

SPECIFICATIONS

SAMUEL MAHELONA MEMORIAL HOSPITAL MAIN BUILDING STRUCTURAL REPAIRS Kauai, Hawaii

Tax Map Key: 4-6-014: 030

MARCH 2022

Architect:

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DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Summary of Project
2. Conditions applying to all work.
3. Special submittals.
4. General "Quality Assurance" provisions
5. General time and operational restrictions.

B. Related Sections: DIVISION 1 - GENERAL REQUIREMENTS.

1.02 PROJECT SUMMARY

A. Description: Provide all labor, materials, equipment, supervision and services required for the repair of structural framing members in the designated limits of the Work. The extent of the Work is limited to the structural concrete and steel below the main building and the elevated concrete ramps adjacent to the main building. Structural repair work within the project limits include, but is not limited to, the following:

1. Surveying and documenting location and extent of concrete damage for comparison of damage survey noted on the Contract Documents.
2. Repair of concrete cracks and spalls, including design and erection of temporary shoring, surface preparation, reinforcement replacement if needed, application of repair mortar or epoxy injection, curing of patch material, and any other task required to properly repair the damage.
3. Design and erect temporary shoring of the existing concrete floor slab and concrete beams at locations where structural steel beams and post will be replaced.
4. Removal of designated existing steel beams and pipe posts. Removal work includes demolishing a portion of existing concrete pedestals supporting the posts. Also included is special treatment of existing anchors embedded in concrete. Concrete around embedded anchors is to be removed, then anchors cut below the concrete surface and then patching of the affected concrete surface.

5. Installation of new structural steel framing, including reconstruction of the concrete pedestals which support the new work.
 6. Repainting of concrete surfaces that had a paint treatment prior to the start of the work, but limited to the surfaces affected by the Work.
 7. Surface preparation and painting of all structural steel, including nuts, bolts, connecting plates and any other exposed surface of the new and existing structural steel.
- B. Contract Documents Identification: These are identified as Samuel Mahelona Memorial Hospital, Main Building Structural Repairs, and are dated MARCH 30, 2022.
- C. Administrative and Technical References:
1. The Owner of Samuel Mahelona Memorial Hospital (SMMH) on the island of Kauai is the Hawaii Health Services Corporation (HHSC) Kauai Region. "SMMH" and "Owner" are used interchangeably throughout these Specifications and shall be interpreted to reference HHSC Kauai Region.
 2. "Contractor" refers to the entity who has entered into a contractual agreement with HHSC for the Work indicated on the Contract Documents.
 3. "Kauai Region Representative" or "Owner's Representative" used in these Specifications refers to the Technical Representative for HHSC Kauai Region. The Technical Representative oversees the project and serves as the point of contact for technical matters. Technical Representative for this project is:

John Pimental
Director of Facilities
jopimental@hhsc.org
(808) 645-053
 4. "Consultant" as used in these specifications refers to HHSC Kauai Region's technical consultant. Consultant for this project is:

Shigemura, Lau, Sakanashi, Higuchi and Associates, Inc.
Consulting Structural Engineers
slsh@slshinc.com
(808) 942-9100
- D. Related Provisions: The following applies to all the Work.
1. Conditions of the Contract.
 2. Contract Drawings.
 3. DIVISION 1 - GENERAL REQUIREMENTS.

4. As applicable to each Entity, the appropriate Specification Sections and related Specification Sections of other Installers as necessary for the proper coordination of Work.
 5. Modifications to the Contract, if any.
- E. Special Submittals: In addition to other documentation as may be required by the Contract Documents, submit following as a condition for securing the Contract for the Work.
1. List of Primary Subcontractors: List of primary Subcontractors (Installers) for each work as specified in each Division 2 through Division 16 Sections. Include company name, primary contact, telephone number, fax number, and e-mail address.
 2. List of Primary Products: List of primary products bid for each Division 2 through Division 16 Sections. Include manufacturer name and specific product name or names.
 3. Certification: Installer' certification that specified requirements are in accordance with Manufacturer's requirements as specified in SECTION 01600 - PRODUCT REQUIREMENTS, prior to signing the Contractor for the Work.

1.03 QUALITY ASSURANCE

- A. Other Contract Related Documents: If required by Contractor to determine accurate information for Project, review such other documents in possession of SMMH and the Project Consultant that have a bearing on Contractor's Work; examples as follows. Available documents of existing facilities.
- B. Authority Related: Comply with following.
1. Regulations, General: All laws, ordinance, rules, and regulations, by any governmental authority, which in any manner apply to or affect those employed in the Work, the materials used in the Work, and the conduct of the Work. Comply with all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the Work and which are or have the affect of law.
 2. Disabled Persons:
 - a. ADAAG or UFAS Compliance: Applicable requirements or where both is used, comply with the stricter of the requirements applicable to each work.
 - b. Tolerance: Due to actual variations in work tolerances, ensure that each work meets the minimum or maximum dimensions as required by the applicable standard, e.g., sloping floors can affect height and reach tolerances required at equipment, door and wall dimensions and configurations can affect accessibility clearances, etc.

- c. Authority Changes: Where Authority directs changes in the Work, immediately notify Consultant; prior to execution of such changes, to ensure such changes are not in conflict with any original approvals made by Authorities.

C. Community Related:

1. Intent: Owner's operation is public sensitive and Contractor shall take necessary precautions in his operations as not to upset or aggravate the public, e.g. polluting operations, other nuisance conditions, and operations which can endanger people, illegal activities, unbecoming conduct, etc.
2. Resolving Contentious Issues: It is the Contractor's responsibility to resolve any contentious issues amenable, fairly, and expeditiously. If any situations occur, notify Consultant immediately and keep Consultant informed of methods and results of ongoing negotiations in resolving any issues. Not under any circumstances is Contractor to place Owner in precarious situation that could place Owner in a tenuous conflict with any of the public; without the Owner's knowledge. Contractor is ultimately and solely responsible for his actions and resulting outcomes; regardless of Owner's knowledge of any ongoing contentious events and shall hold Owner harmless from such issues should they result in any litigation.

D. The Work:

1. Industry Standards: Industry standards apply to the Work whether indicated or not. When not indicated, the industry accepted quality applicable to the class (grade) of work intended shall apply.
2. Completeness of Work: Provide necessary work normally provided for the quality of work indicated to ensure to Work is complete and fully functional for each use.

- E. Project Manual Language: Imperative language is intended and specified requirements are to be executed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 TIMES FOR CONDUCTING WORK

- A. Daily: In accordance with any Owner's standard published policies for Contractor's conducting work on premises. Secure standards and comply with requirements; unless Owner otherwise agrees to in writing at time of signing Contract for the Work.
- B. Weekends: As approved at time of signing Contract for the Work; otherwise as approved by Owner.

C. Other Time Restrictions:

1. General: Refer to "Operational Restrictions" paragraphs herein and SECTION 01500 - TEMPORARY FACILITIES & CONTROLS.
2. Polluting Operations: Verify time restrictions on polluting operations, e.g. dust, noise, or any other that may be restricted by Owner and include impacts into Contract for the Work.
3. Special Events: Verify any Owner known and potential scheduled events that would interrupt Contractor's operations and include impacts into Contract for the Work.

3.02 OPERATIONAL RESTRICTIONS

A. General: Refer to SECTION 01500 - TEMPORARY FACILITIES & CONTROLS.

B. Physical Limits: Limit primary Work to immediate Project Site. Work required on property outside of Project Site, to be done in accordance with the Authorities.

C. Personal Conduct, General: Owner's work is public sensitive and Contractor and entities under Contract to him shall respect this and refrain from any conduct that would compromise the Owner. Public sensitive issues include, but are not necessary limited to, following.

1. Outside Site/Work Envelope: Any operations that could negatively affect surrounding community adjacent to Site, e.g. noise, pollution, illegal activities, etc.
2. Within Site and Work Areas:
 - a. Archeological or historical related funds.
 - b. General: Any conduct that could negatively affect It's employees and public, e.g. disrespectful and unacceptable language, use of inappropriate alcohol usage at inappropriate times, illegal activities, smoking in non-smoking areas, etc.
 - c. Radios: Not allowed; except two-way communication radios.
 - d. Meals: Eaten only in Owner approved areas.
 - e. Building Areas: Any restricted public and non-public areas on property and within any building structures.

D. Other Owner Conditions for Performing Work: Work is to be scheduled around the Owner's ongoing operations. Prior to Bid verify following and include impacts into Contract for the Work.

1. Verification of Owner's responsibilities with regard to condition in which each space and surface will be turned over to Contractor and verification of exact degree of preparation work required by Contractor.
2. Verification of extent of each work to be painted and conditions of acceptability.
3. The degree to which Contractor is required to remove or move equipment, furnishings, and other work.
4. Sequence, timing, and extent of areas to be made available to Contractor to complete the required work.
5. Limits and restrictions placed on use of each work area.
6. Methods of moving material and equipment around, within, to and from staging and delivery areas to each work area.
7. Methods for conducting the work due to Contractor's operations which are restrictive to Owner's ongoing operations.
8. Degree and duration in which equipment and materials may be left in place.
9. Available parking.
10. Available services, such as for power and water.
11. Available facilities, such as restrooms.
12. Available staging areas.
13. Conditions under which Owner's available facilities and services are provided.
14. Restrictions on generation of noise.
15. Security required.
16. Safety precautions and amount of protections required.
17. Degree of cleanliness and orderliness expected in Work areas.
18. Special activities of Owner occurring during course of Work and which could impact Contractor's ongoing Work.
19. Verification of all Owner work impacting Work of this Contract, if any.
20. Verify salvageable work, if any, required by Owner and conditions of delivery to Owner.

21. Other Owner requirements.

END OF SECTION

SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

Section Includes: Applications for payment.

1.02 SUBMITTALS

- A. Application for Payment Documents: Submit following.
 - 1. Application for Payment documents.
 - 2. Schedule for Values documents.
 - 3. Supporting documentation.
- B. Number of Submittal Sets: Refer to SECTION 01330 - SUBMITTAL PROCEDURES.
- C. Quality Assurance Submittals: Refer to "Quality Assurance" paragraphs herein.

1.03 QUALITY ASSURANCE

- A. Content and Format Approval: Adjust format to satisfaction of Consultant.
- B. Accuracy, Completeness, Coordination of Scheduled Values: Each scheduled item in Schedule of Values and Applications for Payment document submittals to be accurate, complete, and fully coordinated between documents, including cost information.
- C. First Submittal of Schedule of Values: Submit prior to signing of Contract for the Work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 APPLICATION FOR PAYMENT-GENERAL

- A. Submittal Time:
 - 1. Draft Copies: Seven (7) calendar days before the date scheduled for submittal of the formal Application for Payment.
 - 2. Formal Submittal: Submit corrected Application on regular dates each month; agreed to before signing Contract for the Work; otherwise Owner to determine regular scheduled dates.

B. Review Process:

1. Consultant:

- a. Draft Submittal: Review draft. Forward copy to Owner. Make corrections, if required. Return to Contractor after reviews completed and advise Contractor of any actions, if any required.
- b. Formal Submittal: Review. Sign and forward to Owner.

2. Owner: After satisfactory review of documents, sign and forward documents for payment. Pay Contractor.

3.02 APPLICATION FOR PAYMENT-PRIMARY FORMS

Documents: Execute on AIA Forms, G702 and Continuation Sheets G703. Information to be correlated with Schedule of Values.

3.03 SCHEDULE OF VALUES

A. Breakdown-Level of Detail:

1. General: Each principal subcontract amount to be broken down into sufficient detail and organized into a format as to facilitate reasonable and continued evaluation of the progress of each subcontract for duration of Project.
2. Stored Work: List separately. Distinguish work stored on-site and those stored off-site. Show insurance coverage and bonded warehousing costs.
3. Contractor's Option: Temporary facilities and other major cost items that are not direct cost of any specific scheduled work may be shown as separate line items in the schedule of values or distributed as general overhead expense.

B. Format: In addition to any other format requirements, include following.

1. Project Identification: For each set, indicate following.
 - a. Contractor's name and address.
 - b. Contractor's Project submittal tracking number. Put on every sheet of each submittal set.
 - c. Date of submittal. Put on every sheet of each submittal set.
 - d. Consultant's Project number, name, location.
 - e. Consultant's name.

2. Tabular Schedule: For each scheduled value, provide data for following items in a table under separate columns; organize similar to Project Manual Technical Specifications.
 - a. Generic description of the work.
 - b. Related Specification Section.
 - c. Name of Subcontractor
 - d. Name of Primary Manufacturer or Fabricator.
 - e. Name of Supplier.
 - f. Amounts for each value as a percentage and actual dollar value.
 - g. Change Orders that have affected each value.

C. Amounts:

1. Completeness: Each scheduled value to be complete cost for that work and include proportionate values for overhead, profit, and taxes.
2. Values as Percentage: Percent of total Contract Sum; to nearest one hundredth percent.
3. Dollar Values: Round to nearest whole dollar.
4. Contract Sum Reconciliation: All scheduled values to add up to Contract Sum.

D. Schedule Updating: Update and submit for following.

1. With each Application for Payment.
2. When Change Orders result in a change in Contract Sum.

3.04 FIRST APPLICATION-CONDITIONS AFFECTING

Submittals Due Prior to Application: Complete following as condition for first Payment.

1. List of Subcontractors.
2. Contractor's Progress Schedule.
3. Schedule of principal products.
4. Submittal Schedule.

5. List of Contractor's staff assignments.
 6. Initial Progress Report.
- 3.05 APPLICATION AFTER SUBSTANTIAL COMPLETION-CONDITIONS AFFECTING
- Submittals Due Prior to Application: Complete Closeout Submittals and procedures.
- 3.06 FINAL APPLICATION-CONDITIONS AFFECTING
- A. Full completion of all work to satisfaction of Consultant and Owner.
 - B. Full completion of all required Closeout submittals and procedures.
 - C. Proof of payment of all obligations.
 - D. Removal of all Contractors' work.
 - E. Removal of surplus materials, rubbish, and similar elements.
 - F. Satisfactory final cleaning of all work.
- 3.07 SUPPORTING DOCUMENTS
- A. Waivers of Mechanic's Lien:
 1. Intent: Submit waivers of mechanic's lien from every Entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by payment. Waivers to show reasonable, timely, and regular payment by Contractor to Entities completing work performed for him.
 2. Form: Acceptable to Owner.
 3. Information: Each waiver to include Subcontract Sum amount, total of payments made (prior to last payment), and current work, payment, and date of payment covered by waiver.
 - B. Other: If required by Consultant, submit receipts or vouchers for payment of labor and materials from Entities and other documentation confirming work claimed for in each Contractor's Application for Payment.
 - C. Specified in Other Sections: Updated Progress Schedules.

END OF SECTION

SECTION 01296 - CONTRACT CLARIFICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Request for Information (RFI) procedures.
2. Change Orders procedures.

B. Related Sections: DIVISION 1 - GENERAL REQUIREMENTS.

1.02 SUBMITTALS

General: As specified herein.

1.03 QUALITY ASSURANCE

A. RFI Content: Make one single request per RFI. Multiple requests under a single RFI number will be rejected.

B. Basis of RFI's:

1. Contractor Responsibility: RFI's are to be used as a method to clarify the intent of Contract Documents when such intent is not readily evident. It is the responsibility of Contractor to make a reasonable review of the Contract Documents to ensure that the requested information is not readily inferable from the Contract Documents.
2. Reimbursable Costs: Should Consultant determine that any RFI could have been reasonably inferred from the Contract Documents, the Consultant reserve the right to deduct a fair and reasonable amount for the time and effort expended by them or their subconsultants from the Contract Sum. This is not a penalty, but a fair reimbursement of a cost that Contractor should have otherwise expended in researching the information.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 REQUEST FOR INFORMATION (RFIs)

A. Time of Submittal: As soon as issue requiring clarification arises.

B. RFI Form: Form to be provided by Consultant.

C. Submittal: Submit following.

1. Identification of Affected Work: Submit list of Contract drawn work and Specifications affected.
2. Supporting Data:
 - a. General: Submit applicable supporting data, drawings, and materials as required or as otherwise requested by Consultant. Attach to RFI.
 - b. Field Conditions: If required or requested by Consultant, submit "As-Built Drawings" complying with SECTION 01785 - PROJECT RECORD DOCUMENTS.
3. Solutions: Propose potential solutions.

3.02 CHANGE ORDERS (MODIFICATIONS)

A. Proposal Requests:

1. Basis: When changes are made in the Work that require an equitable adjustment to the Contract amount and/or time, submit to Consultant a written proposal for adjustments to the Contract.
2. Adjustment to Cost: With proposal, submit detailed itemized breakdown, including following.
 - a. Material quantities and item cost.
 - b. Labor costs by material item.
 - c. Construction equipment cost.
 - d. Workmen's compensation and public liability insurance.
 - e. Overhead.
 - f. Profit.
 - g. Taxes. No overhead or profit will be allowed on employment taxes.
3. Adjustment to Time: Submit proposal with justifications.
4. Impact on Design Intent: Submit written and graphic descriptions indicating how proposal differs from original design intent, e.g., physical differences, aesthetic differences in material quality, compliance with Code and Authority requirements, etc.

- B. Change Orders: For each Proposal Request in which Consultant has determined, and Owner has approved, that equitable adjustment is to be made, a Change Order will be issued in writing.

END OF SECTION

SECTION 01310 - PROJECT MANAGEMENT & COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

Section Includes:

1. Administration requirements.
2. Coordination of Owner's work.

1.02 SUBMITTALS

General: Refer to "Execution" paragraphs herein.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PERSONNEL DOCUMENTATION

A. Submittals: Submit following:

1. Superintendent: Resume of experience.
2. Key Personnel and Assignments:
 - a. Company hierarchical organization related to Project from President and/or CEO on down.
 - b. Name, title, primary Project responsibility, telephone and facsimile number, and e-mail address of each personnel.

B. When Submitted: Within ten (10) working days after Notice to Proceed

3.02 PROGRESS SCHEDULES

A. Type: Critical Path Method (CPM) Network Analysis System.

B. Diagramming Method: Precedence Diagramming Method (PDM).

C. When Submitted:

1. First Submittal: Within 10 working days after Notice to Proceed.
2. Updates: With each Application for Payment or within six (6) working days for each Change Order affecting Contract Scope and/or Time.

D. Schedule Types Required:

1. Summary Network Schedule: Schedule showing relationships between primary work types.
2. Detailed Network Schedule: Detailed schedule required by Contractor for proper overall coordination of the Work.

E. Format:

1. Media:
 - a. Bond Paper: 22" x 34" prints; two (2) sets.
 - b. Electronic: Unlocked, searchable PDF file.
2. Data Required: In addition, usual network information, include following.
 - a. Sheet interface registration marks.
 - b. Legend describing all abbreviations.
 - c. Time line.
 - d. Cost loading showing cost and quantities; for each activity.
 - e. Manpower loading showing number of workmen; for each activity.
 - f. Long lead work.
 - g. Submittals to Consultant.

3.03 PROGRESS MEETINGS

A. General: Following to apply to all meetings; unless otherwise acceptable to Consultant.

1. Location: Job Site or as otherwise agreed to by the Parties involved.
2. Conduct of Meeting: Contractor to preside.
3. Attendees: Capable of making binding and legal decisions in behalf of each Entity they represent.
4. Agenda: Develop and distribute to all attending parties one (1) working day minimum, but not less than required for proper preparation by attending parties.

5. Minutes:
 - a. Recording: Contractor to record and distribute written minutes within two (2) working days to all parties at meeting and to those impacted by meeting minutes.
 - b. Addenda: Parties who wish to enter revisions or add other statements for the record may do so no later than by the end of the next OAC meeting. Contractor may revise and reissue the previous minutes or record statements to next recorded minutes with specific reference to the original statements that are impacted.
- B. Contractor's Meeting: As required for proper coordination of the Work.
- C. Owner-Architect-Contractor (OAC) Meetings:
 1. When: One meeting each two working weeks on regularly scheduled day agreed to by Consultant and Contractor.
 2. Submittals:
 - a. Agenda: Submit not less than two working days prior to each scheduled meeting.
 - b. Minutes: Submit.
- D. Preinstallation Conferences:
 1. General: Conduct as required or specified for proper coordination of the Work.
 2. Consultant's Notification: Notify Consultant of scheduled preinstallation conference five (5) working days in advance of each. Consultant to attend when requested by Contractor or when specified that Consultant be present.
 3. Agenda: Include following.
 - a. Coordination, including potential problems.
 - b. Interface and preparation, including potential problems.
 - c. Compatibility issues.
 - d. Tolerances.
 - e. Contract compliance, including code, fire, warranty, workmanship, personnel training, and other pertinent issues.

- f. Review of Progress Schedule, e.g., delivery, installation, etc.
- g. Housekeeping and cleaning.
- h. Safety procedures.
- i. Other issues and potential conflicts.

END OF SECTION

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

Section Includes: Construction photographs.

1.02 DEFINITIONS

Intent for Number of Photos: The number of photographs will vary and may not be required or exceed the base line maximum specified at any given time; as may be necessary to achieve photographing intent. The general intent is to compile a historical sequence and record of ongoing construction of each primary Project system or product being installed and to show concealed services that can assist the Owner in any future addition, renovation, and ongoing maintenance of his Project. Contractor and Consultant to arrive at a general understanding of desired kinds and number of photos to be taken.

1.03 SUBMITTALS

Photographs: Submit photographs as follows.

1. Weekly Submittals:

- a. Number of Photos: Up to 200 photos per week.
- b. Submittals: Submit two (2) sets of following.
 - (1) Electronic Data: Record to CD-RW disc. Discs to be identified with data and general listing of photographs.
 - (2) Plan Drawings: Show locations of what is shown on each photograph.
- c. When Submittals Required: Submit at end of each work week.

2. Closeout Submittals: Submit following.

- a. Electronic Data: Record on CD-RW discs, selected Consultant and Owner photos; selected from all photos taken during duration of Project as part of Closeout submittals. Record in historical sequence and as otherwise directed by Consultant.
- b. Hardcopies: Include hardcopy printouts on photographic paper as part of Owner's Closeout Project Manual.
- c. Drawings: Plans showing locations of what is shown on each photo.

1.04 QUALITY ASSURANCE

- A. Assigned Personnel: Contractor to assign dedicated personnel to take photographs on regular basis and to work with Consultant in properly documenting progress and details of installed work.
- B. Camera Type: High resolution digital camera producing photographs acceptable to Consultant. Resolution of camera to be highest or very close to highest commercial (not necessarily Professional) resolution available at time Project is started. Digital camera to be capable of placing data and time minimum on each photo.
- C. Electronic Data: Type of electronic data to be viewed on current Owner's computer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 EXECUTION

- A. General: Consultant to continually work with assigned Contractor's personnel to work out general types of photographs to be taken.
- B. Intent-General Types of Photos Required:
 - 1. "Before" photographs of existing work that may be damaged as a result of Contractor's operations.
 - 2. Photos from distance of Site and each Project work.
 - 3. Close-up photos of each installed work to show compliance with Contract requirements.
 - 4. Close up and distant photos of concealed services in detail as necessary to assist Owner in locating each work; whether below grade and in each structure for future addition, renovation and maintenance.
 - 5. Photos of all critical details of all work.
 - 6. Distance and close-up photos of non-complying work, if any.
 - 7. Photos of any cutting and patching and restoration work, for items not a part of the Work but affected by Contractors' operations, if any.
 - 8. Photos documenting Contractor's procedures for accomplishing each work.
 - 9. Other as may be determined by Consultant during course of the Work.

END OF SECTION

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: General requirements for submittals.
- B. Related Sections: DIVISION 1 - GENERAL REQUIREMENTS.

1.02 SUBMITTALS

- A. General: Refer to Contract Conditions and individual Specifications Sections.
 - 1. Administrative Submittals.
 - 2. Work Related Submittals.
 - 3. Quality Assurance Submittals.
 - 4. Closeout Submittals.
- B. Submittal Schedule:
 - 1. Type: Submit a written list of required submittals with planned date of submission and date when submittals are required to be returned to Contractor in advance of critical path and lead times required for proper procurement and fabrication of Project products.
 - 2. Submittal Review: Consultant will review Submittal Schedule and make adjustments to submission dates to allow for reasonable review period by them. Make Consultant's indicated time adjustments to review period; unless other times are agreeable to Consultant.
 - 3. Progress Schedule: Incorporate final Submittal Schedule successfully reviewed by Consultant into Progress Schedule.
 - 4. Submittal Times:
 - a. First: Refer to SECTION 01290 - PAYMENT PROCEDURES.
 - b. Subsequent: Update and resubmit each time schedule is changed. Progress Schedule is to be simultaneously updated and resubmitted in accordance with SECTION 01310 - PROJECT MANAGEMENT & COORDINATION.

1.03 QUALITY ASSURANCE

- A. Review Period: Contractor to include adequate review period for all submittals, including but not limited to following.
1. Adequate time for review by each party requiring review of submittals.
 2. Adequate time necessary for delivery of submittals to each party and between parties
 3. Time necessary due to resubmissions for various causes, e.g. incomplete submittals, non-compliance of submitted work, clarifications, design changes, etc.
 4. Each review period to be in advance of Progress Schedule critical path and lead time dates for proper procurement, manufacturer, delivery, and installation of materials.
- B. Completeness of Submittal Package: Any single submittal package which is not representative of all required submittals for each work is not acceptable. Consultant's successful review of piecemeal submittals to be considered conditional; until review of all submittals has been completed; to minimize errors in determining Contract compliance, e.g. initial selection from product data does not differ from actual Project samples.
- C. Submittal Project Specificity:
1. General: Submittals to be clearly and boldly identified, e.g. Contractor inserted underlining, highlighting, bracketing, and written identifications, for all Manufacturer approved Project specific requirements; where specific submitted data is not entirely related to Project requirements. Data not properly identified may be returned for re-submittal.
 2. Contract Variance: Distinguish Project data from work which vary from Contract requirements. In addition to highlight, indicate by written text "contract variance" or similar bold text that clearly defines which items vary from Contract requirements.
 3. Successfully Reviewed Unmarked Data: Where Contractor submits general data that does not clearly and boldly distinguish Manufacturer approved Project specific data and where any such data has been successfully reviewed by Consultant; then the following applies.
 - a. Contractor's submittal of data contains the Manufacturer approved Project specific requirements.

- b. Contractor and specific Entity or Entities responsible for the Work indicated somewhere in any such undistinguished submittals has verified from the Manufacturer specific Project requirements and clearly understands which Manufacturer's requirements are to be implemented in order to comply with the Contract intent.

D. Consultant's Review:

1. Contractor's Responsibility: From time to time, Consultant may include review information which is provided solely to assist Contractor as part of the review process. Consultant makes no claim to the accuracy of information provided, nor is it to be construed as an infringement of what is Contractor's responsibility as defined by the Conditions of the Contract. Contractor is solely responsible for all construction means, methods, techniques, sequences and procedures, and therefore shall be responsible for determining the accuracy of such information provided by Consultant and for the use in the Work.
2. Review of Component vs. Complete Assembly: Consultant's review of a single component of a larger assembly does not constitute his review of the complete assembly, unless otherwise indicated.
3. Piecemeal Submittals: Do not purchase, fabricate, and manufacture any product for which Consultants has not completed successful review of all required submittals for that product. Contractor assumes risk, e.g. additional costs for compliance with Design Intent, e.g. costs for purchase, manufacture, fabrication, installation, and replacement of non-complying work, costs for Contract time impacts, etc., as a result of beginning any work where Consultant's successful review of all submittals has not been accomplished.
4. Contractor's Questionable Review: Consultant will reject submittals not reviewed by Contractor; even when stamped.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SUBMITTAL FORMAT

- A. Submittal Sets: Number of submittals refers to submittal sets. Each submittal set includes all documents required for a particular submittal assembled into a unique group for submission. Include title page that precedes all other included documents for each submittal set.
- B. Contractor Transmittal of Each Submittal Set: Included following minimum information.
 1. Contractor letterhead, company name, address, phone/fax numbers, with responsible person sending submittal with his printed name and signature.

2. Installer, Supplier, and Manufacturer company name, contact persons, addresses, phone/fax numbers.
 3. Addressee information.
 4. Numbering System: Unless otherwise approved by Consultant, the following system to be used; appended to all submitted documents and not just the cover sheet.
 - a. Initial Submittal: Specification Section Number followed by a sequence number, e.g. 03300-01.
 - b. Resubmissions: Specification Section Number with sequence number followed by an R, and an extension number to show further sequencing, e.g. 03300-01R1.
 5. Append applicable numbering system to all documents.
 6. Date.
 7. Impacted Specification Section numbers; with applicable paragraph references.
 8. List of submittals.
- C. Origination Transmittal: Submit copy of Entity originating submitted information to Contractor.
- D. Submittal Sets: Combine all documents of a submittal set into one electronic file in PDF format, unlocked and searchable. File transfer protocol as the involved Parties agree upon. If submittal cannot be made electronically, submit the following:
1. Printed, Written, or Published Data: Six (6) sets; consisting of not less than two (2) original publications; other sets may be clean and clear photocopies of the originals.
 2. Drawings: For Shop Drawings and other similar drafted type work, submit following.
 - a. Digiprint Bond: One(1) set.
 - b. Reproducible: One (1) set of xerox on vellum media from which clear prints can be made.

- E. Contractor's Review Stamp: Stamp title page of submittal set. Date and sign stamp. Stamp to include text that confirms submitted documents fully reviewed by Contractor for compliance with Contract intent.

3.02 ADMINISTRATION SUBMITTALS

General: Refer to individual Sections for specific requirements.

3.03 WORK RELATED SUBMITTALS

- A. Product Data: Submit all standard publications available and applicable to Project requirements, including but not limited to, generic material data, installation instructions, tested characteristics, MSDS sheets, standard detail drawings, and color charts. Where standard data not complete, submit other written recommendations necessary to assure that Project data is complete.
- B. Shop Drawings:
1. Types: Include plans, elevations, sections, and details.
 2. Scale: Similar to or larger than similar drawn elements on Contract Drawings.
 3. References: Same as Consultant's method; where different than Consultant's method must set up a referencing system so Consultant can readily find relationship to his similarly drawn elements.
 4. Level of Detail: As required for proper fabrication and installation of the work. Show relationship and interface to adjacent work.

3.04 QUALITY ASSURANCE SUBMITTALS

General: Refer to specific paragraphs, e.g. "Quality Assurance", "Field Quality Control" and other paragraphs, in individual Specification Sections for specific requirements.

3.05 CLOSEOUT SUBMITTALS

General: Refer to paragraphs, e.g. "Submittals", "Warranty", "Maintenance", "Owners Instructions" and other paragraphs, in individual Specification Sections for specific requirements.

END OF SECTION

SECTION 01420 - REFERENCES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Use of Standards.
2. Abbreviation use and format

B. Related Sections:

1. DIVISION 1 - GENERAL REQUIREMENTS.
2. DIVISIONS 2 - 16.

1.02 REFERENCES

A. Standards:

1. Requirement: Each type of work provided for this Project is required to comply with recognized Industry standards (also may be referred to as "references") that are applicable to the class of work intended by the Contract Documents. Compliance is required whether such standards are indicated or not and whether such standards are in published form or an unwritten but accepted practice in the Industry for the class of work.
2. Use:
 - a. General: Where a specific standard is indicated, the most current standard is intended and this is to be interpreted as a method for conveying the design intent and its use expands on or clarifies the requirements and its use is not intended limit or to negate the specific industry standards intended to apply to the class of work to be provided.
 - b. Conflict: Where several Industry standards apply to the Work, and where quality requirements of these applicable standards conflict for the class of work required, it is intended that the standard producing the higher quality work is to apply.
 - c. Out-of-Date: Where any specified standard is not current, one of following may be provided.
 - (1) Provide work complying with non-current standard; except where older standards are not compliant with any Code requirements, then provide work complying with standard; but modified to extent as necessary to comply with applicable Codes.

- (2) Provide work complying with current standard that is the equivalent of the non-current standard or higher quality standard which is closest equivalent.

B. Abbreviations and Acronyms:

1. Industry Related: Industry accepted abbreviations and acronyms are used throughout the Contract Documents. If any is not understood, these should be verified from Consultant prior to Bid.
2. Product Identification Format: Where used in Contract Documents the following format is used.
 - a. Format: Abbreviation of one or several letters, followed by a hyphen, followed by an identification number, e.g. WD-1 for wood type number one or WPM-1 for waterproof membrane type number one.
 - b. Number Sequence and Related Sections: Designations may be used between related specification sections where primary product is similar and therefore numbers are not necessarily sequential within a specific specification section, although the numbering will be sequential between all related sections where similar designations are used.

1.03 DEFINITIONS

- A. Related Sections: The listed specification sections under the "Related Sections" paragraphs indicates some of the primary related work which is impacted by the work of the specific specification section in which the list appears. It is not intended as a complete list (which in many cases would otherwise be enormous) but has been provided to assist Contractor.
- B. Exposure Definitions: Unless otherwise redefined elsewhere, the following applies.
 1. Exterior Surfaces: Exposed on the outside envelope of structure or surfaces of other constructed elements and equipment which are exposed and not fully enclosed by walls, floors, roofs, windows, and doors, are to be considered as part of the exterior and surfaces occurring in such spaces are to be considered exterior surfaces. Naturally vented, but enclosed, attic or similar spaces to be included.
 2. Interior Surfaces: Surfaces interior to the fully enclosed envelope of a structure or within the fully enclosed envelope of other constructed elements and equipment. These surfaces are not exposed to the "outside air".

3. Exposed: Surfaces which are exposed to view from most vantage points, which are not concealed from view due to permanent inaccessible construction or earth, and which is not defined as semi-exposed.
 4. Semi-Exposed: Surfaces not readily visible but are accessible and viewable from selected vantage points. These surfaces include those hidden by and hidden on removable or openable doors, panels, and drawers, and surfaces or undersides of shelves, counters, desks, and toe spaces, surfaces, which are hidden by moveable equipment/furnishings, and other similar surfaces.
 5. Concealed: Surfaces not exposed to view from any vantage point and which is concealed by permanent inaccessible construction, earth, and equipment/furnishings. Such concealed surfaces include those surfaces permanently concealed within walls, above ceilings, within floor construction, within shafts, and those buried underground in earth. Include within this definition, surfaces above otherwise semi-exposed accessible suspended acoustical ceilings, if any.
- C. Type: Word "type" as used herein is defined to mean any characteristic, e.g. shape, size, finish, pattern, texture, color, sheen, of a product that may be different from another similar product.
- D. Defect: Word "defect" as used herein is anything that would make a product less in quality than would be expected of the product at anytime from its time of manufacture to the end of its useful installed life; when normal wear and tear and abnormal impacts, e.g. Acts of God or other impacts for which the product was not designed or engineered for are taken into consideration; except to the extent such abnormal impacts may otherwise be warranted by the Manufacturer by published statements, verbal promises, and written Warrantees.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01450 - QUALITY CONTROL

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Quality control testing and inspection requirements.
- B. Related Sections: DIVISION 1 - GENERAL REQUIREMENTS.

1.02 SUBMITTALS

- A. From Testing-Inspection Service: Submit Testing-Inspection Reports directly to Consultant.
- B. From Contractor: Schedule each testing-inspection required in Progress Schedules.
- C. Quality Assurance Submittals: Refer to "Quality Assurance" paragraphs herein.

1.03 QUALITY ASSURANCE

- A. Testing Owner Requires: In addition to any Authority required and specified testing, Owner reserves right to test and inspect any and all work of Project.
- B. Securing of Testing-Inspection Services:
 - 1. Contractor:
 - a. Responsibility: For Authority required and specified testing, secure Testing-Inspection Service and pay for testing required.
 - b. Owner Approval: Secure Owner's acceptance of Contractor's selected Testing-Inspection Service, prior to signing any Contract for any required services. Submit proposed Testing-Inspection Service qualifications for review in timely manner. Do not use any Testing-Inspection Service not acceptable to Owner.
 - 2. Other Testing: Except for Authority required and specified testing, Owner to secure his own Testing-Inspection Service and pay for any other testing he may require.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 INSPECTIONS-TESTING, GENERAL

General: Comply with requirements of the General Conditions of the Contract and requirements specified herein. Use of any testing-inspection service shall in no way relieve Contractor of his obligation to perform the Work in accordance with the Contract.

3.02 LABORATORY & INSPECTOR DUTIES

- A. Performance of Service: Perform required inspections, sampling, and testing of materials and methods of construction. Ascertain compliance with requirements of Contract Documents as measured by standards required by specifications, by Authorities, and by recognized ASTM and other acceptable Industry standards applicable to each tested work.
- B. Notifications: Promptly notify Consultant of irregularities or deficiencies of the inspected and/or tested Work. Submit test reports for review.

3.03 CONTRACTOR'S RESPONSIBILITIES

- A. Contractor Notifications: Notify each Testing-Inspection Service each time required and within time period requested by Service; to allow them to properly prepare for and schedule each type testing-inspection required.
- B. Cooperation: Cooperate with testing service personnel. Provide appropriate access to work where inspections, sampling and testing is required. Furnish causal labor as necessary to assist access to work to be tested, to assist in obtaining and handling of samples at the site, and to otherwise facilitate the inspection and testing process.
- C. Protection and Repair: Protect each work being tested-inspected from anything that would invalidate the testing-inspection results and for duration of each testing-inspection period. Upon completion of inspection, testing, and sampling, repair damaged work, if any, and restore finishes to match the adjacent finishes.
- D. Contractor Arranged Tests: Contractor may arrange and pay for additional inspections, sampling, and testing beyond the required testing from Testing-Inspection Service.
- E. Non-Complying Work: Where non-complying work is evidenced by Testing-Inspection Service, Contractor to comply with following.
 - 1. Owner's Costs Directly Attributable to Defective Work: When Owner has paid for testing, pay for all costs incurred by the Owner and Consultant.
 - 2. Correction of Work: Provide all work necessary to correct defective work to comply with Contract requirements.

3. Time Impact to Work: Request for additional time will not be considered when resulting from installation of defective work.

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES & CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Requirements for construction facilities and temporary controls.
- B. Related Sections: DIVISION 1 - GENERAL REQUIREMENTS.

1.02 SUBMITTALS

- A. Reports and Permits:
 - 1. During Progress of Work: Submit copies of reports and permits required by governing authorities.
 - 2. Closeout Submittals: Refer to SECTION 01785 - PROJECT RECORD DOCUMENTS.
- B. Quality Assurance Submittals: Refer to "Quality Assurance" paragraphs herein.

1.03 QUALITY ASSURANCE

- A. Standards: In addition to applicable codes and other Authority requirements, comply with applicable requirements of following.
 - 1. ANSI A10.6.
 - 2. NECA, including "Temporary Electrical Facilities".
 - 3. NFPA 70 and 241.
 - 4. NEMA.
 - 5. OSHA.
 - 6. UL.
- B. Use Charges: No additional cost or use charges for temporary facilities or services are chargeable to Owner, unless otherwise agreed to by Owner.
 - 1. Intent: Include all use charges for temporary facilities and services in Contract Sum.
 - 2. Utilities: Arrange with Utility Companies e.g., sewer, water, power, telephone, etc., for methods necessary for use of services so it is directly chargeable to Contractor during Contract Period. Pay for services.

3. Owner Incidental Use: Allow incidental use of services (without charge) by Owner, Consultant, governing Agencies, and any of their designated entities, agents, and personnel that require access to the Project Site.
 4. Exception: Long distance telephone charges may be billed directly to Entities responsible for persons making such calls. Owner, Consultant, and governing Agencies are not responsible for any long distance calls made by any other Entity, even where such Entities responsible for such calls are under contract to any of them.
- C. Permits: Secure permits required to carry out the Work.
- D. Regulations:
1. General: Comply with Authorities having jurisdiction over Project.
 2. Community Rules: Refer to SECTION 01100 - SUMMARY.
 3. Safety: Temporary work to comply with OSHA as applicable to each Trade.
- E. Pollution Related Submittals:
1. Conditions of Use: Generally any legal toxic, hazardous, or noxious operations, equipment, and materials may be used on the Project when used in strict accordance with the law, except Consultant reserves the right to deny use of any such operations, equipment, and materials where in his opinion the use of such operations, equipment and materials may negatively impact personnel or surrounding community.
 2. Submittal: Submit a list of such operations, equipment, and materials, their intended scheduled time of use, and related product data and MSDS sheets prior to expending any moneys for such operations, equipment, and materials; for approval by Consultant.
 3. Progress Schedule: Incorporate pollution related operations into Progress Schedules when directed by Consultant.
 4. Costs: Where use of any pollution creating operations, equipment, and materials are denied by Consultant and for which there are no prior approval by Consultant prior to spending any moneys for such operations, equipment, and materials, then expended costs and any additional costs which may result from implementing Consultant acceptance alternative means for accomplishing the Work in accordance with Contract requirements are to be borne solely by Contractor.
- F. Owner and Consultant's Use: Unless not possible or where unreasonable, allow general incidental use of available facilities, e.g., conference or desk space, telephones (except for long distance), sanitary facilities, etc., by Owner, the Owner Representatives, and their personnel and designated guests.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

Quality, Maintenance, Suitability: Used materials and equipment that are undamaged and in serviceable condition may be used. Provide appropriate maintenance schedule to ensure materials and equipment properly perform during time of service required. Provide only materials and equipment suitable for the intended use.

2.02 TEMPORARY SERVICES

- A. General: Provide equipment and materials from each Utility Company connections as required for the Work.
- B. Telephones: Each Entity to pay for their own telephones and services as they may require for the Work.

2.03 TEMPORARY CONSTRUCTION & SUPPORT FACILITIES

- A. General: Provide as required for the Work.
- B. Field Offices-Contractor: Provide trailers or other enclosed facilities required by Contractor for his work. In addition to Contractor's facilities, provide following enclosed and furnished facilities which may be a part of Contractor's facilities.
 - 1. Furnished conference room for Project meetings; air conditioned and large enough to hold large meetings up to 20 people minimum.
 - 2. Work area for review of Project record documents; air conditioned.
 - 3. Dedicated storage area for approved Project samples.
 - 4. Dedicated shelved area for codes, standards, and references applicable to specified Project requirements; including applicable IBC Code, set of ASTM Building standards, ACI standards, and AISC standards.
 - 5. Extra supply of hardhats for visitors.
- C. Sanitary Facilities: Provide facilities as required by Contractor for the Work. If portable units are provided, provide types in accordance with Health Authorities. Maintain on reasonable and regular sanitary maintenance schedule, e.g., waste removal, cleaning and supplies.
- D. Temporary Controls: Provide materials, equipment, and facilities necessary to properly implement temporary controls specified herein.
- E. Waste/Refuse Removal: Provide necessary equipment for waste and refuse removal from the Project site.

PART 3 - EXECUTION

3.01 PROCEDURAL REQUIREMENTS

- A. General: Provide each temporary facility and utility ready for use at each location when it is first needed, to avoid delay in performance of the work. Provide facilities that can be properly maintained throughout their use at the Project site. Adjust service capacity of temporary services and facilities as needed throughout the progress of the Work. Do not remove until services or facilities that are no longer required.
- B. Inspections and Testing: Inspect and test each service before placing temporary services in use.
- C. Conditions of Use: Operate temporary services and facilities in a safe and efficient manner. Do not overload temporary services or facilities, and do not permit them to interfere with the progress of the work. Do not allow unsanitary conditions, public nuisances, or hazardous conditions to develop or persist on the site.

3.02 TEMPORARY CONTROLS

- A. General:
 - 1. Restrict the Work, e.g., deliveries, staging, other operations, materials and facilities, to immediate limits of Site; unless further restricted by other Contract requirements or unless otherwise approved by Owner.
 - 2. Maintain temporary controls whenever required and for periods as long as necessary to control conditions for which temporary controls are required during the Contract Period.
- B. Project Sign: Provide as follows.
 - 1. Size: 4' x 8' minimum.
 - 2. Information Required: Owner, Architect and Consultant, and Contractor Names, and rendering of Project.
 - 3. Sign Materials:
 - a. 3/4" exterior grade medium density overlay.
 - b. Exterior paint capable of maintaining integrity for duration of Project; colors to be selected by Consultant. Rendering and colors to be similar to Owner's promotional materials or as otherwise provided by Consultant.
 - 4. Support Framing: Temporary treated and painted framing and bracing as required for proper support of sign for duration of Project; at location to be selected by Consultant.

- C. Protection and Security Facilities: Provide temporary protective structures, including enclosures, supports, barricades, partitions, warning signs, warning lights, and other forms of protection as created by ongoing operations and required by working areas and conditions, including, but not necessarily limited to, the following.
1. To protect all persons and property from hazards on ongoing operations.
 2. To provide security from access by unauthorized persons.
 3. To protect exposed work from damage from the weather.
 4. To efficiently route vehicular and pedestrian traffic around obstructions.
- D. Fire Protection Requirements: If any Project areas are secured, maintain security and existing requirements in compliance with Authorities. Provide portable fire extinguishers, if required, by Authorities. Instruct all personnel on use of fire extinguishing equipment and exiting procedures prior to start of Work.
- E. Construction Cleaning: Comply with requirements specified in SECTION 01740 - CLEANING.
- F. Waste Disposal: Dispose of all waste material in a legal manner off site. Do not burn or bury any wastes on Project site. Do not dispose of any wastes into the storm or sanitary sewers.
- G. Pollution Controls:
1. Intent: Limit pollution and any possible resulting contamination of the site and surrounding areas to avoid creating hazardous or unreasonable nuisance conditions from the ongoing operations.
 2. Authority Requirements: Comply with applicable requirements of following. Secure permits from Authorities having jurisdiction over the Project; as required by law or provided for protection of Contractor.
 - a. Federal Government.
 - b. State Government, including State Department of Health and its "Public Health Regulations".
 - c. County Government.
 3. Types of Controls: Include, but not be limited to, the following.
 - a. Dust Control: Use appropriate containment methods as required to limit dust contamination of any built project structures and surrounding community.

- b. Noise Control: Minimize noise produced by ongoing operations. Secure and pay for "Community Noise Permit" as required by the State of Hawaii Health Department.
- c. Light Pollution: If any, night operations are required.
- d. Air Pollution: Limit mist, smoke, vapor, gases, odorous substances, particulate matter, and other similar pollutants to acceptable levels.
- e. Chemical Control: Limit use of hazardous and toxic chemicals in strict accordance with lawful regulations and Authorities. Prevent contamination by chemicals to the environment. Prevent nuisance conditions which could arise from use of the chemicals.
- f. Hazardous Waste Disposal: Volatile, toxic, and other hazardous wastes are to be removed daily, except as otherwise allowed and accepted by Authorities having jurisdiction over the Project. Refer to "Waste Disposal" paragraphs herein for additional requirements.

H. People Controls:

- 1. Owner Restrictions: Comply with Owner's restrictions for personnel doing business on Site.
- 2. Contractor Controls: Provide safety measures and programs as required by law and required for protection of those on Site.

I. Vehicle Controls:

- 1. Access to Site: Verify acceptance routes of access to Site.
- 2. Public Road Blockage:
 - a. Intent: Avoid blocking to greatest extent possible.
 - b. Full Blockage: No work to fully block passage around such work for more than 5 minutes; regardless of alternate routes; unless such blockage has been approved by Authorities.
 - c. Partial Blockage: Minimize length of time required.
 - d. Controls: Erect temporary traffic safety devices, e.g. signs, cones, personnel directing traffic, etc. as mandated by Authorities and as required to ensure passage of public safely around ongoing operations.
- 3. Site Entry: Designate specific Project Site entries. No crossing curbs and sidewalks.
- 4. Speed: Maintain reasonable and safe speed limits on Site. Outside of Site, comply with Authority posted speed limits.

5. Parking:
 - a. On Site:
 - (1) Designate parking areas and controls.
 - (2) No parking on and driving over built structures, e.g., paved driveways, walks, slabs; unless no other means or paths are available and then only as acceptable to Consultant.
 - b. Off Site: Parking off Site, if required, is to be done legally and in manner not to become a nuisance to surrounding community.
6. Spillage: Vehicles to fully contain materials being transported. Where materials are dropped on public ways and properties, full and immediate removal is required.
7. Mud Tracking: Any mud tracking onto public ways to be removed on daily basis by washing. Removal of waste water to conform to what is allowed by Authorities.
8. Maintenance: Maintenance and fueling to be done only in Contractor designated areas. Set up safety program for use of such areas.
9. Washing of Equipment: Hopper, chute, and wheel cleaning allowed as long as washing operations not detrimental to Site and ongoing operations.

3.03 INSTALLATION

General: Use qualified Tradesmen for installation of temporary services and facilities. Locate temporary services and facilities where they will serve the entire Project adequately and result in minimum interference with the performance of the Work. Adjust services and facilities as required during the course of work so as to accommodate the entire work of the Project.

3.04 OPERATIONS

- A. General: Establish regular programs for personnel health, safety, fire protection, security, maintenance, and cleaning of Project site and temporary facilities.
- B. Supervision: Enforce strict discipline in use of temporary services and facilities at the site. Limit availability of temporary services and facilities to essential and intended uses to minimize waste and abuse. Do not permit temporary installation to be abused or endangered. Do not allow hazardous, dangerous, or unsanitary conditions to develop or persist on the Project site.
- C. Maintenance: Operate and maintain temporary services and facilities in good operating condition throughout the time of use and until removal is authorized. Protect from damage by dust, rain, and similar elements.

- D. Termination and Removal: Upon completion of each activity remove all unnecessary equipment, materials, and facilities. Upon completion of work remove all equipment, materials, and facilities and remove from site in expeditious manner. Re-establish work areas to clean condition. Repair, restore, or replace any damaged work. Completely clean site of evidence of Contractor's operations.

3.05 DAMAGES

General: If any damages, e.g., soiling staining, broken elements, damaged landscape, etc., result from Contractor's operations, such damages are to be restored or replaced to "as new" Contract conditions as satisfactory to Consultant. The costs of such remedies shall be borne entirely by Contractor.

END OF SECTION

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: General requirements for products.
- B. Related Sections: DIVISION 1 - GENERAL REQUIREMENTS.

1.02 DEFINITIONS

- A. Primary Products: For any given product related Specification Section, the main product of products required for the Project; which is the reason such Specification Section is written.
- B. Related Products: Products required to complete each installation of a primary product.
- C. Defects: Anything about any Project product that would make it less in quality than the intended Contract requirements, e.g., materials not complying with Contract requirements, manufacturing defects, installation defects, damages prior to Contract conclusion, abnormal deterioration, etc., that occur prior to end of any warranties in effect and prior to a reasonable expected life cycle under similar installation conditions and exposures.
- D. Exposures: Refer to SECTION 01420 - REFERENCES for definitions of "exterior", "interior", "exposed", "semi-exposed", and "concealed"; except as otherwise specified.

1.03 SYSTEM DESCRIPTION:

Performance:

1. General: Each product provided shall perform to the Contract requirements under the anticipated conditions of use and installation or exceed such requirements. Performance evaluation of any product to include the performance of the product by itself and its performance relative to the total assembly for which it is a part as exposed to actual installed Project environmental and use conditions.
2. Authority Requirements: Whether specified or not, each Project product to meet all Codes, laws, and other Authority applicable requirements that apply to each product. For any particular product, where specifications does not address any Project applicable Authority requirement, include in Bid Manufacturer's Code compliant product; which is comparable to original product and that does not jeopardize original Project design intent specified for any such product. Secure Consultant's approval of product; before purchase, fabrication, and installation of such products.

1.04 SUBMITTALS

- A. List of Products: As a condition to securing the Contract for the Work, submit a list of primary products to be used for the Work, prior to the signing of the Contract for the Work. Secure the Consultant's general approval of the listed products. List products under each related Specification number. List of Products to indicate product, Manufacturer, Installer, and Supplier.

- B. Work Related Submittals:
 - 1. Specified: Refer to other related Sections as follows.
 - a. SECTION 01330 - SUBMITTAL PROCEDURES.
 - b. SECTION 01785 - PROJECT RECORD DOCUMENTS.
 - c. Individual Specification Sections applicable to each Entity.
 - 2. Unspecified: Including substitutions, submit any and all documentation required by Consultant in order to determine compliance with intent of Project.

- C. Closeout Submittals: Refer to "Warranty" and "Maintenance" paragraphs herein.

1.05 QUALITY ASSURANCE

- A. Intent of Section: Requirements specified herein are minimum quality standards that apply to all products required for Project; whether requirements are specified or not and are to be complied with unless otherwise acceptable to Consultant.

- B. Manufacturer, Supplier, Fabricator, Installer Qualifications:
 - 1. General Qualifications: Notify Consultant where any of following qualifications cannot be met.
 - a. The Manufacturer best understands the performances of its products relative to Project's requirements.
 - b. Those working with any Project products, e.g. Installer and Fabricator, has secured proper Manufacturer training to professionally fabricate and install their products in accordance with Manufacturer's Project specific design intent.
 - c. Those working with any Project products, e.g. Installer and Fabricator, has fully disclosed and secured written confirmation of specific Project requirements for each Manufacturer's product from reliable and knowledgeable Manufacturer's Technical Representatives; prior to Bid and has incorporated such requirements into Bid.

- d. Those working with any Project products, e.g. Installer and Fabricator, have an intimate knowledge of all the available characteristics and options necessary to provide a complete installation in accordance with Contract design intent.
2. Experience: Except as otherwise indicated, as follows.
- a. Type: Current and continuous experience with the specific Project required products and services being provided or equivalent experience acceptable to Product Manufacturer and Consultant.
 - b. Number of Years: Not less than following.
 - (1) Manufacturer: 10.
 - (2) Supplier: 5.
 - (3) Fabricator: 10.
 - (4) Installer: 5.
3. Certification:
- a. Requirement: Where Manufacturer has a certification or licensing program for installation of Project products, Installer to possess current certification or licensing. Certification to have been attained not less than two years prior to time that Project was Bid.
 - b. Submittal: Submit written documentation of such certification when specified or requested by Consultant.
4. Verification of Project Requirements:
- a. Condition of the Contract: It is the responsibility of the Installer and Fabricator of each work to verify that each Manufacturer's product can meet the specified and drawn Project requirements applicable to the Work; including each Manufacturer's Project related requirements and Industry practices and standards. Verify requirements and Industry practices and standards. Verify requirements during Bidding and prior to signing the Contract for the Work by Contractor.
 - b. Impact: Where Consultant and Owner have not been notified prior to the signing of the Contract for the Work by Contractor, Entities responsible for such work, including Contractor, are required to provide work necessary to comply with specified requirements at no additional cost to Owner.

C. Related Products:

1. Intent: Each related product required to complete the installation of a primary Project product and having a performance related impact on a specific Project product to be approved in writing by the Manufacturer for the primary Project product for use on the Project and for each scheduled type of use on Project; whether provided by them or not.
2. Conflict: Where specified requirements are detrimental to performances and not acceptable to any Manufacturer, notify Consultant for resolution of such conflict; prior to purchase, fabrication, and manufacture of such products.

D. Manufacturer's Packaging and Labels:

1. General: Keep intact and unopened until just prior to each installation. Packaging may be opened when required by Manufacturer to protect products from damages due to environmental conditions, e.g. condensation, humidity, etc., and only to extent as required by them. When required, maintain, protections of products.
2. Label Descriptions: Labels to identify Project products. Specified special performances and Authority required information to appear on labels.

1.06 WARRANTY

- A. Contractor's Project Warranty: Refer to General and Supplementary Conditions of the Contract.
- B. Manufacturer's Standard Warrantees: Whether specified or not, submit standard available warrantees for primary Project products. All products to have not less than a one (1) year warranty from the Manufacturer against manufacturing defects in materials and its workmanship.
- C. Installer's Warrantees: Whether specified or not, submit each Installer's one (1) year Warranty against defects occurring due to installation of materials and its workmanship; except where any required Special Warrantees extend Installer's One Year Warranty.
- D. Special Warrantees: Refer to individual Specification Sections for other warrantees required for Project.

PART 2 - PRODUCTS

2.01 PRODUCTS, GENERAL

- A. Primary Product: Unless otherwise specified or acceptable to Consultant, products to comply with following.

1. Experience: Used 10 years minimum in projects of similar type, scope, under similar environmental conditions, and under the same installation (assembly) conditions.
 2. Compatibility: Compatible with related products required to complete each of its installation and compatible with each interfacing product in each assembly.
 3. Single Source Intent: For specified primary products in any particular Section, the indicated products are to be generally provided by a single Manufacturer; unless it is clear that specified requirements cannot be met by a single Manufacturer; then limit number of sources to fewest reasonably possible.
- B. Related Products: Refer to "Quality Assurance" paragraphs herein.
- C. Completeness: Provide all materials necessary to provide a complete and fully functional assembly to each product required for Project.
- D. Finishes of Related Products: For exposed components of related products, provide same finish as required for primary product; unless otherwise specified or acceptable to Consultant.

2.02 FABRICATION

- A. Project Measurements: Establish written documentation with Contractor coordinating measurements and tolerances required to assure that fabricated work fits final intended Project outcome. Where possible verify actual field conditions prior to final fabrication of Project units affected by field conditions.
- B. Manufacturing Products - Intent:
1. General: Generally specified requirements for any product are those which can be met by standard established manufacturing practices of manufacturers producing types of products required for Project. Generally do not alter the manufacture of such products; except as specifically engineered by Manufacturer to conform their products meet required special or custom requirements to meet Contract intent.
 2. Customizations: When required, Manufacturer to have ten (10) years minimum experience engineering products for specific custom performances required for Project; unless otherwise acceptable to Consultant.
 3. Acclimation Sensitive Products: Where products are sensitive to environmental conditions, adjust manufacturing and fabrication of products in manner that defects do not occur under final environmental conditions to which product is to be exposed.

2.03 SPECIAL REQUIREMENTS

- A. Ferrous Products - General: Whether required for exterior or interior use and unless otherwise acceptable to Consultant, comply with following.
1. Do not install any rusted ferrous products in the Work. If rust occurs, rust to be removed completely from surfaces without destroying functionality of product or replaced with new un-rusted and Contract complying work.
 2. Ferrous fasteners when used with metals are to be used only with ferrous materials.
- B. Galvanizing of Ferrous Metal Products: Even when not specified, and except where other galvanizing is specified, ferrous metal products to be hot-dipped galvanized as follows.
1. Location:
 2. Type of Galvanizing: As applicable to assembly type, comply with following.
 - a. Standard: ASTM A 153, ASTM A 123, and ASTM A 653.
 - b. Vent Holes: If required, fully plug flush with lead after galvanizing. Blended smooth with adjacent surfaces.
- C. Stainless Steel: If any, to be products to be fabricated without ferrous contamination in accordance with NiDI requirements.

PART 3 - EXECUTION

3.01 GENERAL EXECUTION REQUIREMENTS

Intent: Comply with Manufacturer's Project specific requirements as fully submitted and successfully reviewed by Consultant; which shall not be less in quality than Contract intent and applicable Industry standards.

3.02 DELIVERY, STORAGE, & HANDLING

- A. Delivery: Upon arrival of Site, immediately inspect products for defects. Replace defective products in timely manner; without affecting Project Progress Schedule.
- B. Storage: Comply with each Manufacturer's Project specific requirements. Ensure storage methods do not cause defects to occur. Whether storage is on site or off site, maintain insurance covering full replacement of materials.
- C. Handling: Use methods and equipment approved by each Product Manufacturer for types of handling required in Project.

D. Protection of Products:

1. Intent: Contract requirements cannot anticipate Contractor's means and methods for shipping of ferrous products where exposure conditions can rust product. Specified requirements are intended for Owner acceptance of installed undamaged and un-deteriorated, as-manufactured products at time of Substantial Completion.
2. Protection Responsibility: Contactor is responsible for means and methods, including interim shipping and storage, to ensure Project products are provided with adequate protections during entire procurement and installation process; so products can be installed accordance with the intent.

3.03 PROJECT SITE CONDITIONS

- A. Environmental Conditions: Do not proceed with any work under any adverse conditions that would cause defects in products.
- B. Acclimation: Acclimate products prior to each installation under Manufacturer recommended environmental conditions to ensure success of each installation.

3.04 SEQUENCING & SCHEDULING

Coordination: Each Installer to coordinate work with other Trades, e.g., schedules, sequence of operations, dimensions, tolerances, finish, embedded items, templates, etc., to ensure work by other Trades are constructed in manner to ensure success each of their installations.

3.05 EXAMINATION

Existing Conditions: Prior to start of each work, verify existing conditions for conformance with requirements necessary to ensure success of each installation. Start of work indicates acceptance of conditions and confirms its conformance.

3.06 PREPARATION

Responsibility: Each Installer to verify and coordinate following responsibilities; otherwise Installer requiring preparation is required to provide required work necessary to assure success of its installation.

1. Support Work.
2. Substrate preparation.
3. Tolerances.

3.07 INSTALLATION

- A. General: Refer to "General Execution Requirements" paragraph herein.

- B. Finish, Color, Pattern, Texture Variation: Install products in manner to assure uniform visual appearance acceptable to Consultant. Methods for insuring uniformity may include utilizing materials in sequence as manufactured from same lots where singular lot may be used for single contiguous area or may require the hand selection of materials between several lots for larger areas.
- C. Defective Work:
1. General: Replace defective work with complying work; unless otherwise acceptable to Consultant.
 2. Minor Defects: Very minor damage, deterioration, and other very minor defects may be restored when acceptable to Consultant.
 3. Restoration Intent: In addition to any other requirements, restoration when allowed by Consultant shall meet following minimum criteria.
 - a. After fully finished, no evidence of restoration work to be visible on any exposed to view surfaces.
 - b. Workmanship of restoration work on concealed surfaces may be less rigorous than work for exposed to view surfaces, but to be generally flush and neat.
 - c. The existing defect and any restoration work is not to reduce the long term performance of the materials and components of the work in any way.
 - d. The method and materials used to restore any defect to be such that it can perform as well or better than the original materials.
 - e. Restoration is to be accomplished at no cost to Owner.

3.08 PROTECTION

Intent: Provide protections necessary so each work is clean, without contamination, without defects, abnormal deterioration, without damage, and properly functioning at the time of Final Acceptance by the Owner.

3.09 CLEANING

Intent: Refer to SECTION 01740 - CLEANING.

END OF SECTION

SECTION 01620 - PRODUCT OPTIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Basis for options available for products.
2. Substitutions proposals.
3. Value engineering proposals.

B. Related Sections: DIVISION 1 - GENERAL REQUIREMENTS.

1.02 DEFINITIONS

- A. Substitution Proposal: A proposal offered by Contractor of a product(s) to be used in lieu of the specified product(s); which is generically similar to the specified product(s) and its specified requirements.
- B. Value Engineering (VE) Proposal: A proposal offered by Contractor of a product(s) to be used in lieu of the specified product(s); which is generically different than the specified product(s) and which offers a significant advantage or advantages to the Owner relative to cost, scheduling, and/or performance; without altering the original design intent in an unacceptable way to Consultant.
- C. Products: Use of words such as "products", "materials", "assemblies", "systems", are to be used interchangeably and unless the proposal is specifically for only a single most basic (cannot be broken down any further) material unit or material component, the proposal shall mean and be measured in terms of all the materials required for each use in the Project as a final in-place assembly or system.
- D. Material Composition: Where word "material composition" is used, this word is to mean the actual scientific makeup of the product with percentage of each material or chemicals going in to make up the final product being evaluated. Material Safety Data Sheets are to be provided when available. Words such as "100% acrylic" or "100% urethane" or other words to that effect are not acceptable when the product is not in fact only made up of that material alone.
- E. Limitations: Where word "limitations" is used in conjunction with products being evaluated in proposals, this word is to mean "anything" which could reduce or be less than any quality or any characteristic of the product as required for use in the Project at "any time" during its life expectancy, including its "life expectancy"; when compared to the specified product, when compared with other competitive generic products of the same type, and when compared with other competitive products that basically are designed for the same functional purpose. Examples include, but are not limited to, following.

1. Incompatibility with Other Materials: Where any contracting material is deleterious to the other, e.g. electrolysis, corrosion, contamination, chemical sensitivity, bacteria or plant growth (mildew or algae growth, etc.), or any other deleterious material effects.
2. Life Expectancy: Shorter life expectancy than specified materials.
3. Weatherability: Not as weaterproof as specified product, e.g., water leekage, air leakage, ultra-violet exposure, breathability, and hydrostatic pressure effects.
4. Structural: Strength of product compared with specified material, e.g. compressive, tensile, shear, bond, peel, and durometer hardness characteristics.
5. Durability: Resilience of product compared with specified material. Its ability to withstand physical abuse and movement, e.g., impact resistance, abrasion resistance, puncture resistance, and elongation.
6. Fire Resistance: Ability to resist fire exposures.
7. Product Characteristics: Susceptibility to defects occurring due to the characteristics unique to the product, e.g., sensitivities such as those due to material composition (shelf life, curing methods, etc.), configuration, weight, size, substrate conditions, weather conditions, assembly conditions, applications methods, etc.
8. Other Characteristics: E.g., slip resistance, acoustic properties, and resistance to catastrophic events, etc.

1.03 SUBMITTALS

Substitution or VE Proposals: Submit complete, readable, and organized information, with all proposal data applicable to Project highlite marked. Information to include, but not necessarily be limited to, following.

1. Substitution/VE Proposal Form: Copy of form has been inserted in Appendix. This is to be "fully" completed and complied with.
2. Product Data - Published Data: Submit Primary Product Manufacturer's complete available published product data including, but not limited to, primary product descriptions, related product descriptions, color/pattern/texture charts, specifications, drawings, laboratory tested data, fabrication/installation instructions, and list of comparable Projects in Hawaii and other similar salt air/humid environments, such as Guam, Florida, or any of the Southern States bordering the Gulf of Mexico.

3. Comparison of Products:
 - a. Requirement: Submit a detailed comparison of significant generic qualities of the proposed substitution with those of the work originally specified.
 - b. Characteristics: List significant qualities including, but not necessarily limited to, following.
 - (1) Material composition.
 - (2) Sizes.
 - (3) Weight/density.
 - (4) Color, textures, patterns available.
 - (5) Qualities critical to performances.
 - (6) Limitations of product.
 - (7) How long used in locale.
 - (8) Availability in locale, by U.S. regions, and internationally.
 - (9) Market share locally, regionally, and worldwide; based upon equivalent competitive materials.
 - c. Format: Submit in a typewritten table format in which characteristics are compared side by side.
4. Samples: Submit samples. Provide additional samples or small scale mockups, if requested, by Consultant. Samples to be submitted in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
5. Project Modifications: Where standard published drawings are not adequate, submit other drawings or legible to scale sketches to show each of following where applicable to Project.
 - a. Where Project dimensions would be affected, indicate with some typical examples how product affects Project dimensions.
 - b. Show custom modifications of product which are required for Project.
 - c. Show additional work required of other Installers which is not otherwise shown.
 - d. If any, penetrations are required through work, show how penetrations through work is to be accomplished, including any multiple penetrations.

6. Changes to Other Work: Submit a list of written changes to the work of other Installers that would be necessary to accommodate the proposal.
7. Cost Proposal:
 - a. During Bidding Period: Do not provide.
 - b. Post Bidding Period: Submit. Indicate the overall net change, if any, in the Contract Sum. Separately list cost of proposed Work, cost of changes to other Work, Contractor's cost, cost for Consultant's time (verified from Consultant) and other miscellaneous costs.
8. Certifications: Sign certifications indicated on form.
9. Format: Submit proposal form as provided in Appendix and other data requested.

1.04 QUALITY ASSURANCE

- A. Objective: It is up to those making the proposal to prove to Consultant that the proposed products will meet the Project requirements. To the extent that the Proposer wishes to pursue the Work, Consultant reserve the right to request any information and samples necessary for him to make a decision.
- B. Quality of the Proposals: It is intended that the physical appearance and dimensions of the Project and the quality of the specified products required by the Contract Documents be maintained, unless otherwise specifically requested by and acceptable to Consultant. Generally, submit proposals that would result in installations of equivalent quality to that specified.
- C. Conditions for Consideration of a Proposal: Contractor's proposal will be received and considered when extensive revisions to the Contract Documents are not required, when the proposed changes are in keeping with the primary intent of the Contract Documents, when the requests are timely, fully documented and properly submitted, and when one or more of the following conditions are satisfied.
 1. Where the proposal is directly related to an "or equal" or "comparable product" clause or similar language in the Contract Documents.
 2. Where the specified product or method cannot be provided within the Contract Time. Do not submit proposals which have resulted from Contractor's failure to pursue the work promptly or to coordinate the various activities properly.
 3. Where the specified requirements cannot receive necessary approval by a governing Authority, and the requested proposal can be approved.
 4. Where a substantial advantage is offered by Owner, in terms of cost, time, energy conservation, or other considerations of merit, after deducting additional responsibilities may include such considerations as additional

compensation to Consultant for redesign and evaluation services, the increased cost of other work by the Owner or Subcontractor, and similar considerations.

5. When the specified products or methods cannot be provided in a manner which is compatible with other materials of the work, and where Contractor certifies that the substitution will overcome the incompatibility.
6. When the specified products or methods cannot be properly coordinated with other materials in the work, and where Contractor certifies that the proposed substitution can be properly coordinated.
7. When the specified products or methods cannot receive a warranty as required by the Contract Documents and where Contractor certifies that the proposed substitution can be given the required warranty.

D. Factors Affecting Acceptance of Proposals:

1. Review Intent: It is intended to give all responsible proposals a fair review, however, Consultant and Owner reserve the right to deny acceptance of any proposal for any reason. Irresponsible use of proposal process may result in termination of the review process in its entirety by Consultant and Owner.
2. During Bidding Period: Time period allotted to Consultant for review of submittals is short. It is critical full documentation be received and that documentation complies strictly with requirements specified in "Documentation" paragraphs herein.
3. Post Bidding Period:
 - a. Value Engineering: Only when Owner has directed Consultant that value engineering proposals be considered. Consultant will determine kinds of proposals acceptable during the review process.
 - b. Post Contract: No proposals will be considered, unless significant disadvantage to Contractor or significant advantage to Owner can be shown.
4. Documentation:
 - a. Intent, Information Access: Competitors should be fully aware of the advantages and disadvantages of their products and of their competitor's products. Should any knowledge be lacking, each competitor should be fully capable of accessing and securing accurate information. Where this is not possible, and unless the product is proprietary, these competitors should not offer proposals for this Project.

- b. Quality of Information in Proposal: Consultant should be able to fully and accurately evaluate the difference between the specified product(s) and the proposed product(s) from each proposal. Do not submit proposals with only a minimum amount of information, as Consultant will base his opinion on the information in the proposal only and will not reconsider any proposal that has been "not accepted" for any reason, including one that is not adequately documented in the Consultant's opinion. It is suggested that a complete and accurate "comparison chart" accompany each proposal, unless otherwise acceptable to Consultant.
 - c. Reduction of Information Provided: When acceptable to Consultant, the extent of the submittals may be reduced when approved by Consultant prior to the submission of each proposal. Generally, these will be for obvious products which are and fall into generic categories very familiar to Consultant. Where Consultant agrees to reduce the amount of information to be provided, Consultant reserves the right to expand the requirement again where Consultant feels that the proposal "objective" was not achieved.
 - d. Comparison of Products: In addition to the other required submittals, the "Comparison of Products" table is a key submittal to the whole proposal and is a requisite to acceptance. This submittal is not to be deleted.
- E. As Part of Work-Related Submittals: Submission of unspecified products or methods as part of "work-related" submittals, does not constitute an acceptable or valid method for processing substitution or value engineering proposals. Successfully reviewed "work related" submittals does not indicate approval of unspecified products or methods.
- F. Consultant's Requirements: Verify prior to submission of any proposal, Consultant's requirements necessary to fully conform proposal to Contract requirements. Request for additional costs after acceptance of any proposals will be denied.

PART 2 - PRODUCTS

2.01 PRODUCTS THAT QUALIFY AS SUBSTITUTIONS

- A. Commercial Usage: Same as specified product or ten (10) years minimum; under similar installation and environmental conditions specified for Project.
- B. Material Composition:
 - 1. Primary performance constituents are for all intents and purposes the same or exceeds requirements with regard to chemicals and materials, their quantity, and their quality; without violating applicable patents and copyrights.

2. Enhancements are acceptable; except where the enhancements become the primary reason for its performance and in such cases the product will be evaluated as a "value engineering" product.

C. Product Construction:

1. Assembly: Manufactured and assembled for all intents and purposes the same as specified product; without violating patents and copyrights.
2. Size and Configuration: Similar to specified product.

D. Performance Characteristics:

1. Critical performance measures have been tested by same kind and number of tests as specified products. Critical performance measures to be those acceptable to Consultant.
2. Tested performances are similar in results; as acceptable to Consultant.

E. Manufactured Characteristics: Available range of manufactured characteristics, e.g., color, texture, pattern, finish, sizes, configuration, customizability, etc., are not less than the specified product or will not restrict the original design intent in any way if the product is acceptable to Consultant.

F. Manufacturer Support: Not less than required for specified product, e.g., financial capability, technical support, standard and special warranties offered, etc.

2.02 PRODUCTS THAT QUALIFY AS VALUE ENGINEERING PRODUCTS

General: Those that do not qualify as "Substitutions".

PART 3 - EXECUTION

3.01 PROPOSAL PROCESS

A. Proposals Offered During Bidding Period:

1. Submission: In accordance with the "Instructions to Bidders" and its supplements.
2. Acceptable Proposals: Consultant to send written notification to each eligible Bidder of acceptance of the proposal with copies of the accepted proposal. Eligible Bidders may incorporate the substitutions in accordance with the accepted proposal.
3. Proposals Not Accepted: Consultant to send each proposal that are not accepted back to the Bidder who originated the proposal. Consultant to have marked the proposal "Not Accepted". Bidder may resubmit proposal, where specified time period allowed for review of proposals is not exceeded

and where resubmission is acceptable to Consultant. Refer to Consultant's "Comments" for additional requirements suggested for compliance, if any.

B. Post Bidding Period Proposals:

1. Submission: As directed by Consultant.
2. Acceptable Proposals:
 - a. Preliminary Acceptance: Where marked "Acceptable, Preliminary" on form, indicates that further information may be required before a decision is made. Comply with "Comments" on form and where not indicated a complete proposal conforming to new requirements. Adjust costs is required. Use of proposed products are not allowed until "Acceptable, Final" is marked on the proposal.
 - b. Final Acceptance: Where marked "Acceptable, Final" on form, indicate acceptance of proposals and may become basis of Contract upon execution of forms required changes in Work.
3. Proposals Not Accepted: Where marked "Not Accepted", resubmission may be allowed when Consultant indicates "Resubmission Acceptable" and resubmission will be denied when Consultant indicates "Resubmission Denied" on form. Where remarks are indicated under "Comments", comply with any further requests which may be indicated.

3.02 INCORPORATION

Incorporation of Proposals: Coordinate work with other affected Installers of other Work. Comply in strict accordance with accepted proposal, which should be in strict conformance Product Manufacturer's Project specific requirements.

END OF SECTION

SECTION 01735 - CUTTING & PATCHING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Cutting and patching requirements.
- B. Related Sections: DIVISION 1 - GENERAL REQUIREMENTS.

1.02 DEFINITION

"Cutting and Patching": The phrase as used herein is defined as follows.

1. Cutting and patching includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surface to their original condition.
2. Cutting and patching is performed for coordination of the work, to uncover work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.
3. Cutting and patching performed during the manufacture of products, or during the install fasteners and similar operations are also not considered to be "cutting and patching".
4. "Demolition" is recognized as related but separate category of work, which may or may not require cutting and patching as defined in this Section. Cutting and patching work required by demolition to comply with requirements of this Specification Section.

1.03 SUBMITTALS

- A. Product Data: Submit Product Data on materials to be used in for patching work.
- B. Quality Assurance Submittals: Refer to "Quality Assurance" paragraph herein.

1.04 QUALITY ASSURANCE

- A. Scheduled Methods: Submit methods for cutting and patching of work prior to execution of any cutting and patching work.
- B. Alternate Methods: Consultant will entertain alternate methods where accomplishing original intent of cutting and patching work. Submit recommended methods for review. Do not institute alternate methods, unless successful review is secured from Consultant.

C. Structural Work:

1. General: Do not cut and patch any work in a manner that would result in a reduction of its load-carrying capacity or of its load-deflection ratio.
2. Reinforced Concrete Structures: Do not damage any reinforcing components part of reinforced concrete structures, by drilling, coring, cutting, or other similar operations; including, but not limited for, penetrations, expansion bolts, dowels, etc. Locate reinforcing components with pachometer or other reliable rebar locating device prior to initiating any potentially damaging operations. Where existing reinforcing components prevent work to be accomplished, notify and secure direction from Consultant prior to conducting any operation.

D. Operational and Safety Limitations: Do not cut and patch operational elements or safety related components in a manner that would result in a reduction of their capacity to perform in the manner intended, including energy performance, or that would result in increased maintenance, or decreased operational life, or decreased safety.

E. Matching of Exposed-to-View Surfaces:

1. Intent: Cutting and patching work not evident in exposed, final finished, in-place work.
2. Approvals: Consultant to approve following conditions, prior to execution of cutting and patching work.
 - a. Work scheduled with other concealing type finishes, cannot be fully concealed after final finishes are applied, e.g. telegraphing through paint coatings.
 - b. Work not scheduled with any concealing finishes cannot be blended in manner with existing surfaces so that patching is not readily evident to Consultant.
3. Mockups: Consultant's approval to be achieved by mockup in existing work in areas selected by Consultant.

F. Concealed Surfaces: Concealed work may be less rigorous in finishing and final appearance, but should be finished flush with adjacent surface with some attempt to smoothly transition the patching materials with adjacent surface.

PART 2 - PRODUCTS

2.01 MATERIALS

General: Except as otherwise indicated or as directed by Consultant, use materials for patching that are identical in appearance to existing materials (unless otherwise acceptable to Consultant), result in equal or better performance characteristics than material being patched, and attain bond strengths acceptable to Consultant.

PART 3 - EXECUTION

3.01 PERFORMANCE

- A. Personnel: Employ skilled workmen to perform cutting and patching work.
- B. Cutting: Cut the work using least destructive but effective methods. In general, it is intended that finish cut surfaces to be clean, straight, and smooth. Method of cutting should minimize damage to adjacent finished surfaces.
- C. Patching: Patch and blend work with adjacent surfaces to obscure evidence of work to greatest extent possible by methods approved by Consultant.

END OF SECTION

SECTION 01740 - CLEANING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Cleaning during construction.
2. Final Project cleaning.
3. Waste control.

B. Related Sections:

1. DIVISION 1 - GENERAL REQUIREMENTS.
2. SECTION 01500 - TEMPORARY FACILITIES & CONTROLS.

1.02 DEFINITIONS

Clean:

1. Relative to Installed Products: Products cleaned in accordance with Manufacturer's recommended procedures, cleaning agents and equipment to remove trash, dust, dirt, stains, and mars from product and adjacent surfaces and areas. Polishing materials are included for materials typically polished.
2. Relative to General Construction Trash and Debris: Verify intent from Owner's Construction Manager and include impacts in Bid.

1.03 SUBMITTALS

- A. Product Data: If specified or requested by Consultant, submit cleaning data.
- B. Closeout Submittals: Refer to "Maintenance" paragraphs herein.

1.04 QUALITY ASSURANCE

- A. Trash Removal: Refer to SECTION 01500 - TEMPORARY FACILITIES & CONTROLS.
- B. General Construction Trash and Debris:
 1. Responsibility: Contractor is responsible for informing all Entities prior to signing Contract for the Work, the level of cleanliness expected by the Construction Manager.

2. Warning Notices: If required, no more than three written warning notices will be issued by Construction Manager for removal of ignored trash and debris; depending upon degree of non-compliance, potential hazard to Project, and severity of non-complying conditions, e.g. odors, quantities, appearance, etc. When reasonable written warning notices are unheeded, Owner at his discretion may remove any trash and debris for which reasonable written warnings have been given and costs for removal deducted from Contractor's payments.

1.05 MAINTENANCE

Maintenance Instructions: For primary materials in each Specification Section 2-16, submit each Manufacturer's standard published maintenance instructions, whether specified or not. Instructions to include recommended material, equipment, schedules, and procedures.

PART 2 - PRODUCTS

2.01 MATERIALS

General: Use only cleaning materials, methods, and equipment recommended by the Manufacturer of the product to be cleaned; specifically for types of cleaning required. Materials utilized should not be detrimental to the original characteristics of the cleaned product.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

- A. Premises: Clean premises daily.
- B. Surfaces, General: Responsible parties to clean surfaces contaminated by them. Remove as quickly as needed to prevent permanent damage and to prevent any deterioration to surfaces. Seek written approval of methods for removal of contaminants from surfaces installed by others.
- C. Existing Work: When work operations involves working with existing work, clean exposed, semi-exposed, and concealed components of dirt, mars, stains, etc., without damage and deterioration to such surfaces.
- D. Construction Trash and Debris: Remove trash offsite daily to prevent obstructions and hazard, e.g., fire hazards, and as required to keep the Project reasonably clean and neat in appearance.
- E. Hazardous Materials: Use in manner approved by Authorities. When not in use, contain in proper containers. Dispose of waste off Site in lawful manner.

3.02 AT TIME OF SUBSTANTIAL COMPLETION

Schedule cleaning so that work can be inspected in clean condition at all scheduled inspections.

3.03 AT TIME OF FINAL INSPECTION

Comply with same requirements of "Substantial Completion" Inspection.

END OF SECTION

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Administration requirements for Contract Closeout.
- B. Related Sections:
 - 1. DIVISION 1 - GENERAL REQUIREMENTS.
 - 2. SECTION 01740 - CLEANING.
 - 3. SECTION 01785 - PROJECT RECORD DOCUMENTS.

1.02 SUBMITTALS

- A. At Time of Request for Substantial Completion Inspection:
 - 1. Request for Inspection.
 - 2. Application for Payment.
 - 3. Lien waivers.
 - 4. List of incomplete Work.
 - 5. Final adjustment of accounts for change orders.
 - 6. Insurance change-over requirements.
 - 7. Final Authority releases for full use of project.
 - 8. Project Record Documents for review.
 - 9. Owner paid for additional materials and equipment.
- B. After Substantial Completion Inspection: Punch list, if any.
- C. At Time of Request for Final Inspection:
 - 1. Request for Final Inspection.
 - 2. Final Application for Payment.
 - 3. Consent of Surety for Final Payment: AIA Document G707.
 - 4. Final lien releases.

5. Substantial Completion Punch List: Indicate 100% completion.

6. Completed Project Record Documents.

D. Other: Refer to each Specification Section.

1.03 QUALITY ASSURANCE

A. Number of Consultant's Inspections:

1. Number: Consultant has scheduled only one (1) inspection each for Substantial Completion and Final Completion. Re-inspections beyond the scheduled inspections are considered additional inspections.
2. Cost for Additional Inspections: Pay for Consultant's reasonable cost including, but not necessarily limited to, Consultant's personal time at current billing rates, costs for transportation and lodging, if required, and meals.

B. Punch List Records: Contractor to record and submit written record to Consultant. Revise as requested by Consultant.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PREPARATION-SYSTEMS TESTING

Owner Instruction: Complete systems testing and complete instructions of Owner's designated representatives prior to request for Substantial Completion inspection.

3.02 INSPECTIONS REQUIRED

A. Substantial Completion Inspection.

B. Final Completion Inspection.

3.03 GENERAL INSPECTION PROCEDURE

A. Conduct inspection after successful completion of submissions and its acceptance by Consultant.

B. Contractor to record punch list items, if any.

C. Consultant to certify successful inspection or schedule additional inspections.

3.04 ADDITIONAL INSPECTIONS

- A. The Work: Completion of outstanding work is to be completed expeditiously by Contractor without interruption and will full forces. Submit schedule of completion of each work.
- B. Procedure: Re-conduct inspections in accordance with "general procedure"; until successful review by Consultant is achieved.

END OF SECTION

SECTION 01785 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Requirements for Project Record Documents.
- B. Related Sections:
 - 1. DIVISION 1 - GENERAL REQUIREMENTS.
 - 2. SECTION 01770 - CLOSEOUT PROCEDURES.

1.02 DEFINITIONS

- A. Record Documents: Contractor produced documents representing an accurate recording of the Work provided during the Contract Period; including work that varied from that indicated in the original Contract Documents. Documents include Record Contract Drawings, Record Contract Project Manuals, Record Support Data, and Operation & Maintenance Manuals.
- B. Record Contract Drawings: The primary blueprint Contract set of Drawings used to construct the Project and to which drawn changed information is recorded.
- C. Record Contract Project Manuals: The primary Project Manuals used to construct the Project and containing the specifications and other related written Contract date to which changed written information is recorded.
- D. Record Support Data: Consultant approved, drawn written, published Manufacturer's data and Shop Drawings, which are allowed for use as Record Documents; when standard recording methods can be shown not too be effective or not possible.
- E. Operation & Maintenance Manuals: Organized manuals containing following primary data:
 - 1. Historical data as specified herein.
 - 2. Manufacturer's published Product and related data of all primary products from each Specification Section; including warranties.
 - 3. Operation and maintenance data required for mechanical and electrical work
- F. As-Built Documents: Contractor produced Drawings, required during course of the Work, representing an accurate recording of built structures, and used where Contractor requires clarification with regard to Consultant's intent for subsequent work affecting the drawn conditions. This is not the "historical" definition of this word and should not be construed as such.

1.03 SUBMITTALS

A. Record Documents:

1. Record Contract Drawings: One (1) bound record set.
2. Record Project Manuals: One (1) bound record set.
3. Support Data: One (1) bound record set, if any.
4. Operation & Maintenance Manuals: One (1) bound record set.

B. As-Built Documents: One (1) set; each time required.

1.04 QUALITY ASSURANCE

A. Record Updating:

1. Up-to-Date Records: Maintain up-to-date documents, Record data within five (5) working days after installation of each specific portion of Work requiring recording, except no record data to be recorded after concealment of the each work
2. Out-of-Date Records: If the Records are not being kept reasonably up to date, Consultant may withhold payment requests until Record Documents are satisfactorily updated.

B. Operation & Maintenance Manuals: Organization and included materials to be approved by Consultants,

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 RECORD DOCUMENTS - GENERAL

- A. Maintenance of Documents: Maintain documents in clean, dry and undamaged condition. Use documents only as necessary to record required information. Do not use as working Construction Documents.
- B. Availability: Make documents available to Consultant upon request.
- C. Labeling:
 1. Stamp: Secure rubber stamp with words, "RECORD DOCUMENTS", in bold capital letters, approximately one-inch high.

2. Document Stamping: Stamp document in permanent red ink as follows.
 - a. Contract Drawings: Each page.
 - b. Manual Inserted Book Bound Information: Front cover.
 - c. Manual Inserted Stapled and Inserted Individual Pages: Each page.

3.02 RECORD DOCUMENTS - RECORD CONTRACT DRAWINGS, RECORD CONTRACT PROJECT MANUALS, & RECORD SUPPORTING DOCUMENTS

A. Information Required for Record Drawings and Project Manuals:

1. General: Record installed work ("field conditions") which varies significantly from the work as originally indicated on Contract Document. Record concealed work which is referenced to exposed-to-view features.
2. Contract Drawings: Record data to scale to clean set of blueprints; dedicated only for record purposes and not for any other purpose.
3. Specification of Project Manual: Record changes to specifications as a result of actual installations.

B. Record Supporting Documents:

1. Option: Changes may be recorded to other documents only where the intended record date cannot be adequately recorded on Record Drawings or Record Project manual and if a supporting document significantly indicates the required information more clearly than the Drawing or Project Manual.
2. Restriction: Minimize use of such documents and where used, such documents shall be acceptable to Consultant, prior to its use.
3. Recording Information: Reference such documents appropriately to the Drawing and Specifications. Draw and note changes where different than original drawn information. Such documents shall be compiled into logically organized and bound sets; in manner approved by Consultant.

C. Method of Recording: Legibly mark with erasable red pencils or other contrasting colored pencils when more than one color may more clearly delineate the recorded information. Where to Contract Drawings, record information to same scale as drawings.

3.03 RECORD DOCUMENTS - OPERATING & MAINTENANCE MANUALS

A. Format - General:

1. Binders: Assemble data in hard covered 3 ring, D-ring, binders with clear plastic pockets at front, back, & spine. Provide number of binders as required for each set to comfortably house enclosed data.
2. Cover Sheet: Insert cover sheet, for front and spine, with Project and other information as required by Consultants. Data to be computer generated text and graphics. Where more than one volume submitted, indicate "volume of volumes" applicable to each volume in set provided.
3. Indexed Data: Index groups of related data. Provide type written identification on each index tab.

B. Format - Data Groups: Group data in following broad categories and order. Data within each group to be also logically organized; as acceptable to Consultant.

1. Table of Contents: Detailed listing of contents of each manual.
2. Contractor's Project Warranty: Original executed warranty, warranting all year from date certified for Substantial Completion.
3. Contractor Document List:
 - a. List of all Record Drawings.
 - b. List of Sections in Record Project Manual.
 - c. List of Supporting Record Data, if any.
4. Permits: Signed copies of Authority required permits.
5. Division 2 - 16 Specification Sections: For each Project Manual listed Specification Section, included following in manuals.
 - a. Intent: Provided information on primary installed products of each information that Owner knows exactly which materials were installed in the Project.
 - b. Entity Documentation: List the Manufacturer, Installer, and Supplier Company Name, Project contact, full address, phone/fax/e-mail number.
 - c. Product Data: Primary published date. All need not be provided.

- d. Maintenance Data: Manufacturer's standard published data on cleaning materials, recommended equipment, restrictions, etc., as typically published by Manufacturer for each product.
- e. Standard Warrantees: Insert all standard warrantees available from each Manufacturer; applicable to each product. Execute in behalf of Owner, if execution required by Manufacturer. Submit executed warrantees.
- f. Special Warrantees: Insert executed, special warrantees, when required for each product.
- g. User Manuals: If any, for product, insert with related literature for product.
- h. Life Safety, Tested, Engineer Requirements: Include for each product, data affecting regulatory life safety issues, e.g. fire and structural performances, and any regulatory and specified testing and engineering required for performances.
- i. Mechanical, Electrical, Electronic Equipment: Insert Services Centers, Maintenance Contracts, user manuals, diagrams, spare parts listing, resting-balancing-adjustment report, final meter readings, strat up performance reports, etc., as specified and as required by Owner for proper servicing of such work.

3.04 AS-BUILT DOCUMENTS

- A. Submittal: If required by Consultant, under the conditions related to in the "Quality Assurance" paragraphs herein, submit Drawings as necessary; in a legible format, showing the existing conditions that would impact the work as drawn in the Contract Documents. The Drawings may be in sketch format as long as the dimensional information is provided and the depiction shown can be correlated with the drawn information in the Contract Documents.
- B. Execution: Consultant will issue such changes as necessary to conform the Work to his original intent and Contractor shall proceed in accordance with the requirements indicated.

END OF SECTION

DIVISION 2 - SITE CONSTRUCTION

SECTION 02070 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

- A. Extent of selective demolition work is indicated on the drawings. Selective demolition work includes, but is not limited to, removal and subsequent disposal of all non-hazardous materials indicated or required to be removed.
- B. It shall be the responsibility of the Contractor to examine the project site and determine the existing conditions.
- C. Execute all work in an orderly and careful manner with due consideration for all items of work to remain.
- D. Obvious conditions which exist at the site shall be accepted as part of the work, even though they may not be clearly indicated on the drawings and/or described herein, or may vary therefrom.
- E. All debris of any kind accumulated from the work of this Section shall be disposed off the site in a State Department of Health (DOH) approved waste, recycle, or asbestos-containing material landfill as applicable.
- F. Burning of any debris on-site is not permitted.
- G. Sandblasting is not 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 Kauai Region 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.
- I. Carefully remove and store materials indicated for relocation or reinstallation. Record all deficiencies prior to removal and record with the Kauai Region Representative. All damage caused by the Contractor's operations shall be repaired as accepted by the Kauai Region Representative at no additional cost to the Samuel Mahelona Memorial Hospital.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Schedule: Submit 2 copies of schedule indicating proposed methods and sequence of operations for selective demolition work to the Kauai Region 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. Permits and Notices: Submit a State Department of Health, Asbestos Notification of Demolition & Renovation form (a facsimile is attached).
- D. Solid Waste Demolition Report: Submit 2 copies of the disposal transport and manifest reports to the Kauai Region Representative.
- E. Temporary Shoring Plan: Indicate on plan and provide details for shoring of the floor where steel beams are to be replaced. Include sequencing of partial shoring if shoring of the entire area will be performed in stages.

1.03 JOB CONDITIONS

- A. Condition of Structure: The Samuel Mahelona Memorial Hospital 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 Samuel Mahelona Memorial Hospital 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, shoring, and other forms of protection as required to protect the general public and Samuel Mahelona Memorial Hospital patients and staff, 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 repaired or demolished, and adjacent facilities or work to remain. Leave such shoring in place until permanent supports have been installed. Be solely responsible for design, safety, and adequacy of temporary shoring and bracing and its ability to carry load for which intended.
 - 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 County of Kauai regulations, including HIOSH. Cease operations and notify Kauai Region Representative immediately if safety of structure appears to be endangered. Take precautions to properly support structure. Do not resume until safety is restored.
 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 Samuel Mahelona Memorial Hospital.
- 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 Kauai Region Representative. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations, as directed by the Kauai Region Representative.
- H. Explosives: Use of explosives is not permitted.
- I. Existing Utility Services: Above grade utility lines are present in the area of the Work. Existing utilities shall be kept in service and protected from damage during demolition operations.
1. Damage, however slight, caused by the Contractor to any existing utility shall be reported to the Kauai Region Representative immediately. Do not repair or reconstruct any pipe, conduit, or installation without authorization, except perform emergency repairs immediately.
 2. Outages and Interruptions: Should outages and interruptions become necessary to perform the Work, a request shall be made to the Kauai Region Representative not less than 7 days in advance of intended outage. Outages and interruptions must be authorized in writing by the Kauai Region Representative.
- J. Dust Control:
1. Keep dust within acceptable levels at all times, including non-working hours, weekends, and holidays, as specified in "Pollution Controls" paragraph in SECTION 01500 - TEMPORARY FACILITIES & CONTROLS

in conformance with State Department of Health, Title 11, Administrative Rules, Chapter 60.1 - Air Pollution Control, latest edition.

2. Only wet grinding or cutting of concrete will be allowed on exterior surfaces.
 3. During loading operations, water down debris and waste materials to allay dust.
 4. The method of dust control and all costs incurred thereof shall be the responsibility of the Contractor.
- K. Noise Control: As specified in "Pollution Controls" paragraph in SECTION 01500 - TEMPORARY FACILITIES & CONTROLS.
- L. 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.
- M. Demolition Work: Conform to State of Hawaii, Occupational Safety and Health Standards; Subtitle 8, Division of Occupational Safety and Health; Part 3, Construction Standards; Chapter 131.1, Demolition.
- N. Other Controls:
1. 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

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 Kauai Region Representative prior to starting work.

3.02 PREPARATION

- A. The Contractor shall retain the service of a Structural Engineer, licensed in the State of Hawaii, to advise if shoring is required for concrete members during the repair. Only the locations where the repair involves replacing reinforcing steel

needs to be reviewed by a Structural Engineer for shoring requirements. Crack repairs and spalls repairs that do not involve replacing reinforcing steel do not need temporary shoring of the member.

- B. Structural steel members scheduled to be replaced shall not be removed until shoring for the floor has been installed. Shoring shall prevent deflection of the floor at the location of the steel beams. Coordinate with the steel erector to ensure that the shoring will not impede the structural steel work.

3.03 BARRICADES AND ENCLOSURES

As specified in SECTION 01500 - TEMPORARY FACILITIES & CONTROLS.

3.04 SELECTIVE DEMOLITION

- A. Perform selective demolition work, including all exterior repairs and replacements indicated on the drawings, in a systematic manner. Use such methods as required to complete work indicated on the 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 saw, handheld grinder, or hand tools. Do not use power-driven or pneumatic impact tools.
 - 2. Remove designated structural steel members to be replaced including connections to concrete beams, base plates, and any other miscellaneous steel that are a part of the steel framing. At existing anchors embedded in concrete, chip out the concrete around the anchor to enable the anchor to be cut 1-1/2 inches below the concrete surface. Concrete surface shall then be repaired using the same patching materials as the spall repairs.
 - 3. 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.
 - 4. Utilities shall not be disturbed and remain in service for the duration of the work except as noted in sub-paragraph entitled "Existing Utility Services" hereinabove.
 - 5. 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 Samuel Mahelona Memorial Hospital.
- 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 Kauai Region Representative in written, accurate detail. Pending receipt of directive from the

Kauai Region Representative rearrange selective demolition schedule as necessary to continue overall job progress without delay.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

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.

3.06 CLEAN-UP AND REPAIR

- A. Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave areas clean.
- B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.
- C. All existing grass areas disturbed or damaged due to construction or ingress or egress to the site shall be repaired to original conditions. Grass areas shall be recultivated, topsoiled, and then grassed with the same kind and type of material as existing, in a manner accepted by and to the satisfaction of the Kauai Region Representative.

END OF SECTION

**Asbestos Notification of Demolition & Renovation
(Ref. HAR Chapter 11-501)**

**SEND TO: STATE DEPARTMENT OF HEALTH
INDOOR AND RADIOLOGICAL HEALTH BRANCH
99-945 HALAWA VALLEY STREET
AIEA, HAWAII 96701
Phone (808) 586-5800 Fax (808) 586-5811**



| | | |
|---|------------------|-------------------------|
| I. Type of notification: O=original R=revised C=cancelled | | |
| II. Type of operation: D=Demolition R=Renovation OD=Ordered Demolition ER=Emergency Renovation | | |
| III. Facility information | | |
| Owner name: | | |
| Address: | | |
| City: | State: | Zip code: |
| Contact person: | | Telephone #: |
| Removal contractor: | | License #: |
| Address: | | |
| City: | State: | Zip code: |
| Contact person: | | Telephone #: |
| Other operator: | | |
| Address: | | |
| City: | State: | Zip code: |
| Contact person: | | Telephone #: |
| IV. Is asbestos present (y/n): | | |
| Inspector's name: | Certification #: | State of certification: |
| V. Facility description (Include building number, floor and room number) | | |
| Building name: | | |
| Address: | | |
| City: | State: | Zip code: |
| Location(s) on site: | | |
| Building size (sq. ft.): | # Floors: | Age: |
| Present use: | Prior use: | |
| Official Use Only | | |
| Postmark Date: | Received by: | State Record Number: |

| | | | |
|---|--------------------|------------------------------------|----------------------|
| VI. Procedure used to detect the presence of asbestos | | | |
| Laboratory name: | | Analytical method: | |
| VII. Specify the nature of the asbestos material (TSI, surfacing, VAT, miscellaneous): | | | |
| Amount of asbestos, including: | | Nonfriable ACM (not) to be removed | |
| 1. RACM to be removed | RACM to be removed | Category I | |
| 2. CAT I left in place, and | | Category II | |
| 3. CAT II left in place | | | |
| Pipes (linear ft.) | | | |
| Surfacing (square ft.) | | | |
| Facility components (cu. ft.) | | | |
| Scheduled asbestos abatement dates | | | |
| Start (mm/dd/yy): | | Finish (mm/dd/yy) | |
| Circle workdays and times: | | weekdays: | daytime nighttime |
| | | weekends: | daytime nighttime |
| Scheduled renovation/demolition dates | | | |
| Start (mm/dd/yy): | | Finish (mm/dd/yy) | |
| Circle workdays and times: | | weekdays: | daytime nighttime |
| | | weekends: | daytime nighttime |
| Description of the planned renovation/demolition work and methods to be used: | | | |
| Description of the work practices and engineering controls to be used to prevent emissions of asbestos from the work-site: | | | |
| Project designer name: | | Certification #: | State: |
| XII. Waste transporter #1 | | | |
| Name: | | | |
| Address: | | | |
| City: | State: | Zip code: | |
| Contact Person: | | Telephone: | |
| Waste transporter #2 | | | |
| Name: | | | |
| Address: | | | |
| City: | State: | Zip code: | |
| Contact Person: | | Telephone: | |
| XIII. Waste disposal site | | | |
| Facility Name: | | Telephone: | |
| Address: | | | |
| City: | State: | Zip code: | |

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.
- B. Related Work Described Elsewhere: SECTION 09900 - PAINTING.

1.02 DEFINITIONS

Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.03 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Product Data: Reinforcing steel - Certified mill test results or laboratory test results. Indicate bar size, yield strength, ultimate tensile strength, elongation, and bend test. Provide chemical composition for rebars that are to be welded.
- C. Mixture Proportions: Submit concrete mixture proportions and characteristics for all ready mixed and site-produced concrete. Include field and laboratory test data used to establish the required average strength.
- D. Volumetric Batching: When Contractor wants to produce concrete by the volumetric batching method, submit description of proposed method including quality control measures.
- E. Welding Certificates: Copies of certificates for welding procedures and personnel if welding is required.
- F. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance with the requirements indicated, based on comprehensive testing of current materials.
- G. Repair Materials: Product data sheet which includes product description, applications, technical data, compressive strength, manufacturer's instructions for surface preparation, mixing, applying, and curing.
- H. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
 - 1. Form materials and form-release agents.

2. Steel reinforcement and reinforcement accessories.
3. Curing materials.
4. Bonding agents.
5. Adhesives.
6. Epoxy joint filler.
7. Joint-filler strips.
8. Repair materials.

1.04 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: A Professional Engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for formwork, shoring, and verifying load capacity of existing building components that are required as means and method for this Project.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C94/C94M requirements for production facilities and equipment.
- C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM E329 to conduct the testing indicated. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- E. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel" if welding is required.
- F. ACI Publications: Comply with the following unless more stringent provisions are indicated and maintain a copy at the field office.
 1. ACI 301, "Specification for Structural Concrete".
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials".
 3. ACI 347R "Guide to Formwork for Concrete".

1.05 DELIVERY, STORAGE, AND HANDLING

Deliver, store, and handle steel reinforcement to prevent bending and damage.

1. Avoid damaging coatings on steel reinforcement.
2. Repair damaged epoxy coatings on steel reinforcement according to ASTM D3963/D3963M.

PART 2 - PRODUCTS

2.01 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Comply with ACI 347R. Provide new or good finish form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Plywood, metal, or other ACI 347R approved panel materials.
 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1, or better.
 - b. Medium-density overlay, Class 1, or better, mill-release agent treated, and edge sealed.
 - c. Structural 1, B-B, or better, mill oiled, and edge sealed.
 - d. B-B (Concrete Form), Class 1, or better, mill oiled, and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4-inch, minimum.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces. Form oils or waxes shall not be used for concrete surfaces intended to be painted. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Form Ties: Factory-fabricated, removable, or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that will leave no corrodible metal closer than one-inch to the plane of the exposed concrete surface.

2. Furnish ties that, when removed, will leave holes not larger than 1-1/2 inches in diameter in concrete surface.

2.02 STEEL REINFORCEMENT

Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed bars, unless otherwise noted on the drawings.

2.03 REINFORCEMENT ACCESSORIES

Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use plastic straps or brightly colored tie wires to secure reinforcing. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:

For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected.

2.04 CONCRETE MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I.
- B. Pozzolans:
 1. Fly Ash: ASTM C618, Class C or F.
 2. Ground Granulated Blast-Furnace Slag: ASTM C989/C989M, Grade 100 or 120.
- C. Silica Fume: ASTM C1240, amorphous silica.
- D. Normal-Weight Aggregate: ASTM C33/C33M, uniformly graded, and as follows:
 1. Class: Moderate weathering region, but not less than 3M.
 2. Aggregate Size: 3/4-inch.
 3. Aggregate Size: No. 57 (one-inch to No. 4).
 4. Aggregate Size: No. 67 (3/4-inch to No. 4).
- E. Size of Coarse Aggregate: Except when otherwise specified or permitted, maximum size of coarse aggregate shall not exceed three-fourths of the minimum clear spacing between reinforcing bars and one-fifth of the narrowest dimension between the sides of forms.

- F. Water: Potable and complying with ASTM C94/C94M or non-potable meeting ASTM C94/C94M Acceptance Criteria for Questionable Water Supply. Use only potable water for job site mixing.

2.05 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: Do not use air-entraining admixture.
- C. Water-Reducing Admixture: ASTM C494/C494M, Type A.
- D. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
- E. Water-Reducing and Accelerating Admixture: ASTM C494/C494M, Type E.
- F. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.

2.06 CURING MATERIALS AND EVAPORATION RETARDERS

Clear, Solvent-Borne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B.

2.07 RELATED MATERIALS

- A. Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.
- B. Epoxy Joint Filler: 2-component, semi-rigid, 100 percent solids, epoxy resin with a Shore A hardness of 80 per ASTM D2240.
- C. Bonding Agent: ASTM C1059/C1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy-Bonding Adhesive: ASTM C881/C881M, 2-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class and grade to suit requirements, and as follows:
 - 1. Types I, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
 - 2. Type II, non-load bearing, for bonding freshly mixed concrete to hardened concrete.
- E. Cementitious Coatings: Cement based polymer modified concrete finishing materials. Available Products subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. ProFinish by Bonded Materials.
2. Polycoat by Tremcrete Systems Incorporated.
3. Durus by Durus High Tech Cement.
4. MBT RS-1150 by Master Builders Technologies.
5. Or approved equal.

2.08 REPAIR MATERIALS

Repair Defeats on Formed Surfaces: Preblended, polymer-modified concrete repair/patching mortar designed to be used for vertical concrete repairs of honeycombs, bug holes, and other surface defects on formed surfaces of concrete. Minimum 28-day compressive strength of 5,000 psi.

2.09 CONCRETE MIXTURES

- A. Prepare mixture proportions mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:

Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
- B. Curbs and Pedestals: Proportion normal-weight concrete mixture as follows:
 1. Minimum Compressive Strength: 4,000 psi at 28 days.
 2. Maximum Water-Cement Ratio: 0.45.
 3. Slump Limit: 6-inches.
- C. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:
 1. Fly Ash: 25 percent.
 2. Combined Fly Ash and Pozzolan: 25 percent.
 3. Ground Granulated Blast-Furnace Slag: 50 percent.
 4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent Portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
 5. Silica Fume: 10 percent.
 6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent Portland cement minimum, with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
- D. Chloride Content: Limit water-soluble, chloride-ion content in hardened concrete per ACI 318 Chapter 4 for corrosion protection of reinforcing steel.
- E. Admixtures: Use admixtures according to manufacturer's written instructions.
 1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in concrete which requires a water-cementitious materials ratio below 0.50.

2.10 FABRICATING REINFORCEMENT

Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice".

2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94/C94M, and ASTM C1116/C1116M and furnish batch ticket information. Batch ticket information shall include design mix reference, water that can be added at the jobsite, and admixtures. For transit mixing, complete not less than 70 revolutions of the drum at the manufacturer's rated mixing speed. Discharge concrete into its final position within 90 minutes after introduction of batch water to the cement. If a retarder admixture is used, the discharge time limit of 90 minutes may be increased by the time specified for retardation by the admixture manufacturer or the concrete supplier. Mix concrete a minimum of one minute at mixing speed immediately prior to discharge.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials according to ASTM C94/C94M. When volumetric batching is used to produce concrete it shall conform to the requirements of ASM C685/C685M. Mix concrete materials in appropriate drum-type batch machine mixer.
 1. For mixer capacity of one cubic yard or less, continue mixing at least one and one-half minutes, but not more than 5 minutes after all ingredients are in mixer, before any part of batch is released.
 2. For mixer capacity larger than one cubic yard increase mixing time by 15 seconds for each additional cubic yard.

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of concrete placement in structure.

PART 3 - EXECUTION

3.01 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117. Form surfaces in contact with concrete shall use a form face material that creates a Class B surface.
- C. Form surfaces in contact with concrete shall use a form face material that creates a Class B surface. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual to 1/4-inch.
- D. Construct forms to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to one vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal. Do not use rust-stained steel form-facing material.
- F. Chamfer exterior corners and edges of permanently exposed concrete.
- G. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- H. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- I. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.02 EMBEDDED ITEMS

Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.03 REMOVING AND REUSING FORMS

- A. General: Formwork, for sides of curbs, pedestals, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained. The 24 hour period may be reduced to 12 hours in compliance with ACI 347R with prior approval from the Kauai Region Representative.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by the Kauai Region Representative.

3.04 SHORES AND RESHORES

Comply with ACI 318, ACI 301, and recommendations in ACI 347R for design, installation, and removal of shoring.

3.05 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.06 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by the Kauai Region Representative.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated.

2. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
3. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

3.07 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed. Provide one day notification to the Kauai Region Representative for each scheduled pour.
- B. Before placing concrete, water may be added at Project site, subject to limitations of ACI 301. Do not add water to concrete after adding high-range water-reducing admixtures to mix.
- C. Convey concrete from mixer to the place of final deposit rapidly by methods that prevent segregation or loss of ingredients and will ensure the required quality of concrete. Use conveying equipment, conveyors, hoppers, baffles, chutes, pumps that are sized and designed to prevent cold joints from occurring and prevent segregation in discharged concrete. Clean conveying equipment before each placement.
- D. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- E. Deposit concrete in forms in horizontal layers with proper consolidation into previous layers and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
 1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator.
 3. Make construction joints only where located on Drawings unless otherwise approved by the Kauai Region Representative. Plan pours to continuously place concrete from one construction joint to another.
- F. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 degrees Fahrenheit at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water.
2. If steel reinforcement is exposed to direct sunlight, cover with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3.08 FINISHING FORMED SURFACES

- A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8-inch in height. Applies to all formed surfaces.
- B. Related Unformed Surfaces: At tops of curbs, pedestals, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.09 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive hot temperatures. Comply with recommendations in ACI 305R for hot-weather protection during curing.
- B. Formed Surfaces: Cure formed concrete surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the curing methods.
- C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces and tops of curbs and pedestals by the following method:

Curing Compound: Apply uniformly in continuous operation by spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.10 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas. Remove and replace concrete that cannot be repaired and patched to the Kauai Region Representative's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part Portland cement to 2 and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/4-inch in any dimension in solid concrete but not less than one-inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by the Kauai Region Representative.
- D. Repairing Unformed Surfaces: Test unformed surfaces for finish and verify surface tolerances specified for each surface. Correct low and high areas.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01-inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Repair defective areas, except random cracks and single holes one-inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 5. Repair random cracks and single holes one-inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete

surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

- E. Perform repairs of concrete, subject to the Kauai Region Representative's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to the Kauai Region Representative's approval.

3.11 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C172/C172M shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cubic yard, but less than one set for each day's pour of each concrete mix.
 - 2. Slump: ASTM C143/C143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
 - 3. Air Content: ASTM C231/C231M, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
 - 4. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 80 degrees Fahrenheit and above, and one test for each composite sample.
 - 5. Compression Test Specimens: ASTM C31/C31M; cast and laboratory cure one set of 4 standard cylinder specimens for each composite sample. Cast and field cure one set of 4 standard cylinder specimens for each composite sample.
 - 6. Compressive-Strength Tests: ASTM C39/C39M; test 2 laboratory-cured specimens at 7 days and 2 at 28 days.
 - a. Test 2 field-cured specimens at 7 days and 2 at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from 2 specimens obtained from same composite sample and tested at age indicated.

- C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
- D. Strength of each concrete mix will be satisfactory if every average of any 3 consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- E. Test results shall be reported in writing to the Kauai Region Representative, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, mix design number, location of concrete batch in Work, design compressive strength at 28 days, compressive breaking strength, and type of break for both 7-and 28-day tests.
- F. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by the Kauai Region Representative but will not be used as sole basis for approval or rejection of concrete.
- G. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by the Kauai Region Representative. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by the Kauai Region Representative.

END OF SECTION

SECTION 03930 - CONCRETE REPAIRS

PART 1 - GENERAL

1.01 SUMMARY

Contractor shall furnish all labor, materials, equipment, and incidentals as shown, specified, and required to repair the following:

1. Cracked and delaminated (spall) surfaces of the concrete beams, columns, and soffits underneath the main building as shown on the Drawings.
2. Cracked and delaminated (spall) surfaces of the concrete beams, columns, and soffits underneath the main building that are not shown on the Drawings, but identified during the Contractor's damage survey and have been added to the Scope of Work by the Kauai Region Representative.

1.02 QUALITY ASSURANCE

Manufacturer Qualifications: All products shall be the standard product of a manufacturer who has been regularly engaged in the design and manufacture of the products, and whose product has proven reliable in similar service.

1.03 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Repair Products: Product data sheet which includes product description, applications, technical data, compressive strength, manufacturer's instructions for surface preparation, mixing, applying, and curing.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

Inspect materials delivered to site for damage, unload, and store with a minimum of handling. Deliver all patching materials and aggregates in original sealed containers and store in dry covered areas at temperatures below 90 degrees Fahrenheit.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. High Strength Patching Mortar: A high strength, factory blended patching material which shall contain corrosion inhibiting and latex polymer type admixtures combined with other admixtures and water as recommended by the manufacturer.
 1. High Strength, Factory Blended Patching Materials: A fast-setting cementitious waterproof material (containing no gypsum) designed specifically for repairing concrete with the following minimum compressive and tensile properties:

- a. Compressive Strength (ASTM C109/C109M):
 - 1. One Day: 2,000 psi minimum.
 - 2. 28 Days: 4,000 psi minimum.
- b. Tensile Strength:
 - 1. One Day: 225 psi.
 - 2. 28 Days: 1,100 psi.
- 2. Polymer Type Admixture: An acrylic latex bonding admixture classified as non-re-emulsifiable by the American Concrete Institute and shall be specifically designed for use as an additive for Portland cement mixes to impress adhesion, water resistance, and mechanical properties. The manufacturers' test data shall show that shear bond, tensile, compressive, and flexural strengths of admixture modified cement mixes are at least 50 percent greater than unmodified cement mixes.
- 3. Water shall be fresh, clean, and potable.
- B. Epoxy for Grouting Dowels: ASTM C881/C881M, Type V, Grade 2 or 3, Class C.
- C. Curing Compound:
 - 1. Clear, Solvent-Borne, Membrane-Forming Curing Compound, ASTM C309, Type 1, Class B.
 - 2. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing, Compound ASTM C1315, Type 1, Class A.
 - 3. Clear, Waterborne, Membrane-Forming Curing and Sealing, Compound ASTM C1315, Type 1, Class A.
- D. Non-Pressure Epoxy Grout: ASTM C881/C881M, Type IV, Grade 2, Class C with or without mineral filler.
- E. Crack Sealer for Pressure Grouting: ASTM C881/C881M, Type IV, Grade 1, Class C without filler.
- F. Crack Surface Sealer for Pressure Grouting: ASTM C881/C881M, Type IV, Grade 3, Class C with mineral filler.

2.02 EQUIPMENT

The equipment for blending admixtures and patching materials shall be approved by the Kauai Region Representative. Mixing shall be accomplished using a power drive propeller type blade except that hand mixing may be used for small batches.

PART 3 - EXECUTION

3.01 CONSTRUCTION PROCEDURES

- A. General: ACI 318/318R and ICRI (International Concrete Repair Institute) Concrete Repair Manual. Mix the patching materials with or without fillers in strict accordance with the manufacturer's instructions. All applications of the mixed materials shall be performed within the working life of the patching system. Unused mixed materials which have reached the end of the working life shall be removed from the job site at the Contractor's expense. Field mixing and size of batch shall be determined by the Contractor. Patching systems shall be provided as indicated and required by this specification.
- B. Patching Mortar:
1. Preparation of Patch Area: Remove loose concrete, oil, dirt, and coatings, from the spalled areas indicated to expose clean, sound concrete. Inspect the cavity for any remaining defective concrete by tapping with a hammer or steel rod throughout the indicated areas and listening for dull or hollow sounds. In areas where tapping does not produce a solid tone, remove additional concrete until testing produces a solid tone. Use a high frequency chipping hammer to deepen cavity. Remove residual fines from all surfaces. Remove all rust from reinforcing steel by power wire brushing to expose clean, sound bare metal. Protect cleaned area from contaminating materials that may affect the bonding of the patching material. Provide a catchment/containment device to catch loose concrete, oil, dirt, and coatings from the spalled areas during surface preparation.
 2. Joints and Cracks: Joints or cracks shall be cleaned and sealed as indicated.
 3. Mixing Materials: Make batches small enough to assure placement before binder sets.
 4. Preparation: Mix patching material in accordance with manufacturer's recommendations.
 5. Placement of Patching Materials: Place patching materials in thin layers as recommended by the manufacturer. Each intermediate layer shall be cross-scratched for mechanical bonding. All layers for each patch shall be placed on the same day. Surface of the patch shall be shaped to match adjacent concrete. Reconstruct chamfers, drip edges, and any other feature to match existing adjacent, undamaged concrete. Remove excess patching material on adjacent surfaces before it hardens. Do not feather out onto adjacent surfaces. Upon completion of finishing operations, cure in accordance with the manufacturer's recommendations. Protect patches until the patches are properly cured.

- C. Pressure Grouting of Cracks: Clean each crack of dust, dirt, loose concrete, and unsound material. Insert a valve at both ends of each crack, at the junction of 2 cracks, and along the length of each crack at 16-inch intervals. Fill crack between valves with crack surface sealer. After crack surface sealer has hardened and cured, pump crack sealer into valve at one end of crack. For vertical surfaces start at lowest valve and work upwards. As crack sealer appears at next valve, pinch closed pumping valve and move to next valve and commence pumping. Continue procedure until each end of crack is reached. Avoid delays in pumping operation. After crack sealer has hardened and cured grind valves off flush with concrete surface. Coat areas of valves with crack surface sealer and allow to harden and cure.

- D. Curing: Cure epoxy materials in accordance with manufacturer's recommendations.

3.02 CURING AND PROTECTION

ACI 301 unless otherwise specified. Begin curing immediately following form removal. Protect concrete from injurious actions by sun, rain, flowing water, mechanical injury, and oil stains. Continuously apply curing compound for a period not less than 7 days.

END OF SECTION

DIVISION 5 - METALS

SECTION 05120 - MISCELLANEOUS STRUCTURAL STEEL

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes miscellaneous structural steel.
- B. Related Work Described Elsewhere:
 - 1. SECTION 02070 - SELECTIVE DEMOLITION for shoring of the existing floor and removal of existing steel framing members.
 - 2. SECTION 09900 - PAINTING for surface preparation and priming requirements.

1.02 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Engage a Structural Engineer licensed in the State of Hawaii to design or review the design for temporary shoring of the existing elevated concrete floor.
- B. Contractor Responsibility: Field verify all measurements required to fabricate new members. Base the fabrication drawings on locations of the existing steel framing scheduled to be replaced. Identify locations where new structural steel work will conflict with existing anchors embedded in concrete that will be cut back and abandoned in place. Notify Kauai Region Representative of conflicts or discrepancies prior to starting fabrication drawings.

1.03 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.
- B. Product Data: Submit product data for each type of product specified.
- C. Shop Drawings: Submit shop drawings detailing fabrication of structural steel components.
 - 1. Include framing plan of new work with steel members labeled in such a way as to easily associate members on plan with the corresponding member fabrication drawing.
 - 2. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
 - 3. Indicate welds by standard AWS symbols and nomenclature. Distinguish between shop and field welds, and show size, length, and type of each weld.

4. Indicate type, size, and length of bolts.

D. Qualification Data: Submit qualification data for firms and persons specified in item entitled "QUALITY ASSURANCE" hereinbelow to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names, and addresses of architects and owners, and other information specified. Mill test reports signed by manufacturers certifying that their products, including the following, comply with requirements.

1. Structural steel, including chemical and physical properties.
2. Bolts, nuts, and washers, including mechanical properties and chemical analysis.
3. Direct-tension indicators.
4. Shop primers.
5. Nonshrink grout.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed structural steel work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Fabricator Qualifications: Engage a firm experienced in fabricating structural steel similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the Work.
- C. Comply with applicable provisions of the following specifications and documents:
1. AISC 303 "Code of Standard Practice for Steel Buildings and Bridges".
 2. AISC 360 "Specification for Structural Steel Buildings".
 3. AWS D1.1 "Structural Welding Code-Steel".
 4. Research Council on Structural Connections' (RCSC) "Specification for Structural Joints Using High-Strength Bolts".
- D. Professional Engineer Qualifications: A Professional Engineer who is legally authorized to practice in the jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for projects with structural steel framing that are similar to that indicated for this Project in material, design, and extent.

- E. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel". Present evidence that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver structural steel to Project site in such quantities and at such times to ensure continuity of installation.
- B. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.
 - 1. Store fasteners in a protected place. Clean and relubricate bolts and nuts that become dry or rusty before use.
 - 2. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.06 SEQUENCING

Supply anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Structural Steel Wide Flange Shapes: ASTM A992/A992M.
- B. Channels, Angles, Plates, and Bars: ASTM A36/A36M.
- C. Steel Pipe: ASTM A53/A53M, Grade B, standard weight.
 - Finish: Hot-dipped galvanized and painted.
- D. Anchor Rods, Bolts, Nuts, and Washers: As follows:
 - 1. Headed and Unheaded Anchor Rods: ASTM F1554, Grade 36, unless otherwise indicated on drawings.
 - 2. Hot-Dip Zinc Coating: ASTM A153/A153M, Class C.
 - 3. Nuts: ASTM A563 heavy hex carbon steel, galvanized.
 - 4. Plate Washers: ASTM A36/A36M, galvanized.

- E. Nonhigh-Strength Bolts, Nuts, and Washers: ASTM A307, Grade A; carbon-steel, hex-head bolts; carbon-steel nuts; and flat, unhardened steel washers.
 - 1. Finish: Hot-dip zinc-coating, ASTM A153/A153M, Class C.
 - 2. Nuts: ASTM A563 heavy hex carbon steel, galvanized.
 - 3. Plate Washers: ASTM A36/A36M, galvanized.

- F. High-Strength Bolts, Nuts, and Washers: ASTM A325 X, Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers.
 - 1. Finish: Hot-dip zinc-coating, ASTM A153/A153M, Class C.
 - 2. Nuts: ASTM A563 heavy hex carbon steel, galvanized.
 - 3. Hardened Carbon-Steel Washers: ASTM F436/F436M.

- G. Welding Electrodes: Comply with AWS requirements.

2.02 PRIMER

- A. Galvanizing: All cold-formed purlins and girts; and other new steel components shall be hot-dipped galvanized in accordance with ASTM A123/A123M and ASTM A153/A153M, as applicable.

- B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds and repair painting galvanized steel, with dry film containing not less than 93 percent zinc dust by weight and complying with DOD-P-21035A or SSPC-Paint 20.

2.03 GROUT

Nonmetallic, Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water-reducing agents, complying with ASTM C1107/C1107M, of consistency suitable for application, and a 30-minute working time.

2.04 FABRICATION

- A. Fabricate and assemble structural steel in shop to greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.
 - 1. Mark and match-mark materials for field assembly.

 - 2. Fabricate for delivery a sequence that will expedite erection and minimize field handling of structural steel.

3. Complete structural steel assemblies, including welding of units, before galvanizing the assemblies.
 4. Comply with fabrication tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible. Plane thermally cut edges to be welded.
- C. Finishing: Accurately mill ends of columns and other members transmitting loads in bearing.

2.05 SHOP CONNECTIONS

- A. Shop install and tighten nonhigh-strength bolts, except where high-strength bolts are indicated.
- B. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work. Assemble and weld built-up sections by methods that will maintain true alignment of axes without warp.

2.06 GALVANIZING

Hot-Dip Galvanized Finish: After fabrication, apply zinc coating by the hot-dip process to all structural steel in accordance with ASTM A123/A123M. Fill vent holes and grind smooth after galvanizing.

2.07 SOURCE QUALITY CONTROL

- A. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.
- B. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.
- C. Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
- D. Shop-bolted connections will be tested and inspected according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A325 or A490 Bolts". Direct-tension indicator gaps will be verified to comply with ASTM F959/F959M, Table 2.
- E. In addition to visual inspection, shop-welded connections will be inspected and tested according to AWS D1.1 and the inspection procedures listed below, at testing agency's option.
1. Liquid Penetrant Inspection: ASTM E165/E165M.

2. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
3. Radiographic Inspection: ASTM E94/E94M; minimum quality level "2-2T".
4. Ultrasonic Inspection: ASTM E164.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to preparing the erection drawings and prior to demolition of the existing steel covered in SECTION 02070 - SELECTIVE DEMOLITION, verify existing structural steel layout and quantity of members. Identify miscellaneous steel items present with the existing framing but not shown on the drawings, which are needed for installation of the new work.
- B. Coordinate with work to provide shoring of the floor slab. Ensure temporary shoring will be designed such that the shoring members will not impede the erection of the new steel members.
- C. Before erection proceeds, and with the steel erector present, verify elevations of concrete and masonry bearing surfaces and locations of anchorages for compliance with requirements.
- D. Do not proceed with erection until unsatisfactory conditions have been corrected.

3.02 PREPARATION

Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place, unless otherwise indicated.

3.03 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings".
- B. Base and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.
 1. Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.

2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
 3. Pack grout solidly between bearing surfaces and plates so no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure. Comply with manufacturer's instructions for proprietary grout materials.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges".
- D. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
1. Level and plumb individual members of structure.
 2. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.
- E. Splice members only where indicated.
- F. Finish sections thermally cut during erection equal to a sheared appearance.
- G. Do not enlarge unfair holes in members by burning or by using drift pins. Ream holes that must be enlarged to admit bolts.

3.04 FIELD CONNECTIONS

- A. Unless noted otherwise, tighten bolts to snug-tight condition. Snug-tight condition is the tightness required to bring the connected piles into firm contact by the bolts in the joint, and the bolts in the joint have been tightened sufficiently to prevent the removal of the nuts without the use of a wrench.
- B. Install and tighten high-strength bolts by turn-of-nut method in accordance with RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
- C. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
1. Comply with AISC specifications referenced in this Section for bearing, adequacy of temporary connections, alignment, and removal of paint or zinc galvanizing on surfaces to be field welded.
 2. Assemble and weld built-up sections by methods that will maintain true alignment of axes without warp.

3.05 FIELD QUALITY CONTROL

- A. Contractor shall engage an independent testing and inspecting agency to perform field inspections and tests and to prepare test reports. Agency shall conduct and interpret tests and state in each report whether Work complies with or deviates from requirements.
- B. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.
- C. Additional testing, at Contractor's expense, shall be performed to determine compliance of corrected Work with specified requirements.
- D. Field-bolted connections shall be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
- E. In addition to visual inspection, field-welded connections shall be inspected and tested according to AWS D1.1 and the inspection procedures listed below, at testing agency's option.
 - 1. Liquid Penetrant Inspection: ASTM E165/E 165M.
 - 2. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - 3. Radiographic Inspection: ASTM E94; minimum quality level "2-2T".
 - 4. Ultrasonic Inspection: ASTM E164.

3.06 CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and apply galvanizing repair paint according to ASTM A780/A780M.
- B. Painting: All new exposed steel elements shall be painted. Prepare galvanized surfaces and apply paint as specified in SECTION 09900 - PAINTING

END OF SECTION

DIVISION 9 - FINISHES

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.01 SUMMARY

- A. The work includes painting and finishing of concrete repairs to previously painted exterior concrete and masonry surfaces affected by the Work specified in other sections. Previously painted surfaces includes, but not limited to, exposed surfaces in the following locations:
1. Vertical surfaces at the edges of the floor slab or building exterior wall line.
 2. Soffit of the floor slab from edge of cantilevered slab to the perimeter beams. Perimeter beams are defined as the concrete beams below the exterior walls or the first concrete beam set in from the exterior wall line (at cantilevered floors.)
 3. Horizontal bottom and vertical exterior facing side of perimeter concrete beams. The vertical interior facing side of perimeter beams are not included unless there was an existing paint coating on the surface (prior to performing concrete repair.)
 4. All exposed vertical sides of the perimeter concrete columns. Perimeter columns are the line of concrete columns closest to the exterior wall line.
 5. Exterior face of concrete masonry walls.
 6. Where there is existing paint on the surface immediately adjacent to the edge or perimeter of a repair.
- B. The work includes painting and finishing the galvanized surfaces of new steel framing exposed after installation, preparing exposed surface of existing structural steel, and painting the existing structural steel. Steel framing refers to all steel including beams, columns, plates, bolts, welds, etc.
- C. The work includes painting and finishing of surfaces that are not a part of the repair work, but damaged and repaired by the Contractor. Limited to previously painted surfaces affected during Contractor's execution of the repair work.
- D. The work does not include priming or painting over existing signs or labels, if any. Do not paint existing signs, labels, or similar items in which the paint coating would hide the item or render it illegible. If unsure, notify Kauai Regional Representative for direction.

1.02 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.

- B. Color Samples: Submit the following to the KAUAI Region Representative for acceptance:
1. 4 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.
- C. 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.
- D. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" hereinbelow.
- E. Certifications: Submit copies of asbestos-free, lead-free, zinc-chromate-free, strontium-chromate-free, cadmium-free, and mercury free paint certificates.
- F. Manufacturer's Product Data Sheets: Submit copies of the manufacturer's product data sheets for the primers, paints, and other materials being used. Data sheets shall indicate thinning and mixing instructions, required film thickness (mil) surface preparation requirements and application instructions.
- G. Safety Data Sheets (SDS): Submit copies of SDS for each material as applicable.

1.03 ANALYZING AND TESTING

- A. All paints and their applied thickness shall be subject to testing whenever the Kauai Region Representative 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 Kauai Region Representative 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 Samuel Mahelona Memorial Hospital.
- 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 Samuel Mahelona Memorial Hospital.

- 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 Samuel Mahelona Memorial Hospital.

1.04 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 | |

1.05 WARRANTY

Contractor's Warranty:

1. 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 Samuel Mahelona Memorial Hospital.
2. Samuel Mahelona Memorial Hospital will notify the Contractor in writing within a reasonable time after discovery of any failure or defect.
3. Should the Contractor fail to remedy any failure or defect described above within 10 working days after receipt of notice thereof, Samuel Mahelona Memorial Hospital shall have the right to repair or otherwise remedy such failure or defect and charge the Contractor for the cost of same.

1.06 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 building occupants from injury.
 - b. The Contractor shall provide, erect, and maintain safety barricades around scaffolds, hoists, and wherever Contractor's operation create hazardous conditions in order to properly protect the public and workmen.
 2. Completed Work: The Contractor shall provide all necessary protection for wet paint surfaces.
 3. Protective Covering: The Contractor shall provide and install protective covering over equipment, floor, and other areas that are not scheduled for treatment. Protective covering shall be clean, sanitary drop cloth or plastic sheets. Paint applied to surfaces not scheduled for treatment shall be completely removed and surfaces shall be returned to original condition.
 4. Safeguarding of Property: The Contractor shall take whatever steps may be necessary to safeguard his work and also the property of Samuel Mahelona Memorial Hospital and other individuals in the vicinity of the work area during the execution of this Contract. Contractor shall be responsible for and make good on any and all damages and for losses to work or property caused by his or his employee's negligence. Where the damaged property cannot be cleaned and restored to its original condition (i.e. prior to being damaged) it shall be replaced with a new product of equal quality. No proration or use of "used" products will be permitted.
 5. Fire Safety: The Contractor shall direct his employees not to smoke on the job site 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: Samuel Mahelona Memorial Hospital 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 Samuel Mahelona Memorial Hospital. In addition, Samuel Mahelona Memorial Hospital 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 Kauai Region 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 Kauai Region Representative one day (24 hours minimum) advance notice of completion of any phase of work for a work area only when he deviates from the previously submitted work schedule. The Contractor shall provide necessary access to areas to be inspected. Failure to obtain acceptance of any phase of work for a work area may result in redoing the operation at no cost to Samuel Mahelona Memorial Hospital.
- G. Sample Panels: Prior to commencing with the work, the Contractor shall prepare a sample panel(s) of approximately 5 square feet indicative of the specified surface preparation and required number of paint coats to be applied for acceptance by the Kauai Region Representative. The intent of this requirement is to ensure adequate coverage/thickness and/or hiding value of the paint and proper hue. Sample panels may be a portion of work to be performed with location proposed by the Contractor and approved by the Kauai Region Representative.

1.07 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, paint brushes, 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. Storage of painting materials at jobsite will not be permitted.
- D. Ensure the safe use of paint materials and the safe 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 Benjamin Moore or other manufacturers pre-approved by the Kauai Region Representative.
- 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. Provide additional systems for surfaces to be painted not listed hereinafter.
- B. All paints unless otherwise noted, are the products of Benjamin Moore and are so named to establish desired quality and standard of materials. Painting materials, equal to those mentioned by trade name under the various treatments may be used, provided they are pre-approved by the Kauai Region Representative.
- 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 and Masonry:

Prime Coat: Ultra Spec Masonry Interior/Exterior 100 Percent Acrylic Sealer
0.95 mils DFT @ 300 sf/gal

2nd and
3rd Coats: N448 Ultra Spec Ext Satin Finish
1.5 mils DFT @ 400 sf/gal/coat

2. Galvanized Steel: Follow SSPC-SP 1 for cleaning using an oil and grease emulsifier or solvent washing.

Prime Coat: Corotech Waterborne Bonding Primer V175
1.5 mils DFT @ 400 sf/gal/coat

2nd and
3rd Coats: Corotech Aliphatic Acrylic Urethane Semi-Gloss V510
2.4 mils DFT @ 375 sf/gal/coat

3. Existing Structural Steel: Remove all surface rust by hand-tool cleaning (SSPC-SP 1) or power tool cleaning (SSPC-SP 2).

Prime Coat: Corotech Waterborne Bonding Primer V175
2.0 mils DFT @ 300 sf/gal/coat

2nd and
3rd Coats: Corotech Aliphatic Acrylic Urethane Semi-Gloss V510
2.4 mils DFT @ 375 sf/gal/coat

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 Kauai Region Representative.

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 Kauai Region Representative 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 Samuel Mahelona Memorial Hospital. 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, caulking, 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 (e.g. CMU/concrete, CMU or concrete/wood, etc.) 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 approved 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 Kauai Region Representative of this fact in writing and he shall not apply any material until the unsuitable surfaces have been made satisfactory, or until the Kauai Region Representative 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.
- D. Puttying of blemishes shall be done after priming coat has become hard and dry and before second coat is applied.
- E. Cementitious 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, 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. Clean unprimed galvanized steel using an oil and grease emulsifier or by solvent washing in accordance with SSPC-SP 1.

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. 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 shall be applied until the preceding coat is thoroughly dry and written acceptance has been provided.

3. No exterior painting of unprotected surfaces shall be done in rainy, damp weather. Coats shall be applied only to surfaces that are thoroughly dry.
4. Mixing shall be done outside the building.

B. Application:

1. Paint application shall be by brush or roller or combination thereof or as required by manufacturer. Airless spraying is only permitted with written permission by Samuel Mahelona Memorial Hospital.
2. Drying Time: Allow time between coats, as recommended by the coating manufacturer, to permit thorough drying. Provide each coat in specified condition to receive the next coat.
3. Primers and Intermediate Coats: Do not allow primers or intermediate coats to dry longer than recommended by the manufacturer, before applying subsequent coats. Follow manufacturer's recommendations for surface preparation if primers or intermediate coats are allowed to dry longer than recommended by manufacturers of subsequent coatings. Each coat shall cover the surface of the preceding coat or surface completely, and there shall be a visually perceptible difference in shades of successive coats.
4. Finished Surfaces: Provide finished surfaces free from runs, drops, ridges, waves, laps, brush marks, and variations in selected colors.

C. Colors: Each coat shall be tinted a different shade from the preceding coat. Colors shall be as selected by the Kauai Region Representative.

D. Finish Film Thickness: Apply primer, intermediate, and finish coats to a dry film thickness 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