items shall be reinstalled.

B. At the completion of other trades, touch-up damaged surfaces.

3.04 CLEAN-UP

A. During the progress of the work, all debris, empty crates, waste, drippings, etc., shall be removed by the Contractor and the grounds about the areas to be painted shall be left clean and orderly at the end of each work day.

B. Upon completion of the work, staging, scaffolding, containers, and all other debris shall be removed from the site. All paint, shellac, oil or stains splashed or spilled upon adjacent surfaces not requiring treatment (hardware, fixture, floor) shall be removed and the entire job left clean and acceptable.

END OF SECTION

DIVISION 10 - SPECIALTIES

SECTION 10705 - BIRD CONTROL DEVICES

PART 1 - GENERAL

1.01 SUMMARY

A. Provide all items of bird control netting and accessories as shown on the drawings for a complete system to stop all birds from roosting above the limits shown within the roof structure.

1.02 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Manufacturer's Data: Submit manufacturer's descriptive literature and specifications, including samples of material for selection, as applicable, for acceptance.

C. Shop Drawings: Submit shop drawings, indicating types of materials, details, dimensions, thicknesses, methods of fabrication, and installation, for acceptance.

D. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials in strict conformance of the manufacturer's instructions and recommendations.

1.04 WARRANTY

A. Manufacturer's Warranty: Submit warranty against ultraviolet breakdown of the bird control netting for a period of 10 years from the project acceptance date.

B. Contractor's Warranty: Submit warranty for no bird infiltration above netting covering labor and materials against defects resulting from the use of defective or inferior materials, equipment, or workmanship for a period of 2 years from the project acceptance date. This warranty does not extend to defects caused by ordinary wear and tear, improper use, abuse, or negligence on the part of the HHSC. Contractor shall remove birds, inspect netting, and make all corrections to stop bird infiltration at no cost to the HHSC.

PART 2 - PRODUCTS

2.01 BIRD CONTROL NETTING

A. Bird netting shall be Bird Net 2000, 3/4-inch mesh, black knotted, ultraviolet stabilized, rot proof, waterproof, polyethylene netting with minimum 270 degree Fahrenheit melting point, as manufactured by Bird-B-Gone, or equivalent by Bird Barrier, Bird Master, or accepted equivalent. Furnish complete with stainless steel multi-purpose cable bracket system with turnbuckles, girder clips, hog rings, and accessory hardware for a complete installation.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine the installation conditions prior to preparation of shop drawings and fabrication of components to ensure all standard and unique conditions are accounted for in preventing bird infiltration above bird netting.

3.02 INSTALLATION

A. Install bird control netting in accordance with manufacturer's printed instructions and accepted shop drawings. Netting shall be stretched taut. Cut around lights and obstructions and provide hog rings at every net opening for cuts and for attachment to stainless steel straining wire. Install netting taut with minimum sag from roof structure. Make provisions and provide reinforcing for vertical elements that may penetrate the netting.

B. No gap exceeding 3/4-inch width will be accepted.

C. Install closure strips at perimeter in line with bird netting to fill voids as required.

D. Provide access zippers to access above netting as required.

3.03 CLEAN-UP

A. Clean surfaces as recommended by the manufacturer and restore damaged work to its original condition or replace with new.

END OF SECTION

DIVISION 13 – SPECIAL CONSTRUCTION

SECTION 13282 - LEAD PAINT CONTROL MEASURES

PART 1 - GENERAL

1.01 SUMMARY

A. In performing the handling of building components with lead paint, all possible safeguards, precautions and protective measures shall be utilized to prevent exposure of any individual to lead particulates.

1.02 DESCRIPTION OF WORK:

A. Furnish all labor, materials and equipment necessary to carry out the safe removal, clean-up, proper handling, transportation and disposal of existing paint with lead and building components with lead paint with all applicable laws and regulations concerning lead, including all incidental and pertinent operations. The lead work shall generally include:

1. Spot removal and disposal of lead based paint from the interior wall and ceiling in the plenum space to allow for the safe new work and/or renovation/demolition work as identified in the Inspection Report.
2. Spot removal and disposal of paint with lead from the exterior walls to allow for the safe new work and/or renovation/demolition work as identified in the Inspection Report.

3. Removal and disposal of the metal downspouts coated with lead paint as identified in the Inspection Report.

4. The Contracator shall assume any untested paint to contain lead.

B. The Contractor shall inform his employees, Subcontractors and all other persons performing work in this project, that painted surfaces within the project areas of the building contain lead. The Contractor, his employees, Subcontractors, etc. shall initiate and maintain all programs necessary to execute the work in accordance with the contract documents, federal, state and local laws, codes, rules and regulations.

C. The Contractor shall be responsible for ensuring that all work generating lead paint containing debris conforms to the following applicable federal, state and local laws, codes, rules and regulations.

1. Occupational Safety and Health Administration (OSHA); Hawaii Occupational Safety and Health (HIOSH) standards and rules.

2. Environmental Protection Agency (EPA), Toxic Substance Control Act (TSCA), 40 CFR Part 745, Lead, Requirements for Lead-Containing Paint Activities in Target Housing and Child Occupied Facilities.

3. Environmental Protection Agency (EPA), Resource Conservation and Recovery Act (RCRA) of 1976, amended in 1980 and 1984.

D. The Contractor shall be responsible for initiating and maintaining all safety precautions and programs necessary to keep the work place safe for his employees and Subcontractors; and ready for safe use of the work area and building by the buildings occupants.

1.03 COORDINATION WITH OTHER SECTIONS: The Contractor shall coordinate all of his lead disturbance activities with the State's representative, General Contractor and the Qualified Consultant.

1.04 CONTRACTOR RESPONSIBILITIES: The Contractor acknowledges that he alone is responsible for the instruction and for enforcing personnel protection requirements and that these specifications provide only a minimum acceptable standard. Contractor shall comply with all requirements of 29 CFR 1926.62. The Contractor shall also be responsible for complying with all applicable EPA regulations in regards to lead-containing materials.

A. Respirators: Use appropriate respirators and filters which meet all requirements of OSHA 29 CFR 1926.62.

B. Protective Clothing: Use appropriate personal protective clothing (disposable suits, eye protection, gloves, etc.) as required by OSHA 29 CFR 1926.62.

1.05 GENERAL REQUIREMENTS

A. The work specified herein shall include the handling of components painted or coated with lead paint, transportation and disposal procedures as required of lead containing materials by persons with at least Training in accordance with OSHA 29 CFR 1926.62. This work must be performed in compliance with all applicable federal, state, and local regulations and be performed by workers who are capable of and willing to perform the work of this contract.

B. Applicable Standards and Guidelines: All work under this contract, and any other trade work conducted with the project, shall be done in strict accordance with all applicable federal, state and local regulations, standards and codes governing lead paint removal, transportation and disposal of lead materials.

1. The most recent edition of any relevant regulation, standard, document or code shall be in effect.

C. Specific Statutory and Regulatory Requirements:

1. Title 29, Code of Federal Regulations, section 1926.62, entitled "Lead Exposure in Construction; Interim Final Rule".

2. Department of Labor and Industrial Relations: State of Hawaii, Occupational Safety and Health Standards; Title 12, Subtitle 8,

Chapter 148.1, (also known as chapter 12-148.1, Hawaii Administrative Rules, entitled "Lead Exposure in Construction".

3. Title 29 Code of Federal Regulations Part 1910.134, Respiratory Protection.

4. Federal Register: Vol. 54, No. 131; Tuesday, July 11, 1989. Department of Labor, Occupational Safety and Health Administration; 29 CFR Parts 1910, 1915, 1917, and 1918; Occupational Exposure to Lead; Statement of Reasons; Final Rule.

5. Title 40 Code of Federal Regulations Part 61, National Emissions Standards for Hazardous Air Pollutants

6. Title 40 Code of Federal Regulations Part 745, Lead; Requirements for Lead-Based Paint Activities in Target Housing and Child Occupied Facilities; Final Rule

7. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.

1.06 DEFINITIONS

A. Action Level (AL): Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of thirty micrograms per cubic meter of air (30 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

B. Air Monitoring: The process of measuring the content of a specific, known, volume of air in a stated period of time. For this project, NIOSH 7082 method for lead monitoring.

C. Authorized Visitor: Contractor hired Qualified Consultant, their representatives, air monitoring personnel, or a representative of any regulatory or other agency having jurisdiction over the project.

D. Competent Person: One who is qualified to identify existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

E. Contaminated Area: An area where unwanted toxic or harmful substances exists.

F. HEPA Filter: A High Efficiency Particulate Absolute filter capable of trapping and retaining 99.97% of particulates greater than 0.3 micron in length.

G. Lead: Metallic lead, all inorganic lead compounds, and inorganic lead soaps. Excluded are all other organic lead compounds.

H. Permissible Exposure Limit (PEL): The employer shall ensure that no employee is exposed to concentrations greater than the PEL as determined from an 8-hour time weighted average. Lead: 50 micrograms per cubic meter.

I. Personal Monitoring: Contractor's sampling of lead in air concentrations within the breathing zone of an employee to determine the 8-hour time weighted average. The samples shall be representative of the employee's work tasks. The breathing zone shall be considered an area within 12 inches of the nose or mouth of an employee.

J. Qualified Consultant: Consultant hired by the Contractor who will perform air monitoring and inspection during removal work and shall have the authority to initiate engineering controls. The Qualified Consultant will be accredited as a State of Hawaii Department of Health accredited Lead Supervisor.

1.07 ABBREVIATIONS

A. CFR - Code of Federal Regulations

B. HIOSH - Department of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii

C. EPA - U.S. Environmental Protection Agency

D. NIOSH - National Institute for Occupational Safety and Health

E. OSHA - Occupational Safety and Health Administration

F. NESHAP - National Emissions Standards for Hazardous Air Pollutants

G. LP - Lead Paint

H. TCLP - Toxicity Characteristic Leaching Procedure

1.08 SUBMITTALS PRIOR TO WORK: Final payment will not be made until copies of all submittals have been furnished to and accepted by the HHSC Representative. Submit a completed and compiled electronic submittal package no later than 10 work days from the notice of award unless otherwise specified in this section. The submittal package will include the items listed below.

A. Detailed Work Plan: The Contractor shall submit a project work plan for the lead paint disturbance work. The Plan shall be prepared by the State of Hawaii accredited lead supervisor. The Contractor shall also provide detailed information concerning:

1. Preparation of the work area

2. Personal protective equipment including respiratory protection and protective clothing.

3. Employees who will participate in the project: include documentation of experience, documented proof of lead removal training based on 29 CFR 1926.62 and/or the proposed EPA Model Accreditation for Lead-based Paint Removal Work Training, in addition to any current EPA regulatory requirements, and assigned responsibilities during the project.

4. Decontamination procedures for the personnel who may be exposed to lead paint.

5. Lead paint treatment, handling and disposal methods and procedures to be used.

6. Required air monitoring procedures and sampling protocols.

7. Procedures for final cleanup.

8. A sequence of work and performance schedule in coordination with other trades.

9. Emergency procedures.

B. Shop Drawings: Submit shop drawings for the following items as a minimum:

1. Descriptions of any equipment to be employed not discussed in this section.

2. Security provisions, if any, in and around the project area.

3. Outline of work procedures to be employed.

4. Location of the waste storage area.

5. Staging of the work, the sequence

6. Entrances and exits to the work place

7. Location and construction of worker decontamination units

C. Notices: The Contractor shall obtain a Generator's EPA Identification number (if necessary) for the lead-containing waste material generated from the project that is determined to be hazardous.

D. Insurance: Proof of insurance for Workman’s Compensation and General Liability which covers asbestos, lead, and pollution.

E. Manufacturer's Data: Copies of manufacturer's specifications, installation instructions and field test procedures for each material and all equipment related to lead handling and abatement and include other data as may be required to show compliance with these specifications and proposed uses.

F. Documentation for Instructions:

1. Submit documentation satisfactory to the HHSC Representative that the Contractor's employees, including foremen, supervisors, and any other company personnel or agents who will be exposed to airborne lead dust or who shall be responsible for any aspects of the lead paint removal work activities, have received training in accordance with this specification, 29 CFR 1926.62, (OSHA Lead Awareness or the EPA Model Accreditation for Lead-based Paint Removal Work Training) and any current EPA regulatory requirements.

2. Submit to the HHSC Representative a written respiratory protection program meeting the requirements of 29 CFR 1910.134 documentation that all employees using respirators have received training, and documentation of respirator fit-testing for all Contractor employees and agents who will enter the work area wearing negative pressure respirators. The Contractor shall be solely responsible for his employee's personal protection.

G. Documentation From Physician: Before exposure to lead dust or fumes, the Contractor shall provide workers with a comprehensive medical examination as required by 29 CFR 1926.62, or whichever is stricter. This examination will not be required if adequate records show the employees have been examined as required by the aforementioned regulations within the last year.

H. Respirators: Submit document NIOSH approvals for all respiratory protective devices used on site. Include manufacturer certification of HEPA filtration capabilities for all cartridges and filters.

I. Emergency Planning Procedures:

1. The Contractor shall submit an emergency evacuation plan for the Contrating Officer’s acceptance prior to the commencement of work. This plan shall include consideration of fire explosion, toxic atmospheres, electrical hazards, slips, trips and falls, confined spaces and heat related injury. In non-life threatening situations, the injured or incapacitated employee shall decontaminate following normal procedures, with assistance from co-workers if necessary, before exiting the work area to obtain proper medical treatment. In life threatening situations, worker decontamination shall take least priority after measures to stabilize the injured worker, remove the injured worker from the work area, and secure proper medical treatment.

2. Emergency Response and Evacuation: The Contractor shall provide and document training in emergency response and evacuation procedures to all workers entering the work area.

J. Waste Disposal and Landfill Requirements: Contractor shall separate lead paint chips and debris from non-hazardous waste materials such as used plastics, disposable tools, etc. Contractor shall clean all bulk lead-containing debris and waste from non-hazardous plastic, tools, suits, etc. prior to disposal.

1. If Toxic Characteristic Leaching Procedure (TCLP) test results of the containers of waste material are below the EPA limit the lead-containing waste materials (paint chips, contaminated materials, etc.) shall be disposed of at a landfill approved for such purposes. The Contractor shall submit to the Architect and/or HHSC Representative, documentation that the lead-containing waste material removed from the work area has been accepted by the landfill Owner.

2. If the TCLP test results are above the EPA limit or if materials are identified as hazardous waste, the lead-containing waste materials shall be disposed of at an EPA approved facility capable of accepting such hazardous waste.

3. The Contractor shall submit to the Architect and/or Leahi Hospital Representative, documentation that disposal of the lead-containing waste material at the selected landfill is approved by the State of Hawaii, or the EPA approved mainland facility for hazardous lead-containing waste material.

1.09 SUBMITTAL AFTER WORK IS COMPLETED: At the completion of the work, one complete and compiled electronic final report shall be prepared by the Contractor for acceptance by the HHSC Representative. The report shall be submitted and shall include the items listed below.

A. The project name, Contractor, EPA waste generator number, work duration, material removed, respiratory protection employed, waste manifest signed by the Contractor, waste transporter, and ladnfill operator, and total quantity of waste, TCLP lead reports, employee exposure air sample results, and results of the most current PAT round results for the laboratory conducting the employee exposure air sample analysis.

B. Certification of the Contractor's employees.

C. Visitor/Worker Entry Log: The daily log of all personnel including the Contractor's employees and agents who enter the work area while lead removal operations are in progress, until final clearance is received from the Competent Person. The log shall contain the listed information as a minimum and shall be certified by the Competent Person.

1. Date of visit/worker entry

2. Visitor/Worker's name, employer, business address and telephone number

3. Time of entry and exit from work area

4. Purpose of visit

5. Type of protective clothing and respirator worn

6. Certificate of release signed and filed with the contractor

D. Clearance certifications received from the Competent Person.

E. Certification Statement: A statement signed by Contractor that all lead work and disposal was completed in compliance with this specification, Federal and State regulations, and the approved Work Plan.

PART 2 – PRODUCTS

2.01 TOOLS AND EQUIPMENT

A. General: Provide and fabricate suitable tools for the lead-containing paint disturbance procedures.

B. Air Purification Equipment: High Efficiency Particulate Absolute (HEPA) filtration systems.

C. Other tools and equipment as necessary.

2.02 PERSONNEL PROTECTION REQUIREMENTS

A. The Contractor acknowledges he alone is responsible for instruction and for enforcing personnel protection requirements and that these specifications provide only a minimum acceptable standard.

B. Provide workers with sufficient sets of disposable protective full body clothing consisting of material impenetrable by lead-containing paint chips and of the proper size for each individual to accommodate movement without tearing. Such clothing shall consist of full body coveralls, footwear, gloves and headgear. Provide hard hats as required by applicable safety regulations. Disposable clothing shall not be allowed to accumulate and shall be disposed of as lead contaminated waste. Protective clothing shall be worn by all personnel within the work area from the start of the removal to final visual clearance.

C. Insulated non-skid rubber boots or an accepted equivalent shall be required for all individuals entering the work area. Protective full body clothing without elastic at sleeves and legs shall require separate elastic or taped protection to seal the opening. Visitors shall be provided full body protective clothing.

D. All electrical systems used for lead-containing paint disturbance operations shall as a minimum be protected with "Ground Fault Circuit Interrupters" selected and installed in strict accordance with the

manufacturer's instructions, the National Electric Code and all other pertinent codes.

E. Additional safety equipment (e.g. hardhats meeting the requirements of ANSI Z-89.1-2014, eye protection meeting the requirements of ANSI Z87.1-2020, safety shoes meeting the requirements of ASTM F2413-18, disposable PVC gloves), as necessary, shall be provided to all workers and authorized visitors.

PART 3 - EXECUTION

3.01 POTENTIAL LEAD HAZARD

A. The disturbance or dislocation of lead painted materials may cause lead-containing dust to be released into the atmosphere, thereby creating a potential health hazard to the workers and the general public. Apprise all workers, supervisory personnel, subcontractors, consultants, authorized visitors, occupants and neighbors who will be at or near the job site of the seriousness of the hazard and of proper work and protective procedures which must be followed.

B. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants who may encounter, disturb, or otherwise function in the immediate vicinity of any identified lead-containing materials, take appropriate continuous measures as necessary to protect all workers and the general public from the potential hazard of exposure to respirable airborne lead dust. Such measures shall include the procedures and methods described in the regulations of applicable federal, state and local agencies.

3.02 WORK AREA PREPARATION:

A. Protect occupants, and surrounding area from possible contamination: Inform occupants of the removal work involving lead.

B. Treatment of Surfaces: During disturbance work, acceptable industry standard dust control methods shall be used to control dust (such as wetting items to be disturbed, by misting; provide dust screens; remove items in large, whole pieces; avoid crushing and pulverizing removal methods; encapsulate material prior to disturbace; use amended water; and containerize wet waste material). Prevent contamination spreading to the surrounding public and residential area.

C. Install 6-mil poly sheeting on all ground surfaces below all potential paint dirsturbance areas. The sheeting shall be extend a minimum of 10 feet out from below the materials being removed.

D. Paint Removal: If cutting of any lead coated materials is required, remove the paint first, using manual methods, to the extent necessary to allow for the cutting of the material. Cuts shall not be performed through painted materials.

E. Barriers: Standard barriers such as construction warning tape, fencing, etc. shall be used to prevent the general public access on to the work site. Seal any penetrations to the affected work area with 6 mil polyethylene plastic sheeting and duct tape.

F. NESHAP Compliance: Compliance with the requirements of EPA's NESHAP regulation is required for this project. Proper notification of the renovation of the building to the Department of Health shall be the Contractor's responsibility.

G. Ensure that all personnel working on site during the removal work are properly trained and protected as required by law.

3.03 CLEANUP AND TESTING

A. Post-work visual clearance will be conducted by the Qualified Consultant.

B. All non-hazardous waste shall be removed from the site by the completion of the project. The Qualified Consultant shall collect representative samples of the waste stream for TCLP lead analysis. All hazardous waste shall be removed from the site to an EPA approved disposal facility within 90 days of the removal work.

C. Clean Up and Testing: Wet clean and HEPA vacuum clean surfaces and surrounding ground within the lead control area daily. Do not allow lead painted/coated debris, paint chips, and dust to accumulate. Restrict the spread of dust and debris. Keep waste from being distributed over the general area. Do not dry sweep or use compressed air to clean the area. When the removal operation has been completed, the area will be cleaned of all visible lead paint contamination by vacuuming with a High Efficiency Particulate Absolute (HEPA) filtered vacuum cleaner followed by wet mopping where applicable. The Qualified Consultant will visually inspect the affected surfaces for residual lead paint chips and accumulated dust. The Contractor shall reclean areas showing dust or residual paint chips. If recleaning is required, the process will be repeated until the visual clearance is given by the Qualified Consultant. Do not remove the lead control area or roped-off perimeter and warning signs prior to the receipt of the Qualified Consultant's lead clearance certification.

3.04 TRANSPORTATION AND DISPOSAL

A. Disposal of Hazardous Waste and Non-hazardous Waste: Contractor shall separate potentially non-hazardous waste material (i.e. plastic sheeting, disposable protective suits, etc.) from hazardous waste material prior to testing. All other debris, scraps, waste materials, rubbish and trash contaminated with lead paint and contaminated dust from the immediate work area and place in UN approved (49 CFR 178) and appropriately labeled containers and store on site for TCLP lead testing. The Contractor shall be responsible for collecting and paying of all TCLP testing.

1. Local waste landfill facilities do not accept any RCRA hazardous waste. All hazardous waste must be disposed of at an EPA approved mainland U.S. RCRA hazardous waste disposal facility. Hazardous waste must be disposed of within 90 days of the waste being created.

2. Non-hazardous lead waste and debris may be disposed of at the local waste landfill facility that is State approved to accept such waste.

    a. Notify Non-hazardous Waste Landfill Operator: The Contractor shall advise the Non-hazardous Waste landfill operator, at least twenty-four (24) hours prior to transportation, of the material to be delivered.

    b. Provide the Non-hazardous Waste Landfill Operator with applicable TCLP results which indicate that the waste material is non-hazardous.

B. Disposal of Non-Hazardous Painted Construction Debris (TCLP for Lead Not Exceeding EPA Limits): Remove non-hazardous lead waste including, debris, scraps, waste materials, rubbish, and trash from the site and disposed of at a landfill approved for disposal.

C. The Contractor shall submit disposal manifest and receipts showing acceptance of all waste material by the approved waste disposal site to the Qualified Consultant. The shipping papers shall include a chain-of-custody form and include names and addresses of the Facility Owner, the Contractor, and the Landfill Operator and information on the type and number of waste containers.

3.05 CLEARANCE CRITERIA:

A. Visual clearance of the work area will be performed by the Qualified Consultant. Any additional clearance inspection initiated by the Contractor or required due to failure of the first set of clearance inspection, shall be at the Contractor's expense.

3.06 TESTING AND AIR MONITORING

A. The Qualified Consultant shall have the authority to instigate engineering controls during the project.

B. Testing, daily area (environmental) air monitoring and final clearance inspections shall be provided by the Qualified Consultant, for the purpose of:

1. Verifying compliance with the specifications and the applicable regulations listed in this Section;

2. Ensuring that the documentation required by these specifications and by law is collected and reported to the HHSC Representative;

3. Instigating engineering control during the project.

3.07 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall be responsible for all TCLP lead testing and alaysis.

B. The Contractor shall be responsible for his employees' personnel protection, personal air monitoring and necessary records as required by OSHA, Hawaii State Law and all other applicable laws and as required in these specifications. The Contractor shall provide all required documentation to the government. Contractor shall collect daily personal air samples on at least 25% of the personnel performing removal work with the most exposure for the duration of the project.

3.08 MONITORING RESULTS

A. Airborne lead levels in areas adjacent to the work area or in any part of the work site impacted by the removal activities shall not exceed 30 micrograms per cubic meter of air.

B. If the above ambient concentrations and/or the PEL's are exceeded, the Contractor shall cease all work immediately in any work area causing or contributing to such a condition. The Contractor shall take remedial action (e.g. misting with more water, encapsulation, provide dust screens, etc.) to reduce concentrations to acceptable levels.

C. The Contractor is solely responsible for monitoring his personnel in compliance with all OSHA and HIOSH requirements.

END OF SECTION

SECTION 13289 - LEAD TESTING AND AIR MONITORING

PART 1 - GENERAL

1.01 SUMMARY

A. In performing this project, all possible safeguards, precautions, and protective measures should be utilized to prevent exposure of any individual to lead.

1. These specifications are based upon procedures and standards derived from U.S. regulatory agencies (EPA, OSHA, NIOSH) and the Hawaii State Department of Health as well as from industry and sound industrial hygiene practice. They must be followed to ensure that no measurable amounts of contaminants are released to the uncontrolled work and public areas.

B. Testing, daily area air monitoring and visual inspections shall be provided by the Qualified Consultant hired by the Contractor for the purpose of:

1. Verifying compliance with the specifications and the applicable regulations listed in SECTION 13282 - LEAD PAINT CONTROL MEASURES.

2. Ensuring that the Contractor's legally required documentation is collected.

3. Providing engineering control during the project.

1.02 DEFINITIONS

A. Action Level (AL): Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of thirty micrograms per cubic meter of air (30 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

B. Building Representative: The person or persons designated by the users of the building to act on their behalf.

C. Contractor: The Construction firm engaged to remove and dispose of the materials painted/coated with lead.

D. Engineering Controls: Measures other than respiratory and other personal protection or administrative controls that are implemented at the worksite to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation. The term may be used in the occupational health setting in order to prevent workers' exposures to lead; it can also be used in other lead hazard control settings, such as preventing residents' exposure.

E. Project Designer: The person or firm, certified by the DOH, State of Hawaii, who prepared the plans and specifications to remove and dispose of the lead-containing materials.

F. Project Manager: The State representative responsible for administering the construction contract and ensuring that the work of the Contractor is conducted according to the contract documents and in compliance with applicable laws, regulations, ordinance, etc.

G. Project Monitor: A member of the construction management team who enters the work area to set up the air monitoring device and then collects the various air samples to be sent to the laboratory for analysis.

H. Qualified Consultant: Consultant hired by the Contractor who will perform air monitoring and inspection during removal work and shall have the authority to initiate engineering controls. The Qualified Consultant will be accredited as a State of Hawaii Department of Health accredited Lead Supervisor.

1.03 COORDINATION WITH OTHER SECTIONS

Coordinate with the Contractor's Consultant/Project Monitor for the testing and monitoring requirements included in Section 13282 - LEAD PAINT CONTROL MEASURES and all applicable Federal, State, and local regulations.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor shall be responsible for providing the daily personal air monitoring and necessary records for all the Contractor's employees for the duration of the project as required by OSHA (29 CFR 1926.62), and all other applicable laws.

B. The Contractor shall obtain the OSHA required reports for personnel air monitoring as part of the contract.

C. The Contractor shall be responsible for daily personal air samples that shall be collected on at least 25% of the Contractor's personnel performing removal work on similar tasks and for the duration of the project. Submit within 5 working days to the HHSC Representative.

D. The Contractor is solely responsible for protecting his workers, other personnel, and the public from any of his work activities at the work site regardless of the testing and monitoring conducted by the Qualified Consultant.

E. Monitoring information developed by the Qualified Consultants activities while under contract with the Contractor shall be for the use of the HHSC

Representative. The information will be available and offered to the Contractor when developed, but not thereafter, and shall not waive the Contractor's obligations stated elsewhere in this section.

F. Air monitoring and testing which becomes necessary to follow up on the work by the Contractor which is rejected as not conforming to the requirements shall be the responsibility of HHSC. However, the full cost of such additional monitoring and testing shall be borne by the Contractor and shall be deducted from the final contract payment.

G. Personal air monitoring that becomes part of the Consultant's scope of work shall be accommodated by the Contractor.

H. Prior to disposal of lead contaminated wastewater, one wastewater (as applicable) sample shall be collected by the Contractor, to determine whether it can be disposed of as non-hazardous waste or with an EPA approved hazardous waste disposal facility as hazardous waste. Contractor shall obtain and submit to the HHSC Representative, a permit to conduct such disposal into the sanitary sewer system prior to disposal. Disposal of all wastewater suspected of being contaminated with lead in the storm drain system is prohibited. Wastewater, no matter what its lead content, shall not be dumped on the ground. Contractor is ultimately responsible for and shall include in his bid the cost to properly dispose of all waste, hazardous or non-hazardous. Submit a copy of the permit to the HHSC Representative.

I. Perform lead Toxic Characteristic Leaching Procedure (TCLP) metals testing on all solid waste debris contaminated with lead (except for painted scrap metal), in accordance with 40 CFR Part 261 “Identification and Listing of Hazardous Waste”. Painted metal debris shall be separated from the rest of the lead- contaminated waste and disposed of as scrap metal at a metal recycler (when disposed of as scrap metal, TCLP testing is not required). The TCLP testing shall be used to determine whether waste is hazardous or non-hazardous prior to disposal. Dispose of lead-contaminated debris as hazardous waste if the waste is determined to be hazardous by the TCLP testing. If the TCLP testing indicates that the waste is non- hazardous, the Contractor shall dispose of the waste as non-hazardous, construction waste.

3.02 AIR MONITORING AND INSPECTIONAL SERVICES

A. Duties of the Qualified Consultant:

1. Photographic Record of Project: Record the lead abatement project with representative photos to the Contractor. All photos shall become the property of the Contractor and are to be accompanied by a detailed log.

2. Project Log: Maintain daily field reports detailing all key activities during abatement and make a submittal of summary project activities to the project designer and the Contractor's Project Manager. Incorporate the contents of the daily field reports with other project data into a final project report.

3. Visual Inspection of all Containment Areas: Perform regular inspection of all containment areas. Conduct inspections during the actual work performance of the Contractor to document the work practices employed by the Contractor and conduct visual clearances to verify that all materials scheduled for abatement were removed and the area was properly cleaned. Submit clearances to the HHSC Representative.

B. Air Monitoring: Contractor's Qualified Consultant shall perform the following activities associated with this portion of the project:

1. Laboratory on-site personnel air monitoring (if not provided by the Contractor) as required by OSHA and HIOSH, and the project specifications.

2. Laboratory analysis for lead-in-air using NIOSH 7082 or OSHA method.

3. Monitoring of decontamination procedures at site entry/exit.

4. Monitoring of containment maintenance by visual and instrumental inspection.

5. Interface with project inspectors, building representatives, representatives of regulatory agencies, and project designers during site visits.

6. Ensure that proper respiratory protection is utilized by all persons at the project site.

7. Relay to the HHSC Representative any discrepancies in Contractor's action with provisions of project specifications.

8. Act quickly in case of emergencies with appropriate response.

3.03 LABORATORY ANALYSIS

All personal air samples collected by the Contractor shall be analyzed by an AIHA certified laboratory for the analysis being requested. All laboratories shall be registered with the Hawaii Department of Health.

3.04 DAILY TESTING RECORDS

At the conclusion of every day's testing the Contractor's Qualified Consultant/Project Monitor shall provide copies of all testing and monitoring records to the State.

END OF SECTION

DIVISION 15 - MECHANICAL

SECTION 15050 - GENERAL MECHANICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. Provide all work described by the drawings and specifications, including work specified and not indicated, and work indicated and not specified.

B. Completely examine the drawings and specifications and report to the Consultant any error, inconsistency, omission, or error in the work of others affecting the mechanical work. If the Contractor proceeds with the work affected without instructions from the Consultant, he shall correct or pay for any resultant damage or defect.

C. Provide all supplementary or miscellaneous items, details, appurtenances and devices incidental to or necessary for a complete operating system where work required is not specifically indicated or specified.

D. Maintain at the job site one copy of all drawings, specifications, addenda, approved shop drawings, change orders, and other modification, in good order and marked to record all changes made during construction. These documents shall be made available to the Consultant.

E. The Contractor shall schedule a date and time with the Consultant, a minimum of 7 days in advance, for all testing.

F. Reference to standards and publications are intended to be the latest revision of the standard or publication. In each of the publications referred to herein, consider the advisory provisions to be mandatory, as though the word, "shall" had been substituted for "should" wherever it appears. Interpret references in these publications to the "authority having jurisdiction" or words of similar meaning, to mean the Consultant.

G. The words "or approved substitute" and other words of similar intent or meaning, means that the equipment or material to be substituted is subject to review by the Consultant and must be acceptable to the Consultant.

1.02 GENERAL DESCRIPTION

A. This section applies to all Sections of DIVISION 15 - MECHANICAL, of this project specification, unless specified otherwise in the individual sections.

B. Electrical Requirements: Provide electrical components of mechanical equipment and systems such as motors, controllers, contactors, starters, and disconnects under DIVISION 15 - MECHANICAL, as specified herein, and as necessary for complete and operable systems. Provide interconnecting wiring for components of packaged equipment as an integral part of the equipment. Interconnecting power wiring and conduit for field erected equipment shall be as specified in DIVISION 16 - ELECTRICAL. Control wiring rated at 120 volts or less and conduit shall be specified in DIVISION 15 - MECHANICAL. Extended voltage range motors will not be permitted. Motor control equipment forming part of motor control centers, assemblies, or other sources to mechanical equipment shall conform to DIVISION 16 - ELECTRICAL.

1.03 QUALITY ASSURANCE

A. County, State, Federal, and Industry Regulations: Comply with the City and County of Honolulu building, electrical, fire and plumbing codes; State of Hawaii Department of Health and Department of Labor and Industrial Relations Regulations; U.S. Occupational Safety and Health Act; U.S. Environmental Protections Agency Regulations; National Fire Protection Association Codes; and other laws, codes and regulations, and ordinances and manufacturer's recommendations and requirements, when applicable and as referenced in these specifications. The Contractor shall schedule and pay for all inspections required by any government agency.

B. Permits and Inspections:

1. Permits: The Contractor shall pay for all necessary permits required by any public authority having jurisdiction.

2. Inspections: The Contractor shall apply and pay for all necessary inspections required by any public authority having jurisdiction.

C. Material and Equipment Qualifications: Provide materials and equipment that are standard products of manufacturers regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. Standard products shall have been in satisfactory commercial or industrial use for 2 years prior to award of this contract. The 2-year use shall include applications of equipment and materials under similar circumstances and of similar size. The product shall have been for sale on the commercial market through advertisements, manufacturer's catalogs, or brochures during the 2-year period. Air conditioning equipment to be considered for bid purposes must be a manufacturer that has locally stocked spare parts, representative, and support of a service organization reasonably convenient to the site of installation which has serviced manufacturer's unit of comparable type, size and capacity installed and operating satisfactorily in the State of Hawaii for a minimum of 2 years prior to bid opening. The Contractor shall provide a list of locations in Hawaii with addresses and telephone numbers when requested by

HHSC. All equipment with local manufacturer's representation shall be purchased through the local factory authorized distributor. Preference should be given to products made or manufactured in the United States of America.

D. Alternative Qualifications: Products having less than a 2-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6,000 hours, exclusive of the manufacturer's factory or laboratory tests, can be shown.

E. Service Support: The equipment items shall be supported by service organizations. Submit a certified list of qualified permanent service organizations for support of the equipment which includes their addresses and qualifications. These service organizations shall be reasonably convenient to the equipment installation and able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

F. Manufacturer's Nameplate: Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of distributing agent will not be acceptable.

1.04 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

1. Submit 8 copies of each required submittal to the Consultant. Submittals shall include the manufacturer's name, trade name, place of manufacture, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable industry, and technical society reference standards, years of satisfactory service, and other information necessary to establish contract compliance of each item the Contractor proposes to be provided. Photographs of existing installations and date submitted in lieu of catalog data are not acceptable and will be returned without review. Partial submittals are not acceptable and will be returned without review.

2. At the time the submittals are submitted, the Contractor shall inform the Consultant, in writing, of any deviation in the shop drawings and other submittals from the requirements of the contract documents.

B. Shop Drawings: Submit drawings a minimum 24 by 36 inches in size, using a minimum scale of 1/8-inch per foot. Include floor plans, section views, wiring diagrams, and installation details of equipment; and equipment spaces identifying and indicating proposed location, layout and arrangement of items or equipment, control panels, accessories, piping, ductwork, and other items that must be shown to ensure a coordinated installation. Indicate locations of items requiring maintenance or inspection. Wiring diagrams shall identify circuit terminals, and indicate the internal wiring for each item of equipment and the interconnection between each item of equipment. Drawings shall indicate adequate clearance for operation, maintenance, and replacement of equipment devices.

C. Shop Drawing Certification: Provide a written certification with the shop drawing submittal stating that the Contractor has determined and verified all field measurements, sizes and obstructions, and that he has coordinated the shop drawings with the field conditions and the work of other trades.

D. Certificates of Compliance: Submit a certificate of compliance from the manufacturer for approval for products, finishes, and equipment as specified in the technical sections whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance. The certificate shall identify the manufacturer, the products, equipment, or materials and the referenced standard and shall simply state that the manufacturer certifies that the product conforms to the requirements specified.

E. Reference Standards Compliance: Where equipment or materials are specified to conform to industry and technical society reference standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), American Society of Mechanical Engineers (ASME), American Gas Association (AGA), American Refrigeration Institute (ARI), and Underwriters Laboratories (UL), submit proof of such conformance. If an organization uses a label or listing to indicate compliance with a particular reference standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections.

F. Independent Testing Organization Certificate: In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing and approved by the Consultant. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

G. Manufacturer's Catalog Data: Submittals for each manufactured item shall be current manufacturer's descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves and catalog cuts.

H. Manufacturer's Instructions: Where installation procedures or part of installation procedures are required to be in accordance with the manufacturer's instructions, submit printed copies of those instructions prior to installation. Installation of the item shall not proceed until the manufacturer's instructions are received. Failure to submit can be cause for rejection of the equipment or material.

I. Operating Instructions: Submit text of posted operating instructions for each system and principal item of equipment as specified in the technical sections.

J. Operation and Maintenance Manuals: Submit 8 sets of the operation and maintenance manuals for each system and principal item of equipment.

K. As-Built Drawings: Submit as-built drawings to the Consultant prior to final inspection.

L. Warranty: Submit warranty as noted under item entitled "WARRANTY" hereinbelow.

1.05 WARRANTY

Warrant all equipment and material furnished, and workmanship of the mechanical systems for a period of one year starting only after 30 consecutive days of trouble-free operation after system acceptance. Submit the manufacturer's warranty documents for all equipment furnished to the Consultant. The warranty shall cover all labor and material required to correct, replace, or repair any defective item at no cost to HHSC.

1.06 DELIVERY, STORAGE, AND HANDLING

Handle, store, and protect equipment and materials to prevent damage before and during installation in accordance with the manufacturer's recommendations, and as approved by the State. Replace damaged or defective items.

1.07 POSTED OPERATING INSTRUCTIONS

A. Provide for each system and principal item of equipment as specified in the technical sections for the use of the operation and maintenance personnel. Include the following in the operating instructions:

1. System Descriptive Information: Wiring diagrams, control diagrams, piping diagrams, control sequence and operating points for each principal system and item of equipment. Post instructions where indicated.

2. Equipment Instructions: Attach to or post adjacent to each principal item of equipment and include directions under glass.

3. Start up, proper adjustment, operating, lubrication and shutdown procedures.

4. Safety precautions, procedure in the event of equipment failure.

5. Other areas as recommended by the manufacturer of each system of item of equipment.

B. Print or engrave, and frame under glass or in an approved laminated plastic. Operating instructions exposed to weather shall be made of weatherproof materials or provided with a weatherproof enclosure. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal.

1.08 SAFETY REQUIREMENTS

A. Equipment Safety: Fully enclose or properly guard, in accordance with DOSH regulations, belts, pulleys, chains, gears, couplings, projecting setscrews, keys, rotating parts, and other power transmission apparatus, located where persons can come in close proximity thereto. Points of operation, in going nip points, and machinery producing flying chips and sparks shall be guarded in accordance with the applicable portions of DOSH regulations. Provide positive means of locking out equipment so that the equipment cannot be accidentally started during maintenance procedures. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be properly guarded or covered with insulation

of the type specified. Ensure that access openings leading to equipment are large enough to carry through routine maintenance items such as filters and tools.

B. Warning Sign: Provide a permanent placard or sign at the entrance to confined spaces contained in the equipment. The sign shall warn personnel not to enter the space until the atmosphere inside has been tested and systems have been de-energized.

1.09 INSTRUCTIONS TO PERSONNEL

Furnish the services of competent instructors to give full instruction to the designated personnel in the adjustment, operation, and maintenance, including pertinent safety requirements, of each specified equipment or system. Instructors shall be thoroughly familiar with all parts of the installation and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given during the first regular work week after the equipment or system has been accepted and turned over to HHSC for regular operation. The number of man days (8 hours per day) of instruction furnished shall be as specified in the individual sections. When more than 4 man days of instruction are specified, use approximately half of the time for classroom instruction. Use other time for instruction with the equipment or system. When significant changes or modifications in the equipment or system are made under the terms of the contract, provide additional instruction to acquaint the operating personnel with the changes or modifications.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

All materials and equipment shall be new and free from defects. Unless otherwise specified, each equipment or material of its kind shall be the standard product of a single manufacturer. All mechanical equipment, fans, pumps and compressor motors shall be sized to not overload anywhere on the operating curve. Safety factor shall be a minimum of 1.15.

PART 3 - EXECUTION

3.01 FACTORY PAINTING OF EQUIPMENT

Factory applied painting of equipment shall be as specified herein, and provided under each section. Manufacturer's standard factory painted systems may be provided subject to certification that the factory painting system applied will withstand 125 hours in a salt spray fog test, except that equipment located outdoors shall withstand 500 hours in a salt spray fog test. Salt spray fog test shall be in accordance with ASTM B117. Immediately after completion of the test, the paint shall show no signs of blistering, wrinkling or cracking; no loss of adhesion; and the specimen shall show no signs of rust creepage beyond 0.125 inches on either side of the scratch mark. The film thickness of the factory painted system applied to the equipment shall be not less than the film thickness used on the test specimen. If manufacturer's standard factory painting system is being proposed for use in lieu of the shop painting systems, submit certifications that the manufacturer's standard

factory painting system conforms to the heat resistance requirement in addition to other certifications.

3.02 FIELD PAINTING

A. Conform to SECTION 09901 - PAINTING. Provide labels/signs for all piping including refrigerant piping, condenser water, and condensate drain lines.

B. The following items furnished under this section are to be painted and identified under SECTION 09901 - PAINTING. Do not paint over name plates or other identifying labels.

1. Paint exposed controls conduit, ductwork, black iron work including pipe, fittings, iron body valves, pipe hangers, etc. with 2 coats of zinc rich paint.

2. Stencil all exposed piping with painted black letters indicating the service and with an arrow indicating the direction of flow. Stencil where pipes enter and leave each area and at not over 30 feet intervals within an area. Paint color band at stencils; yellow for fuel and green for water systems. Width of color band, size of legend letters, and position of legend shall conform to the requirements of ANSI A13.1, Scheme for the Identification of Piping Systems.

3.03 MANUFACTURER'S RECOMMENDATIONS

Equipment installed under this Division of the Specifications shall be installed according to the manufacturer's recommendations, unless otherwise indicated or specified otherwise.

3.04 OPENINGS, CUTTING AND PATCHING

A. The Contractor shall be responsible for the cutting, drilling and patching of walls, partitions, floors, roofs, ceilings and other building structures, required for the installation of piping, ductwork, conduits and other material equipment. This work may be sub-contracted to other Contractors, or arranged to be performed by the General Contractor.

B. Holes through existing concrete and existing masonry shall be sawcut or core drilled. Holes through new concrete and masonry shall be provided with sleeves. Holes through other building materials shall be sawcut or core drilled and provided with sleeves.

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. Provide ID for all equipment.

3.06 FIELD TESTS

The Contractor shall provide all labor, material, equipment, and instruments needed for the tests. During pressure test, all items in the system to be tested, which are not designed for the test pressure shall be removed or isolated from the system, and shall be reconnected or unblocked after the tests are completed. If operating tests require the supervision of the manufacturer's representative, the Contractor shall assist the representative by providing any labor, material, or equipment needed by the representative.

3.07 CLEANUP AND CLEANING

The Contractor 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 the project site as well as his tools, construction equipment, and surplus materials. Clean all new equipment and materials prior to final inspection.

3.08 MAINTENANCE SERVICE CONTRACT

A. Contractor shall attend a pre-maintenance meeting with the State of Hawaii Facilities Management Office to review the requirements and expectations of HHSC. The Contractor and Sub-Contractor(s) who are primarily in charge of maintenance shall attend this meeting.

B. The installer shall submit 8 copies of the Maintenance Service Contract, countersigned by the General Contractor that will validate the warranty.

C. The Warranty and maintenance service shall extend for a period of one year commencing after 30 consecutive days of trouble-free operation after the Project Acceptance Date or as authorized by HHSC, if earlier than the Project Acceptance Date. In addition, the Contractor is responsible/shall perform all maintenance prior to the project acceptance. The warranty and maintenance service shall include all labor, materials, equipment, and parts necessary to service the complete system, in accordance with the attached Schedule of Maintenance Service, so as to assure proper operation and function of the system. All costs for the periodic maintenance, including emergency calls, shall be borne by the Contractor. This maintenance period and the warranty period shall run concurrently (same start and end dates). However, should the Contractor default on or delay the maintenance service contract and must restart or complete the service at a later time, then the warranty period shall also extend to match the revised maintenance service period.

D. Contractor performing the maintenance services shall have trained personnel with a minimum 5 years of experience in the repair and maintenance of equipment similar to that listed herein. All maintenance service personnel shall be factory authorized and factory trained.

E. Certification of Maintenance Work: All work done under this maintenance contract shall be certified by a responsible employee of the Contractor who is in charge of or who performs the maintenance work. Service reports shall be made out for all service periods, i.e., monthly, quarterly, semi-annually, annually, emergency, etc.

Certification of work by the Contractor shall be construed to mean that work has been performed in accordance with recommended and accepted maintenance procedures in conformance with the full intent of the service contract. Service shall include findings by the service personnel and description of work performed to maintain the systems in proper operating condition. All service reports shall be reviewed with an authorized representative of HHSC who will acknowledge and sign reports.

F. Work Schedule/Advance Notification:

1. All maintenance work shall be performed between the hours of 6:00 a.m. to 6:00 p.m. on normal working days, Monday through Friday, excluding State Holidays or as indicated otherwise.

2. Monthly service shall be defined as 12 service periods a year. Each service period shall be approximately 30 days apart. Quarterly service shall be defined as 4 service periods a year. Each period shall be approximately 3 months apart. The first service shall occur 3 months after the start of the maintenance period. Semi-annual service shall be defined as 2 services per year. Each period shall be approximately 6 months apart. The first service shall occur 6 months after the start of the maintenance period. Annual service shall be defined as one service period a year. This service shall be performed 12 months after the start of the maintenance period. Monthly, quarterly, semi-annual and annual services shall all be performed independent of each other but may be completed simultaneously. For example, quarterly service visits shall not count as monthly service visits.

3. Prior to performing the maintenance service work, Contractor shall submit a written maintenance work schedule for approval to HHSC. The maintenance for equipment located in occupied spaces shall be scheduled to occur at the convenience of HHSC; the maintenance shall be done only when the space is not in use or unoccupied. The schedule shall identify all service tasks (i.e. monthly, quarterly, semi-annual, etc.) accurate to a specific week of each month. Any changes in the schedule that will affect subsequent scheduled services shall be submitted in writing to HHSC prior to the next service and approved by the State.

4. The Contractor shall give HHSC a minimum of 7 days prior to the notice to any maintenance and repair work. For any work that will require equipment outages, Contractor shall inform the HHSC on the estimated duration of the outage.

G. Trouble Calls: Emergency services and repairs required between regular service calls shall be rendered within 4 hours after the Contractor is notified, non-working days included. The Contractor shall call HHSC the next working day after being notified of the problem and report the status of repairs.

H. Maintenance Log: The Contractor shall provide a composition book to log all job site service visits. The log shall include the date, name of mechanic, reason for the service visit, and notes on any discrepancies found and work performed. This composition book log shall remain at the job site. In addition, the Contractor shall

provide a copy of the service reports, checklists, and any other pertinent documentation to be left at the job site in a Contractor provided binder.

I. Maintenance Report/Checklist:

1. The service Contractor shall keep a separate log recording all regular and emergency maintenance calls to the project at his office.
2. The Contractor shall prepare and maintain a maintenance service report/checklist for all regular and emergency services which shall include the following:

    a. Name of person making the service call.

    b. Date of call.

    c. Time in and out from project site.

    d. Nature of call; if emergency, who contacted the service company.

    e. Listing of equipment serviced including model and serial numbers.

    f. Temperature and pressure readings from all available pressure gauges and thermometers. Readings from all other gauges, thermometers, level indicators status indicators, sensors, ambient temperature and humidity at the site.

    g. All items indicated to be recorded in the Schedule of Maintenance Service.

3. In addition, the Contractor shall submit a signed copy of the written reports of maintenance and repair services performed within 7 working days after completion of the service. Reports shall be signed by an authorized representative of the State.

J. Cleanup and Work Practices: The Contractor shall keep the job site free of debris, litter, discarded parts and materials, etc. and shall clean all oil drippings during the daily progress of work. The Contractor shall remove all tools, parts, and equipment from the service areas upon completion of the work. The Contractor shall exercise caution during the progress of his maintenance and repair work to prevent damage to the ceilings, roofing and other building structure. The Contractor shall restore all damages, caused by his negligence, to its original condition, at his own expense.

END OF SECTION

SECTION 15500 - FIRE SPRINKLER SYSTEM

PART 1 - GENERAL

1.01 GENERAL PROJECT REQUIREMNTS

As specified in Section 01019.

1.02 DESCRIPTION OF WORK

Provide a complete wet pipe automatic fire sprinkler for designated areas as shown on plans, as required by code and authority having jurisdiction. Sprinkler system layout, as shown on the drawings is intended only to describe general scope of work required and is not to be construed as being complete workable design in accordance with all applicable NFPA Codes and Regulations. Final design and providing of sprinkler system meeting all applicable codes and regulations shall be the sole responsibility of the Contractor. Prior to fabrication and installation, obtain approval from Hawaii Insurance Rating Bureau

1.03 RELATED WORK SPECIFIED IN OTHER SECTIONS

All electrical power, wiring, conduit, etc., flow switch and other equipment required under this section shall be provided under ELECTRICAL WORK.

1.04 REFERENCE SPECIFICATION

The latest edition of Standards for Installation of the Fire Protection System shall be as followed. Where these specifications vary from said standards, more rigid requirements shall apply.

NFPA 13 Standard for the Installation of Sprinkler Systems.

NFPA 15 Standard for Water Spray Fixed Systems for Fire Protection

1.05 STANDARDS

Comply with local ordinances, requirements of local authorities, applicable regulations of National Board of Fire Underwriters, regulations of Building Department and all other applicable regulatory bodies.

1.06 SUBSTITUTIONS

Refer to SPECIAL CONDITIONS.

1.07 COORDINATION

Coordinate with various trades. Where items must fit spaces previously constructed, verify measurements at site. Coordinate with other work to ensure that all required inserts, sleeves, and attachments are properly set and that adequate provision is made for installing this work.

1.08 PERMITS AND INSPECTIONS

Obtain and pay for permits, arrange for periodic inspection by local authorities, and deliver certificates of final inspection to Engineer.

1.09 DRAWINGS

A. Contract Drawings: Follow architectural plans of building and diagrammatic fire protection layouts wherever practicable. Locations are approximate. Before installing, study adjacent architectural details and make installation in most logical manner.

B. Shop Drawings: Before any work is commenced, Contractor shall submit complete sets of working drawings of sprinkler system, hydraulic calculations to show basis for design, graphs or tables showing pressure discharge relationship for sprinkler heads; and full descriptive data for pipe, fittings, alarm valves, gate valves, check valves, water-motor alarms, sprinkler heads, hangers, devices, materials, and associated equipment to Engineer for approval. Partial submissions will not be acceptable. Descriptive data shall be annotated to show specific mode, type, and size of each item Contractor proposes to furnish. Drawings shall be in accordance with requirements for “working plans” as specified in NFPA 13 and shall include all applicable data specified herein. No work shall be unit design of system and various components have been approved by the Engineer.

C. Record Drawings: Maintain copy of drawings to record daily any additions or changes. After final inspection, prepare “as-built” drawings from site copy, as specified in GENERAL CONDITIONS and turn over to the Consultant. Show all piping, valves, etc., accurately and clearly, as actually installed.

1.10 GUARANTEE

A. Contractor shall guarantee all work in compliance with GENERAL CONDITIONS Section. Should any equipment or material fail within this period, replace or repair at no cost to HHSC for material and/or services, if due to faulty workmanship or quality of material furnished.

B. Defective or Improper Work: Remove any work or materials not acceptable to Consultant. and replace by approved materials or work, without additional cost.

C. Be responsible for all damage caused by leaks in piping or equipment for guarantee period. Any leaks or piping system failure due to any cause of location, workmanship, or quality of material that cause damage will be responsibility of Contractor.

1.11 DESIGN

Design of wet pipe sprinkler system shall be by hydraulic calculation or pipe schedule method and shall conform to NFPA 13 and to requirements as specified hereinafter.

1.12 WORKMANSHIP

All materials and equipment shall be installed in accordance with NFPA No. 13 to conform with contract documents. System shall be installed by an experienced firm regularly engaged in installation of fire protection sprinkler systems in accordance with NFPA Standards. Engineer may reject any proposed installer who cannot show evidence of such qualifications. Engineer's approval will not relieve Contractor from his responsibilities to perform all work in accordance with specifications and contract terms.

1.13 INSTRUCTIONS TO HHSC

Contractor shall provide HHSC personnel with necessary (as required by NFPA Pamphlet No. 13) information concerning care, operation, and maintenance of system.

PART 2 - PRODUCTS

2.01 MANUFACTURER

Sprinkler and alarm equipment shall be products of Central, Grinnell Co., Reliable, Viking, Automatic Sprinkler, or Gem Sprinkler Co.

2.02 SPRINKLER HEADS

A. U.L. of Factory Mutual Laboratory approved automatic, flush closed pendant, single wall or upright type, ordinary degree temperature ratings (165 degrees F).

1. Deck Areas: Institutional type heads, chrome finished. Upright type heads. Brass finish, standard type heads.

B. Furnish six (6) extra sprinklers of each type packed in suitable containers and two (2) special sprinkler wrenches and four (4) proper types of sprinkler stoppers. Provide where directed, approved metal cabinets with hinged door, lock and two (2) days for storing extra sprinkler and wrenches. All sprinkler heads in finished areas shall be polished chrome plated with polished chrome brass escutcheon.

2.03 PIPE AND FITTINGS - (Wet System)

A. Sprinkler System Piping:

Automatic Fire Sprinkler:

Exterior Spaces:	Sch 40 black steel
Interior Spaces:	Copper Type “M” with brazed joints

B. Fittings: Fittings for ductile iron pipe, of same class and coating as pipe; mechanical joint cast iron fittings, or approved. Fittings for steel pipe shall be black cast iron, screwed 6-inches and under, flanged over 6-inch standard, suitable for 250 psi wwp. Fittings to be provided by Grinnell Company, Crane Company, Stockham Pipe Fitting Company or approved equal. Fittings may be grooved joints with victaulic couplings or welded fittings.

2.04 SUPPORT

Support sprinkler system piping form building structure by means of hangers, inserts, other supports, as per requirements in NFPA Pamphlet No. 13 and as indicated on drawings.

2.05 PIPE SLEEVES

Furnish and set cast iron (below grade) or Schedule 40 steel pipe sleeves to accommodate pipes passing through foundations, walls, floors, partitions. Extend sleeves above finished floor and pack space between pipe and sleeve as recommended by NFPA Pamphlet No. 13.

2.06 GAUGES

Gauges shall be 3-1/2” dial type.

2.07 VALVES

Flanged gate valves shall be OS&Y type, iron body, brass trim, 250 lbs. Working pressure. Flanged check valves shall be iron body, brass seat and disc, clearway swinging type, with drip connections, 250 lbs. Working pressure. Valves used in conjunction with valve supervisory devices shall have items notched or otherwise modified to suit supervisory device. Valve located in pit shall be equipped with indicator post with valve position locking device.

2.08 ESCUTCHEON PLATES

Sprinkler piping passing through floors, walls, and ceilings shall be provided with approved type, one piece or split type plates. Plates where pipe passes through finished ceiling shall match color of surrounding surfaces. Other plates shall be of steel or cast iron, with aluminum finish. Plates shall be securely anchored in place with set screws or other approved positive means.

PART 3 - EXECUTION

3.01 GENERAL

A. Do not scale plans. Check all measurements at building and adjust work to fit space allotted. Close cooperation between all trades will be required. Any work done without regard for work of other trades shall be moved, if necessary, at option of the Engineer, without cost to the State, to permit proper installation of other work.

B. When work is not in progress, open ends of pipe and fittings shall be securely closed so that no trench water, earth, or other substances can enter pipe or fittings.

C. Responsibility for care and protection of equipment and work rests with Contractor until it has been tested and accepted by the Engineer.

3.02 CUTTING AND PATCHING

A. Place sleeves for piping penetrating through poured concrete or masonry construction prior to pouring of concrete or construction of masonry. Fill void between pipe and floor or wall with grout.

B. Do not cut any openings in any structural member until location has been approved by the Engineer.

C. Cutting of holes in hardened concrete is not permitted except by special permission of Engineer, which will be on an individual basis and shall require use of small hand tools, diamond drills, or other controlled means of Engineer's discretion.

D. Cutting of reinforcing bars is not permitted.

E. If necessary to cut holes in slabs or concrete walls, first relocate holes to clear beams, joists, columns, etc. Cut holes neat and clean using diamond core drill or small chipping gun. Leave all reinforcing bars intact; enlarge holes if necessary.

F. If necessary to cut holes in masonry walls, carefully remove minimum amount of masonry.

G. Install sheet metal or black iron pipe sleeves through holes cut in slabs, concrete walls or masonry walls. Inc concrete slab walls, install sleeves to clear reinforcing bars and tightly pack concrete around sleeve for full thickness of walls. In masonry walls, rest or re-grout all loose masonry units; pack cement grout tight and solid around sleeves for full thickness of wall.

H. Annular space between pipe and sleeve shall be completely sealed with grout.

3.03 FITTINGS

Fittings for aboveground piping shall be of type specifically approved for use in sprinkler system. Bushings shall be used only where standard fittings of required size are not available. Use of bushings is further restricted to requirements of NFPA No. 13.

3.04 REDUCERS

Reduction in pipe sizes shall be made with one-piece reducing fittings. Bushings will not be acceptable, except that when standard fittings of proper size are not available. Where used, face bushings shall be installed with outer face flush with face of fitting opening being reduced. Bushings shall not be used in elbow fittings in more than one outlet of a tee, in more than two outlets of a cross, or where reduction in size is less that 1/2".

3.05 PIPE SUPPORTS AND HANGERS

A. Recommend methods and requirements for supporting of hanging pipe as set forth in NFPA No. 13 shall be mandatory.

B. Install hangers and supports for all pipe work to provide for expansion and contraction, to prevent vibration, and maintain required grading by proper adjustment.

C. Refer to structural drawings for type of construction from which piping and/or equipment is to be suspended. Drilling from bottom or pre-stressed tee is not permitted. Drill one side of T-stem or bottom of T-flanges.

D. Drilled-in-Threaded Inserts: Where support in beams and joists are required after concrete has been poured, Phillips "Redhead" Drilled-in-Threaded Inserts shall be provided and installed in accordance with recommendation of manufacturer.

E. Install concrete reaction blocks for underground pipe and angle/plate reaction supports for aboveground piping at main and cross main tees and elbows.

3.06 PIPE SLEEVES

Pipes passing through concrete or masonry walls or concrete walls, shall be provided with pipe sleeves fitting into place at time of construction. All rectangular and square openings shall be as detailed. Each sleeve shall extend through its respective wall or floor, and be cut flush with each surface. Unless otherwise indicated, sleeves shall be of such size as to provide minimum of 1/4" all-around clearance between pipe and sleeve. Sleeve in bearing walls, waterproofing membrane floors, and wet areas shall be steel pipe or cast iron pipe. Sleeves in non-bearing walls, floors, or ceilings may be steel pipe, cast iron pipe, or galvanized sheet metal with lock-type longitudinal seam.

3.07 DISTRIBUTION OF WATER - (Wet Pipe System)

Distribution shall be essentially uniform throughout area in which it is assumed sprinkler heads will open.

3.08 DENSITY OF APPLICATION OF WATER - (Wet Pipe System)

Application to horizontal surfaces below sprinklers shall be 0.16 gpm/s.f., 0.19 gpm/s.f. in mercantile areas; and 21 gpm/s.f. in storage areas. Pipe shall be sized to provide specified density when system is discharging specified total maximum required flow, as per NFPA No. 13 Figure 2-2.1.1.(b).

3.09 SPRINKLER DISCHARGE AREA - (Wet Pipe System)

Area shall be hydraulically most remote 1,500 square feet area as defined in NFPA 13.

3.10 FRICTION LOSSES

Losses in pipe shall be calculated in accordance with Hazen and Williams formula with “C” value of 120 for aboveground steel pipe, 140 for aboveground copper pipe and 120 for underground cement lined cast iron pipe.

3.11 LOCATION OF WET PIPE SPRINKLER HEADS

Heads in relation to ceiling and spacing of sprinkler heads shall not exceed that permitted by NFPA No. 13 for ordinary hazard occupancy. Spacing of sprinklers on branch lines shall be essentially uniform.

3.12 WATER SUPPLY

Static pressure and availability shall be verified with Board of Water Supply.

3.13 BRACING AND CLAMPING

Bends, plugs, and tees shall be braced or clamped in accordance with requirements of NFPA No. 24. Connection between underground pipe and bass riser shall be anchored by means of tie rods and pipe clamps.

3.14 THRUST BLOCKS

Adequate concrete reaction thrust blocks conforming to local Board of Water Supply standards shall be installed at underground piping direction changes.

3.15 TESTS

A. Subject sprinkler system to tests required by and in presence of representatives of agencies having jurisdiction. Conduct, duration and other details of tests not covered by agencies’ requirements, equipment; pay expenses incurred in making test, obtain approval, and certificates. Where evidence of stoppage appears in

piping or equipment, disconnect, clean, repair, and reconnect obstructed parts. Contractor shall bear all costs of cutting and patching adjoining work made necessary by such cleaning and repairing.

B. Defective Work: If inspection or test shows defects, such defective work or material shall be replaced and inspection and test repeated. Repairs to piping shall be made with new material. No caulking of screwed joint or holes will be accepted.

C. Protection to Fixtures, Materials, and Equipment: Pipe openings shall be closed with caps or plugs during installation. Equipment shall be tightly covered and protected against dirt, water, and chemical or mechanical injury. Upon completion of all work, materials and equipment shall be thoroughly cleaned, repainted as required, adjusted, and operational.

D. Removal and capping of existing lines as required is included in this Section.

3.16 SPECIAL CONDITIONS

Conformance with provisions of the enforcing edition of the Uniform Building Code, as amended, is hereby made a part of this Section of specifications.

3.17 WATER SUPPLY CONNECTION

Connect sprinkler system to new main water service pipe outside of building provided by the General Contractor. Before connecting, flush waster service through unrestricted opening of at least 4-inches in diameter.

3.18 DRAIN AND TEST CONNECTIONS

Install horizontal piping, graded to low points, and in manner to make it possible to test and empty entire system. Provide valves and piping of sizes and in locations in accordance with requirements of NFPA Pamphlet No. 13. Drain valve and discharge fittings shall be visible; use sight-drain fittings if necessary. Provide flushing connections at end of cross mains, consisting of capped nipple same diameter as pipe be not larger than 2 inches.

3.19 VALVE SEALS, TAGS, CHARTS

A. Seals: Provide approved seal for each manually operated shut-off valve required to be sealed in open position.

B. Signs: Provide identification signs of standard design, fasten securely at designated locations as per NFPA Pamphlet No.13

C. Tags: Provide brass tags 3-inches in diameter, stamped with designated numbers. Secure with gauge copper wire to spindle or all control valves.

D. Charts: Provide two copies of approved sprinkler diagram and valve chart, giving designating number, function, location of each valve; mount in painted, glazed frames, hang where directed.

END OF SECTION

DIVISION 16 – ELECTRICAL

SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes: Electrical power and lighting, telecommunications, and fire alarm system drawings are schematic and indicate general layout and approximate locations of outlets, switches, luminaires, feeder runs, devices, and other electrical equipment.

1. Make minor adjustments in layouts to ensure coordination.

2. Coordinate electrical devices' terminal locations with architectural drawings and interior drawings.

B. Review Contract Drawings and Specifications and verify locations of structural members, equipment, apparatus, and other conditions which may affect work of this Division. Provide conduit transitions and offsets, junction boxes, and similar fittings as necessary to install complete electrical systems. Accomplish and pay for modifications to indicated locations and arrangement to suit jobsite conditions.

C. Record Drawings: Maintain in accordance with DIVISION 1 Sections.

D. Coordinate work with wiring and equipment included in other Sections of the specifications.

E. Design and location indicated on Drawings are based on specified products and equipment. Provide modifications to materials, components and equipment required to accommodate products and equipment other than specified. Any equipment used in place of specified equipment must meet the standards and certifications of the specified equipment. Perform modifications, and additional testing and certification to substantiate compliance, at own expense.

F. Obtain the Consultant's review of significant deviations from drawing layouts before performing the Work.

G. The Consultant reserves the right to relocate any device within 10 feet of its indicated location up to the time of its installation without any change in Contract Sum.

1.02 SUBMITTALS

A. Submit under provisions of SECTION 01330 - SUBMITTAL PROCEDURES.

B. Proposed Products List: Include list of products and items proposed to be provided.

C. Submit shop drawings and product data grouped to include complete submittals of related systems, products and accessories in a single submittal.

D. Mark dimensions and values in units to match those specified.

E. Record Documents: Provide in accordance with DIVISION 1 Specification Sections.

F. Instruction of HHSC's Personnel: Comply with procedures and requirements specified in DIVISION 1 Specification Sections and in applicable Sections of this Division.

G. Substitutions: Comply with SECTION 01330 - SUBMITTAL PROCEDURES.

H. Warranty: Submit warranty as noted under item entitled "WARRANTY" hereinbelow.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Building Code: International Building Code, Latest Edition.

2. Electrical: NFPA 70 National Electrical Code (NEC), 2017 Edition, ANSI C1 National Electrical Safety Code, and applicable NFPA regulations.

3. International Energy Conservation Code (IECC), 2015 Edition.

4. Lateral Forces: International Building Code, Latest Edition, Seismic Risk Zone 2.

5. Make arrangements and coordinate with Utility Companies requirements concerning their work.

6. Obtain permits and request inspections from authority having jurisdiction.

1.04 PROJECT CONDITIONS

A. Install work in locations shown on Drawings, unless prevented by project conditions.

B. Prepare clarification drawings and showing proposed rearrangement of work to meet project conditions, including changes to work specified in other Sections. Submit to the Consultant for review before proceeding.

C. Coordinate work with the various trades. Where items must fit spaces previously constructed, verify measurements at the site. Insure that all required inserts and attachments are properly set and that adequate provision is made for installing this work.

D. Defective or Improper Work: Remove work or materials not acceptable, and replace with approved materials or work at own expense.

1.05 ELECTRICAL SYSTEM SUPPORT DEVICES

A. General:

1. Electrical equipment and materials shall not be suspended or supported from pipe, electrical conduit, ceiling systems or any nonstructural member.

2. Electrical equipment and systems shall be installed and enclosed to resist seismic forces in accordance with Lateral Forces requirements specified above.

3. Electrical systems and conduit shall not penetrate ductwork.

B. Concrete Anchoring: Use cast inserts in new construction; stamped metal inserts will not be acceptable. Expansion shells may be used in existing construction; powder actuated inserts will not be acceptable.

1.06 SEQUENCING AND SCHEDULING

A. Construct Work in sequence under provisions of DIVISION 1 Sections.

1.07 WARRANTY

A. Special Warranty: Provide special warranties specified in applicable section of DIVISION 16 - ELECTRICAL.

B. Warrant lamp sources for 50 percent of rated life.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 16100 - BASIC MATERIALS AND METHODS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Materials, equipment fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction.

2. Raceways.

3. Wire and cable.

4. Boxes.

5. Low voltage distribution equipment.

6. Motor controllers.

7. Wiring devices.

8. Supporting devices.

9. Telecommunication (voice and data) raceway system.

10. Grounding.

B. Related Sections:

1. DIVISION 9 - FINISHES.

2. Furnishing and setting of motors under the sections corresponding to equipment that have motors.

1.02 DEFINITIONS

A. Specifications are of a simplified form and include incomplete sentences. Words such as, “shall be”, “furnish”, “a”, “an”, “the”, etc., have been omitted for brevity.

1. “Furnish” or “provide”: To supply, install and connect up complete and ready for safe and regular operation of particular work referred to unless specifically otherwise noted.

2. “Install”: To erect, mount and connect complete with related accessories.

3. “Supply”: To purchase, procure, acquire and deliver complete with related accessories.

4. "Work": Labor, materials, equipment, apparatus, controls, accessories, and other items required for proper and complete installation.

5. "Wiring": Raceway, fittings, wire, boxes and related items.

6. "Concealed": Embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces, or in enclosures.

7. "Exposed": Not installed under ground or "concealed" as defined above.

8. "Indicated", "Shown" or "Noted": As indicated, shown or noted on Drawings or Specifications.

9. "Similar" or "Equal": Of base bid manufacture, equal in materials, weight, size, design, and efficiency of specified product, conforming with "Base Bid Manufacturers".

10. "Reviewed", "Satisfactory", "Accepted" or "Directed": As reviewed, satisfactory, accepted, or directed by or to the Consultant.

1.03 SUBMITTALS

A. Submit under provisions of SECTION 01330 - SUBMITTAL PROCEDURES.

B. Submittals shall be complete, bound under cover and indicating project title. Contractor shall review submittals for conformance with Contract Documents, make necessary revisions and submit to the Consultant, indicating the following:

1. Manufacturer's name, brand name and catalog reference of equipment supplied.

2. Drawings pertinent to deviations from the Contract. Comply with all applicable references mentioned in this Section. Coordinate with other trades and field conditions and show dimensions and details including building construction and access for servicing.

a. Record Documents (as-built drawings): During progress of the work, maintain an accurate record of changes made in the work of this Section from the layout shown on the Drawings and the materials and methods described in this Section. Changes shall be recorded daily to assure completeness and accuracy.

b. Upon the completion of the work, submit to the Consultant for approval a reproducible set of the contract drawings modified to reflect all changes accrued during the work progress.

3. Detailed description of items supplied, including specifications, performance characteristics, materials, wiring diagrams and schedules.

4. Operation and maintenance instructions for circuit breakers and motor starters.

5. Installation, testing instructions and field test procedures for circuit breakers and motor starters.

6. List of manufacturer's recommended spare parts and address of nearest representative.

1.04 QUALITY ASSURANCE

A. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.

B. Supply all equipment and accessories new, free from defects and listed by Underwriters' Laboratories, Inc., or bearing its label.

C. Supply all equipment and accessories in compliance with the applicable standards listed in this Section and with all applicable United States and local codes.

D. All items of a given type shall be the products of the same manufacturer.

1.05 DELIVERY, STORAGE AND HANDLING

A. Equipment shall be shipped in its original packages, to prevent damaging or entrance of foreign matter. All handling and shipping shall be performed in accordance with manufacturer's recommendations. Provide protective coverings during construction.

B. Replace at no expense to HHSC, equipment or material damaged during storage or handling, as directed by the Consultant.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Raceways:

1. Complete with boxes, fittings and accessories.

2. Rigid Steel Conduit: Full weight pipe, galvanized, threaded, minimum diameter 3/4 inch. Use for all exposed feeders, submains, branch circuits above finish slab to a height of eight feet.

3. Electrical Metallic Tubing (EMT): Thin wall pipe, galvanized, threadless, minimum diameter 3/4 inch.

4. Flexible Steel Conduit: Continuous single strip, 5 feet maximum per NEC, galvanized, 3/4 inch minimum diameter or larger as required for wiring. PVC covered for liquid tight. Provide ground wire in all flexible conduits.

5. Wireways: Complete with all fittings and accessories. Size as noted, baked enamel finish inside and outside, approved for support at minimum 10 feet on centers.

   a. Interior Use: Hinged cover and base, minimum thickness 16 gauge galvanized steel.

   b. Acceptable Manufacturer: Similar to Circle AW, Hoffman Engineering Co., Square D. Co., Universal Mfg. Co., or accepted equivalent.

6. Polyvinyl Chloride Covered Rigid Steel Conduit: Full weight pipe, galvanized, threaded, polyvinyl chloride covered on exterior, minimum diameter 3/4 inch. Use for underground locations.

B. Fittings and Accessories:

1. Raceway Fittings:

   a. Rigid Conduit: Steel or malleable iron, galvanized. Zinc die cast fittings; not permitted.

   b. EMT: Set screw type.

   c. Flexible Metallic Conduit: Angle wedge type with insulated throat.

   d. Bushings: Metallic insulated type. Weatherproof or dustight installations; liquid-tight with sealing ring and insulated throat.

   e. Expansion and Deflection Fittings: O.Z./Gedney Type “DX” or accepted equivalent.

2.02 600 VOLT WIRE AND CABLE

A. Complete with accessories; sizes AWG, except as noted.

B. Conductors:

1. Solid copper for sizes No. 10 and smaller and stranded copper for sizes No. 8 and larger.

2. General Uses: Minimum size No. 12. At 120 volts and over 100 feet circuit length, minimum size No. 10. At 277 volts and over 220 feet circuit length, minimum size No. 10.

3. Control and Alarm Wires: Minimum size No. 14. At 120 volts and over 200 feet circuit length, minimum size No. 12.

4. Increase raceway sizes as required for larger wires, as indicated, or in accordance with NEC Table 3A based on RHW wires.

5. Aluminum cables will not be permitted.

C. Insulation: 600 volt insulation types.

1. Branch Circuits: Type XHHW, THHN, or THWN.

2. Type MC: Branch circuits not including circuit home run. Public and back-of-house areas not including circuit home runs.

3. Color Coding: As per code. Where color coded insulation is unavailable, overlap color taping conductors (minimum length, six inches) in accessible and visible locations.

D. Accessories:

1. Tags:

a. Flameproof linen or fiber in accessible locations.

b. Feeders: Control or alarm: Indicate type of controls or alarm and points of origin and terminations with Brady wire markers in all junction boxes, cabinets, and equipment.

2. Terminations, Splices and Tapes:

a. Copper Conductors No. 10 and Smaller: Compression type connectors and clear nylon insulated covering.

b. Copper Conductors No. 8 and Larger: Hydraulic compression type using manufacturers recommended tooling.

c. Cable Lugs and Connectors: Compression type of same metal as conductor to match cables with marking indicating size and type.

d. For copper lug connections to bus bars provide anti-seize compound.

E. Manufacturer: Similar to General Cable, Anaconda, Anixter, or accepted equivalent.

2.03 BOXES

A. Outlet and small junction boxes shall be zinc-coated pressed steel of ample size. Light outlets shall be fitted with no-bolt type fixture studs as necessary for fixture support. Minimum size of outlet boxes, 4 inch square or octagon.

B. Extension or raised rings for pressed boxes pressed from NEC gauge steel and galvanized.

C. Provide all boxes in finished walls with plaster rings. Provide plaster ring and finish blank device plates for all small flush junction boxes.

D. Telecommunication outlets shall be as indicated and 4-11/16 inch square by 2 inch deep minimum junction boxes unless noted otherwise.

2.04 LOW VOLTAGE DISTRIBUTION EQUIPMENT

A. Disconnect Switches:

1. Non-fused or fused as indicated.

2. Voltage: 250 volts rated on 120/208 volt circuits and 600 volts rated on 277/480 volt circuits.

3. Heavy-duty, quick-make quick-break.

4. Horsepower rated for motor loads.

5. NEMA 1 indoors and NEMA 4X stainless steel in exterior locations.

6. Knife Blade Type Switches:

a. Load break type with arc quenchers.

b. Manufacturer: Similar to Westinghouse, Square D, ITE, General Electric, or accepted equivalent.

2.05 WIRING DEVICES

A. Local Wall Switches:

1. Heavy duty, toggle, quiet type, specification grade.

2. 20 amp, 120/277 volt, AC.

3. Similar to Hubbell Catalog Numbers as Follows:

a. Single pole, No. 1221-I/W/B.

4. Motion Sensor Light Switches:

a. Appropriate for use size and geometry of the room.

b. Infrared, ultrasonic or dual technology type as appropriate for the use, size and geometry of the room.

c. Cooper controls or accepted equivalent.

B. Insertion Receptacles:

1. Grounded, except as noted.

2. Similar to Harvey Hubbell Catalog Numbers as Follows:

a. Duplex Convenience - Specification Grade.

1) 125 volts, 2 pole, 3 wire, U-ground slot.

2) 15 amp, similar to 5262-I.

3) 20 amp, similar to 5362-I.

b. Special Receptacles: Specification grade, rating and type as indicated or to suit equipment served by the receptacle.

NOTE: Contractor responsible to verify exact configuration of special receptacles against plug types on equipment or provide matching plug and connection of plug to equipment.

3. Ground Fault Interrupter Receptacles: Self-protecting type, similar to Leviton Catalog No. 6598-I. Leviton Decora series in public areas.

C. Device Plates:

1. One piece solid.

2. For receptacles with other than 120 volt, inscribe voltage available.

3. Offices: Smooth plastic to match surface or as selected by the Consultant. Contractor shall coordinate with the Consultant or interior finish.

4. Securing screws shall match color of faceplate.

D. Acceptable Manufacturers: Similar to local wall switches, receptacles, device plate and pilot lights.

1. Arrow-Hart Inc.

2. Bryant Electric.

3. Harvey Hubbell Inc.

4. Leviton.

5. Cooper Wiring Devices.

6. Or accepted equivalent

2.06 INSERTS AND SUPPORTS

A. Maximum Loading: 75 percent of rating.

B. Inserts:

1. Expansion Cases and Concrete Fasteners: Grinnel Figure 117 and Series R or accepted equivalent.

2. Concrete drilled to receive required expansion cases of concrete fasteners.

3. All inserts shall be approved by the Structural Engineer.

C. Supports from Building Construction: Beam clamps, cantilever brackets, or other acceptable means after review.

D. Grouped Lines and Services: Supported by trapeze hangers of bolted angle or channels.

E. Where building construction is inadequate, provide additional acceptable framing after review.

F. All electrical equipment shall be installed as indicated and per Island of Oahu earthquake zone requirements.

2.07 TELECOMMUNICATION (VOICE AND DATA) AND TELEVISION SYSTEM

A. Empty conduit raceway system following BICSI EIA/TIA standards as indicated on the drawings.

B. Components:

1. Wall Outlets: 4-11/16 inch square with plastic ring and bushed coverplate.

2. Device plates for telecommunication outlets shall be single gang provided by telecommunication contractor. Coordinate with telecommunication contractor

3. Grounding per BICSI EIA/TIA 606 Standard.

2.08 NAMEPLATES

A. Nameplates Provided For:

1. Disconnect switches.

2. Circuit breakers.

3. Motor controllers.

PART 3 - EXECUTION

3.01 GENERAL

A. Drawings are diagrammatic and indicate general arrangement of systems and work included. Follow Drawings in laying out work and check Drawings of other trades relating to work to verify spaces in which work will be installed. Maintain headroom and space condition to all points.

B. Set and layout work on premises. Base all measurements from approved bench marks and correct setting or work to agree with established lines and levels. Should discrepancy exist between actual measurements and those indicated, notify the Consultant in writing and do not proceed with work affected until written instructions are received from the Consultant.

C. All minor appurtenances not specifically mentioned herein that are necessary to make a complete working installation, are included in the work with any necessary field engineering or detail drawings required. Submit Drawings as specified in item entitled “SUBMITTALS” hereinabove.

D. Install equipment, rigid and secure, plumb and level, and in true alignment with related and adjoining work. No welding of electrical materials for attachment or support is permitted.

E. Provide supporting members as required to set and connect rigidly the work.

F. Correct noise and vibration exceeding specified limits or due to faulty equipment at no expense to HHSC.

G. Cutting: Cutting shall conform with requirements as approved by the Consultant.

H. Patching: Patching shall conform with requirements as approved by the Consultant.

3.02 INSTALLATION OF RACEWAYS

A. Run raceways concealed, except as noted.

B. Supports: Supports shall have adequate strength to support equipment wiring and enclosures against earthquake forces.

1. Ceiling trapeze, strap hangers, or wall brackets.

2. U-bolt or pipe straps at each floor level of riser raceways.

3. Secure raceways to supports with pipe straps or U-bolts.,

4. Maximum Spacing: 7 feet on centers for metallic conduit and wireways.

5. Mount Support to Structure With:

a. Toggle bolts on hollow masonry.

b. Expansion shields or insets on concrete.

c. Machine screws on metal.

d. Wood screws on wood.

e. Nails, Rawl plugs or wood plugs; not permitted.

C. Run exposed raceways parallel with or at right angles to walls.

D. Clearance from Water, Steam or Other Piping: Minimum three inches separation from hot water pipes, except four inches from pipe cover at crossings.

E. Keep raceways clear of motor foundations and underside of boilers.

F. Raceways for outlets in hung ceiling shall be run in hung ceilings. Provide supports to structure. Do not support to ceiling systems.

G. Run raceways in walls vertically.

H. Maintain grounding continuity of interrupted metallic raceways with minimum No. 2 AWG insulated, copper ground conductor and ground bushings at conduit terminations.

I. For empty raceways over 10 feet long, provide with pull wire or 200 pound strength nylon pull line.

J. Seal around raceway penetrations through walls and floors and provide fire rated, approved compound consistent with penetrated fire rated walls and floors.

K. Raceways for telecommunication system shall comply with requirements for premise wiring/Category 5e type cabling as required by BICSI EIA/TIA standards.

L. Steel Conduit:

1. Paint threads of field threaded conduit with graphite base pipe compound.

2. Install in exposed locations subject to physical damage, such as from floor to 8 feet above floor.

3. Direct Buried Conduit: Provide continuously with waterproofing tape, half lapped, or two coats of asphaltum paint, dried thoroughly between paintings and before backfilling.

4. Not permitted in terrazzo floor finish and in concrete.

5. Minimum one inch cover in concrete fill.

M. EMT: Install generally for interior dry locations; above dry ceilings, in dry walls and in concrete above ground floor.

N. Flexible Steel Conduit:

1. For short connections where rigid conduit is impracticable. Maximum length limited to five feet.

2. From Outlet Box to Recessed Lighting Fixture: Minimum four feet, maximum six feet length.

3. For final connection to motor terminal box and transformers with polyvinyl sheathing. Minimum Length: 18 inches with minimum 50 percent slack.

4. Not permitted except as stated above.

O. Outlet Boxes:

1. Set square and true with building finish and secure to building structure by adjustable strap irons.

2. Verify outlet locations in finished spaces with Drawings of interior details and finishes.

3. Provide barriers between switches connected to different phase for voltages exceeding 150 volts to ground.

P. Junction Boxes:

1. Location: Clear of other work. Conceal junction boxes in finished spaces and maintain accessibility.

2. Support from building structure, independent of conduit. Do not support to ceiling systems.

3. Outlet boxes for fixtures recessed in hung ceiling; accessible through opening created by removal of fixture.

4. Motor Terminal Boxes: Coordinate with motor branch circuit conduit and wiring.

3.03 INSTALLATION OF WIRE AND CABLE

A. 600 Volt Cable: Separate raceways for conductors of 120/208, 277/480 volt and emergency systems, except 480 volt motor branch circuit wiring and related 120 volt control wiring.

B. Low voltage cable shall be installed in separate raceways.

C. MC Cable:

1. Use for time share branch circuit wiring only not including home runs.

2. Use for branch circuit wiring luminaire to luminaire and wiring device to wiring device on the same circuit.

3. Support and secure per code.

3.04 INSTALLATION OF POWER, CONTROL AND ALARM WIRING SYSTEMS

A. General: Complete wiring from service to distribution and utilization equipment and as described below.

B. Motor Wiring:

1. Under Electrical Work, Unless Otherwise Noted:

a. Disconnect switches.

b. Motor controllers unless furnished by other trades or equipment supplier.

c. Wiring From Power Source To: Motors, disconnect switches and control devices, motor controller and motor control centers.

2. Motor Terminal Boxes: Provide motor suppliers with minimum requirements to receive indicated wiring.

3. Raceways:

a. Rigid conduit or electric metallic tubing except flexible (with slack) for final motor connection.

b. Install clear of motor foundations.

c. Allow clearance for motor removal and maintenance.

C. HVAC Temperature Control and Motor Interlock Wiring: Under HVAC Work:

1. Temperature control wiring and devices.

2. Motor interlock wiring in accordance with sequence of operation and/or wiring diagrams provided under DIVISION 15 - MECHANICAL.

D. Fire Smoke Dampers: Coordinate location of all fire smoke dampers. Provide 120V emergency power and interface with fire alarm system.

E. Mechanical System Control Panels: Provide power to all mechanical systems control panels and energy management system controllers. Coordinate with Mechanical Contractor.

F. Wiring Diagrams: Obtain required wiring diagrams for respective work of other trades and provide wiring as indicated by these diagrams and in accordance with applicable Specifications.

3.05 GROUNDING

A. Motors, metallic enclosures, raceways and electrical equipment grounded according to requirements of National Electrical Code, Article 250. Ground connection to equipment, raceways, motors, grounding type receptacles and other metallic parts directly exposed to ungrounded electric conductors by continuous metal raceways, or No. 14 AWG minimum, AWG copper, NEC type TW, green insulated. At water meter and “Di-electric” 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 bare copper. Connection shall not interfere with installation or removal of water meter. Install ground wire, size in accordance with NEC.

B. All grounding wire runs within buildings shall be in rigid steel conduits. Where practicable, all ground wires shall be run together with circuit conductors.

3.06 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 subject to approval of the Consultant.

B. Attach electrical equipment to wood by wood screws, and attach to concrete by embedded or expansion inserts and bolts. Use power-driven charge with approval only. Close unused knock-outs on boxes or enclosures with metal cap. Powder actuated fasteners shall not be used on precast concrete. Do not use powder activated fasteners to attach enclosures and boxes to the building.

C. Wipe clean all exposed raceways and enclosures with rag and solvent. Prime painting and finishing of unfinished raceways and enclosures shall conform to DIVISION 9 - FINISHES. Factory finished enclosures shall not be painted except in finished spaces, such as public rooms, offices, etc. Panelboards, 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.

E. Label all panels and service equipment with neatly printed or lettered labels. Securely attach labels to equipment.

3.07 CLEANING

A. Brush and clean work prior to concealing, painting and acceptance. Performed in stages if directed.

B. Clean and repair soiled or damaged painted exposed work and match adjoining work before final acceptance.

C. Remove debris from inside and outside of material, equipment and structures.

3.08 FIELD TESTS

A. General: Perform field tests in the presence of the Consultant except as otherwise specified. Provide required labor, materials equipment and connections to perform tests, document results and submit them to the Consultant for approval and repair or replace all defective work.

B. Test on 600 Volt Wire and Cable: Perform the following test prior to connecting the equipment:

1. All wiring shall be tested to ensure proper operation according to functions specified.

C. Tests on Low Voltage Distribution Equipment: Open and close switching devices under load.

D. Tests on Motor Controllers: Verify operation of controllers and open and close controllers and load break switches under load.

END OF SECTION

SECTION 16500 - LIGHTING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Materials, equipment, fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction.

2. Lighting fixtures (luminaires).

3. Components.

4. Contractor shall take delivery, store, assemble, install and connect fixtures furnished by the HHSC.

5. Provide all 0-10V wiring for all 0-10V dimmable drivers.

1.02 SUBMITTALS

A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.

B. Submittals shall be complete, bound under cover and indicating project title. Contractor shall review submittals for conformance with Contract Documents, make necessary revisions and submit to the Consultant, indicating the following:

1. Manufacturer's name, brand name, and catalog reference of equipment supplied.

2. Details of construction and finishes of fixtures.

3. Drawings: To scale (indicate scale).

4. Photometric data, including optical performance rendered by independent testing laboratory developed according to IES Methods as follows:

a. For Down and Semi-Down Lights Used For General Illumination:

1) Coefficients of utilization.

2) Candlepower data, presented graphically and numerically, in 10 degree increments (5 degree, 15 degree, etc.). Data developed for up and down quadrants normal, parallel, and at 45 degree to lamps if light output is asymmetric.

3) Zonal lumens stated numerically in 10 degree increments (5 degree, 15 degree, etc.) as above.

b. For Other Fixtures: Candlepower curves, presented graphically and numerically, in 10 degree increments (5 degree, 15 degree, etc.), or smaller increments for narrow-beam fixtures.

5. Luminaire and Lamp Lists: Submit list of luminaires and lamp types of quantities.

6. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.

1.03 QUALITY ASSURANCE

A. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.

B. Supply all equipment and accessories new, free from defects and listed by Underwriters' Laboratories, Inc., or bearing its label.

C. Supply all equipment and accessories in compliance with the applicable standards listed in this Section and with all applicable United States and local codes.

D. All items of a given type shall be the products of the same manufacturer.

1.04 DELIVERY, STORAGE AND HANDLING

A. Ship equipment in its original packages to prevent damaging or entrance of foreign matter. All handling performed in accordance with manufacturer's recommendations. Provide protective coverings during construction.

B. Replace at no expense to HHSC, equipment or materials damaged during storage or installation as directed by the Consultant.

1.05 OPERATION AND MAINTENANCE DATA

A. Maintenance Data: Include replacement parts list.

1.06 WARRANTY

A. Warranty of equipment and labor by manufacturer for one year from written notification of acceptance by the HHSC.

PART 2 - PRODUCTS

2.01 GENERAL

A. Type of fixtures indicated by letters or letters followed by numbers. See drawings for tabulation of fixture types.

B. Light Emitting Diodes (LED): Minimum CRI 80, 3000K or 3500K color temperature as specified, minimum 50,000 rated life.

C. Sheet Metal Fixture Housings: Welded construction, with exceptions noted under fixture types.

D. Fixtures with baffles riveted or welded to housing; not acceptable.

E. Fixture catalog numbers used to illustrate equipment type do not necessarily denote required mounting equipment or accessories. Provide accessories to suit.

F. Removable From Fixture Housings: Chains, springs, hinges or other fastening devices required on apertures, reflectors and baffles.

2.02 FIXTURE CONSTRUCTION

A. Free of light leaks.

B. Weatherproof and Vaportight Fixture Finishes: Weatherproof enamel, galvanized or epoxy, including hangers.

2.03 DRIVERS

A. General:

1. High power factor, except as noted.

2. Of required voltage and frequency.

3. Dimmable where specified.

2.04 CONTACT SURFACES

A. Aluminum to Bronze: Coating equal to Minnesota Mining and Manufacturing Co., No. 1706, “Coro-Guard,” applied to both surfaces.

B. Aluminum to Concrete: Coating of polyurethane base paint, similar to Lehman Bros. “Ox-O-Deck”; or asphaltum.

2.05 WIRING

A. 120/208 Volt Luminaire Wiring: 300 volt, 302 degree F (150 degree C), Type AP or SFF, beginning at separately mounted outlet box.

B. 277/480 Volt Luminaire Wiring: 600 volt, 220 degree F (105 degree C). Appliance-type AWM or THHN, beginning at separately mounted outlet box.

C. Splices: Mechanical spring pressure connector or crimp connector.

D. Minimum 3/8 inch (9.5 mm) flexible conduit connections for recessed fixtures except as indicated. Maximum length: 6 feet, 0 inches (1.85 M).

2.06 SUPPORTS

A. All fixture supports shall be suitable for earthquake Zone 3.

B. All Ceiling Mounted Fixtures: Carry weight of fixture to building structure, clear of ducts or pipes. Do not support to ceiling systems or supports for mechanical systems. For fluorescent troffers, provide a minimum of three suspensions and for incandescent small luminaires. Provide minimum of one suspension support to concrete ceiling or roof structure.

C. Pendant Mounted Fixtures: With conduit stems supported to building structure. Self-leveling fittings.

D. Wall Mounted Fixtures: Support fixture directly to structure of wall (i.e., studs).

2.07 FINISHES

A. Painted Surfaces, Except as Noted:

1. Synthetic enamel, with acrylic, aklyd, epoxy, polyester, or polyurethane base, light stabilized, baked on at 350 degrees F (177 degrees C) minimum, catalytically or photochemically polymerized after application.

2. White Finishes: Minimum of 85 percent reflectance.

3. Metal Parts: Cleaned and treated with phosphate or chromate bonding process after fabrication for maximum paint adhesion.

B. Unpainted Aluminum Surfaces:

1. Satin anodized, except as noted.

C. Plastic Lenses and Diffusers: Destaticize, clear acrylic unless otherwise noted. Polycarbonate plastic shall be U.V. stabilized.

D. Reflectors and Baffles: Free of marks, labels or blemishes.

2.08 BASE BID MANUFACTURERS

A. Base bid for lighting fixtures on manufacturers indicated.

PART 3 - EXECUTION

3.01 INSTALLATION OF LIGHTING FIXTURES

A. Locations:

1. On Drawings: Dimensioned and Diagrammatical.

2. Coordinate with Architectural Reflected Ceiling Drawings, Interior Design Drawings and Mechanical Drawings.

3. Coordinated space conditions with other trades.

4. Fixture Rows: In straight lines except as noted.

5. Pendant or Surface Mounting: As noted.

B. Mounting:

1. Ceiling Construction:

a. Refer to Architectural Drawings for finish schedules.

b. Refer to manufacturer's installation details and applicable codes for required fixture mounting accessories.

c. Provide proper type of trim and accessories to match suspended ceilings.

2. Recessed in Plaster Ceilings - Provide Plaster Frames:

a. For setting, under General Construction Work.

b. With bottom of frames flush with finished ceiling and forming screed edge.

c. Individually Pendant Mounted Units: With canopies for pendants and junction box at the ceiling line for each fixture.

d. Continuously Pendant Mounted Units: With canopies and swivel ball aligners for pendants and junction box for each continuous run except as noted.

C. Reflector Cones, Baffles, Aperture Plates, and Decorative Elements: Install after completion of ceiling tiles, painting and general cleanup. Wipe clean of dust and fingerprints.

D. Replace blemished, damaged, or unsatisfactory fixtures and ballasts as directed.

E. Relamp all non-operating fixtures immediately prior to HHSC's acceptance of building.

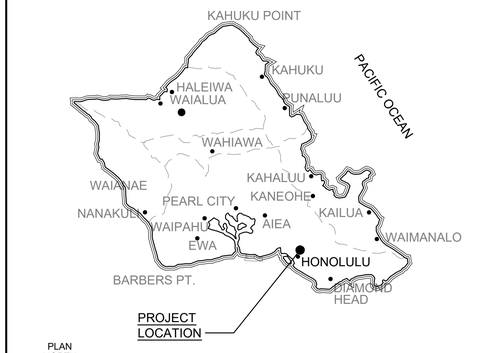
END OF SECTION

SUN DECK ROOF

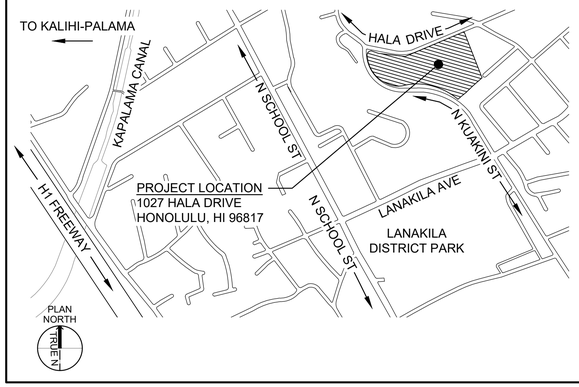
MALUHIA

1027 HALA DRIVE
HONOLULU, OAHU, HAWAII 96817
TAX MAP KEY: 1-6-009:004

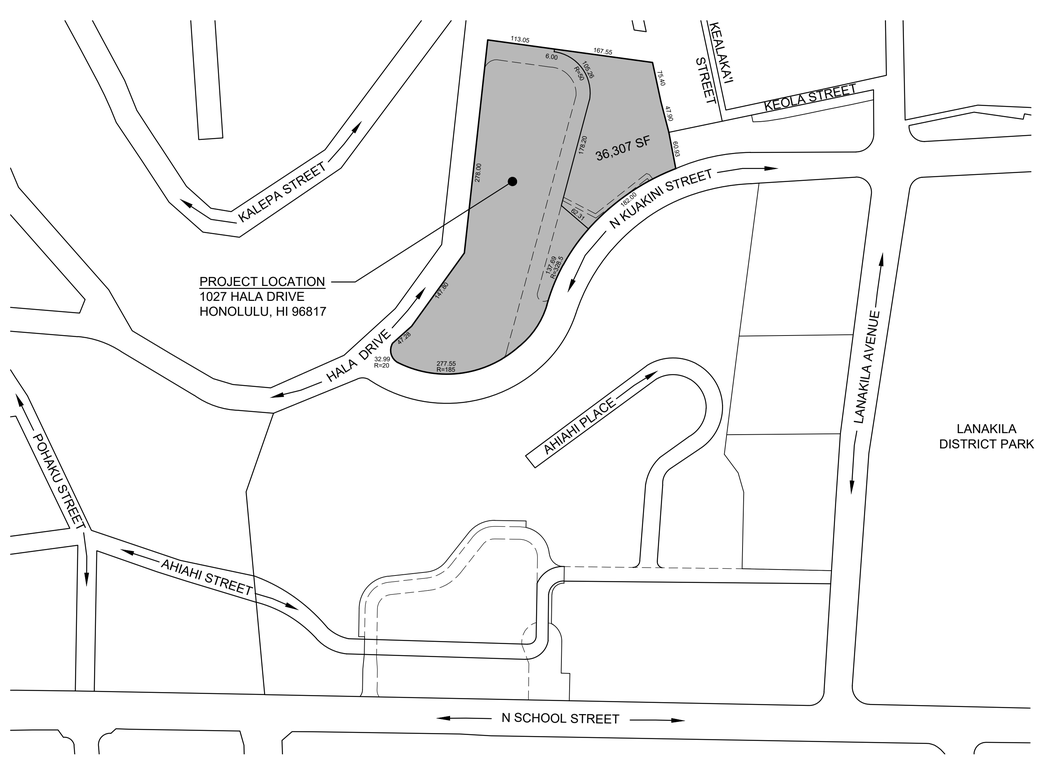
ISLAND MAP (NTS)



LOCATION MAP (NTS)



VICINITY MAP (NTS)



DESIGN TEAM

STRUCTURAL:
i3NGINEERING, INC
201 MERCHANT STREET, #905
HONOLULU, HI 96813
PH: (808) 536-7692

ELECTRICAL:
ALBERT CHONG ASSOCIATES, INC
1117 KAPAHULU AVENUE
HONOLULU, HI 96816
PH: (808) 738-5355

ARCHITECT:
INK ARCH, LLC
650 IWILEI ROAD, #288
HONOLULU, HI 96817
PH: (808) 536-1174

ENVIRONMENTAL CONSULTANT:
ENVIROQUEST, INC
98-029 HEKAHA STREET, #21
AIEA, HI 96701
PH: (808) 486-5881

MECHANICAL/PLUMBING:
MECHANICAL ENTERPRISES, INC
501 SUMNER STREET, #503
HONOLULU, HI 96817
PH: (808) 591-9038

PROJECT DESCRIPTION

MALUHIA HOSPITAL SUN DECK ROOF SCOPE OF WORK INCLUDES, BUT IS NOT LIMITED TO:

- NEW METAL ROOF ABOVE SECOND FLOOR SUNDECK

PROJECT SUBMITTAL

FINAL DESIGN
OCT 2025

INK ARCHITECTS

INK ARCH LLC
650 Iwilei Road, Suite 288
Honolulu, Hawaii 96817
Phone: 808.536.1174
Fax: 808.536.1559
E-mail: ink@inkarch.com

Revisions:

No.	Description	Date

Project Title:

MALUHIA

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

SCOTT R.J. HARADA
LICENSED PROFESSIONAL ARCHITECT
No. 14637
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE
EXP. DATE: 04/30/26

Sheet Title:

TITLE, LOCATION MAP, VICINITY MAP, PLOT PLAN, DESIGN TEAM, & PROJECT DESCRIPTION

Project Phase:

FINAL DESIGN

Date:

OCT 2025

Sheet No.:

001

GENERAL NOTES

THE FOLLOWING UNDERLINED TERMS AS USED HEREIN SHALL BE DEFINED AS:

- THE OWNER: HAWAII HEALTH SYSTEM CORPORATION (HHSC)
- THE OWNER'S REPRESENTATIVE: HAWAII HEALTH SYSTEM CORPORATION (HHSC)
- THE ARCHITECT: INK ARCH, LLC

1. LAWS AND ORDINANCES: AS USED HEREIN SHALL MEAN ALL COUNTY, STATE, AND NATIONAL CODES, ORDINANCES, STANDARDS, RULES, AND REGULATIONS OF ANY NATURE WHICH ARE PERTINENT TO, OR REGULATORY OVER, THE WORK COVERED BY THE CONTRACT DOCUMENTS OF THIS PROJECT. ALL CONTRACTORS SHALL COMPLY FULLY WITH ALL APPLICABLE LAWS AND ORDINANCES. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT BUILDING CODE AND THE LATEST STATE OF HAWAII AMENDMENTS OR THE RESPECTIVE CITY AND/OR COUNTY AMENDMENTS BY EACH AGENCY HAVING JURISDICTION OF THE PROJECT.

2. CONFLICT: IN THE CASE OF ANY CONFLICT WHEREIN THE METHODS, OR STANDARDS OF INSTALLATION, OR THE SPECIFIED MATERIALS ARE NOT IN COMPLIANCE WITH THE REQUIREMENTS OF THE LAWS OR ORDINANCES, THE LAWS OR ORDINANCES SHALL GOVERN. IN THE CASE OF A DISCREPANCY IN THE DRAWINGS OR SPECIFICATIONS, BUT NOT DIRECTLY RELATED TO THE PROVISIONS, CODES, OR ORDINANCES, THE CONTRACTOR SHALL 1) PROVIDE THE BETTER QUALITY, OR GREATER QUANTITY OF WORK, OR 2) COMPLY WITH THE MORE STRINGENT REQUIREMENT IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION, OR 3) REQUEST IN WRITING ADDITIONAL CLARIFICATION OR INFORMATION. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ALL CONFLICTS IN WRITING.

3. CONDITIONS OF THE WORK: THE INFORMATION INDICATED ON THE DRAWINGS IS BASED ON LIMITED FIELD INVESTIGATION AND ON THE AVAILABLE RESOURCES AT THE TIME OF DOCUMENT PREPARATION. AS A RESULT, THE ACCURACY AND COMPLETENESS OF THE INFORMATION IS NOT GUARANTEED ON DATE OF COMMENCEMENT OF CONSTRUCTION. THEREFORE, THE CONTRACTOR SHALL VERIFY THE DIMENSIONS SHOWN ON THE DRAWINGS WITH ACTUAL FIELD MEASUREMENTS, EXAMINE THE JOB SITE, VERIFY ALL FIELD CONDITIONS AND PERTINENT DIMENSIONS PRIOR TO PREPARING LAYOUTS, SUBMITTALS, SHOP DRAWINGS, AND/OR ORDERING ANY MATERIAL, AND PROVIDE THE LABOR AND MATERIALS REQUIRED TO COMPLETE THE REQUIRED WORK.

4. WORKMANSHIP: ALL WORK SHALL BE PERFORMED IN A PROFESSIONAL MANNER. WORKMANSHIP SHALL BE REPRESENTATIVE OF THE BEST HAWAII INDUSTRY STANDARD OF THE RESPECTIVE TRADES. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING PRIOR TO THE COMMENCEMENT OF WORK, IF THERE ARE ANY DIMENSIONAL DISCREPANCIES, OR IF THERE ARE ANY CONDITIONS THAT EXIST WHICH MAY PREVENT THE CONTRACTOR'S WORKMANSHIP AND PERFORMANCE OF WORK PER CONTRACT DOCUMENTS, AND/OR OF ANY AND ALL ADDITIONAL WORK THAT MAY BE REQUIRED AS A RESULT OF THE OBSERVED CONDITIONS.

5. OMISSIONS: OMISSIONS OF DRAWINGS, OR SPECIFICATIONS, OR THE OMISSIONS OF DETAILS OF WORK WHICH ARE MANIFESTLY NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS AND SPECIFICATIONS, AND/OR WHICH ARE PER HAWAII INDUSTRY STANDARD CUSTOMARILY PERFORMED, SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH OMITTED, OR INCORRECTLY DESCRIBED DETAILS OF THE WORK, BUT SHALL BE PERFORMED AS IF FULLY AND CORRECTLY SET FORTH AND DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR UPON DISCOVERY OF OMISSION SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE VERBALLY OF SUCH OMISSIONS AND PROVIDE A WRITTEN STATEMENT OF THE OMISSIONS WITHIN (2) WORKING DAYS OF VERBAL NOTIFICATION.

6. INTENT OF THE DRAWINGS: THE DRAWINGS ARE INTENDED TO DEFINE AND ESTABLISH THE PHYSICAL REQUIREMENTS OF THE PROJECT, I.E., THE DESIGN, LOCATIONS AND DIMENSIONS OF THE WORK, BASED ON RECOGNIZED STANDARDS EVEN IF NOT ACTUALLY SHOWN, BUT REASONABLY INFERRED. THE CONTRACTOR SHALL REVIEW AND VERIFY THE INFORMATION ON ALL DRAWINGS WITHIN A REASONABLE TIME BEFORE PERFORMING ANY WORK AND UPON DISCOVERY OF ANY OMISSION AND/OR CONFLICT IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING OF ANY OMISSIONS, CONFLICTS AND DISCREPANCIES. THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL SUBCONTRACTORS/TRADES TO ACHIEVE THE DESIGN INTENT AND SPECIFIED REQUIREMENTS AND IS RESPONSIBLE TO COMPLETE ANY AND ALL WORK ASSOCIATED WITH SUCH COORDINATION.

7. TEMPORARY PROTECTION: THE CONTRACTOR SHALL ERECT AND MAINTAIN A TEMPORARY SAFETY BARRICADE A MINIMUM OF 5'-0" OUTSIDE THE PROJECT AREA AS APPLICABLE TO COMPLETELY ENCOMPASS THE PROJECT AREA TO PROTECT THE OCCUPANTS AND THE PUBLIC. THE BARRICADE SHALL REMAIN DURING THE DURATION OF THE PROJECT OR UNTIL APPROVAL IS GIVEN BY THE OWNER'S REPRESENTATIVE FOR ITS REMOVAL. A DESIGNATED STAGING AREA WILL BE ALLOWED AT THE PROJECT SITE AS INDICATED ON THE DRAWINGS. STAGING AREA SHALL BE USED FOR MATERIALS, DUMPSTER, HEAVY EQUIPMENT, LIFT, ETC. THE CONTRACTOR SHALL ERECT CONSTRUCTION FENCING AROUND THEIR DESIGNATED STAGING AREA TO PREVENT UNAUTHORIZED PERSONS FROM ENTERING. ANY EXTERIOR BARRICADES AND FENCING SHALL BE LOCATED AS REQUIRED AND IN SUCH A MANNER AS TO MAINTAIN AT ALL TIMES ALL REQUIRED FIRE LANES AND FIRE EXITS FROM THE PROJECT BUILDING/SITE AS WELL AS ADJACENT OCCUPIED BUILDINGS DURING THE CONSTRUCTION CONTRACT PERIOD.

8. COMPLETION OF THE WORK: THE CONTRACTOR SHALL IN THE EXECUTION OF WORK BY ALL TRADES, PERFORM ANY AND ALL CUTTING, PATCHING, REPAIRING, RESTORING AND THE LIKE NECESSARY TO COMPLETE THE WORK. THE CONTRACTOR SHALL RESTORE ANY DAMAGED OR AFFECTED SURFACES RESULTING FROM THE WORK OF THIS CONTRACT TO THEIR ORIGINAL CONDITION AND FINISH TO THE SATISFACTION OF THE OWNER. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO SAFETY PRECAUTIONS, FASTENERS, ANCHORAGES, ETC. UNLESS NOTED OTHERWISE.

9. PERMITS: THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS REQUIRED.

10. RECORD DRAWINGS: THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A SET OF "AS-BUILT" DRAWINGS OF HIS WORK.

11. DIMENSIONS: UNLESS OTHERWISE NOTED IN THE CONSTRUCTION DOCUMENTS, ALL DIMENSIONS ARE TAKEN TO THE [FACE OF EXISTING STRUCTURE, OR] FACE OF FINISH CONSTRUCTION. WRITTEN DIMENSIONS PREVAIL. DO NOT SCALE DRAWINGS UNLESS GRAPHIC SCALE IS PROVIDED ON THE SPECIFIC DRAWING. SHOULD DIMENSIONAL DISCREPANCIES BE FOUND, CONTACT THE OWNER'S REPRESENTATIVE IMMEDIATELY FOR CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK.

12. CLEAN UP: THE CONTRACTOR SHALL CLEAN AND REMOVE ALL TRASH, DIRT, DEBRIS, AND SPILLAGE ARISING FROM THE WORK AREA DAILY TO THE SATISFACTION OF THE OWNER AND THE ARCHITECT, INCLUDING BUT NOT LIMITED TO: CLEANING OF DIRT, PUTTY, PAINT, OVERSPRAY, DUST, ETC. FROM FLOORS, WORK AREAS, COUNTER TOPS, DOOR AND WINDOW FACES AND FRAMES.

13. SAFE OPERATIONS: THE CONTRACTOR SHALL ENSURE THAT ANY AND ALL CONSTRUCTION ACTIVITIES DO NOT IMPACT OR INTERFERE WITH NORMAL OR SAFE OPERATIONS AT THE PROJECT SITE. THE CONTRACTOR SHALL TAKE ALL SAFETY PRECAUTIONS NECESSARY TO PROTECT THE BUILDING OCCUPANTS AND THE PUBLIC THROUGHOUT THE DURATION OF THIS PROJECT.

14. PREVENT DAMAGE: THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO EXISTING AND COMPLETED STRUCTURES/LANDSCAPING/SITE IMPROVEMENTS OF THIS PROJECTS AS WELL AS ON ADJACENT PROPERTY(IES) TO THAT OF THIS CONTRACTED WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR LABOR/MATERIAL COSTS OF ANY DAMAGES TO ANY CONSTRUCTED WORK AND/OR EXISTING STRUCTURES/LANDSCAPING/SITE IMPROVEMENTS CAUSED BY HIS OPERATIONS.

15. DO NOT BLOCK EXITS: THE CONTRACTOR SHALL NOT BLOCK OR OBSTRUCT ANY FIRE LANES AND FIRE EXIT WAYS DURING THE EXECUTION OF WORK THROUGHOUT THIS PROJECT DURING THE CONSTRUCTION CONTRACT PERIOD.

16. SOUND AND NOISE CONTROL: THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH THE OWNER'S REPRESENTATIVE ALL WORK THAT WILL GENERATE EXCESSIVE NOISE WHICH MAY DISRUPT NORMAL OPERATING ACTIVITIES.

17. MATERIAL DISPOSAL: UNLESS NOTED IN THE DRAWINGS OR SPECIFICATIONS, MATERIALS RESULTING FROM THE DEMOLITION WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS OR AS SPECIFIED.

18. DEFINITIONS:
   a) "FURNISH" MEANS "FURNISH ONLY". MATERIALS OR ITEMS TO BE FURNISHED SHALL BE NEW AND CONSIGNED TO THE CONTRACTOR AND DELIVERED TO THE SITE.
   b) "INSTALL" MEANS "INSTALL ONLY" FURNISHED MATERIALS OR ITEMS. SUCH MATERIALS OR ITEMS SHALL BE RECEIVED AT THE SITE, UNLOADED, STORED, PROTECTED, AND INSTALLED IN PLACE, INCLUDING FINAL CONNECTION, UNLESS SUCH WORK IS SPECIFICALLY EXCLUDED.
   c) "PROVIDE" MEANS "FURNISH AND INSTALL" COMPLETE, IN PLACE AND READY FOR USE, INCLUDING FINAL CONNECTIONS. ALL WORK SHOWN IN THE DRAWINGS SHALL BE UNDERSTOOD AS "PROVIDE" WHETHER NOTES INDICATING "PROVIDE" ARE INDICATED OR NOT.
   d) WORDS "CONTRACTOR SHALL" ARE IMPLIED AND SHALL BE SO UNDERSTOOD WHEREVER A DIRECTION IS STATED IN IMPERATIVE MOOD AND DIRECTION "PROVIDE" IS USED.
   e) UNLESS SPECIFICALLY STATED AS "EXISTING", ALL MATERIALS SHALL BE NEW IN ALL CASES WHEN MATERIAL NOTES ARE ADDED TO DRAWINGS. USES OF "FURNISH" AND "PROVIDE" AUTOMATICALLY MEAN "NEW" UNLESS SPECIFICALLY STATED AS "EXISTING".

19. PRE-CONSTRUCTION ASSESSMENT: BEFORE STARTING ANY WORK ON ANY EXISTING CONSTRUCTION THE CONTRACTOR SHALL MAKE A THOROUGH AND COMPLETE INVESTIGATION OF ANY RECIPIENT SURFACES AND DETERMINE THEIR SUITABILITY TO RECEIVE REQUIRED ADDITIONAL CONSTRUCTION AND FINISHES. THE CONTRACTOR SHALL MAKE WHATEVER REPAIRS AND CONDITIONING REQUIRED TO PROPERLY PREPARE SUCH SURFACES.

20. EXISTING UTILITIES: PRIOR TO COMMENCING ANY CONSTRUCTION THE CONTRACTOR SHALL COORDINATE AND VERIFY THE LOCATIONS OF ALL UNDERGROUND OR OVERHEAD UTILITY LINES WITH THE OWNER'S REPRESENTATIVE TO AVOID CONFLICTS AND/OR SHUT DOWN DURING ALL STAGES OF CONSTRUCTION.

21. SUBCONTRACTORS: THE USE OF UNLICENSED CONTRACTORS IS STRICTLY PROHIBITED. THE CONTRACTOR IS RESPONSIBLE TO THE OWNER FOR ACTIONS OF THE CONTRACTOR'S EMPLOYEES, SUBCONTRACTORS AND THEIR AGENTS AND EMPLOYEES, AND OTHER PERSONS PERFORMING ANY PORTIONS OF WORK UNDER CONTRACT WITH THE CONTRACTOR.

22. HAZARDOUS MATERIALS: HAZARDOUS MATERIAL ABATEMENT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AS INDICATED IN THE DRAWINGS AND/OR SPECIFICATIONS. BURNING OF ANY DEBRIS IS NOT PERMITTED. EXPLOSIVES ARE NOT ALLOWED.

23. WOOD: ALL NEW WOOD SHALL BE TERMITE TREATED. ALL PAINT ON WOOD SURFACES SHALL CONTAIN A MILDEWCIDE ADDITIVE. PROVIDE WRITTEN CERTIFICATION OF TERMITE TREATMENT.

24. DISSIMILAR METAL PROTECTION: THE CONTRACTOR SHALL PROVIDE DISSIMILAR METAL PROTECTION.

25. MECHANICAL AND ELECTRICAL ITEMS: ALL NEW EXPOSED MECHANICAL AND ELECTRICAL PIPING, CONDUITS, DUCTWORK, SUPPORTS AND RELATED FITTINGS, AND FASTENERS ARE TO BE PAINTED THE SAME COLOR/SHEEN AS THE COLOR/SHEEN OF THE SURFACE IT IS ATTACHED TO UNLESS OTHERWISE NOTED.

26. PAINTING: PAINT ALL NEW WORK THAT IS COMPLETED AND LEFT EXPOSED TO VIEW, UNLESS OTHERWISE NOTED. PAINT PRODUCT(S) SHALL BE COMPATIBLE TO THE SUBSTRATE OR SURFACE IT IS APPLIED TO AND SHALL RECEIVE THE PROPER SURFACE PREPARATION AND COATINGS AS RECOMMENDED BY THE PAINT MANUFACTURER. THE CONTRACTOR SHALL CONFIRM WITH THE ARCHITECT ALL FINISH PAINT COLOR AND SHEEN SELECTION(S).

27. DOWNSPOUTS & GUTTERS: CLEAN ALL DOWNSPOUTS OF ALL DEBRIS AND ENSURE WATER TIGHTNESS. PREVENT ANY AND ALL CONSTRUCTION DEBRIS FROM DISRUPTING THE DRAINAGE FLOW THROUGHOUT DURATION OF THE PROJECT.

28. PROTECTION OF PROPERTY DURING WORK: THE CONTRACTOR SHALL PROVIDE AND MAINTAIN A WATERPROOF AND SECURE COVERING FOR ANY AND ALL BUILDING COMPONENTS EXPOSED TO WEATHER, THEFT, OR VANDALISM AFTER THE REMOVAL OF ANY EXTERIOR BUILDING COMPONENT INCLUDING BUT NOT LIMITED TO ROOFING, EXTERIOR WALLS, FLOORS, SIDING, WINDOWS, DOORS ETC.

29. ROOFING MANUFACTURER: THE CONTRACTOR SHALL VERIFY AND COORDINATE WITH ROOFING MANUFACTURER, ALL CONDITIONS (NEW OR EXISTING TO REMAIN) THAT MAY INTERFERE (CONDUITS, PIPING, FLASHING, ETC.) WITH THE ENTIRE ROOF SYSTEM AND SHALL CONSULT WITH THE ROOFING MANUFACTURER FOR RECOMMENDATIONS.

30. SHEET METAL WORK: FLASHING SHALL BE PROPERLY INSTALLED IN ACCORDANCE WITH THE LATEST SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA) GUIDELINES/MANUAL.

31. COMPATIBILITY OF MATERIALS: ENSURE COMPATIBILITY OF MATERIALS AND SYSTEMS UNLESS A SINGLE SOURCE MANUFACTURER OF MULTI COMPONENT SYSTEMS (I.E BUT NOT LIMITED TO WATERPROOFING, ROOFING, ETC.) IS USED.

    THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING IN WRITING FROM THE RESPECTIVE MANUFACTURER'S TECHNICAL DIRECTOR ON MANUFACTURER'S LETTERHEAD THAT THEIR RESPECTIVE PRODUCTS ARE COMPATIBLE TO EACH OTHER AND THEIR RESPECTIVE WARRANTIES WILL BE HONORED WHENEVER AND WHEREVER THE CONTRACTOR USES PRODUCTS THAT ARE APPLIED TO ANOTHER MANUFACTURER'S PRODUCT AND/OR BUILT UP ON A SUBSTRATE.

32. "EXISTING" VERSUS "NEW" WORK : ALL BUILDING, AND DETAIL COMPONENTS, SHOWN ON THESE DRAWINGS SHALL BE UNDERSTOOD AS "NEW" UNLESS PREFIXED BY THE WORD "EXISTING". IN THE EVENT THE CONTRACTOR DISCOVERS CONFLICTING INFORMATION, THE CONTRACTOR SHALL IMMEDIATELY SUBMIT IN WRITING, A FORMAL REQUEST FOR INFORMATION ("RFI") TO THE ARCHITECT FOR A RESOLUTION TO THE RFI.

DRAWING INDEX

INK ARCHITECTS

INK ARCH LLC
650 Iwilei Road, Suite 288
Honolulu, Hawaii 96817
Phone: 808.536.1174
Fax: 808.536.1559
E-mail: ink@inkarch.com

Revisions:

No.	Description	Date

Project Title:

MALUHIA

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

SCOTT R.J. HARADA
LICENSED PROFESSIONAL ARCHITECT
No. 14637
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE
EXP. DATE: 04/30/26

Sheet Title:

DRAWING INDEX & GENERAL NOTES

Project Phase:

FINAL DESIGN

Date:

OCT 2025

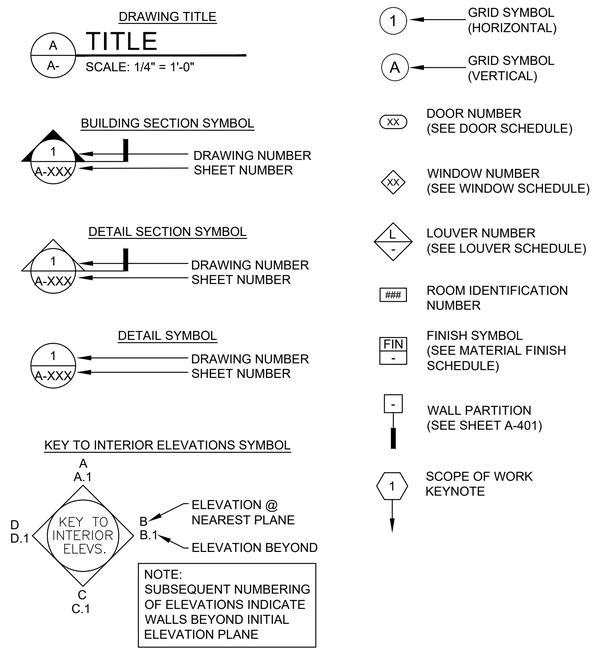
Sheet No.:

G-101

CODE INFORMATION

GENERAL	
PROJECT NAME:	MALUHIA HOSPITAL - SUN DECK ROOF
PROJECT TMK:	1-6-009:004
PROJECT ADDRESS:	1027 HALA DR, HONOLULU, HI 96817
PARCEL AREA:	98,184 SF (2.254 AC)
OWNER'S NAME:	HAWAII HEALTH SYSTEM CORPORATION
OWNER'S ADDRESS:	3675 KILAUEA AV, HONOLULU, HI 96816
OWNER'S PHONE NUMBER:	808-733-4020
CODES AND REFERENCES	
ZONING CODE:	REVISED ORDINANCES OF HONOLULU 2021, CHAPTER 21, LAND USE ORDINANCE
BUILDING CODE:	2021 INTERNATIONAL BUILDING CODE (IBC) WITH LOCAL AMENDMENTS
ELECTRICAL CODE:	2023 NATIONAL ELECTRICAL CODE (NEC) WITH LOCAL AMENDMENTS
PLUMBING CODE:	2021 UNIFORM PLUMBING CODE (UPC) WITH LOCAL AMENDMENTS
FIRE CODE:	2021 NFPA 1: UNIFORM FIRE CODE (UFC) WITH LOCAL AMENDMENTS
BUILDING ENERGY CONSERVATION CODE:	2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) WITH LOCAL AMENDMENTS
ACCESSIBILITY:	2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
PARCEL INFO	
ZONING DISTRICT:	R-5
STATE LAND USE DISTRICT:	RESIDENTIAL
PROPOSED USE:	NO CHANGE
MINIMUM LOT AREA:	5,000 SF
MINIMUM LOT WIDTH AND DEPTH:	50 FEET
YARD - FRONT:	30 FEET
YARD - SIDE AND REAR:	11 FEET
SPECIAL MANAGEMENT AREA:	NOT IN SMA
FEMA FLOOD DESIGNATION:	X - BEYOND 500 YEAR FLOOD PLAIN
TSUNAMI EVACUATION ZONE:	NO
BUILDING CODE	
NATURE OF WORK:	ADDITION
OCCUPANCY CLASSIFICATION:	I-2 INSTITUTIONAL, CONDITION 1
TYPE OF CONSTRUCTION:	IIA
AUTOMATIC FIRE SPRINKLERS:	YES
ALLOWABLE HEIGHT (STORIES):	3
PROVIDED HEIGHT (STORIES):	N/A
ALLOWABLE BUILDING HEIGHT:	85 FEET
PROVIDED BUILDING HEIGHT:	N/A
ALLOWABLE AREA PER STORY:	60,000
PROVIDED AREA PER STORY:	N/A
AREA MODIFICATIONS:	N/A
MIXED USE OCCUPANCY:	NO
REQUIRED SEPARATION OF OCCUPANCIES:	N/A
SPECIAL PROVISIONS:	N/A
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS):	STRUCTURAL FRAME: 0 BEARING WALLS, EXTERIOR: N/A BEARING WALLS, INTERIOR: N/A NONBEARING WALLS AND PARTITIONS, EXTERIOR: N/A NONBEARING WALLS AND PARTITIONS, INTERIOR: N/A FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS: N/A ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS: 0
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE:	N/A
OCCUPANT LOAD:	UNCONCENTRATED ASSEMBLY (TABLES AND CHAIRS): 1425 SF/ 15 NET = 95 OCCUPANTS
MINIMUM NUMBER OF EXITS:	1
EGRESS WIDTH:	36"
MAXIMUM COMMON PATH OF EGRESS DISTANCE:	75' MAX (EXCEPTION 1. FOR AREAS SERVING LESS THAN 50 OCCUPANTS, COMMON PATH OF EGRESS TRAVEL SHALL NOT EXCEED 75'-0")
EXIT ACCESS TRAVEL DISTANCE:	200'

ARCHITECTURAL SYMBOLS



ARCHITECTURAL ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
AP	ACOUSTIC PANEL
ARCH	ARCHITECTURAL
CONC	CONCRETE
DS	DOWNSPOUT
DN	DOWN
DWG(S)	DRAWING(S)
MAX	MAXIMUM
MECH	MECHANICAL
MET	METAL
MIN	MINIMUM
MISC	MISCELLANEOUS
NIC	NOT IN CONTRACT
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
PLUMB	PLUMBING
PT	PAINT
PVC	POLYVINYL CHLORIDE
SHT	SHEET
STRUCT	STRUCTURAL
THK	THICK
TYP	TYPICAL
W/	WITH

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Revisions:

No.	Description	Date

Project Title:

MALUHIA

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

SCOTT R.J. HARADA
LICENSED PROFESSIONAL ARCHITECT
No. 14637
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE
EXP. DATE: 04/30/26

Sheet Title:

CODE INFORMATION, ARCH SYMBOLS, & ARCH ABBREV

Project Phase:

FINAL DESIGN

Date:

OCT 2025

Sheet No.:

G-102

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE AS AMENDED BY CHAPTER 16 OF THE REVISED ORDINANCES OF HONOLULU.

2. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS.

3. THE GENERAL NOTES AND TYPICAL DETAILS SHALL APPLY UNLESS OTHERWISE SHOWN.

4. DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON DRAWINGS.

5. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW BY THE ENGINEER.

6. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO THE START OF THE JOB AND NOTIFY ALL DISCREPANCIES TO THE ARCHITECT.

7. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.

8. DURING THE CONSTRUCTION PERIOD THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE BUILDING AND THE PROTECTION OF ADJACENT PROPERTIES, STRUCTURES, STREETS AND UTILITIES FROM DAMAGE. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING, BRACING AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY

9. ALL ERECTION PROCEDURES SHALL CONFORM TO OSHA STANDARDS. ANY DEVIATION MUST BE APPROVED BY OSHA

10. THE CONTRACTOR SHALL NOTIFY i3NGINEERING, INC. (PH. (808-536-7692) TWO (2) WORKING DAYS PRIOR TO BEGINNING ANY WORK WHICH WILL CONCEAL STRUCTURAL ELEMENT SUCH AS POURING CONCRETE (CONCEALING REINFORCING) OR SHEATHING WALLS (CONCEALING HOLD DOWN ANCHORS).

FOUNDATION

1. ALL FOOTINGS SHALL BEAR ON FIRM UNDISTURBED EARTH OR STRUCTURALLY PREPARED FILL.

2. COMPACT THE BOTTOM OF ALL FOOTING EXCAVATIONS TO 95% COMPACTION AS DETERMINED BY ASTM D1557. REMOVE ANY SOFT POCKETS OR EXPANSIVE CLAYEY SOILS ENCOUNTERED AND BACKFILL WITH SELECT, GRANULAR MATERIAL COMPACTED TO 95% AS DETERMINED BY ASTM D1557.

3. ALL FOOTINGS SHALL BE BOTTOMED A MINIMUM OF 24" BELOW THE LOWEST ADJACENT GRADE AND A MINIMUM HORIZONTAL DISTANCE OF 5 FEET SHALL BE MAINTAINED BETWEEN THE BOTTOM EDGE OF FOOTING AND THE SLOPE.

4. ALL WATER, MUD AND DEBRIS SHALL BE REMOVED FROM THE BOTTOM OF FOOTING EXCAVATIONS PRIOR TO THE PLACEMENT OF CONCRETE.

REINFORCED CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318-14.

2. ALL CONCRETE SHALL BE NORMAL WEIGHT (150 PCF) WITH AGGREGATES CONFORMING TO ASTM C-33. UNLESS OTHERWISE NOTED, THE COMPRESSIVE STRENGTHS OF CONCRETE AT 28 DAYS AND MAXIMUM AGGREGATE SIZES SHALL BE AS FOLLOWS:

	STRENGTH	AGGREGATE SIZE
FOOTING	3,000 PSI	3/4"
SLAB ON GRADE & OTHERS	2,500 PSI	3/4"

3. MAXIMUM WATER-CEMENT RATIO SHALL NOT EXCEED 0.55.

4. ALL REINFORCING STEEL EXCEPT TIES AND STIRRUPS SHALL CONFORM TO ASTM A615 GRADE 60. TIES, STIRRUPS AND REBARS TO BE WELDED SHALL BE ASTM A615 GRADE 40.

5. UNLESS OTHERWISE NOTED, SPLICES, LAPS, DOWEL EXTENSIONS AND EMBEDMENTS SHALL BE 48 BAR DIAMETERS BUT NOT LESS THAN 24" MINIMUM.

6. ALL REINFORCING BARS MARKED CONTINUOUS (CONT.) ON THE PLANS SHALL BE LAPPED 48 BAR DIAMETERS MINIMUM. BUT NOT LESS THAN 2'-0".

7. STAGGER ALL SPLICES WHERE POSSIBLE.

8. ALL WELDING OF REINFORCING SHALL CONFORM TO "STRUCTURAL WELDING CODE - REINFORCING STEEL" (AWS D1.4).

9. REBARS SHALL BE SUPPORTED, BENT AND PLACED AS PER "MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES" ACI 315 (LATEST).

10. MINIMUM COVER IN INCHES FOR REBARS FOR CAST-IN-PLACE CONCRETE:

CONCRETE CAST AGAINST EARTH 3"

FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
- #5 AND SMALLER 1-1/2"
- #6 AND LARGER 2"

REINFORCED CONCRETE COINTINUED

CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLABS, WALLS, AND JOISTS 3/4"
- BEAMS AND COLUMNS 1-1/2"

11. WELDED WIRE FABRIC SHALL BE GALVANIZED AND CONFORM TO ASTM A-185.

12. UNLESS OTHERWISE SHOWN LAP OUTERMOST CROSS WIRES OF EACH SHEET OF WELDED WIRE FABRIC ONE SPACING OF CROSS WIRES PLUS 2" MINIMUM.

13. AT TIME CONCRETE IS PLACED, REINFORCING SHALL BE FREE FROM MUD, OIL, LAITANCE OR OTHER COATINGS ADVERSELY AFFECTING BOND CAPACITY.

14. REINFORCEMENT, ANCHOR BOLTS, SIMPSON CONNECTORS, DOWELS AND ALL OTHER EMBEDDED ITEMS SHALL BE POSITIVELY SECURED BEFORE POURING.

STRUCTURAL STEEL

1. ALL STRUCTURAL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992. STEEL PIPES AND STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B. CHANNELS, ANGLES, PLATES, BARS AND MISCELLANEOUS STEEL SHAPES SHALL CONFORM TO ASTM A-36. FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE A.I.S.C. SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, LATEST EDITION. SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.

2. ALL BOLTS SHALL CONFORM TO ASTM A307.

3. WELDING: ALL WELDING IS TO COMPLY WITH A.W.S. SPECIFICATIONS AND IS TO BE DONE BY CERTIFIED WELDERS. ALL WELDING IS TO BE DONE BY ELECTRIC ARC PROCESS AND SHALL BE PERFORMED WITH APPROVED ELECTRODES AS REQUIRED BY I.B.C. WELDS ARE DESIGNED AT FULL STRESS AND MUST BE DONE IN THE SHOP OF A LICENSED FABRICATOR OR APPROVED BY THE ENGINEER OF RECORD.

4. ALL WELDS NOT SHOWN SHALL BE FULL PENETRATION WELDS CAPABLE OF DEVELOPING THE FULL STRENGTH OF THE CONNECTING MEMBERS.

5. THE CONTRACTOR SHALL DETAIL ALL MEMBERS AND CONNECTIONS NOT SHOWN AND SHALL SUBMIT THEM TO THE ENGINEER FOR REVIEW AND APPROVAL. COST OF THESE MEMBERS AND CONNECTIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE.

6. HOT DIP GALVANIZE ALL STRUCTURAL STEEL SHAPES, PLATES, BOLTS AND ACCESSORIES.

OPEN WEB STEEL JOISTS AND GIRDERS

A. OPEN WEB STEEL JOISTS AND GIRDERS SHALL BE DESIGNED AND ERECTED IN ACCORDANCE WITH THE STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS. SHOP DRAWINGS AND CALCULATIONS STAMPED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF HAWAII SHALL BE SUBMITTED FOR APPROVAL.

B. DEFLECTION OF OPEN WEB STEEL JOISTS AND GIRDERS SHALL CONFORM TO THE BUILDING CODE OR AT A MINIMUM AS FOLLOW:

1. MAXIMUM LIVE LOAD DEFLECTION-ROOF: HARD OR SUSPENDED CEILING- 1/360 OF SPAN, OTHER CASES - 1/240 OF SPAN

C. CAMBER SHALL CONFORM TO STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS AND BE COMPATIBLE WITH ADJACENT FRAMING.

D. OPEN WEB STEEL JOIST DESIGN LOADS: SEE FRAMING PLANS AND TYPICAL DETAILS.

ABBREVIATIONS

@	AT	MAX.	MAXIMUM
REBARS	REINFORCING BARS	MIL.	.001 INCH
BM	BEAM	MH	MANHOLE
BOT.	BOTTOM	MIN.	MINIMUM
℄	CENTERLINE	MISC.	MISCELLANEOUS
C.I.P.	CAST IN PLACE	N.I.C.	NOT IN CONTRACT
CLR.	CLEARANCE	N.T.S.	NOT TO SCALE
CMU	CONCRETE MASON UNIT	N.S.	NO SCALE
CONC.	CONCRETE	O.C.	ON CENTER
COND.	CONDITION	OPP.	OPPOSITE
CONT.	CONTINUOUS	PL	PLATE OR PROPERTY LINE
DET.	DETAIL	PVC	POLY VINYL CHLORIDE
DIAG.	DIAGONAL	RCP	REINFORCED CONCRETE PIPE
DISTR.	DISTRIBUTION	REINF.	REINFORCING
ø	DIAMETER	REQ'D	REQUIRED
DIA.	DIAMETER	SC.	SCALE
DI	DRAIN INLET	SCHED.	SCHEDULE
DX	DRAIN PIPE W/ INSIDE DIAMETER X IN INCHES	SDMH	STORM DRAIN MANHOLE
		SIM.	SIMILAR
DWG.	DRAWING	SQ.	SQUARE
EA.	EACH	SS	STAINLESS STEEL
E.F.	EACH FACE	STD.	STANDARD
E.W.	EACH WAY	SYM.	SYMMETRICAL
EQ.	EQUAL	TC	TOP OF CURB
EXIST./ E.	EXISTING	TEMP.	TEMPERATURE
EXT.	EXTERIOR	THK	THICK, THICKNESS
FDN.	FOUNDATION	THRU	THROUGH
FTG.	FOOTING	TYP.	TYPICAL
GA.	GAUGE	x	BY
GALV.	GALVANIZED	#X	REBAR SIZE WITH X/8" DIAMETER
GFRP	GLASS FIBER REINFORCED POLYMER	VERT.	VERTICAL
		W/	WITH
HORIZ.	HORIZONTAL	'	FEET
I.D.	INSIDE DIAMETER	"	INCH
JT.	JOINT		

STEEL ROOF DECK

1. METAL DECK SHALL CONFORM TO AISI, "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".

2. METAL DECK SHALL BE GALVANIZED STEEL CONFORMING TO ASTM A 653 - SS GRADE 33 (MIN.) WITH A MINIMUM YIELD STRENGTH OF 38 KSI, ZINC COATED PER ASTM A 653, G60.

3. PROVIDE DECKING IN LENGTHS TO SPAN 3 OR MORE SUPPORT, WITH BUTTED OR NESTED END LAPS.

4. PROVIDE FACTORY PUNCHED VENTS PROJECTING UPWARDS IN INTERIOR LOW FLUTES APPROXIMATELY 6" ON CENTER.

5. PROVIDE 2" MINIMUM BEARING ON SUPPORTS FOR END MEMBERS.

6. SECURE DECK TO SUPPORTS WITH 1/2" EFFECTIVE DIAMETER SPOT WELDS.

7. CONNECT SIDELAPS WITH BUTTON PUNCHES OR A MANUFACTURER APPROVED SIDELAP TOOL SPACED 12 INCHES ON CENTER.

DESIGN CRITERIA

1. CODES: 2018 INTERNATIONAL BUILDING CODE WITH HONOLULU AMENDMENTS

2016 ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES

ROOF LIVE LOAD 20 PSF

2. LATERAL FORCES

RISK CATEGORY	III
WIND	
V-EFFECTIVE WIND SPEED (3 SECOND GUST)	160 MPH
WIND EXPOSURE	B
K_{ZT} TOPOGRAPHIC FACTOR	1.0
K_d DIRECTIONALITY FACTOR	.75
K_e GROUND ELEVATION FACTOR	.10
SEISMIC	
MAPPED SPECTRAL RESPONSE	
S_S	0.53
S_1	0.15
SITE CLASS	D
SEISMIC IMPORTANCE FACTOR I	1.25
S_{DS}	0.50
S_{D1}	0.28
SEISMIC DESIGN CATEGORY	D
STEEL ECCENTRIC BRACED FRAME	
RESPONSE MODIFICATION FACTOR R	8.0
BASE SHEAR	8.9 KIPS

SPECIAL INSPECTION

1. SPECIAL INSPECTIONS AND STRUCTURAL TESTING SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED BY THE CONTRACTOR FOR THE ITEMS IDENTIFIED IN THIS SECTION AND IN OTHER AREAS OF THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS, UNLESS WAIVED BY THE BUILDING OFFICIAL (SEE 2018 IBC, CHAPTER 17).

2. THE NAMES AND CREDENTIALS OF THE SPECIAL INSPECTOR(S) TO BE USED SHALL BE SUBMITTED TO THE BUILDING OFFICIAL FOR APPROVAL.

3. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:

A. THE SPECIAL INSPECTOR SHALL REVIEW ALL WORK LISTED BELOW FOR CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS AND THE 2018 IBC.

B. THE SPECIAL INSPECTOR SHALL FURNISH SPECIAL INSPECTION REPORTS TO THE ENGINEER OF RECORD, CONTRACTOR, ARCHITECT, AND BUILDING OFFICIAL ON A WEEKLY BASIS, OR MORE FREQUENTLY AS REQUIRED BY THE BUILDING OFFICIAL. ALL ITEMS NOT IN COMPLIANCE SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND IF UNCORRECTED, TO THE ARCHITECT AND THE BUILDING OFFICIAL.

C. ONCE CORRECTIONS HAVE BEEN MADE BY THE CONTRACTOR, THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT TO THE ENGINEER OF RECORD AND BUILDING OFFICIAL STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE SPECIAL INSPECTORS KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS AS WELL AS THE APPLICABLE WORKMANSHIP PROVISIONS OF THE 2018 IBC.

4. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:

A.THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE ENGINEER OF RECORD AND THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF WORK. IN ACCORDANCE WITH IBC 1704.4, THE STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED WITHIN THIS "STATEMENT OF SPECIAL INSPECTIONS".

B. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND THE RESPONSIBLE SPECIAL INSPECTOR THAT WORK IS READY FOR INSPECTION AT LEAST TWO WORKING DAYS (48 HOURS MINIMUM) BEFORE SUCH INSPECTION IS REQUIRED. NOTIFICATION SHALL INCLUDE WHERE AND WHAT ITEMS NEED TO BE INSPECTED. CONTRACTOR SHALL PROVIDE ACCESS FOR THE INSPECTOR INCLUDING SCAFFOLDING, LADDERS, MANLIFTS, FALL PROTECTION, SAFETY HARNESS ETC. REQUIRED BY THE INSPECTOR. THE CONTRACTOR SHALL CORRECT DEFECTIVE WORK AT NO ADDITIONAL COST TO THE OWNER AND PAY FOR RE-INSPECTION. WORK SHALL NOT PROCEED UNTIL INSPECTION HAS BEEN COMPLETED TO THE SATISFACTION OF THE INSPECTOR. NO TIME EXTENSION WILL BE GRANTED FOR THE SPECIAL INSPECTION AND CORRECTION OF DEFECTIVE WORK.

C. ALL WORK REQUIRING SPECIAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL IT HAS BEEN OBSERVED BY THE SPECIAL INSPECTOR.

5. ITEMS REQUIRING SPECIAL INSPECTIONS

A. REINFORCING STEEL (2018 IBC TABLE 1705.3 - PERIODIC)
B. CONCRETE ANCHOR / EPOXY BOLTS (2018 IBC TABLE 1705.3)
C. CONCRETE FOOTINGS (2018 IBC TABLE 1705.3)
D. STRUCTURAL STEEL FIELD WELDING (AISC 360-16 TABLE N5.4-1 TO N5.4-3)

6. SPECIAL INSPECTIONS DO NOT RELIEVE THE GENERAL CONTRACTOR OF HIS OR HER RESPONSIBILITIES TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND TO BE RESPONSIBLE FOR THE SAFETY OF THE JOBSITE. THE REQUIRED VERIFICATION OF EACH TYPE OF INSPECTION IS NOTED IN ITEM 5 ABOVE.

i3NGINEERING
STRUCTURAL ENGINEERS
INSPIRATION + INTEGRITY + INNOVATION

i3NGINEERING, INC.
201 Merchant Street, Suite 905
Honolulu, Hawaii 96813

Revisions:

No.	Description	Date

Project Title:

MALUHIA HOSPITAL

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

ADRIAN C.M. LEE
LICENSED PROFESSIONAL ENGINEER
No. 9164-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Adrian Lee
SIGNATURE
EXP. DATE: 04/30/26

Sheet Title:

GENERAL NOTES

Project Phase:

FINAL

Date:

OCT 2025

Sheet No.:

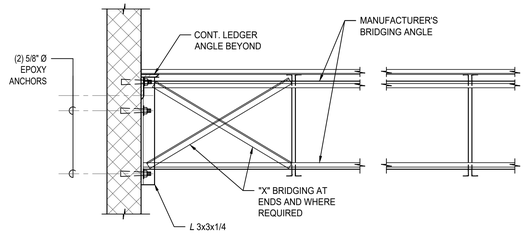
S001

JOIST DESIGN CRITERIA - SCHEDULE 'A'					
NOMENCLATURE	DEPTH	TYPE	DEAD LOAD (PLF)	ROOF LIVE LOAD (PLF)	WIND PRESSURE
20K7	20"	K	80	80	SEE S203
MANUFACTURED BY 'VULCRAFT'					

NOTES:
OPEN WEB STEEL JOIST MANUFACTURER TO CHECK LOAD COMBINATION 0.6D + 0.6W (UPLIFT) AND BRACING REQUIREMENTS

PRE-ENGINEERED STEEL JOIST (TYPE K)
NO SCALE — A / S101

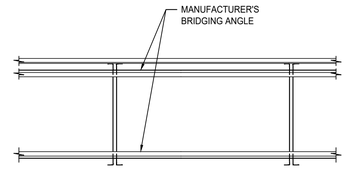
NOTES:
1. DO NOT WELD BRIDGING TO JOIST WEB MEMBERS. FIELD WELD BRIDGING TO CHORDS.
2. DO NOT HANG ANY MECHANICAL, ELECTRICAL, ETC. FROM BRIDGING.



ELEVATION VIEW

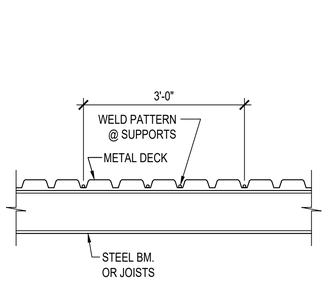
TYPICAL BRIDGING (MINIMUM) CONNECTION DETAIL AT ENDS
NOT TO SCALE — B / S101

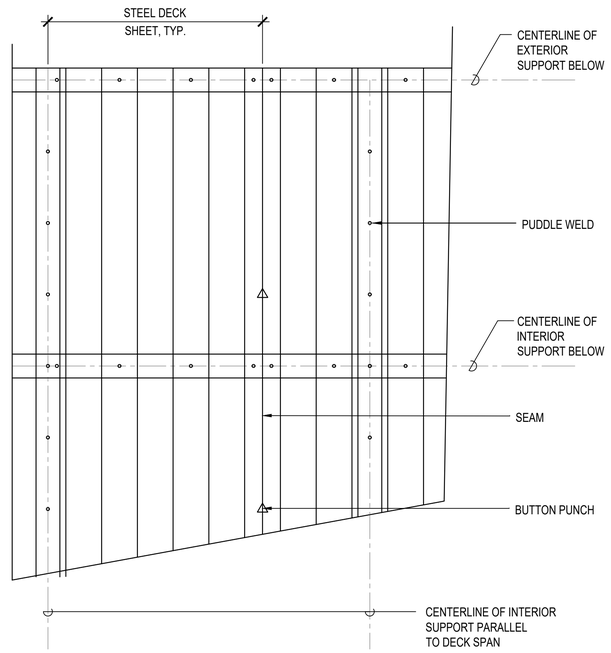
NOTES:
1. DO NOT WELD BRIDGING TO JOIST WEB MEMBERS. FIELD WELD BRIDGING TO CHORDS.
2. DO NOT HANG ANY MECHANICAL, ELECTRICAL, ETC. FROM BRIDGING.



ELEVATION VIEW

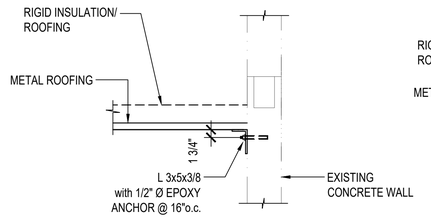
BRIDGING CONNECTION DETAIL AWAY FROM ENDS
NOT TO SCALE — C / S101

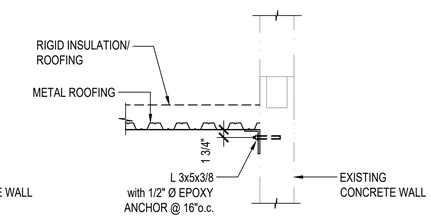




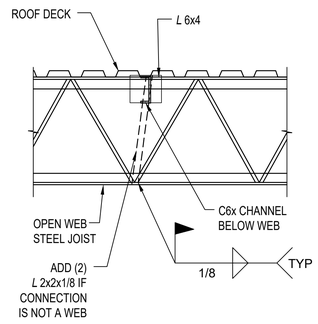
NOTES:
1. METAL DECK SHALL BE VERCO 20 GAUGE PLB OR EQUIVALENT WITH THE FOLLOWING MINIMUM SECTION PROPERTIES: I = 0.216 in4 AND S = 0.235 in3.
2. METAL DECK SHALL BE ATTACHED TO SUPPORT WITH A MINIMUM OF (4) 1/2" Ø PUDDLE WELDS PER SHEET.
3. AT SUPPORTS PARALLEL TO DECK SPAN, PROVIDE 3/4" PUDDLE WELDS @ 12" o.c. MINIMUM.
4. SEAM ATTACHMENT SHALL BE BUTTON PUNCH OR VERCO SIDE LAP CONNECTION @ 24" o.c. MINIMUM.
5. PERIODIC INSPECTION BY A SPECIAL INSPECTOR IS REQUIRED FOR WELDING OF DECK AND STUDS.
6. THE EFFECTIVE AREA OF A 3/4" Ø PLUG WELD SHALL NOT BE LESS THAN 1/2" Ø.
7. DECK SHALL BEAR 2" MINIMUM ON SUPPORTS.

METAL DECKING
SC: 3/4"=1'-0" — D / S101





STEEL LEDGER
SC: 3/4"=1'-0" — E / S101



SECTION
SC: 3/4"=1'-0" — F / S101

0' 1' 2' 3' 4'
3/4" = 1'-0"

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ADRIAN C.M. LEE — LICENSED PROFESSIONAL ENGINEER — No. 9164-S — HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

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EXP. DATE: 04/30/26

Sheet Title:

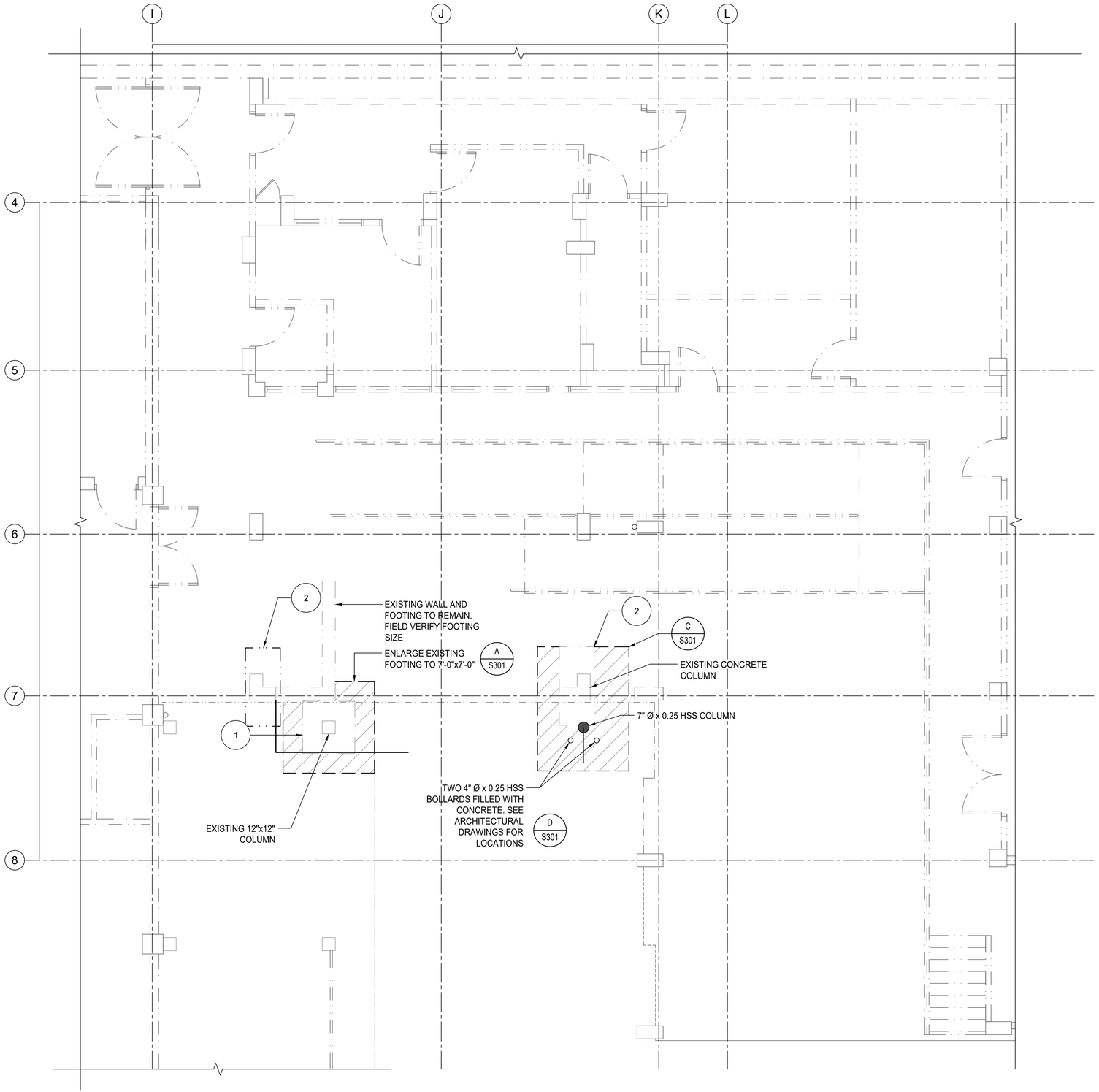
TYPICAL DETAILS

Project Phase:
FINAL

Date:
OCT 2025

Sheet No.:

S101



LEGEND

1. ENLARGE EXISTING 4'-0"x4'-0" THICK CONCRETE FOOTING
2. EXISTING 2'-8"x6'-6" x 1'-2" FOOTING with 3- #6 LONG, 7- #4 SHORT BOTTOM REBARS

SUN DECK FOUNDATION PLAN

SC: 1/4"=1'-0"

0 4' 8' 12'

SCALE: 1/4"=1'-0"

PLAN NORTH

TRUE N

0' 2' 4' 8' 12'

1/4" = 1'-0"

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INSPIRATION + INTEGRITY + INNOVATION

i3NGINEERING, INC.
201 Merchant Street, Suite 905
Honolulu, Hawaii 96813

Revisions:

No.	Description	Date

Project Title:

MALUHIA HOSPITAL

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

ADRIAN C.M. LEE
LICENSED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.

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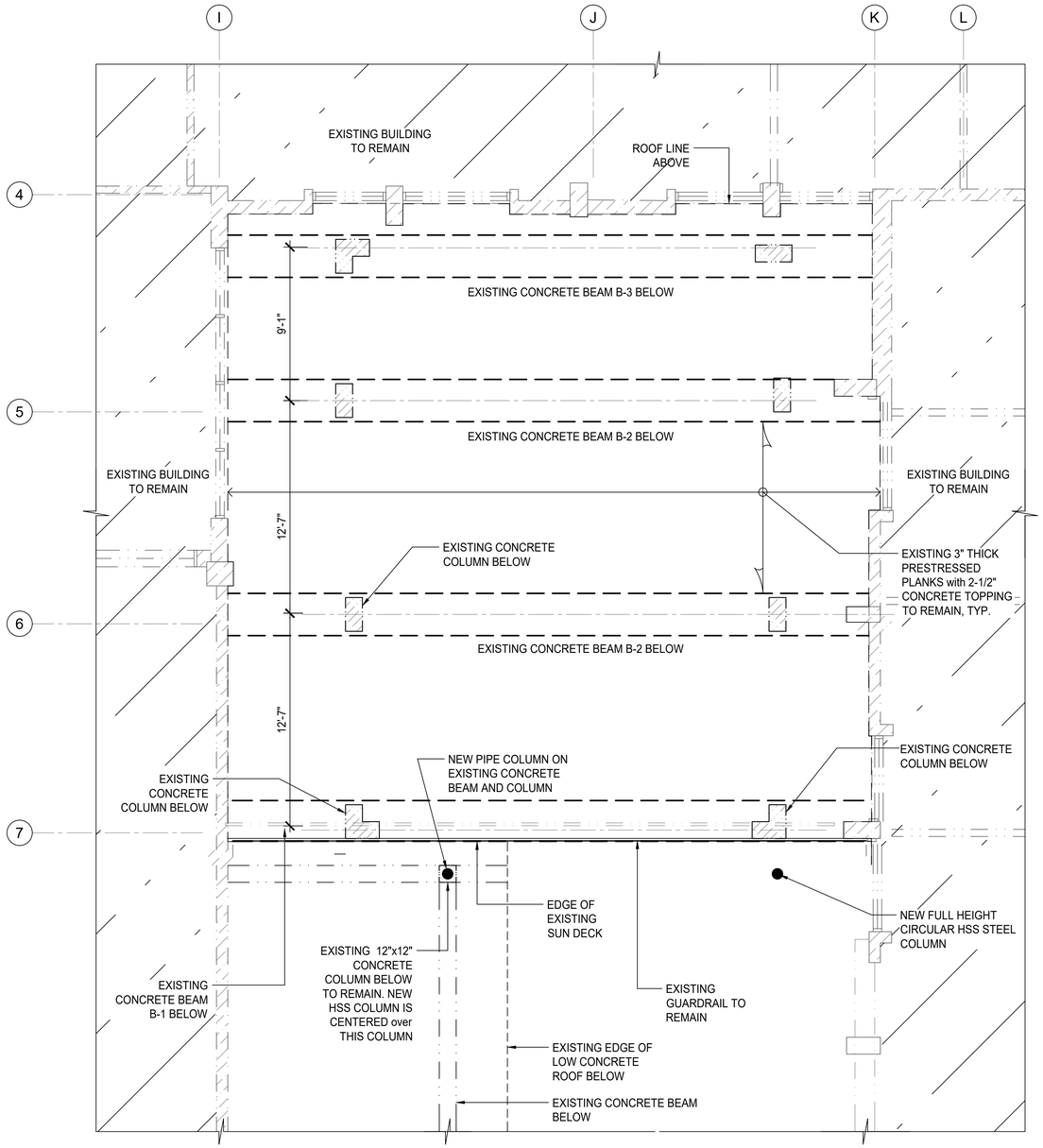
SUN DECK
FOUNDATION PLAN

Project Phase:
FINAL

Date:
OCT 2025

Sheet No.:

S201



SUN DECK STRUCTURAL FLOOR PLAN

SC: 1/4"=1'-0"

0 4' 8' 12'

SCALE: 1/4"=1'-0"

PLAN NORTH

TRUE N

0' 2' 4' 8' 12'

1/4" = 1'-0"

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Sheet Title:

SUN DECK
STRUCTURAL FLOOR PLAN

Project Phase:

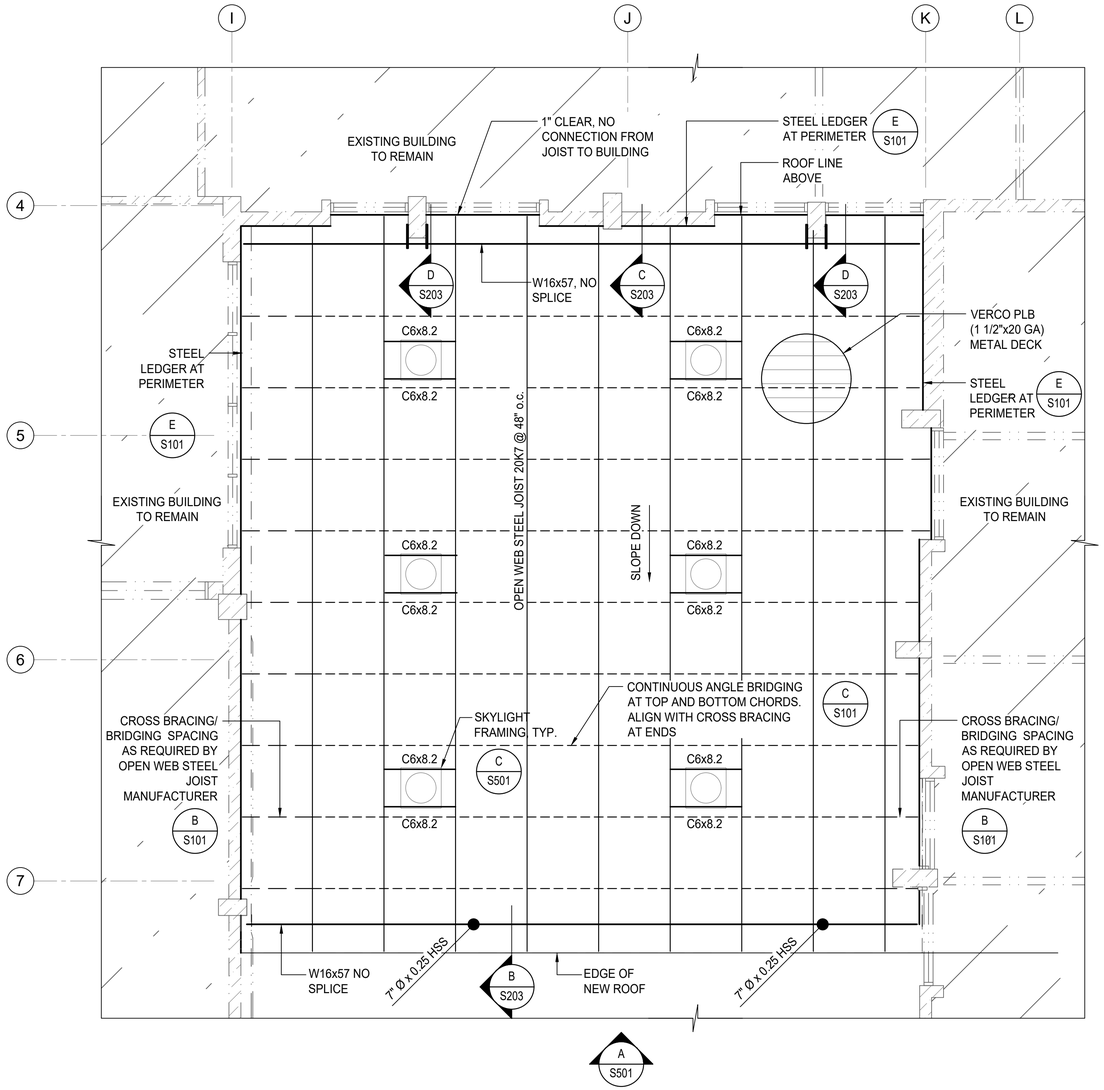
FINAL

Date:

OCT 2025

Sheet No.:

S202



ROOF FRAMING NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SKYLIGHT DETAILS AND LOCATIONS.
2. C6x8.2 INDICATES STEEL CHANNEL FRAMING AT SKYLIGHT.
3. 20K7 INDICATES OPEN WEB STEEL JOIST DESIGNED BY OTHERS. SEE A/S101.

0 4'-0" 8' 12'

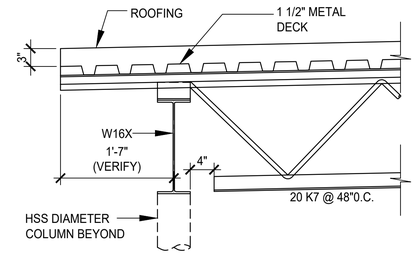
PLAN NORTH / TRUE N

SCALE: 1/4"=1'-0"

ROOF FRAMING PLAN

SC: 1/4"=1'-0"

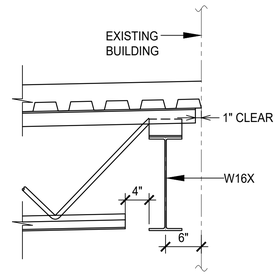
A S203



AT EAVE

SC: 1"=1'-0"

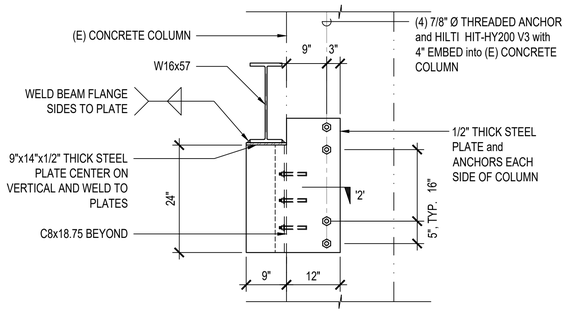
B S203



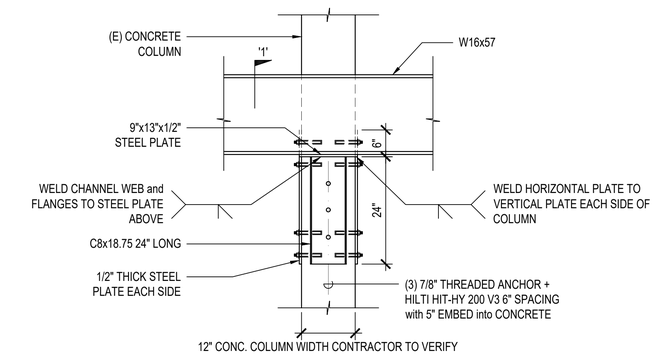
AT BUILDING

SC: 1"=1'-0"

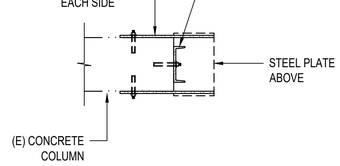
C S203



'1'- ELEVATION



'2'- PLAN SECTION



NOTES:

1. THE CONTRACTOR SHALL SCAN THE EXISTING CONCRETE COLUMN AND MARK THE LOCATION OF THE EXISTING REBARS PRIOR TO THE FABRICATION OF THE STEEL BRACKETS.
2. THE HOLES FOR THE NEW EPOXY ANCHORS SHALL NOT DAMAGE OR DISTURB THE EXISTING REBARS.
3. NOTIFY ENGINEER OF RECORD IF ANY OF THE NEW EPOXY ANCHORS NEED TO BE MOVED.
4. FABRICATION OF THE STEEL BRACKETS SHALL BE DONE ONLY AFTER FIELD VERIFICATION THAT THE LOCATION OF THE NEW EPOXY ANCHORS ARE ACCEPTABLE

STEEL BEAM- EXISTING CONCRETE COLUMN

SC: 3/4" = 1'-0"

D S203

0' 6" 1' 2' 3'
1" = 1'-0"

0' 2' 4' 8' 12'
1/4" = 1'-0"

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SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

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ROOF FRAMING PLAN AND DETAILS

Project Phase:

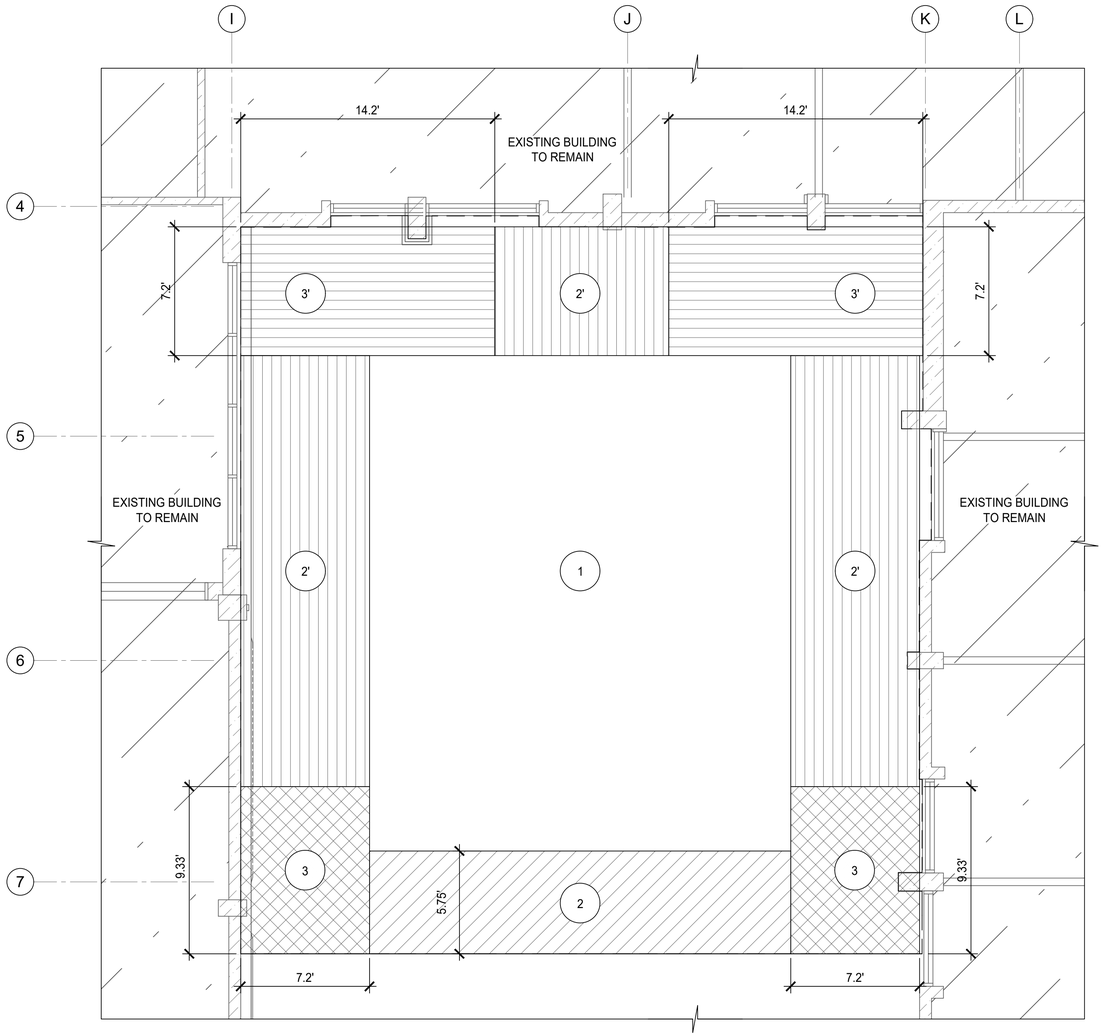
FINAL

Date:

OCT 2025

Sheet No.:

S203



LEGEND

1	-35.4 PSF
2	-56.3 PSF
2'	-56.3 PSF
3	-69.1 PSF
3'	-69.1 PSF

NOTES:

1. PRESSURES SHOWN ARE FACTORED VALUES. MULTIPLY BY 0.6 TO GET ASD VALUES.
2. NEGATIVE PRESSURES SHOWN ARE UPLIFT PRESSURES.
3. POSITIVE PRESSURE IS 24.1 PSF FOR THE ENTIRE ROOF.
4. OPEN WEB STEEL JOIST SHALL BE DESIGNED TO RESIST THESE WIND PRESSURES.

ROOF WIND COMPONENT AND CLADDING PRESSURES

SC: 1/4"=1'-0"

0 4' 8' 12'

SCALE: 1/4"=1'-0"

PLAN NORTH
TRUE N

0' 2' 4' 8' 12'

1/4" = 1'-0"

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EXP. DATE: 04/30/26

Sheet Title:

ROOF WIND COMPONENT AND CLADDING PRESSURES

Project Phase:

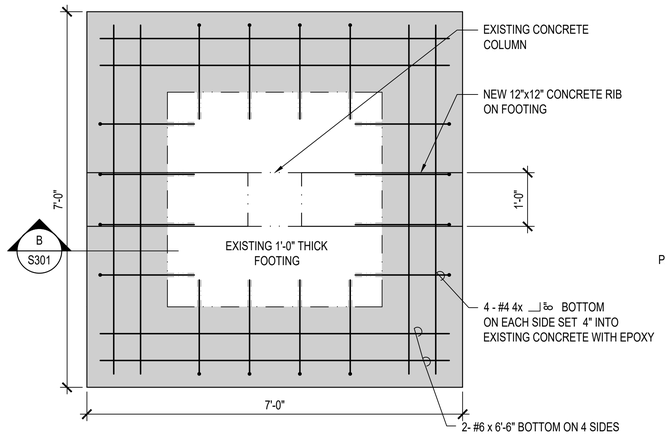
FINAL

Date:

OCT 2025

Sheet No.:

S204

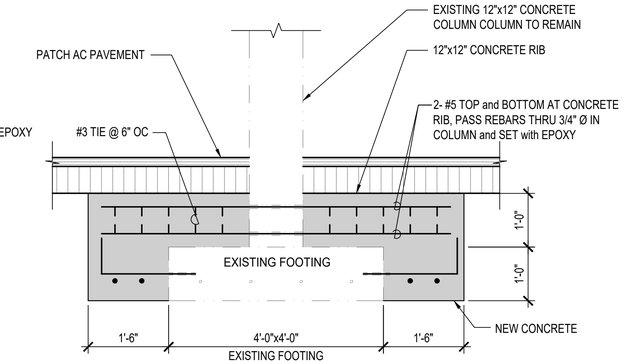


NOTES:
1. ENLARGE FOOTING BEFORE ADDING NEW ROOF LOADS
2. CLEAN EXISTING CONCRETE SURFACES TO RECEIVE NEW CONCRETE. APPLY EPOXY BONDING AGENT (LARSEN WELD CRETE)JUST BEFORE CONCRETE POUR SO THAT EPOXY IS STILL STICKY AND HAD NOT SET UP

PLAN - FOOTING ENLARGE

SC: 3/4" = 1'-0"

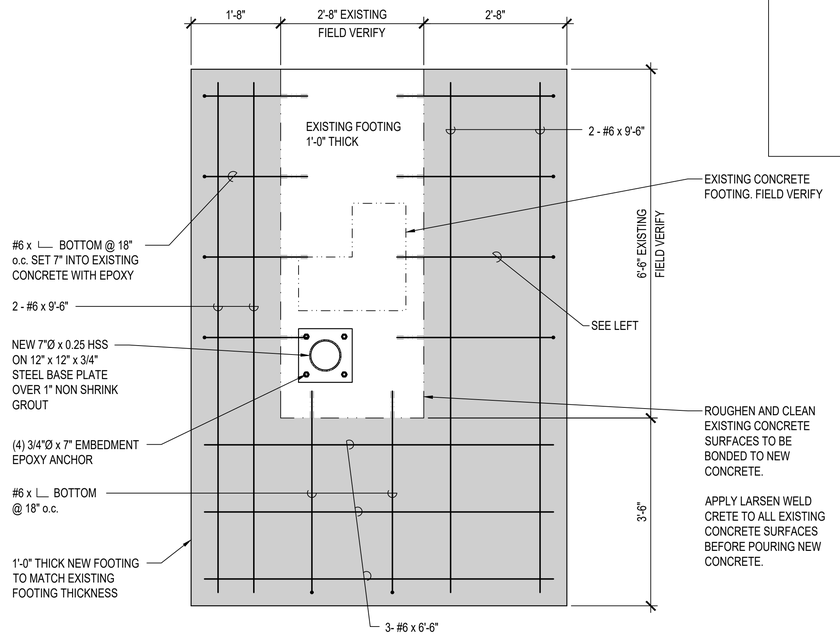
A S301



SECTION - FOOTING ENLARGE

SC: 3/4" = 1'-0"

B S301

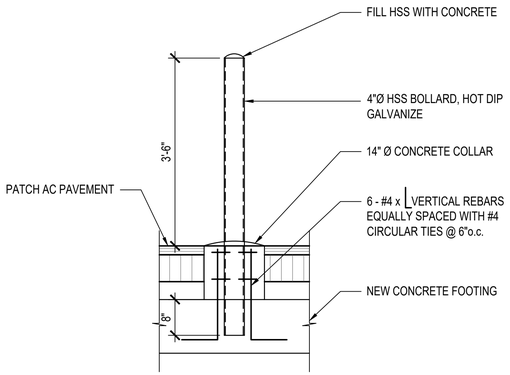


NOTES:
1. ENLARGE FOOTING BEFORE ADDING NEW ROOF LOADS.
2. ALL REBARS ARE BOTTOM

PLAN - FOOTING ENLARGE

SC: 3/4" = 1'-0"

C S301



NEW BOLLARD AT STEEL COLUMN

SC: 3/4" = 1'-0"

D S301

0' 1' 2' 3' 4'
3/4" = 1'-0"

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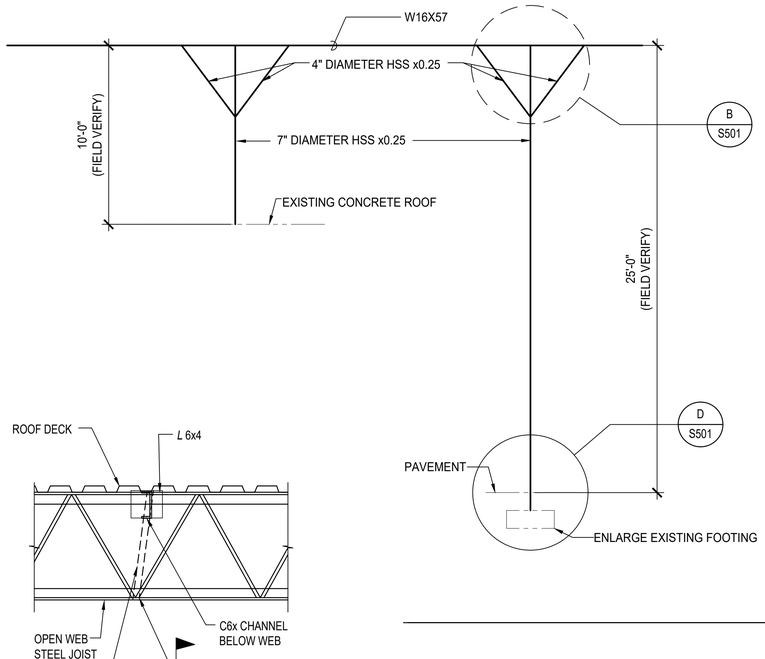
FOOTING DETAILS

Project Phase:
FINAL

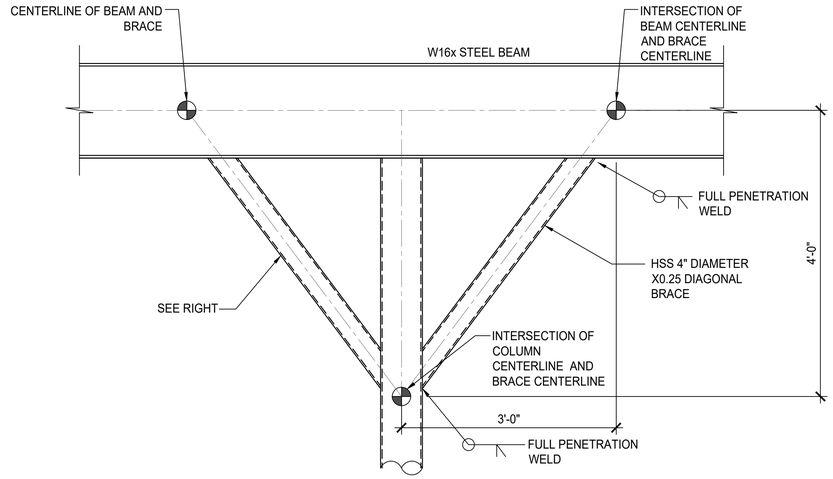
Date:
OCT 2025

Sheet No.:

S301



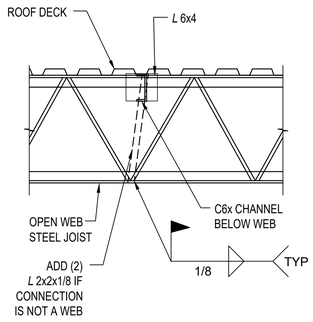
A
S501



DIAGONAL BRACE DETAIL

SC: 1"=1'-0"

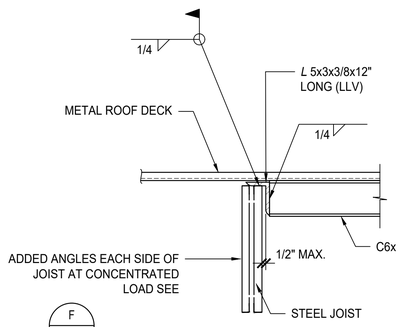
B
S501



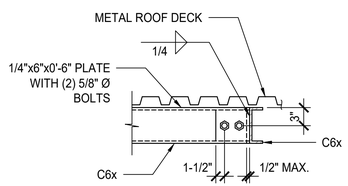
SECTION

SC: 3/4"=1'-0"

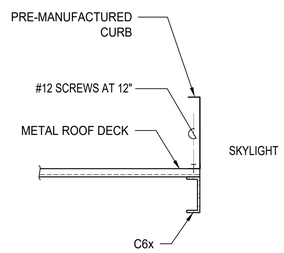
F
S101



AT Cx TO STEEL JOIST



AT Cx TO Cx



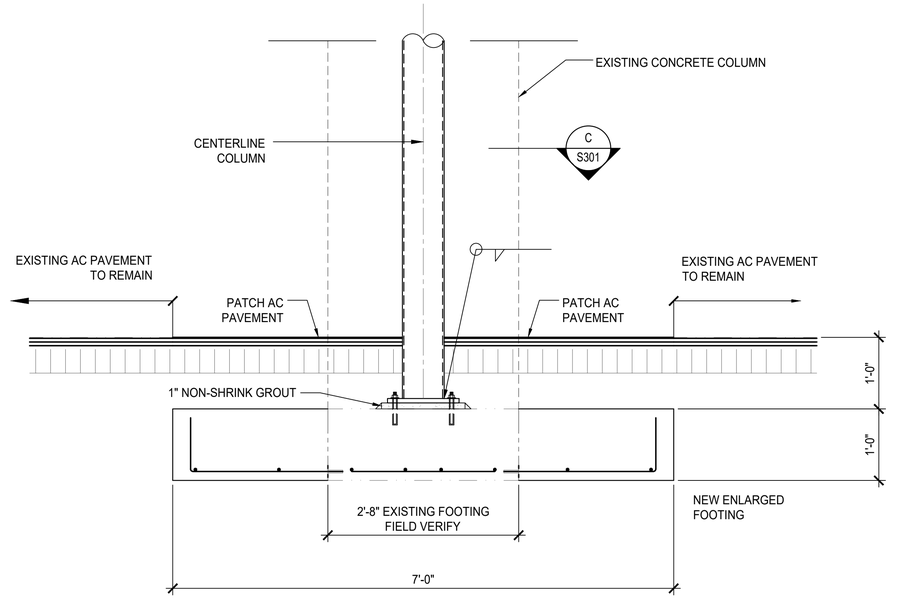
AT CURB

NOTES:
1. PROVIDE ANCHORAGE TO SUPPORT PER MANUFACTURER'S RECOMMENDATIONS.
2. SEE ARCHITECTURAL DRAWINGS AND MECHANICAL DRAWINGS FOR OTHER DETAILS.

TYPICAL SKYLIGHT FRAMING DETAILS

SC: 1"=1'-0"

C
S501



SECTION ENLARGED FOOTING

SC: 1"=1'-0"

D
S501

0' 6" 1' 2' 3'
1" = 1'-0"

0' 2' 4' 8' 12'
1/4" = 1'-0"

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MALUHIA HOSPITAL

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

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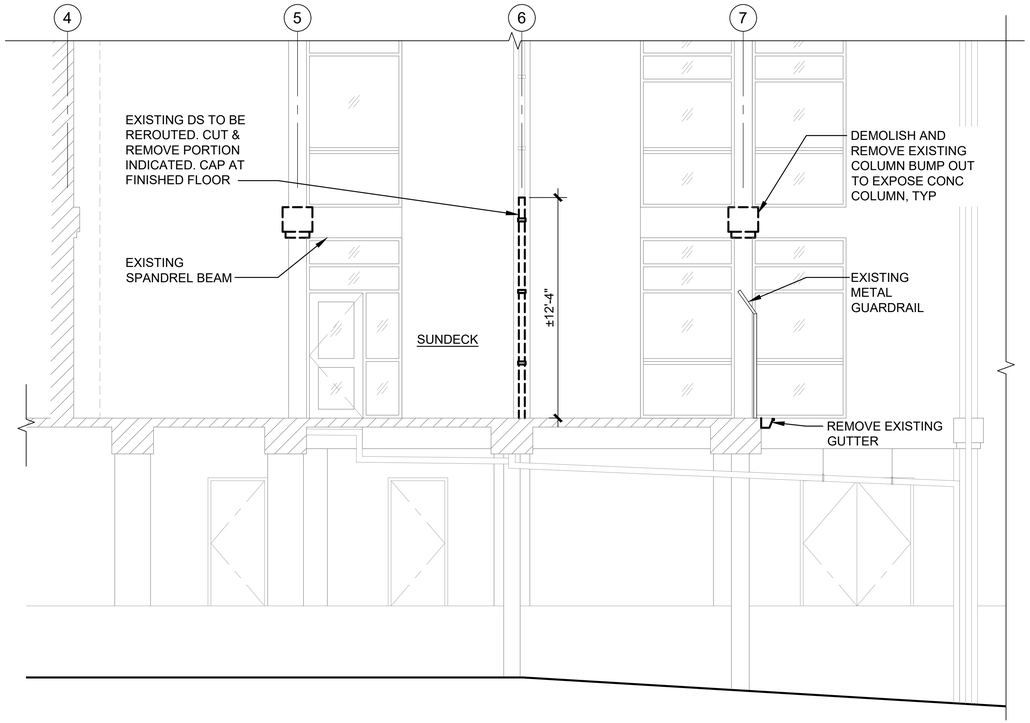
SKYLIGHT FRAMING AND FOUNDATION DETAILS

Project Phase:
FINAL

Date:
OCT 2025

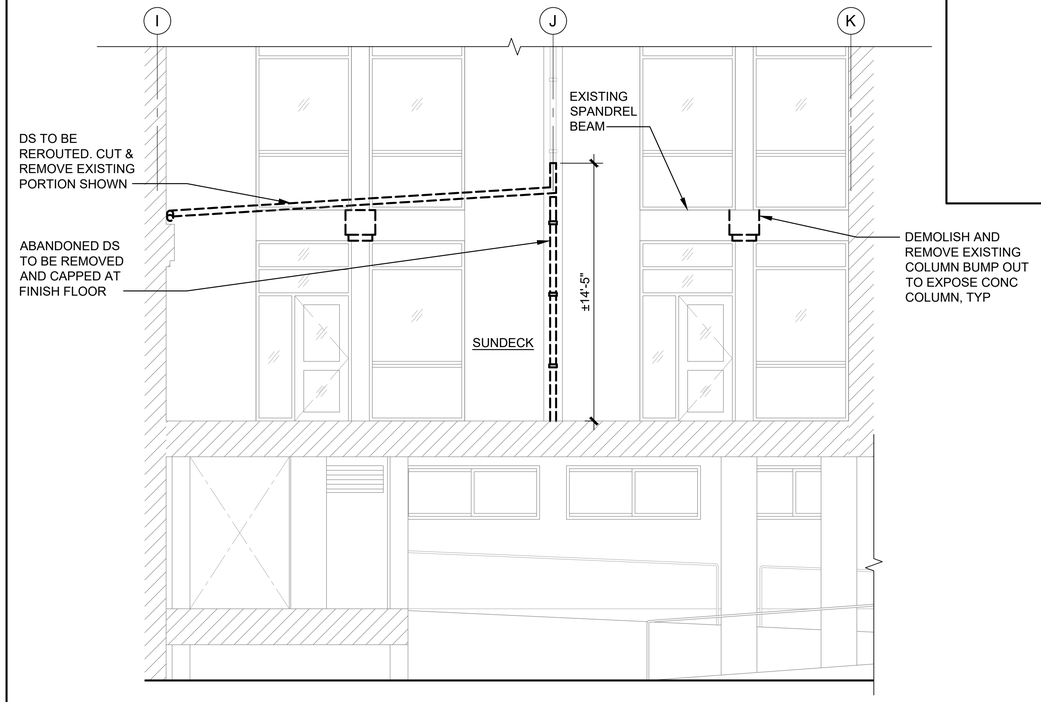
Sheet No.:

S501



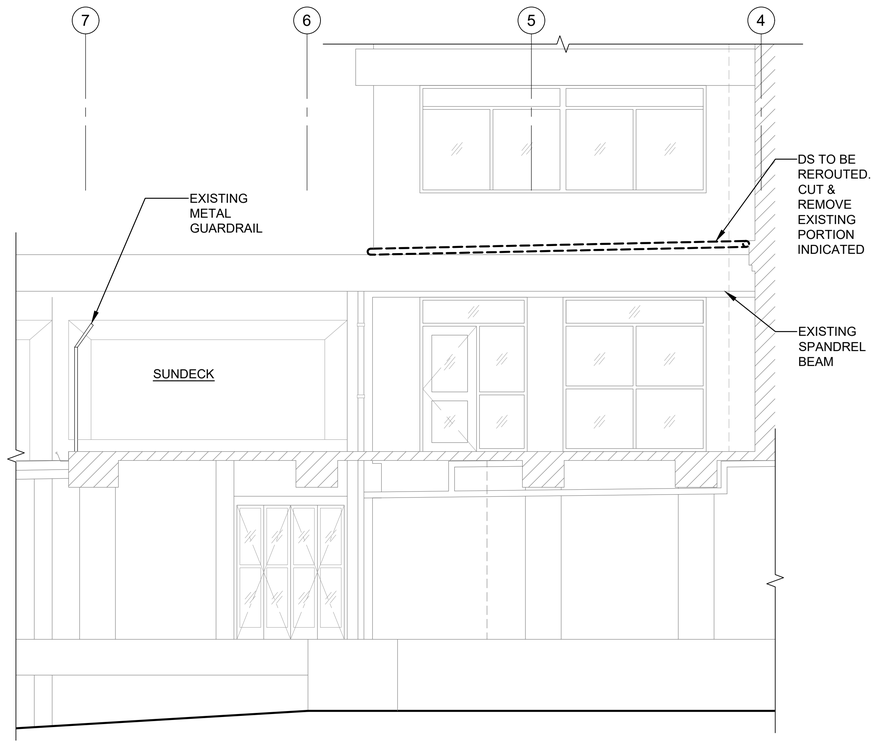
1 AD201 DEMOLITION ELEVATION - WEST FACADE

SCALE: 1/4" = 1'-0"



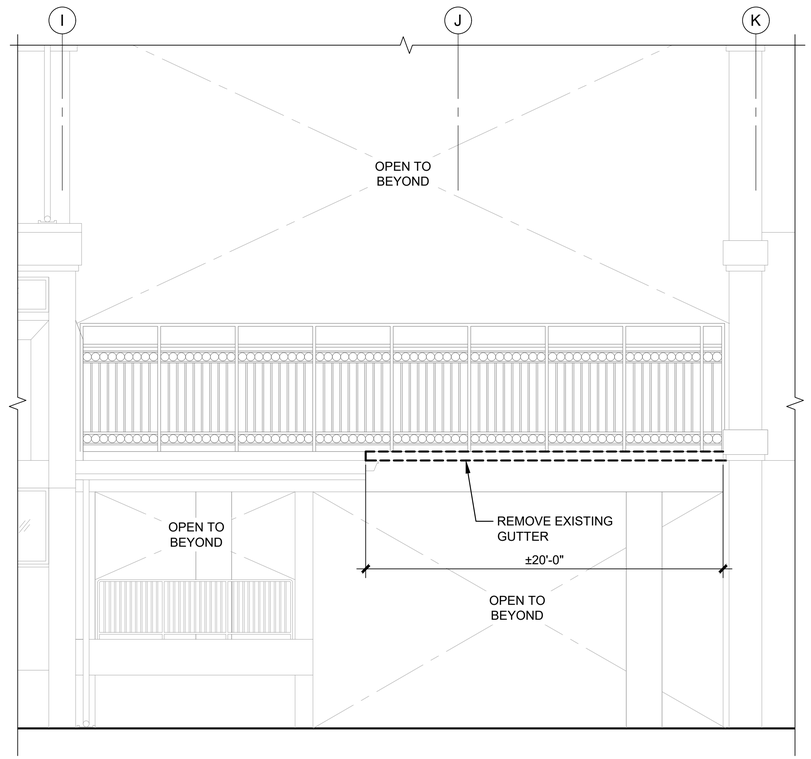
2 AD201 DEMOLITION ELEVATION - NORTH FACADE

SCALE: 1/4" = 1'-0"



3 AD201 DEMOLITION ELEVATION - EAST FACADE

SCALE: 1/4" = 1'-0"



4 AD201 DEMOLITION ELEVATION - NORTH FACADE

SCALE: 1/4" = 1'-0"

SHEET KEYNOTES (FOR THIS SHT ONLY)

DENOTES DEMOLITION WORK

0 4' 8' 12'

SCALE: 1/4"=1'-0"

INK ARCHITECTS

INK ARCH LLC
650 Iwilei Road, Suite 288
Honolulu, Hawaii 96817
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Fax: 808.536.1559
E-mail: ink@inkarch.com

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MALUHIA

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

SCOTT R.J. HARADA
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DEMO EXTERIOR ELEVATIONS

Project Phase:
FINAL DESIGN

Date:
OCT 2025

Sheet No.:

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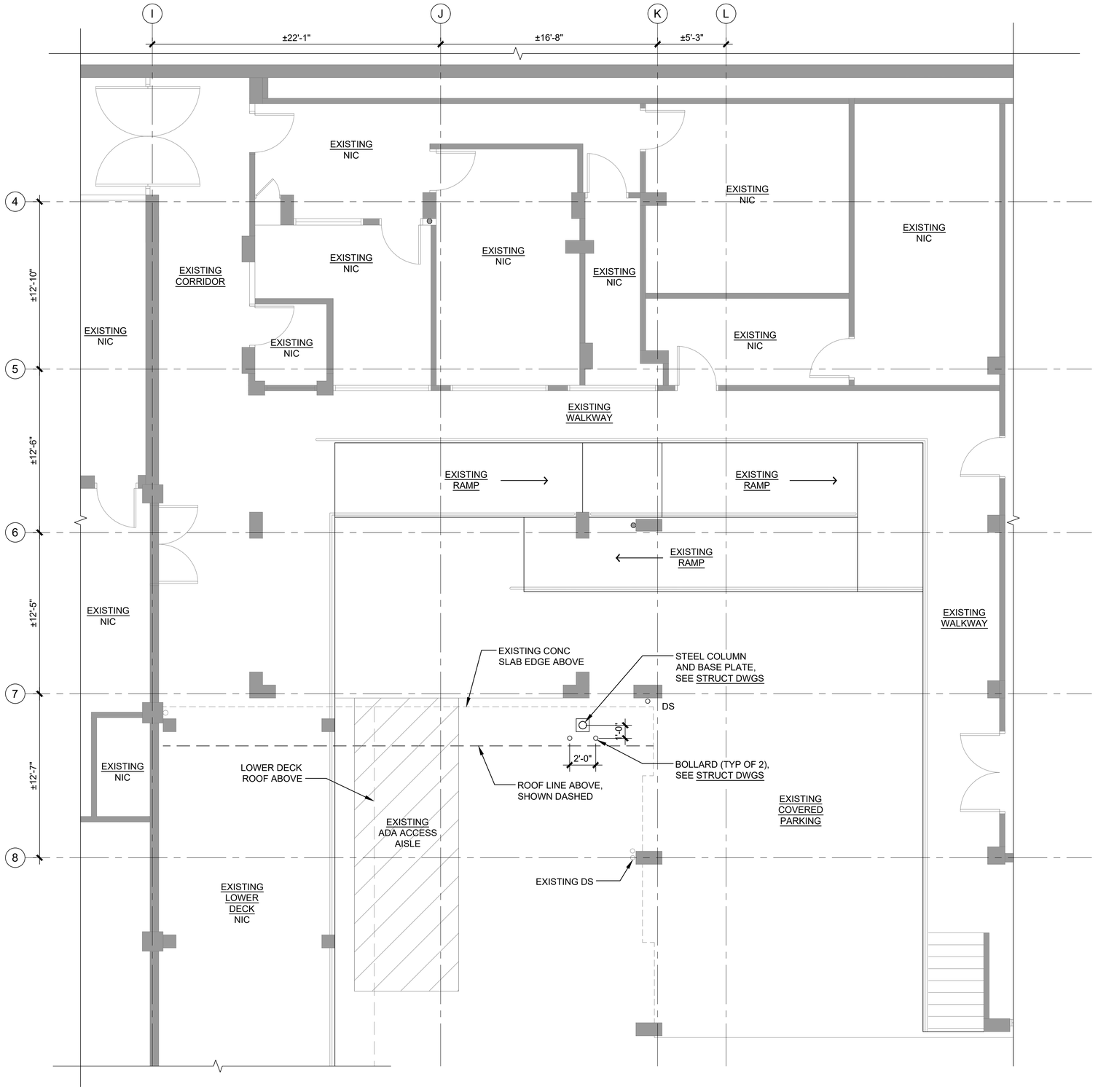


1 A-100 FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

0 4' 8' 12'

SCALE: 1/4"=1'-0"

PLAN NORTH

TRUE N

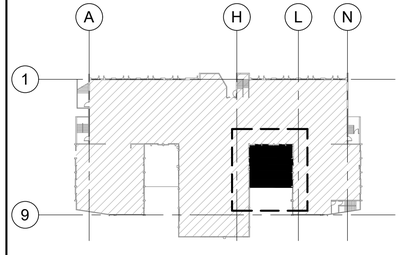
GENERAL SHEET NOTES

SHEET KEYNOTES (FOR THIS SHT ONLY)

LEGEND

- EXISTING WALLS AND COLUMNS
- EXISTING DOOR
- EXISTING STOREFRONT WINDOW

KEY PLAN



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FIRST FLOOR PLAN

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JUNE 2025

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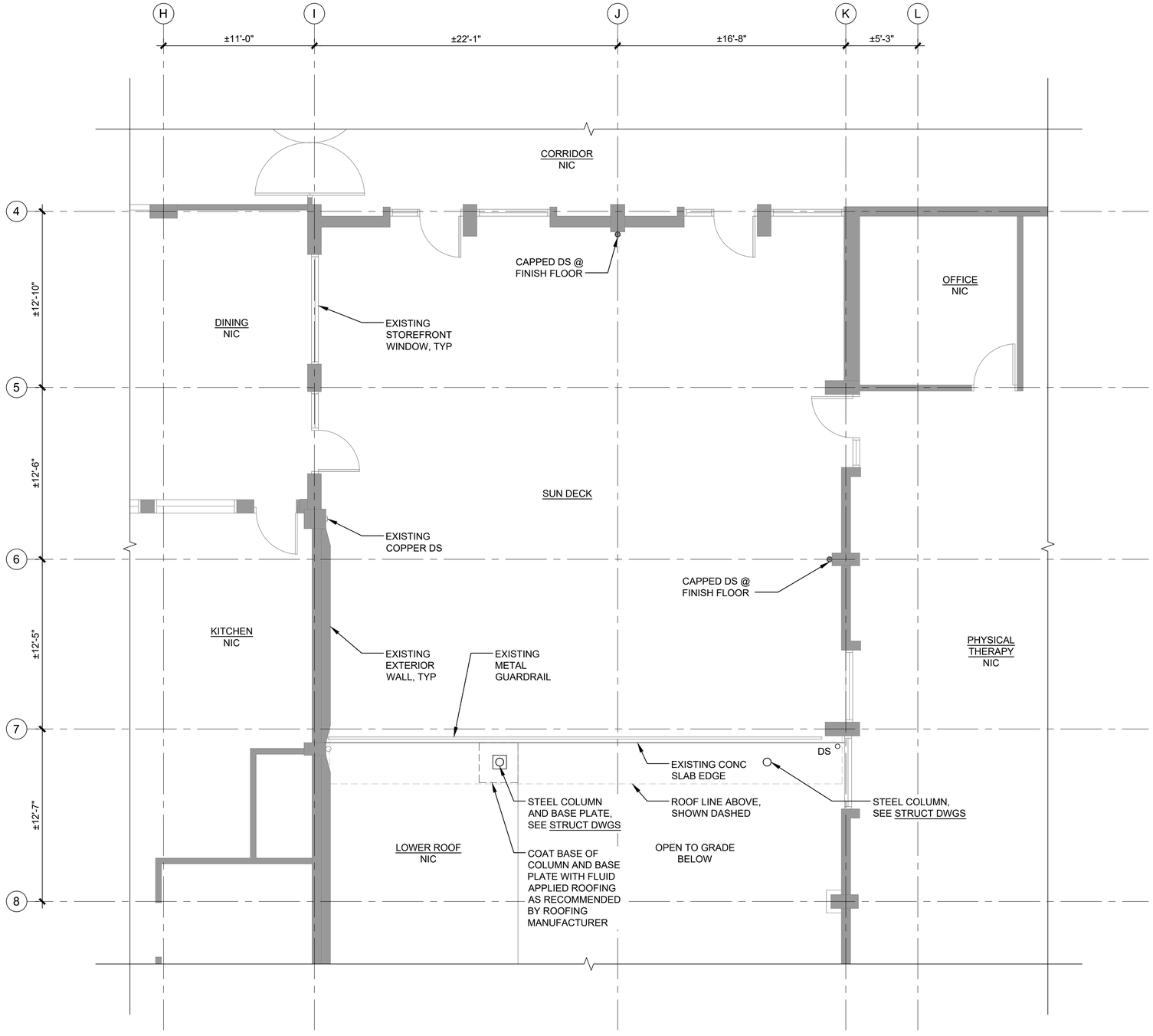
A-100



1 FLOOR PLAN - SUN DECK
A-101 SCALE: 1/4" = 1'-0"

0 4' 8' 12'
SCALE: 1/4"=1'-0"

PLAN NORTH
TRUE N

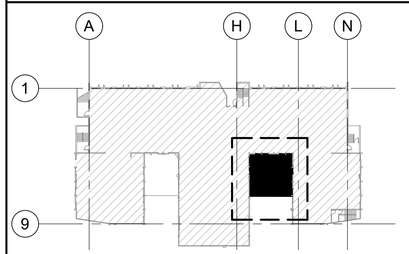
GENERAL SHEET NOTES

SHEET KEYNOTES (FOR THIS SHT ONLY)

LEGEND

- EXISTING WALLS AND COLUMNS
- EXISTING DOOR
- EXISTING STOREFRONT WINDOW

KEY PLAN



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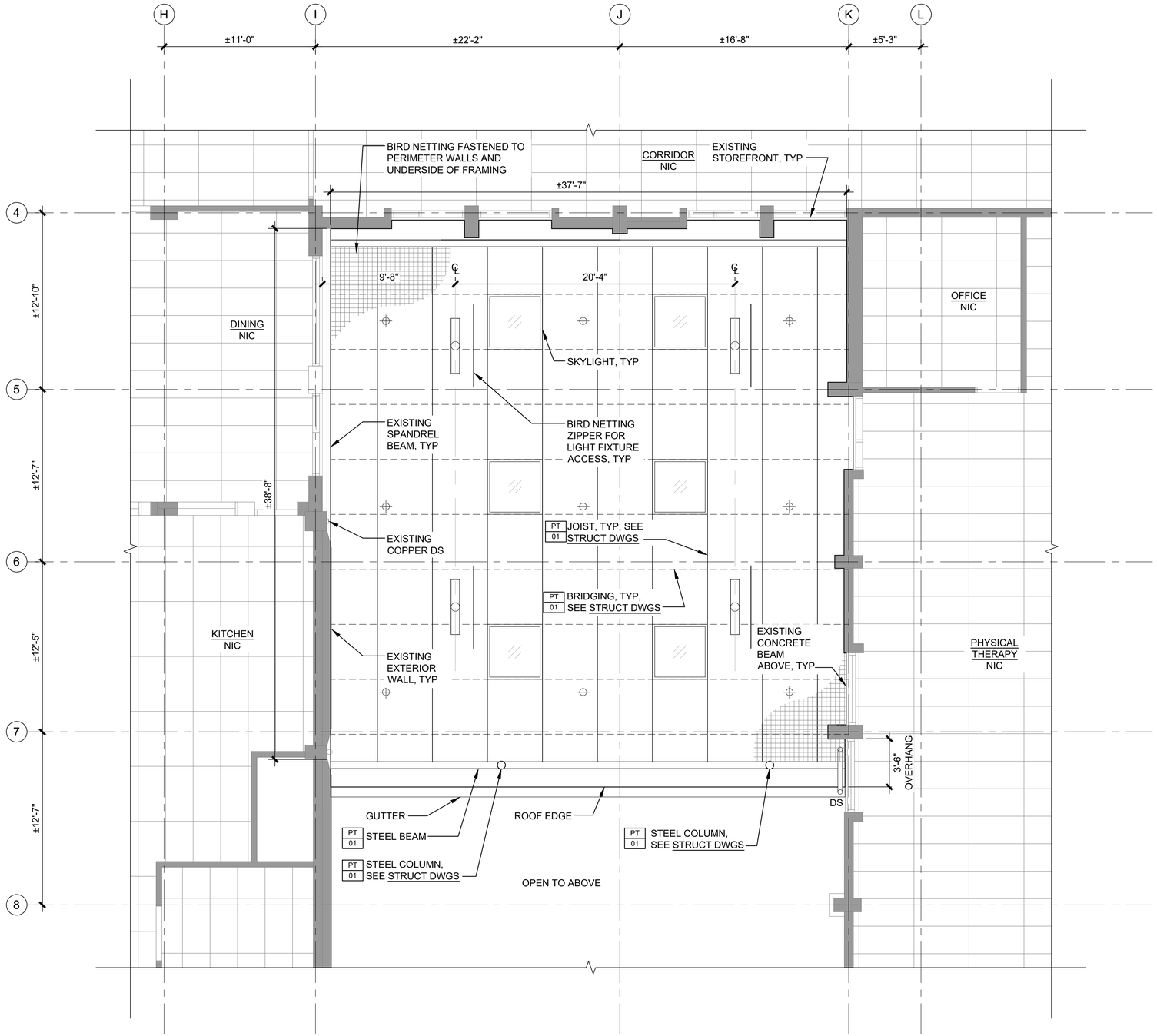
FLOOR PLAN - SUN DECK

Project Phase:
FINAL DESIGN

Date:
OCT 2025

Sheet No.:

A-101



1 A-102 REFLECTED CEILING PLAN - SUN DECK

SCALE: 1/4" = 1'-0"

0 4' 8' 12'

SCALE: 1/4"=1'-0"

PLAN NORTH (TRUE N)

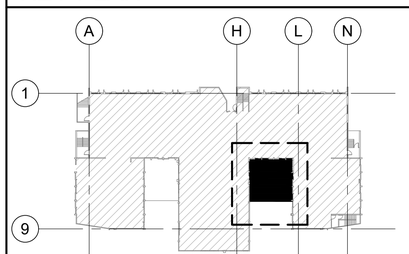
GENERAL SHEET NOTES

SHEET KEYNOTES (FOR THIS SHT ONLY)

LEGEND

- EXISTING WALLS AND COLUMNS
- EXISTING ACT CEILING
- FIRE SPRINKLER HEAD, SEE MECH DWGS
- LIGHT FIXTURE, SEE ELEC DWGS
- SKYLIGHT

KEY PLAN



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Fax: 808.536.1559
E-mail: ink@inkarch.com

Revisions:

No.	Description	Date

Project Title:

MALUHIA

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

SCOTT R.J. HARADA LICENSED PROFESSIONAL ARCHITECT No. 14637 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE
EXP. DATE: 04/30/26

Sheet Title:

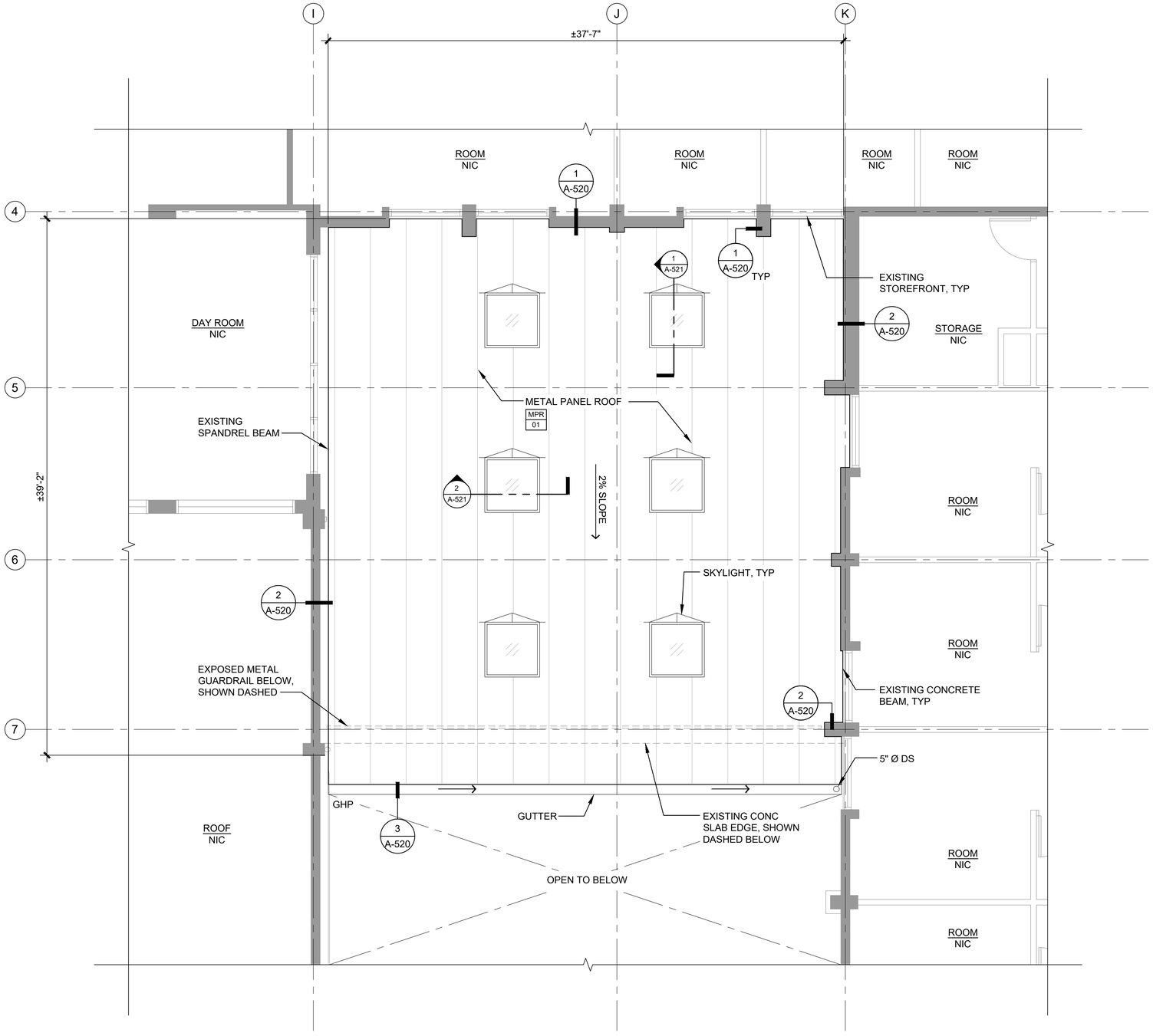
REFLECTED CEILING PLAN - SUN DECK

Project Phase:
FINAL DESIGN

Date:
JUNE 2025

Sheet No.:

A-102



1 A-103 ROOF PLAN - SUN DECK
SCALE: 1/4" = 1'-0"

0 4' 8' 12'
SCALE: 1/4"=1'-0"

PLAN NORTH
TRUE N

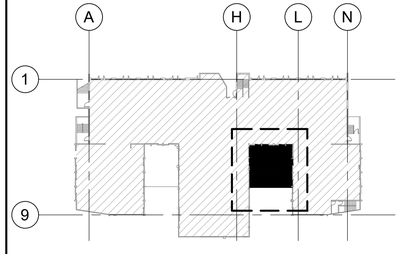
GENERAL SHEET NOTES

SHEET KEYNOTES (FOR THIS SHT ONLY)

LEGEND

- EXISTING WALLS AND COLUMNS
- METAL PANEL ROOF
- SKYLIGHT, PROVIDE UP-SLOPE CRICKETS, SEE DETAIL 1/A-520 AND 2/A-520

KEY PLAN



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EXP. DATE: 04/30/26

Sheet Title:

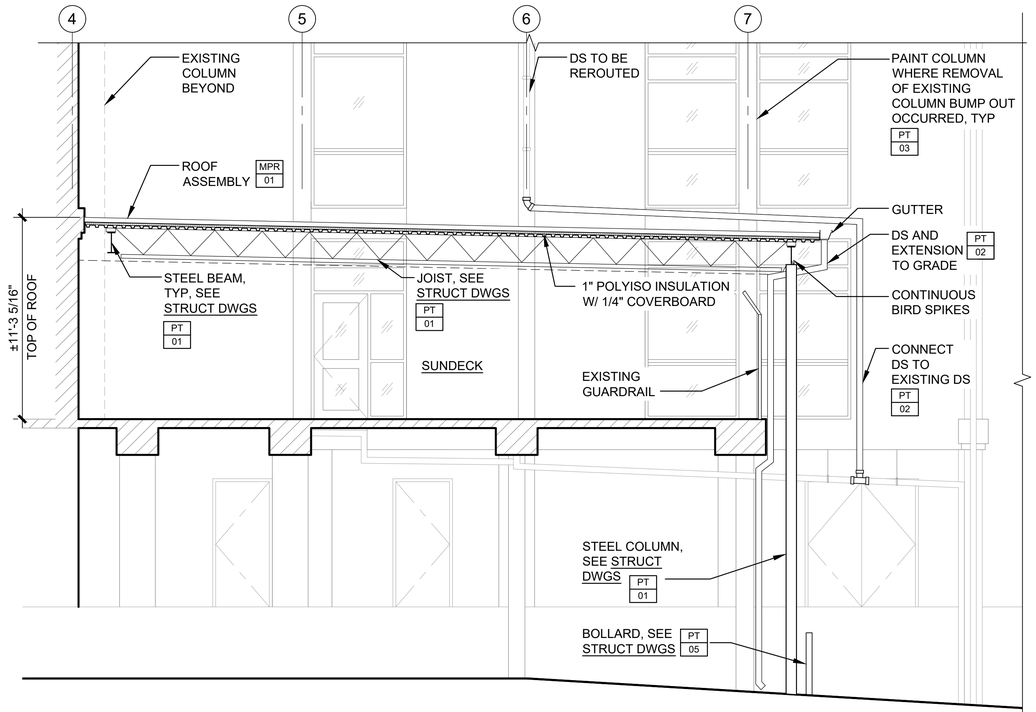
ROOF PLAN - SUN DECK

Project Phase:
FINAL DESIGN

Date:
JUNE 2025

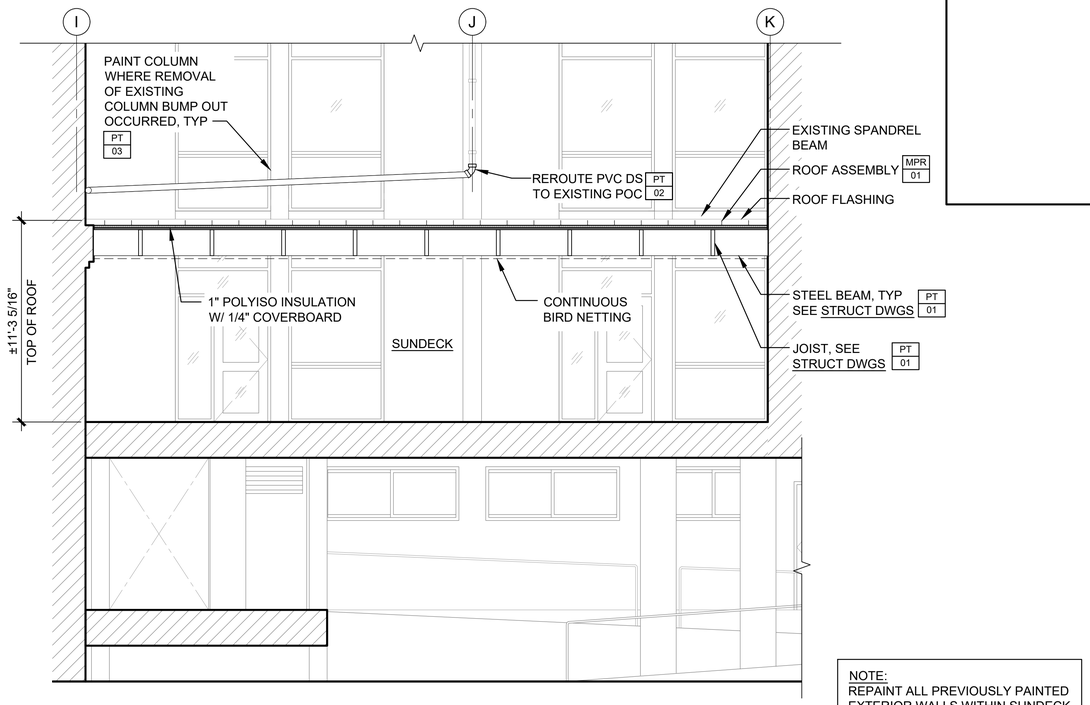
Sheet No.:

A-103



1 A-201 EXISTING SECTION - WEST FACADE

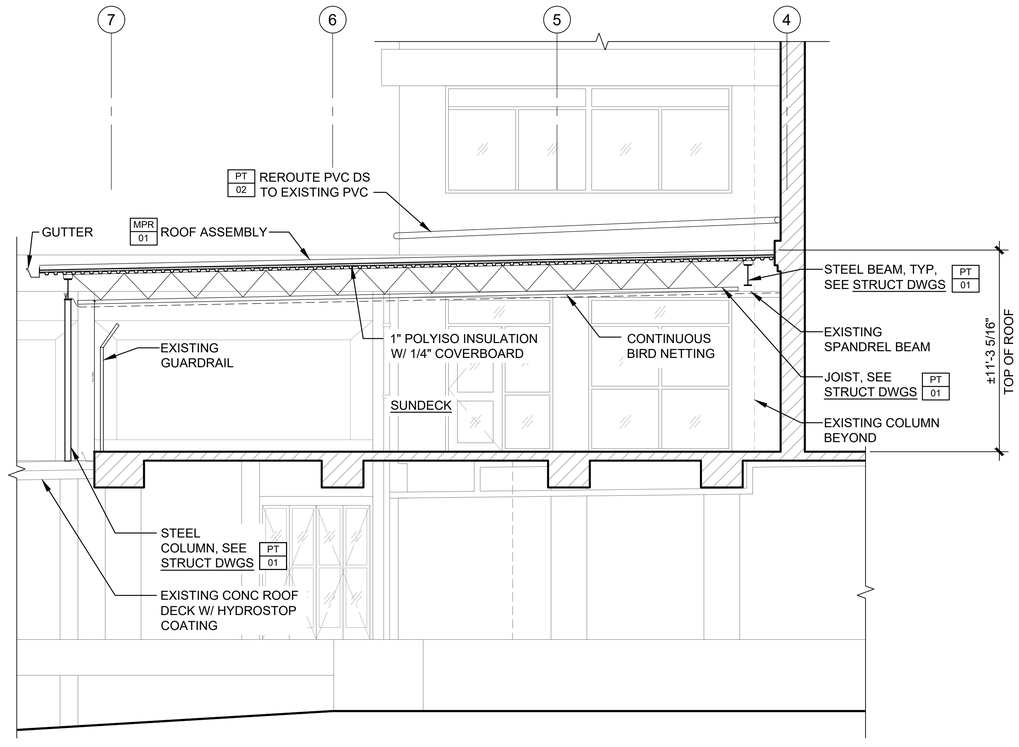
SCALE: 1/4" = 1'-0"



NOTE:
REPAINT ALL PREVIOUSLY PAINTED EXTERIOR WALLS WITHIN SUNDECK WITH PT-03 OR PT-04 MATCHING EXISTING COLOR.

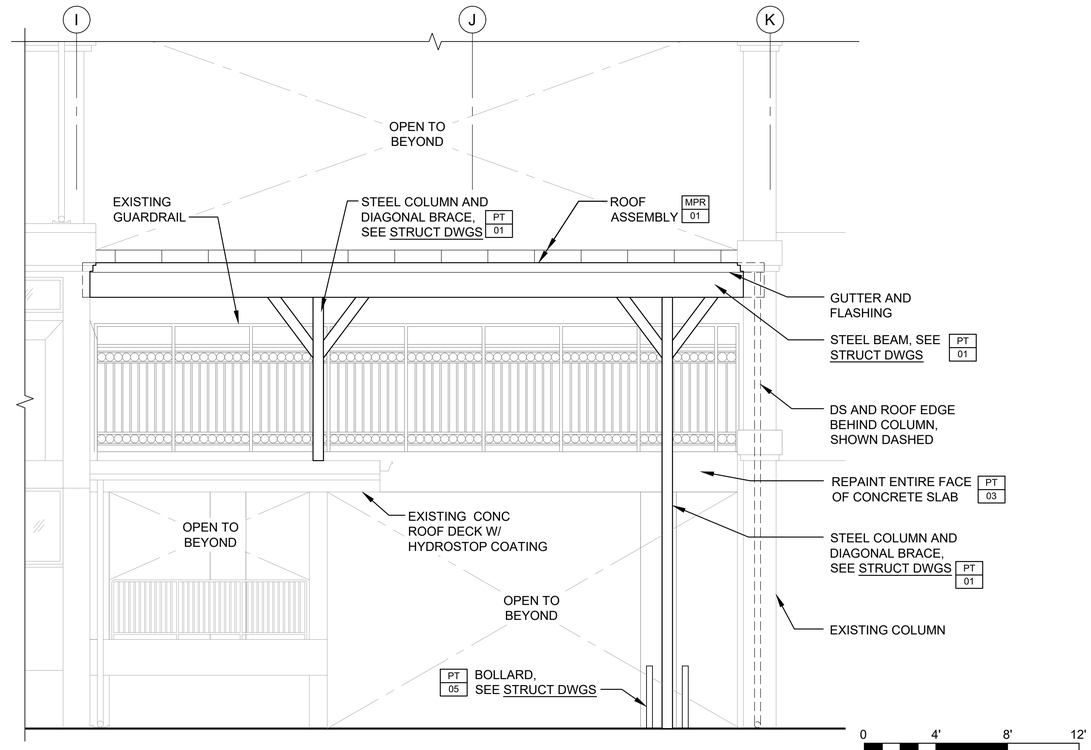
2 A-201 EXISTING SECTION - NORTH FACADE

SCALE: 1/4" = 1'-0"



3 A-201 EXISTING SECTION - EAST FACADE

SCALE: 1/4" = 1'-0"



4 A-201 EXISTING ELEVATION - NORTH FACADE

SCALE: 1/4"=1'-0"

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SIGNATURE
EXP. DATE: 04/30/26

Sheet Title:

EXISTING EXTERIOR SECTIONS / ELEVATION

Project Phase:
FINAL DESIGN

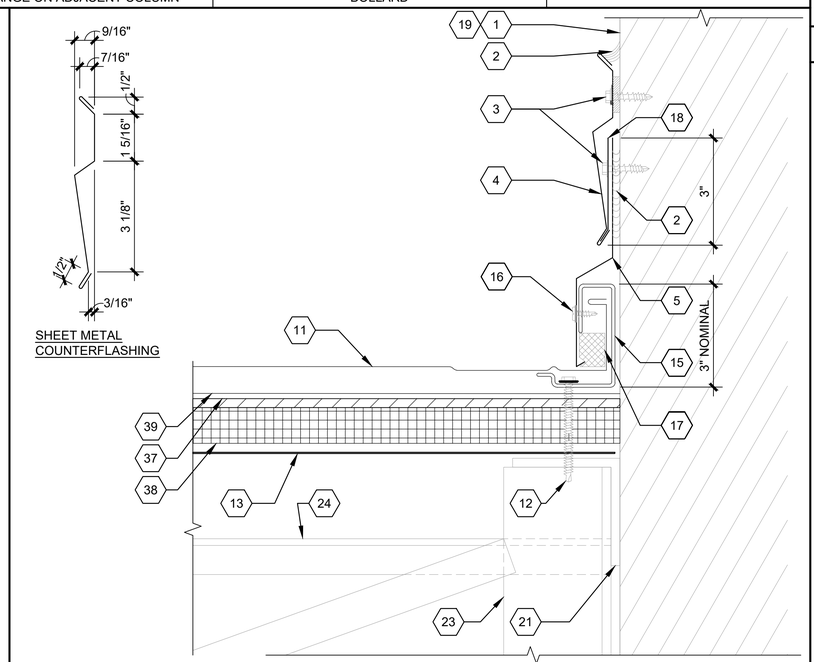
Date:
JUNE 2025

Sheet No.:

A-201

MATERIAL INDEX

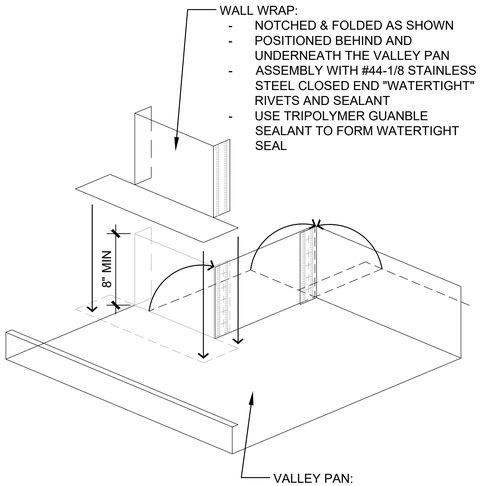
CODE	MATERIAL	MANUFACTURER	MODEL/SIZE	COLOR	LOCATIONS	REMARKS
MPR-01	METAL PANEL ROOF	GARLAND	R-MER SPAN, SEE SPECS	PATRIOT BLUE OR EQUIVALENT	ROOF PANELS, FLASHING, GUTTER	
PT-01	PAINT	SHERWIN WILLIAMS	SEE SPECS	MATCH EXISTING OFF-WHITE	HSS COLUMNS, JOISTS, BEAMS, METAL DECK, DIAGONAL BRACING	
PT-02	PAINT	SHERWIN WILLIAMS	SEE SPECS	MATCH EXISTING OFF-WHITE	PVC DOWNSPOUT	
PT-03	PAINT	SHERWIN WILLIAMS	SEE SPECS	MATCH EXISTING OFF-WHITE	PATCH WORK OF EXISTING WALLS AND COLUMNS	
PT-04	PAINT	SHERWIN WILLIAMS	SEE SPECS	MATCH EXISTING BLUE	PATCH WORK OF EXISTING SPANDREL BEAM	
PT-05	PAINT	SHERWIN WILLIAMS	SEE SPECS	MATCH EXISTING YELLOW/ ORANGE ON ADJACENT COLUMN	BOLLARD	



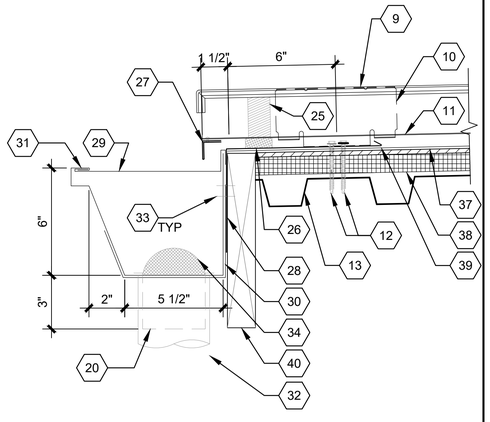
2 A-520 TYP SIDE WALL FLASHING DETAIL
SCALE: 6" = 1'-0"

SHEET KEYNOTES (FOR THIS SHT ONLY)

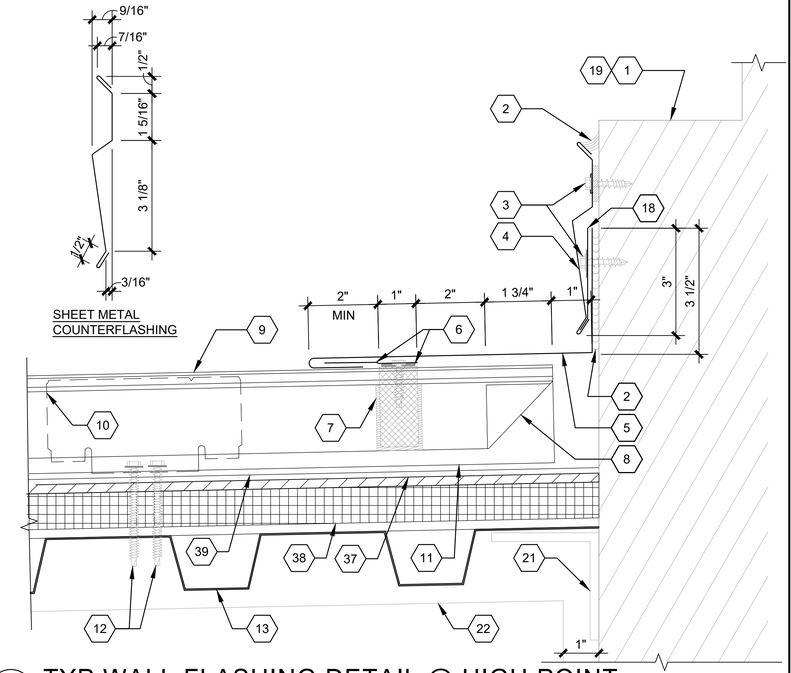
1. EXISTING SPANDREL BEAM
2. CONTINUOUS SEALANT BEAD, SLOPE TOP TO DRAIN
3. GROMMET FASTENERS @ 12" OC MAX SPACING
4. SURFACE MOUNTED COUNTERFLASHING SET IN CONTINUOUS BUTYL TAPE
5. CONTINUOUS METAL FLASHING
6. CONTINUOUS BUTYL TAPE APPLIED BETWEEN HEAD CLOSURE AND OFF-SET CLEAT
7. SEALANT APPLIED @ INTERSECTION OF HEAD CLOSURE TRIM TO VERTICAL PANEL LEG
8. SKEWED PANEL CUT, TURN UP PANEL PAN USING HAND TOOLS PER MANUFACTURER
9. PANEL CAP
10. PANEL CLIP
11. METAL PANEL ROOF
12. FASTENERS (2) PER CLIP
13. METAL DECK, SEE STRUCT DWGS
14. EXPANSION JOINT COVER
15. GABLE CLIPS @ EACH SIDE
16. FASTENER W/ NEOPRENE WASHER OR STAINLESS STEEL RIVET @ EACH GABLE CLIP
17. CONTINUOUS NEOPRENE FOAM CLOSURE. SELF-ADHERED TO PANEL LEG
18. 2" WIDE CLEAT @ 24" OC
19. CLEAN AND PRIME WALL AS REQUIRED TO ENSURE PROPER SEALANT ADHESION
20. OUTLET SLEEVE, LAP INTO DOWNSPOUT
21. CONTINUOUS LEDGER ANGLE, SEE STRUCT DWGS
22. JOIST, SEE STRUCT DWGS
23. L ANGLE, SEE STRUCT DWGS
24. BRIDGING ANGLE, SEE STRUCT DWGS
25. SEALANT BETWEEN SEAMS
26. CONTINUOUS FOAM CLOSURE
27. CONTINUOUS EDGE STIFFENER
28. CONTINUOUS REAR LEG OF GUTTER
29. 1 1/2" WIDE X 1/8" THK METAL GUTTER SPACERS @ 3'-0" OC (SPACES ALTERNATELY WITH THE GUTTER SUPPORT BRACKET)
30. 1 1/2" WIDE X 1/8" THK METAL GUTTER SUPPORT BRACKET @ 3'-0" OC (PRE-FINISHED TO MATCH GUTTER) SPACES ALTERNATIVELY WITH THE GUTTER SPACER
31. PRE FINISHED SHEET METAL GUTTER
32. 4" Ø PVC DOWNSPOUT LEADER
33. FASTENER, AS REQUIRED
34. WIRE BALL STRAINER @ GUTTER OUTLET
35. TRIPOLYMER SEALANT
36. #44-1/8" STAINLESS STEEL CLOSED END RIVETS
37. 1/4" COVER BOARD
38. 1" THK INSULATION
39. UNDERLAYMENT PER ROOFING MANUFACTURER
40. 2X FASCIA BOARD



4 A-520 PANEL FLASHING DETAIL
SCALE: NOT TO SCALE



3 A-520 ROOF EAVE W/ GUTTER DETAIL
SCALE: 3" = 1'-0"



1 A-520 TYP WALL FLASHING DETAIL @ HIGH POINT
SCALE: 6" = 1'-0"

0 3" 6" 9" 1'
SCALE: 3"=1'-0"

0 3" 6"
SCALE: 6"=1'-0"

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Revisions:

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SIGNATURE
EXP. DATE: 04/30/26

Sheet Title:

ROOF DETAILS, MATERIAL INDEX

Project Phase:

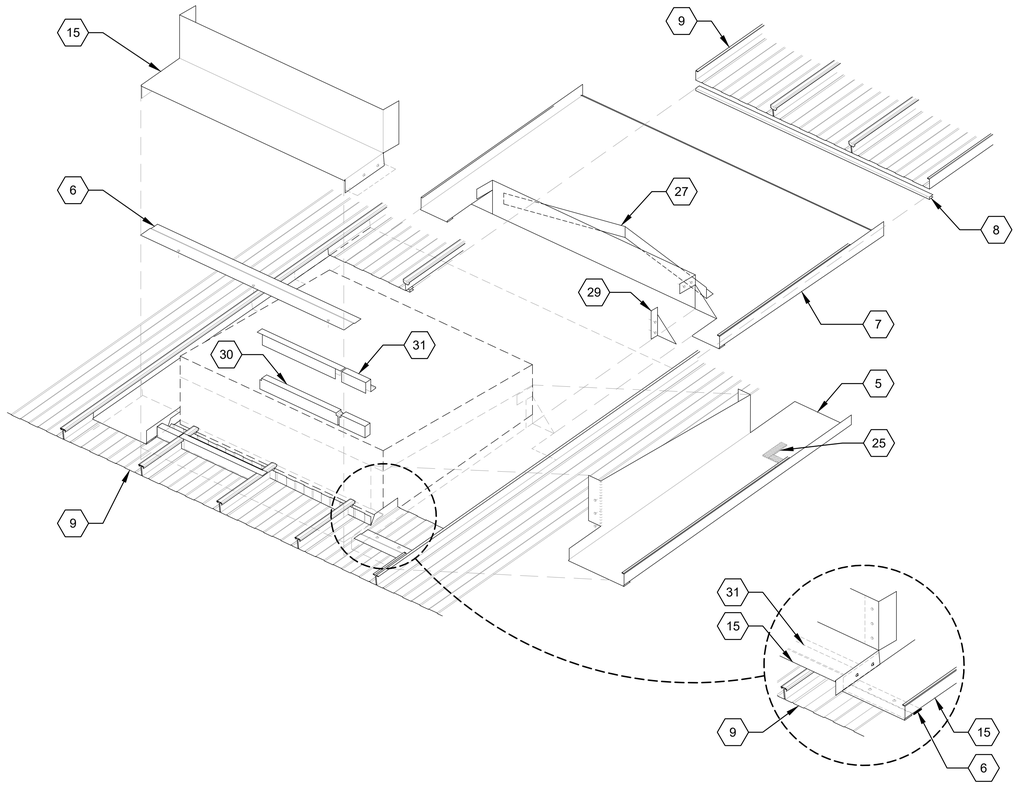
FINAL DESIGN

Date:

JUNE 2025

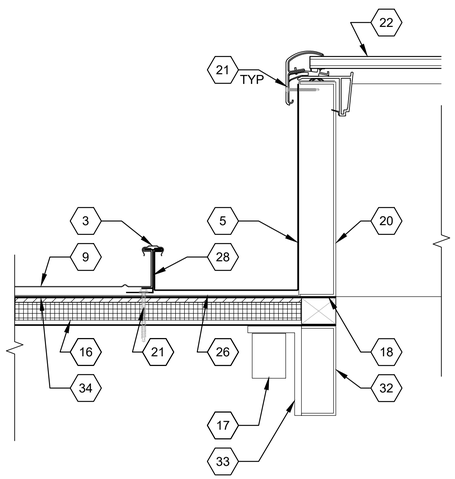
Sheet No.:

A-520



3 A-521 SKYLIGHT CURB FLASHING ISO DETAIL

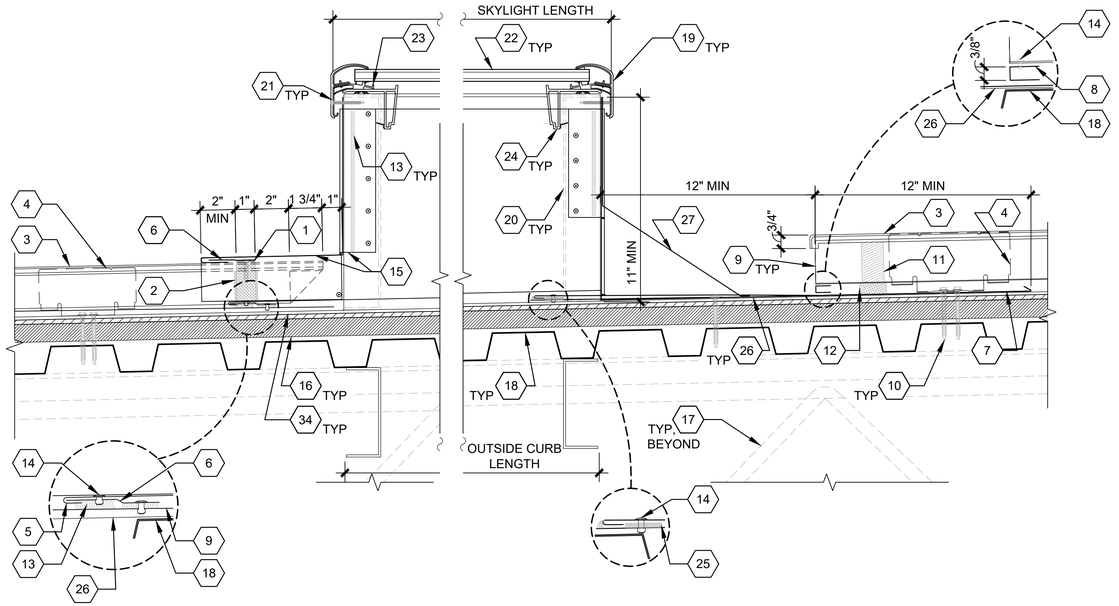
SCALE: 3" = 1'-0"



SIDE FLASHING CONDITION

2 A-521 SKYLIGHT CURB FLASHING DETAIL

SCALE: 3" = 1'-0"



CROSS SLOPE CURB AND CRICKET CONDITIONS

1 A-521 SKYLIGHT CURB FLASHING DETAIL

SCALE: 3" = 1'-0"

SHEET KEYNOTES (FOR THIS SHT ONLY)

1. CONTINUOUS BUTYL TAPE APPLIED BETWEEN HEAD CLOSURE AND OFF-SET CLEAT
2. SEALANT APPLIED @ INTERSECTION OF HEAD CLOSURE TRIM TO VERTICAL PANEL LEG
3. PANEL CAP
4. PANEL CLIP
5. JAMB PAN
6. OFF-SET CLEAT
7. VALLEY PAN
8. VALLEY CLOSURE X 10'-0"
9. METAL PANEL ROOF
10. FASTENERS (2) PER CLIP
11. SEALANT BETWEEN SEAMS
12. CONTINUOUS FOAM CLOSURE
13. TRIPOLYMER SEALANT
14. #44-1/8" STAINLESS STEEL CLOSED END RIVETS
15. HEAD TRIM
16. 1" THK INSULATION
17. JOIST, SEE STRUCT DWGS
18. METAL DECK , SEE STRUCT DWGS
19. 15 GA ROLL-FORMED ALUMINUM SASH
20. PRE-MANUFACTURED CURB, SEE STRUCT DWGS
21. FASTENER AS REQUIRED, PER MANUF
22. INSULATED GLAZING, PER MANUF
23. THERMAL BREAK GASKET W/ INTEGRAL CONDENSATION GUTTER AND CONDENSATE WEEP HOLES AT CORNERS, PER MANUF
24. COMPOSITE ACCESSORY TRAY PACKAGED W/ SKYLIGHT, PER MANUF
25. BUTYL TAPE
26. UNDERLAYMENT PER ROOFING MANUFACTURER
27. UP-SLOPE CRICKET
28. MODIFIED CLIP FIELD CUT SUPPORT LEG TO ACCOMMODATE BASE FLASHING
29. INSERT FLASHING FINISH SIDE OUT
30. NEOPRENE BLOCKS
31. METAL HEAD CLOSURE
32. CHANNEL BELOW WEB, SEE STRUCT DWGS
33. L ANGLE, SEE STRUCT DWGS
34. 1/4" COVER BOARD

0 3" 6" 9" 1'

SCALE: 3"=1'-0"

0 3" 6"

SCALE: 6"=1'-0"

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EXP. DATE: 04/30/26

Sheet Title:

ROOF DETAILS

Project Phase:

FINAL DESIGN

Date:

OCT 2025

Sheet No.:

A-521

AUTOMATIC FIRE SPRINKLER SYSTEM NOTES:

1. PROVIDE COMPLETE FIRE SPRINKLER COVERAGE IN ACCORDANCE WITH NFPA 13, LATEST EDITION, AND THE FOLLOWING CRITERIA:
   A. CLASSIFICATION OF OCCUPANCY
      SUN DECK SHALL BE LIGHT HAZARD.
   B. DESIGN DENSITY:
      SUN DECK SHALL BE 0.10 GPM/SF.
   C. DESIGN METHOD:
      SUN DECK UNITS SHALL BE ROOM DESIGN METHOD.
   D. DESIGN AREA:
      SUN DECK SHALL BE BASED ON THE MOST REMOTE SPRINKLER HEAD.
   E. INSIDE HOSE STREAM ALLOWANCE:
      SUN DECK SHALL BE 100 GPM.
   F. DURATION OF SUPPLY:
      SUN DECK SHALL BE 30 MINUTES.
   G. AVAILABLE WATER SUPPLY AT HYDRANT –
      FLOW: – GPM STATIC: – PSI RESIDUAL: – PSI
2. THESE FIRE SPRINKLER PLANS ARE PRELIMINARY PLANS WHICH ARE SUBMITTED FOR THE CONDITIONAL APPROVAL OF THE FIRE DEPARTMENT AND THE DEPARTMENT OF DESIGN & CONSTRUCTION. TWO (2) SETS OF COMPLETE WORKING PLANS (SHOP DRAWINGS), AND HYDRAULIC CALCULATIONS STAMPED AND SIGNED BY A HAWAII LICENSED MECHANICAL OR FIRE PROTECTION ENGINEER SHALL BE SUBMITTED, AS APPLICABLE, TO THE FIRE PROTECTION SPECIAL INSPECTOR (FPSI) FOR CODE COMPLIANCE REVIEW. ONE (1) SET WITH THE FPSI APPROVAL STAMP SHALL BE SUBMITTED TO THE DPP BUILDING DIVISION ALONG WITH THE FPSI FINAL REPORT/LETTER PRIOR TO CLOSING OF THE BUILDING PERMIT.
3. THESE PLANS WERE PREPARED FOR PRICING AND GENERAL CONFORMANCE REQUIREMENTS ONLY; THE CONTRACTOR IS RESPONSIBLE FOR THE ACTUAL DESIGN AND LAYOUT. THE LOCATION OF PIPING, SPRINKLERS, AND ACCESSORIES, AND QUANTITY OF FIRE SPRINKLERS ARE APPROXIMATE. CONTRACTOR SHALL ALSO VERIFY THE ROUTING OF PIPING AND LOCATION OF ACCESSORIES PRIOR TO INSTALLATION. ALL DEVIATIONS FROM THE PRELIMINARY PLANS SHALL BE CLEALY INDICATED ON THE COMPLETE WORKING PLANS FOR THE APPROVAL BY THE ENGINEER PRIOR TO INSTALLATION.
4. HANGERS FOR FIRE SPRINKLER PIPING SHALL BE IN ACCORDANCE WITH NFPA 13.
5. SPARE SPRINKLERS SHALL BE PROVIDED IN ACCORDANCE WITH 2018 NFPA 1, SECTION 13.3.3.7.1, AS AMENDED. FURNISH LOCKABLE CABINET AND INSTALL INSIDE OF BUILDING. VERIFY WITH OWNER THE LOCATION OF SPARE SPRINKLER HEAD CABINET.
6. FIRE SAFETY DURING CONSTRUCTION, ALTERATION OR DEMOLITION SHALL BE IN ACCORDANCE WITH 2018 NFPA 1 AND NFPA 241.
7. FIRESTOP ALL PIPE AND CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS.
8. ALL DEVICES AND EQUIPMENT SHALL BE UL LISTED AND FM APPROVED.
9. ALL SPRINKLERS SHALL BE APPROVED QUICK RESPONSE TYPE.
10. PIPE AND FITTINGS SHALL COMPLY WITH NFPA 13, EXCEPT THAT ALL PIPING SHALL BE STEEL. PROVIDE HOT DIPPED GALVANIZED PIPE AND FITTINGS ON ALL EXTERIOR PIPING INCLUDING THE RISER.
11. PIPING SHALL BE PROVIDED WITH EARTHQUAKE PROTECTION IN ACCORDANCE WITH NFPA 13.
12. PROVIDE INSPECTION AND HYDROSTATIC TESTS IN ACCORDANCE WITH NFPA 13 CHAPTER 8. PRIOR TO HYDROSTATIC TESTS THE CONTRACTOR SHALL PERFORM AN AIR PRESSURE TEST TO LOCATE POTENTIAL LEAKAGE POINTS. INSPECTION AND TESTS SHALL BE CERTIFIED IN ACCORDANCE WITH THE HONOLULU FIRE DEPARTMENT REQUIREMENTS. CONTRACTOR SHALL TAG SYSTEM AND SUBMIT TEST REPORT IN ACCORDANCE TO HFD REQUIREMENTS.
13. SPECIAL INSPECTIONS FOR AUTOMATIC FIRE SPRINKLER SYSTEM SHALL BE PROVIDED IN ACCORDANCE WITH HONOLULU BUILDING CODE AMENDMENTS TO SECTION 913.
14. DRAWINGS FILES WILL NOT BE AVAILABLE TO CONTRACTORS FOR SHOP DRAWINGS OR ANY OTHER PURPOSE.
15. THE ENTIRE INSTALLATION SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE BUILDING CODE OF THE CITY AND COUNTY OF HONOLULU, STATE DEPARTMENT OF HEALTH REGULATIONS, UNIFORM PLUMBING CODE, UNIFORM FIRE CODE, NATIONAL ELECTRICAL CODE, HAWAII STATE MODEL ENERGY CODE, AND ALL OTHER AGENCIES HAVING JURISDICTION.
16. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO COVER THE COMPLETE INSTALLATION OF SYSTEMS TO FUNCTION AS DESCRIBED AND SPECIFIED. THE OMISSION OF REFERENCE TO ANY NECESSARY ITEM OF LABOR OR MATERIAL SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING SUCH LABOR AND MATERIAL.
17. ALL EQUIPMENT SHALL BE CAPABLE OF FITTING INTO THE SPACES ALLOCATED WHILE MEETING THE MANUFACTURER'S RECOMMENDED ACCESS REQUIREMENTS. REVIEW ALL SPACES WHERE EQUIPMENT IS TO BE INSTALLED PRIOR TO ORDERING OF EQUIPMENT AND NOTIFY THE ENGINEER OF ANY INADEQUATE CLEARANCES OR CONDITIONS THAT WILL PREVENT THE PROPER INSTALLATION, MAINTENANCE, AND OPERATION OF THE EQUIPMENT.
18. OBTAIN APPROVAL FROM THE ARCHITECT BEFORE MAKING ANY PENETRATIONS THROUGH STRUCTURAL MEMBERS, WALLS, AND SLABS.
19. ALL FIRE SPRINKLER CONTROL VALVES AND WATER FLOW SWITCHES MUST BE ELECTRICALLY MONITORED IN ACCORDANCE WITH 2018 IBC SECTION 903.4. VALVE MONITORING, WATER FLOW, AND TROUBLE SIGNAL SHALL BE MONITORED ON THE ISLAND OF OAHU.

FIRE PROTECTION LEGEND

SYMBOL	ABBREV.	DESCRIPTION
GENERAL		
	AFF	ABOVE FINISHED FLOOR
	ø	DIAMETER
	NTS	NOT TO SCALE
	TYP	TYPICAL
	DN	DOWN
FIRE PROTECTION		
⊕		UPRIGHT PENDANT FS HEAD
	FS	FIRE SPRINKLER

GENERAL NOTES

1. PROVIDE RESIDENTIAL PENDANT SPRINKLER HEADS IN DWELLING UNIT BATHROOMS.
2. PROVIDE QUICK RESPONSE PENDANT AND HORIZONTAL SIDEWALL SPRINKLER HEADS AT THE STAIRWELLS, AND ELECTRICAL ROOM SPACES.
   A. QUICK RESPONSE PENDANT SPRINKLERS SHALL BE 1/2–INCH NPT, 155°F (ORDINARY) TEMPERATURE RATING, K=5.6, 175 PSI MAX WORKING PRESSURE, UL LISTED HEADS. TYCO TY3231 OR APPROVED EQUAL.

FIRE SPRINKLER GENERAL NOTES:

1. THE ENTIRE INSTALLATION SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE BUILDING CODE OF THE CITY & COUNTY OF HONOLULU, STATE DEPARTMENT OF HEALTH REGULATIONS, UNIFORM PLUMBING CODE, UNIFORM FIRE CODE, NATIONAL ELECTRICAL CODE, HAWAII STATE MODEL ENERGY CODE, AND ALL OTHER AGENCIES HAVING JURISDICTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO COVER THE COMPLETE INSTALLATION OF SYSTEMS TO FUNCTION AS DESCRIBED AND SPECIFIED. THE OMISSION OF REFERENCE TO ANY NECESSARY ITEM OF LABOR OR MATERIAL SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING SUCH LABOR AND MATERIAL.
3. ALL EQUIPMENT SHALL BE CAPABLE OF FITTING INTO THE SPACES ALLOCATED WHILE MEETING THE MANUFACTURER'S RECOMMENDED ACCESS REQUIREMENTS. REVIEW ALL SPACES WHERE EQUIPMENT IS TO BE INSTALLED PRIOR TO ORDERING OF EQUIPMENT AND NOTIFY THE ENGINEER OF ANY INADEQUATE CLEARANCES OR CONDITIONS THAT WILL PREVENT THE PROPER INSTALLATION, MAINTENANCE, AND OPERATION OF THE EQUIPMENT.
4. OBTAIN APPROVAL FROM THE ARCHITECT BEFORE MAKING ANY PENETRATIONS THROUGH STRUCTURAL MEMBERS, WALLS, AND SLABS.
5. REPAIR ANY DAMAGE TO EXISTING CONSTRUCTION RESULTING FROM THE INSTALLATION OF MECHANICAL ITEMS. THE AREAS REPAIRED SHALL MATCH THE ADJACENT SURFACES IN TEXTURE AND COLOR.
6. ALL FIRE SPRINKLER CONTROL VALVES AND WATER FLOW SWITCHES MUST BE ELECTRICALLY MONITORED IN ACCORDANCE WITH 1997 UBC SECTION 904.3.1

CITY AND COUNTY OF HONOLULU
REVISED ORDINANCES OF HONOLULU 1990
CHAPTER 32

TO THE BEST OF MY KNOWLEDGE, THIS PROJECT'S DESIGN SUBSTANTIALLY CONFORMS TO THE BUILDING ENERGY CONSERVATION CODE FOR:

_____ BUILDING COMPONENT SYSTEMS
_____ ELECTRICAL COMPONENT SYSTEMS
_✓_ MECHANICAL COMPONENT SYSTEMS

SIGNATURE: [signature]
NAME: ROSS R. TANAKA
TITLE: VICE PRESIDENT
PE #: 9301–M
DATE: 6–26–2025

ROSS R. TANAKA LICENSED PROFESSIONAL ENGINEER No. 9301–M HAWAII, U.S.A.
EXP. 4–30–2026

THE AIR CONDITIONING AND VENTILATION SYSTEM SHALL COMPLY WITH TITLE 11, ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, CHAPTER 39, AIR CONDITIONING AND VENTILATION REQUIREMENTS.

BWS NOTE:
1. NO IRRIGATIONS WORK INVOLVED AS PART OF THIS PROJECT.
2. THE EXISTING FIRE METER IS ADEQUATE TO SERVICE THE AUTOMATIC FIRE SPRINKLER SYSTEM.
3. NO PLUMBING WORK INVOLVED AS PART OF THIS PROJECT.

Mechanical Enterprises, Inc.
Mechanical & Fire Protection Engineers
MECHANICAL ENTERPRISES, INC.
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Fax: 808.596.7356
E-mail: mail@meihawaii.com

Revisions:

No.	Description	Date

Project Title:

MALUHIA HOSPITAL

SUN DECK ROOF

1027 HALA DRIVE
HONOLULU, HI 96817

ROSS R. TANAKA LICENSED PROFESSIONAL ENGINEER No. 9301–M HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

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Sheet Title:

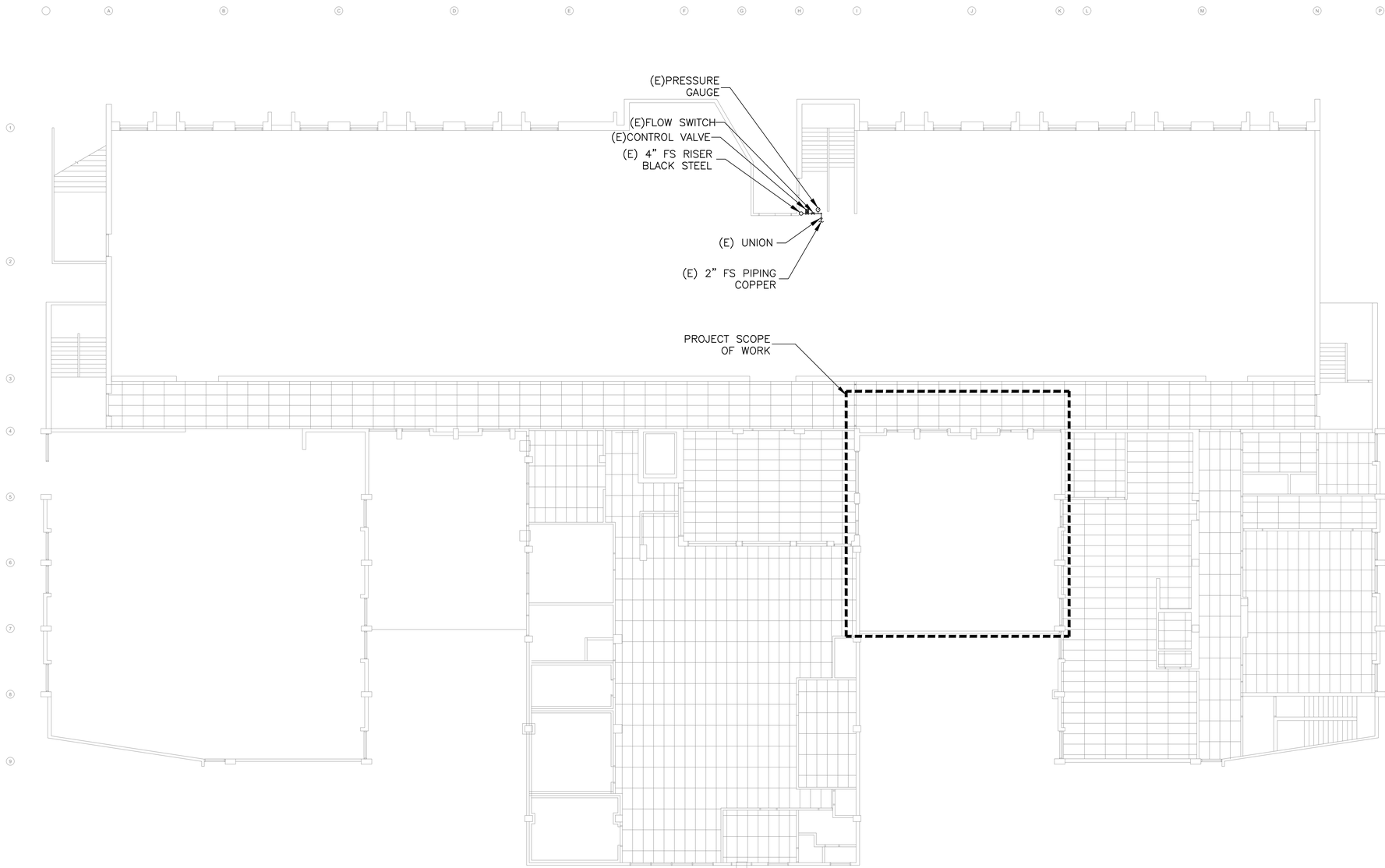
FS GENERAL NOTES AND SPECIFICATIONS

Project Phase:
FINAL DESIGN

Date:
OCT 2025

Sheet No.:

M-001



1 M-101 OVERALL FIRE SPRINKLER PLAN
SCALE: 3/32" = 1' - 0"

0 10'-8" 21'-4" 30'
SCALE: 3/32"=1'-0"

PLAN NORTH
TRUE NORTH

Mechanical Enterprises, Inc.
Mechanical & Fire Protection Engineers

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OVERALL FIRE SPRINKLER PLAN

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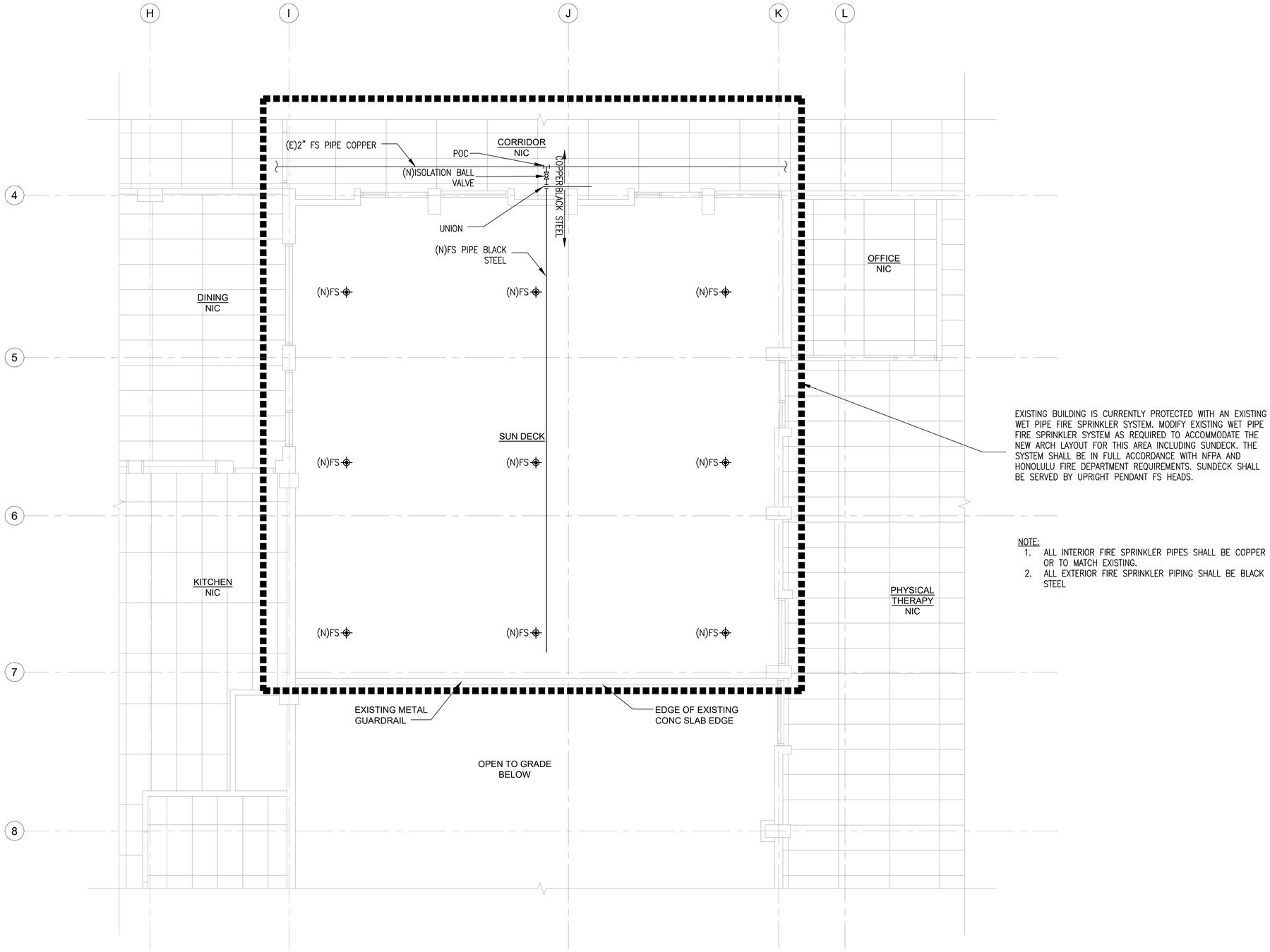
Date:
OCT 2025

Sheet No.:

M-101



EXISTING BUILDING IS CURRENTLY PROTECTED WITH AN EXISTING WET PIPE FIRE SPRINKLER SYSTEM. MODIFY EXISTING WET PIPE FIRE SPRINKLER SYSTEM AS REQUIRED TO ACCOMMODATE THE NEW ARCH LAYOUT FOR THIS AREA INCLUDING SUNDECK. THE SYSTEM SHALL BE IN FULL ACCORDANCE WITH NFPA AND HONOLULU FIRE DEPARTMENT REQUIREMENTS. SUNDECK SHALL BE SERVED BY UPRIGHT PENDANT FS HEADS.

NOTE:
1. ALL INTERIOR FIRE SPRINKLER PIPES SHALL BE COPPER OR TO MATCH EXISTING.
2. ALL EXTERIOR FIRE SPRINKLER PIPING SHALL BE BLACK STEEL

1 / M-102 ENLARGED FIRE SPRINKLER PLAN
SCALE: 1/4" = 1' - 0"

0 4' 8' 12'
SCALE: 1/4"=1'-0"

PLAN NORTH
TRUE NORTH

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ENLARGED FIRE SPRINKLER PLAN

Project Phase:

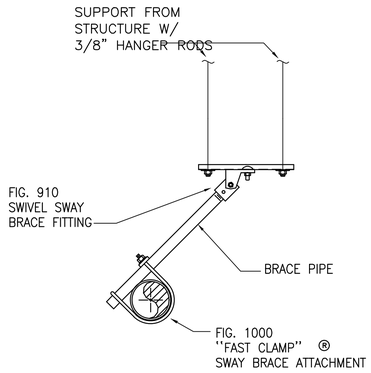
FINAL DESIGN

Date:

OCT 2025

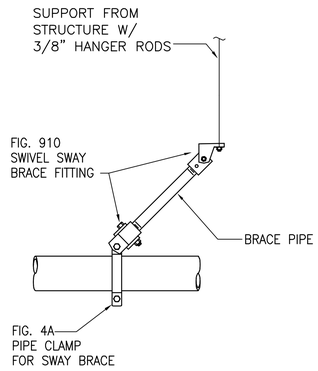
Sheet No.:

M-102



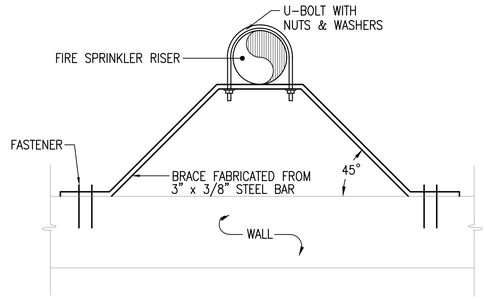
1 / M-201 LATERAL SWAY BRACE DETAIL

SCALE: NOT TO SCALE LATERAL EARTHQUAKE BRACE



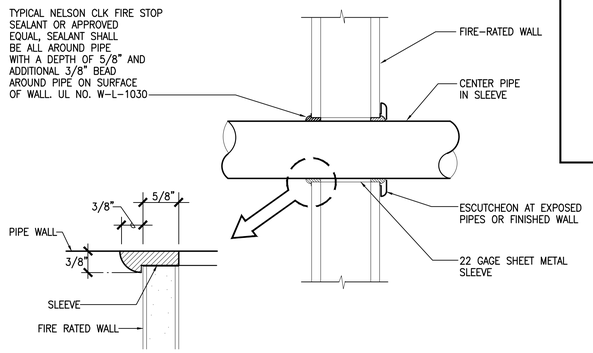
2 / M-201 LONGITUDINAL SWAY BRACE DETAIL

SCALE: NOT TO SCALE LONGITUDINAL EARTHQUAKE BRACE



3 / M-201 FOUR-WAY BRACE AT RISER DETAIL

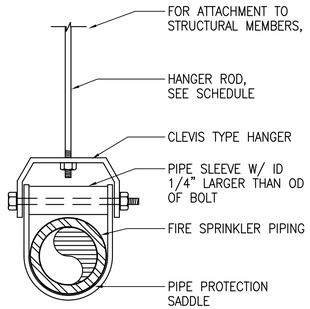
NOT TO SCALE



4 / M-201 PIPE THRU FIRE RATED WALL DETAIL

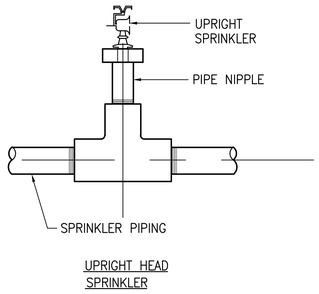
NOT TO SCALE

PIPE SIZE	NOMINAL ROD DIAMETER
	A
3/4" – 4"	3/8"
5" – 8"	1/2"
10" – 12"	5/8"



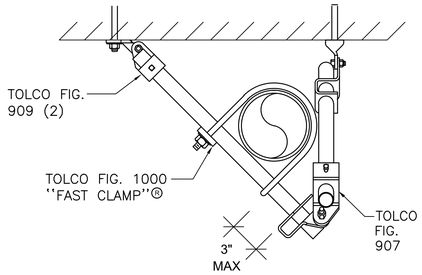
5 / M-201 FIRE SPRINKLER PIPE SUPPORT DETAIL

NOT TO SCALE



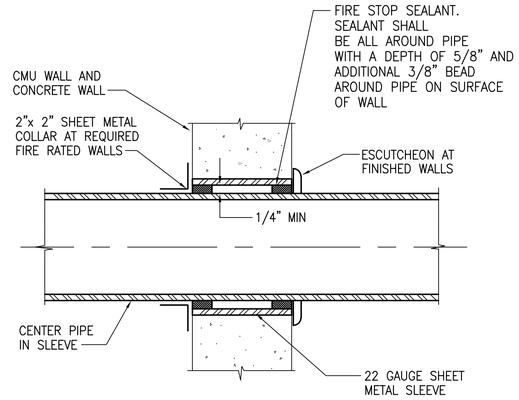
6 / M-201 TYPICAL SPRINKLER DETAILS

SCALE: NOT TO SCALE



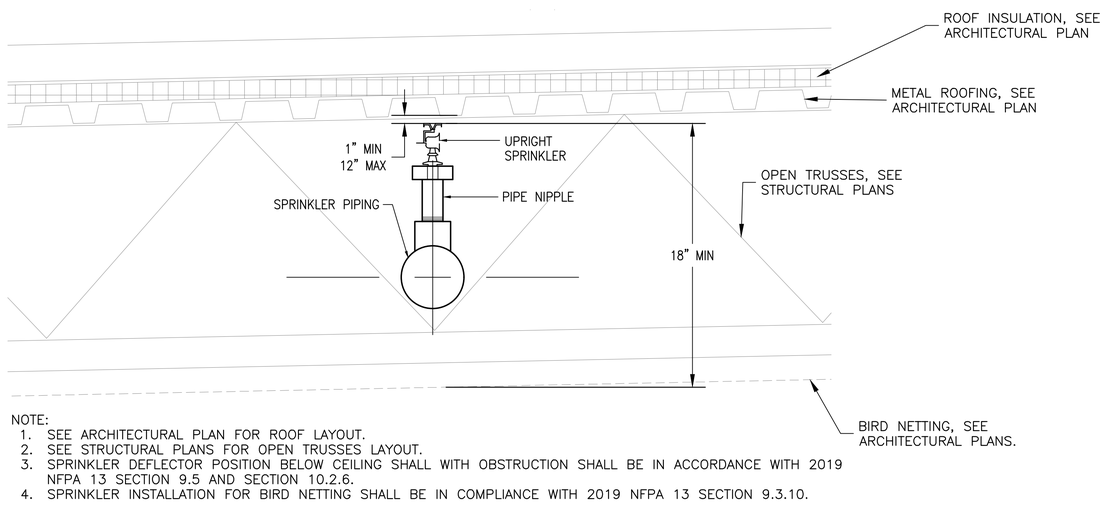
7 / M-201 4-WAY SWAY BRACE DETAIL

SCALE: NOT TO SCALE LATERAL/LONGITUDINAL EARTHQUAKE BRACE



8 / M-201 PIPE PENETRATION DETAIL

SCALE: NOT TO SCALE



NOTE:
1. SEE ARCHITECTURAL PLAN FOR ROOF LAYOUT.
2. SEE STRUCTURAL PLANS FOR OPEN TRUSSES LAYOUT.
3. SPRINKLER DEFLECTOR POSITION BELOW CEILING SHALL WITH OBSTRUCTION SHALL BE IN ACCORDANCE WITH 2019 NFPA 13 SECTION 9.5 AND SECTION 10.2.6.
4. SPRINKLER INSTALLATION FOR BIRD NETTING SHALL BE IN COMPLIANCE WITH 2019 NFPA 13 SECTION 9.3.10.

9 / M-201 TYPICAL SPRINKLER BIRD NETTING DISTANCE DETAIL

SCALE: NOT TO SCALE

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FIRE SRPINKLER DETAILS

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FINAL DESIGN

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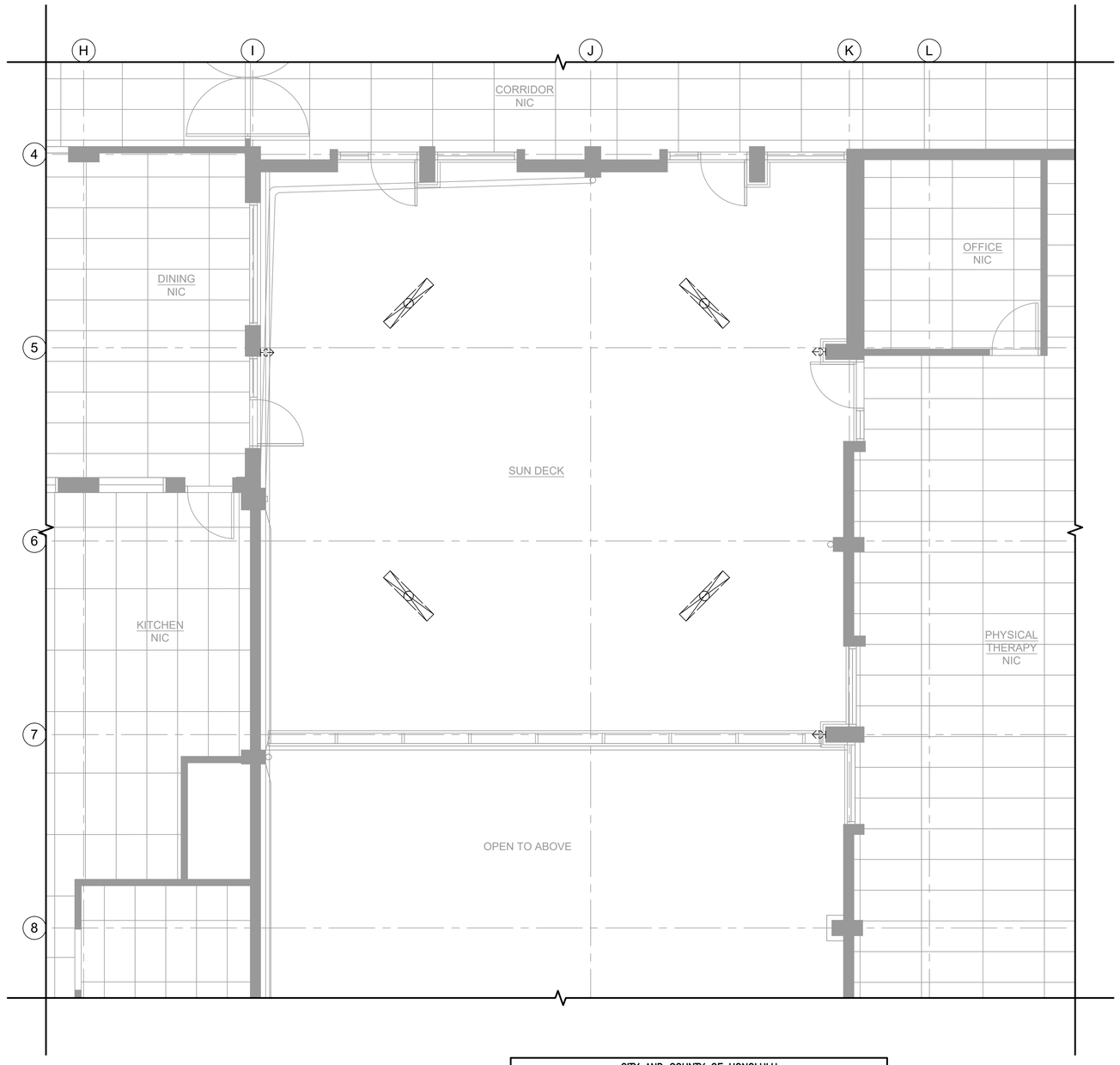
M-201



REMOVE	EXIST	NEW	DESCRIPTION
	⇦⇨		FLOODLIGHT
		▭	CEILING LUMINAIRE
		-------	WIRING IN EXPOSED RACEWAY

NOTES:

1. ANY CIRCUIT WITH NO FURTHER DESIGNATION INDICATES A TWO WIRE CIRCUIT. CIRCUITS WITH ADDITIONAL WIRES ARE INDICATED AS FOLLOWS —#—, 3 WIRES: —##—, 4 WIRES, ETC.
2. —⟵ INDICATES GROUNDING CONDUCTOR SIZED PER NATIONAL ELECTRICAL CODE ARTICLE 250.122. PROVIDE GROUNDING CONDUCTOR IN ALL RACEWAYS.

DEMOLITION NOTES:

1. EXISTING PLANS DO NOT INDICATE COMPLETE EXISTING WIRING CONDITIONS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO START OF WORK.
2. BEFORE ANY WIRING IS CUT, CONTRACTOR SHALL VERIFY USAGE OF WIRING TO BE CUT TO ASSURE THAT SERVICES REQUIRED ARE NOT DISCONNECTED.
3. REMOVE ALL EXISTING WIRING NOT TO REMAIN IN SERVICE.
4. REMOVE ALL CONDUITS NO LONGER REQUIRED
5. PHASE WORK TO ASSURE CONTINUITY OF ELECTRICAL, TELEPHONE AND SIGNAL SERVICES TO PARTS OF BUILDING THAT WILL REMAIN IN USE.
6. REMOVE ALL EXISTING LIGHT FIXTURES, RECEPTACLES, SWITCHES INDICATED TO BE REMOVED OR NO LONGER REQUIRED. BLANK OUTLETS. PLUG ALL HOLES IN BOXES AND CABINETS. PATCH CONCRETE WALLS.

CITY AND COUNTY OF HONOLULU
REVISED ORDINANCES OF HONOLULU 2021
CHAPTER 16B

To the best of my knowledge, this project's design substantially conforms to the Building Energy Conservation Code for:

_____ Building Component Systems
X Electrical Component Systems
_____ Mechanical Component Systems

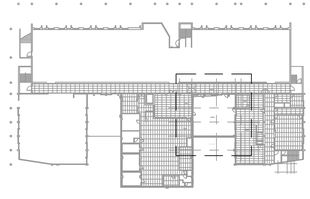
Signature: _____ Date: 2/28/2025
Name: ALBERT RICHARD CHONG
Title: PRESIDENT
License No.: 6183-E

1 ED102 LIGHTING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

0 4' 8' 12'
SCALE: 1/4"=1'-0"

PLAN NORTH

KEY PLAN



INK ARCHITECTS

INK ARCH LLC
650 Iwilei Road, Suite 288
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Phone: 808.536.1174
Fax: 808.536.1559
E-mail: ink@inkarch.com

Revisions:

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ALBERT RICHARD CHONG
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Albert Chong Associates Inc.
Consulting Electrical Engineers and Lighting Designers
1117 Kapahulu Avenue
Honolulu, Hawaii 96816
Telephone (808) 738-5355

Sheet Title:

LIGHTING DEMOLITION PLAN

Project Phase:

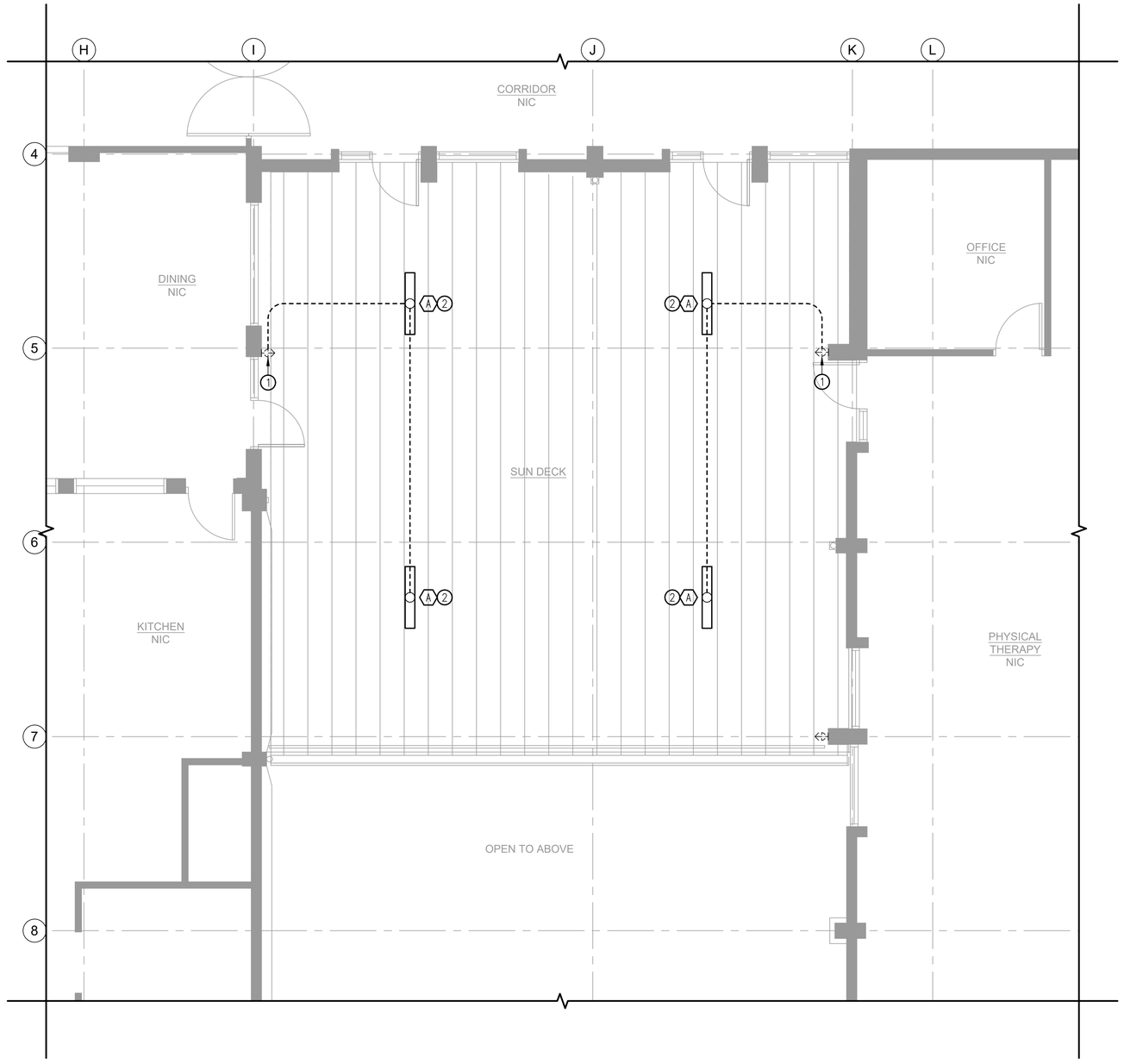
FINAL DESIGN

Date:

OCT 2025

Sheet No.:

ED102



NEW LIGHTING NOTES:

1. EXTEND EXISTING LIGHTING CIRCUIT
2. HUNG WITH THE BOTTOM OF LIGHT AT THE SAME LEVEL AS THE BOTTOM OF JOIST

LUMINAIRE SCHEDULE		
TYPE	LAMP	DESCRIPTION
A	35K/30W	METALUX 4VT2-LD5-4-DR-UNV-L835-CD1-WL-U-VT2-CHAIN/SET-U

0 4'-0" 8' 12'

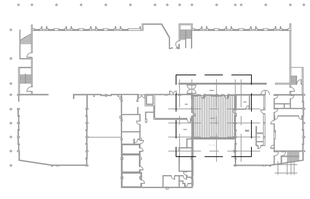
SCALE: 1/4"=1'-0"

PLAN NORTH TRUE N

1 E102 NEW LIGHTING PLAN

SCALE: 1/4" = 1'-0"

KEY PLAN



INK ARCHITECTS

INK ARCH LLC
650 Iwilei Road, Suite 288
Honolulu, Hawaii 96817
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Fax: 808.536.1559
E-mail: ink@inkarch.com

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NEW LIGHTING PLAN

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E102