

PASADENA COURTHOUSE ELEVATOR MODERNIZATION

PROJECT MANUAL

BID SET
APRIL 24, 2017

Pasadena Courthouse Elevator Modernization

300 East Walnut Street, Pasadena, CA 91101

Judicial Council of California

Mark Cavagnero Associates Architect

Syska Hennessy Group Elevator Consulting

Elevator Specifications

BID SET

April 24, 2017

Pasadena Courthouse Elevator Modernization

Specifications

Table of Contents

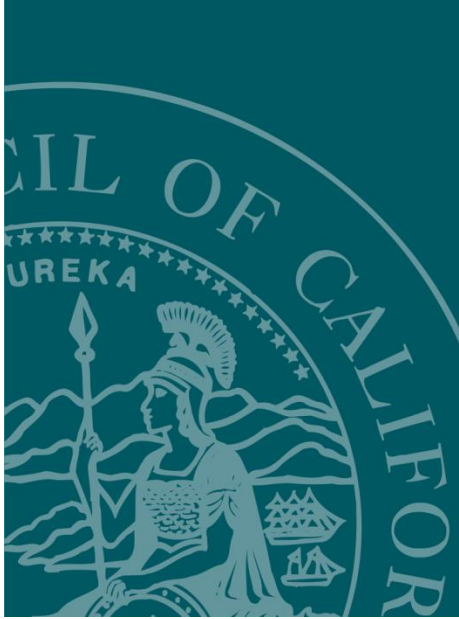
010000	Division 1
14211	Modernization of Existing Traction Elevators
14241	Modernization of Existing Hydraulic Elevator

Refer to Bid Set drawings for associated Electrical and Mechanical specifications.

Refer to Appendix for Abatement Report

BID SET

APRIL 24, 2017



DIVISION 01

Courthouse

Superior Court of California

County of Los Angeles



JUDICIAL COUNCIL
OF CALIFORNIA

OPERATIONS AND PROGRAMS DIVISION

DIVISION 01

SECTION 01 00 00

TABLE OF CONTENTS

SECTION

01 11 00	Summary of Work
01 20 00	Price and Payment Procedures
01 26 00	Contract Modification Procedures
01 26 10	Requests for Information
01 31 00	Coordination and Project Meetings
01 31 20	Documentation Requirements
01 32 16	Construction Schedule – Network Analysis
01 32 80	Electronic Data Transfer
01 33 00	Submittals
01 40 00	Quality Requirements
01 42 00	General Definitions and References
01 42 13	Abbreviations and Acronyms
01 45 16	Contractor Quality Control Program
01 50 00	Temporary Facilities and Controls
01 65 00	Product Requirements
01 71 10	Field Engineering
01 73 10	Cutting and Patching
01 73 20	Indoor Air Quality Procedures
01 74 19	Construction Waste Management and Disposal
01 77 10	Contract Closeout and Final Cleaning
01 78 23	Operation and Maintenance Data
01 78 36	Warranties
01 78 39	Record Documents
01 79 00	Demonstration and Training

SECTION 01 11 00

SUMMARY OF WORK

1. GENERAL

1.1. RELATED DOCUMENTS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions;
- 1.1.2. Technical Specifications; and
- 1.1.3. Design Document.

1.2. PROJECT SUMMARY

Project Identification: Modernization of (6) traction elevators and (1) hydraulic elevator

- 1.2.1. Project Location: 300 East Walnut Street, Pasadena, CA 91101
- 1.2.2. Judicial Council of California
- 1.2.3. Judicial Council of California Project Manager: Kit Kurisaki
- 1.2.4. Architect: Mark Cavagnero Associates Architects
- 1.2.5. The Work consists of the following components:
 - 1.2.5.1. Abatement of Aesbestos Containing Materials. See appendix.
 - 1.2.5.2. Modernization of the following existing elevators:
 - Public passenger elevators: 1, 2, and 3.
 - Custody Elevators: 4 & 6.
 - Judge's Elevator: 5
 - Annex Elevator: 7.

A detailed scope of work is provided in section 14 of the specifications. As an over-view scope, the Contractors shall be responsible for providing materials, labor, and services necessary for the complete modernization of existing electric traction and hydraulic elevators. Modernization of these elevators shall include renovation of the hoist machines for elevators 1 to 3; 4 & 6. In addition, these elevators will have new car and hall pushbuttons and signal fixtures. The cabs and entrances for elevators 1, 2 and 3 will be upgraded. Elevators 4 & 6 the entrances and cabs will be retained and will be cleaned and have minor refurbishment.

Removal and replacement of the geared adjacent at the top machine for elevator 5 (Judge's). In addition, these elevators will have new car and hall pushbuttons and signal fixtures. The cabs and entrances for this elevator will be upgraded.

The annex elevator 7 pump unit and controller shall be retained as they were recently modernized. The jack unit, the entrances and the cabs shall be upgraded on this elevator.

1.2.5.3. Maintenance activities of existing elevators during the modernization work. Refer to technical specifications which includes allowance requirements.

1.2.5.4. Extended maintenance of the elevators following the completion of the modernization. Refer to technical specifications.

1.3. TYPE OF CONTRACT

1.3.1. Project will be constructed under the Judicial Council of California's CM-at-Risk Agreement for Preconstruction and Construction Phase Services.

1.4. USE OF PREMISES

1.4.1. Confine construction operations to areas designated as scope of work in construction documents.

1.5. WORK RESTRICTIONS

1.5.1. Check requirements of local jurisdiction and coordinate with existing Judicial Council of California facilities on or near the Project Site.

THE CONTRACTOR SHALL WORK NORMAL HOURS AND NORMAL DAYS WITH THE EXCEPTION OF NOISY WORK, WHICH SHALL BE PERFORMED FROM 5 A.M. TO 8 A.M. NOISY WORK IS CONSIDERED WORK WHICH WILL CREATE DISRUPTION TO NORMAL COURT OR BUILDING OPERATION AND IS PERFORMED IN THE HOISTWAYS/LOBBIES/ELEVATOR CABS. THE WORK IN THE MACHINE ROOM IS NOT CONSIDERED TO BE PART OF THIS "NOISY" WORK

1.5.2. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Judicial Council of California or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1.5.2.1. Notify Judicial Council of California not less than two (2) days in advance of proposed utility interruptions.

1.5.2.2. Do not proceed with utility interruptions without Judicial Council of California's written permission.

1.6. ENVIRONMENTAL REQUIREMENTS

1.6.1. This Project has been designated to incorporate environmental concepts established as part of the Judicial Council of California's California Trial Court Facilities Standards. To the extent possible, materials and equipment included in these Specifications comply with sustainable design practices

END OF SECTION 01 11 00

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS:

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions

1.2. DESCRIPTION:

1.2.1. This Document contains procedures to be followed by the CMR to request payment.

1.2.2. **IF THERE IS ANY INCONSISTENCY IN THIS DOCUMENT WITH THE PROVISIONS IN THE GENERAL CONDITIONS THAT THE CMR SHALL COMPLY WITH RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES (e.g., "PAYMENTS," "SCHEDULE OF VALUES"), THOSE PROVISIONS IN THE GENERAL CONDITIONS SHALL TAKE PRECEDENCE.**

1.3. SECTION INCLUDES

1.3.1. Schedule of Values.

1.3.2. Application for Payment.

1.4. SCHEDULE OF VALUES

1.4.1. Provide a breakdown of the GMP with enough detail to facilitate continued evaluation of CMR's Invoices and Progress Reports.

1.4.2. CMR must update and resubmit the Schedule of Values before the next Invoice or Application for Payment when Change Orders result in a change in the GMP.

1.5. APPLICATIONS FOR PAYMENT

1.5.1. Form: CMR shall submit one (1) original and two (2) copies of the Judicial Council of California Request for Payment form.

1.5.2. Content and Format: CMR shall use Schedule of Values for listing items in Judicial Council of California Request for Payment Form.

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS:

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions;
- 1.1.2. Allowances; and.
- 1.1.3. Substitutions

1.2. DESCRIPTION:

- 1.2.1. This Document contains procedures to be followed by the CMR to request changes in the Contract Time or the GMP.
- 1.2.2. IF THERE IS ANY INCONSISTENCY IN THIS DOCUMENT WITH THE PROVISIONS IN THE GENERAL CONDITIONS THAT THE CMR SHALL COMPLY WITH RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES (e.g., "CHANGES IN THE WORK"), THOSE PROVISIONS IN THE GENERAL CONDITIONS SHALL TAKE PRECEDENCE.

1.3. PRICE REQUESTS:

- 1.3.1. Price Requests issued by Judicial Council of California are for information only. CMR shall not consider Price Requests to be instructions either to stop work in progress or to execute the proposed change.
- 1.3.2. Within time specified in Price Request after receipt of Price Request, submit a quotation estimating cost adjustments to the GMP and the Contract Time necessary to execute the change.
 - 1.3.2.1. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 1.3.2.2. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 1.3.2.3. Include costs of labor and supervision directly attributable to the change.
 - 1.3.2.4. Include an updated CMR's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

1.4. PROPOSED CHANGE ORDERS:

[Project Name]
[Judicial Council of California Project No.]

CMR may propose changes by submitting a request for a change on Judicial Council of California's Proposed Change Order form (PCO) to Judicial Council of California.

- 1.4.1. Include an updated Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- 1.4.2. Comply with Product Requirements if the proposed change requires substitution of one product or system for product or system specified.

END OF SECTION

SECTION 01 26 10

REQUESTS FOR INFORMATION

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions;
- 1.1.2. Documentation Requirements;
- 1.1.3. Electronic Data Transfer
- 1.1.4. Submittals
- 1.1.5. Contract Closeout and Final Cleaning;
- 1.1.6. Operation and Maintenance Data;
- 1.1.7. Warranties;
- 1.1.8. Record Documents;
- 1.1.9. Demonstration and instruction on proper use of equipment;

1.2. DESCRIPTION

This Document contains procedures to be followed by the CMR to request Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that CMR thinks is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address issues that have arisen under field conditions.

1.3. PROCEDURES

- 1.3.1. Notification by CMR:
 - 1.3.1.1. Submit all requirements for clarification or additional information in writing to Judicial Council of California as required by the Contract Documents.
 - 1.3.1.2. Number RFIs sequentially. Follow RFI number with sequential alphabetical suffix as necessary for each resubmission. For example, the first RFI would be "001." The second RFI would be "002."
 - 1.3.1.3. All RFIs shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. CMR shall make suggestions and interpretations of the issue raised by each RFI. An RFI cannot modify the GMP, Contract Time, or the Contract Documents.
 - 1.3.1.4. Limit each RFI to one subject.

1.3.1.5. Submit a RFI if one of the following conditions occurs:

1.3.1.5.1. CMR discovers an Unforeseen Site Condition or circumstance that is not described in the Contract Documents.

1.3.1.5.2. CMR discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or is not reasonably inferred from the intent of the Contract Documents.

1.3.2. All RFIs shall be submitted as .pdf documents and shall comply with the formatting and numbering requirements of the document “**Documentation Requirements.**”

1.3.3. CMR shall **not**:

1.3.3.1. Submit an RFI as a request for substitution.

1.3.3.2. Submit an RFI as a submittal.

1.3.3.3. Submit an RFI without first having thoroughly reviewed the Contract Documents.

1.3.3.4. Submit an RFI in a manner that suggests that specific portions of the Contract Documents are assumed to be excluded or by taking an isolated portion of the Contract Documents in part rather than whole.

1.3.3.5. Submit an RFI in an untimely manner without proper coordination and scheduling of Work related trades.

1.4. **RESPONSE TIME**

1.4.1. Architect shall review RFIs and issue a response and instructions to CMR within a 5 working days. Contractor shall provide adequate information for Architect to respond in this time frame.

1.4.2. Should CMR direct its subcontractors to proceed with the Work affected before receipt of a response from Architect, any portion of the Work which is not done in accordance with the Architect’s ultimate interpretations, clarifications, instructions, or decisions is subject to removal or replacement at CMR’s sole expense and responsibility.

END OF SECTION

SECTION 01 31 00

COORDINATION AND PROJECT MEETINGS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS:

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions.

1.2. SECTION INCLUDES

- 1.2.1. Coordination Responsibilities of the CMR.
- 1.2.2. Field Engineering Responsibilities of the CMR.
- 1.2.3. Preconstruction Conference.
- 1.2.4. Progress Meetings.
- 1.2.5. Pre-Installation Conferences.
- 1.2.6. Post Construction Dedication.

1.3. COORDINATION RESPONSIBILITIES OF THE CMR

- 1.3.1. Coordinate scheduling, submittals, and Work of the Specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- 1.3.2. Prior to commencement of a particular type or kind of work examine relevant information, contract documents, and subsequent data issued to the Project.
- 1.3.3. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- 1.3.4. Closing up of holes, backfilling, and other covering up operations shall not proceed until all enclosed or covered work and inspections have been completed. Verify before proceeding.
- 1.3.5. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- 1.3.6. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- 1.3.7. In locations where several elements of mechanical and electrical work must be sequenced and positioned with precision in order to fit into available space, prepare coordination

drawings showing the actual conditions required for the installation. Prepare coordination drawings prior to purchasing, fabricating, or installing any of the elements required to be coordinated.

- 1.3.8. Closing up of walls, partitions or furred spaces, backfilling, and other covering up operations shall not proceed until all enclosed or covered work and inspections have been completed. Verify before proceeding.
- 1.3.9. Coordinate completion and clean up of Work of separate sections in preparation for completion and for portions of work designated for Judicial Council of California's occupancy.
- 1.3.10. Coordinate all utility company work in accordance with the Contract Documents.

1.4. PRECONSTRUCTION CONFERENCE

- 1.4.1. Construction Manager or Project Engineer will schedule a conference immediately after receipt of fully executed Contract Documents prior to Project mobilization.
- 1.4.2. Mandatory Attendance: Construction Manager, Project Engineer, Inspector of Record, Architect of Record, CMR, CMR's Project Manager, CMR's Job/Project Superintendent, and Architect's consultants
- 1.4.3. .
- 1.4.4. Judicial Council of California Project Manager shall preside at conference and the Project Architect shall prepare and record minutes and distribute copies.
- 1.4.5. Agenda:
 - 1.4.5.1. Execution of Judicial Council of California-CMR Agreement.
 - 1.4.5.2. Issue Notice to Proceed.
 - 1.4.5.3. Submission of executed bonds and insurance certificates.
 - 1.4.5.4. Distribution of Contract Documents.
 - 1.4.5.5. Submission of list of Subcontractors, list of Products, Schedule of Values, and Progress Schedule.
 - 1.4.5.6. Designation of responsible personnel representing the parties.
 - 1.4.5.7. Procedures for processing Change Orders.
 - 1.4.5.8. Procedures for Request for Information.
 - 1.4.5.9. Procedures for testing and inspecting.
 - 1.4.5.10. Procedures for processing applications for payment.
 - 1.4.5.11. Procedures for Project closeout.
 - 1.4.5.12. Use of Premises.

- 1.4.5.13. Work restrictions.
- 1.4.5.14. Judicial Council of California's occupancy requirements or options.
- 1.4.5.15. Responsibility for temporary facilities and controls.
- 1.4.5.16. Construction waste management and recycling.
- 1.4.5.17. Parking availability.
- 1.4.5.18. Office, work and storage areas.
- 1.4.5.19. Equipment deliveries and priority.
- 1.4.5.20. Security.
- 1.4.5.21. Progress cleaning.
- 1.4.5.22. Review required submittals and LEED Certification requirements.

1.5. PROGRESS MEETINGS

- 1.5.1. CMR/ Judicial Council of California Project Manager shall schedule and administer meetings throughout progress of the Work at a minimum of every month.
- 1.5.2. Judicial Council of California Project Manager or Project Engineer will make arrangements for meetings, prepare agenda, and preside at meetings. Project Architect shall record minutes (Field Reports), and distribute copies.
- 1.5.3. Attendance Required: Job Superintendent, CMR, Project Engineer, Project Inspector, Architect of Record, Subcontractors, and suppliers as appropriate to agenda topics for each meeting.
- 1.5.4. Agenda:
 - 1.5.4.1. Review minutes of previous meetings. (Field Reports)
 - 1.5.4.2. Review of Work progress.
 - 1.5.4.3. Field observations, problems, and decisions.
 - 1.5.4.4. Identification of problems which impede planned progress.
 - 1.5.4.5. Review of submittals schedule and status of submittals.
 - 1.5.4.6. Review of off-site fabrication and delivery schedules.
 - 1.5.4.7. Maintenance of construction schedule.
 - 1.5.4.8. Corrective measures to regain projected schedules.
 - 1.5.4.9. Planned progress during succeeding work period.
 - 1.5.4.10. Coordination of projected progress.

1.5.4.11. Maintenance of quality and work standards.

1.5.4.12. Effect of proposed changes on progress schedule and coordination.

1.5.4.13. Other business relating to Work.

1.5.5. Judicial Council of California has authority to schedule meetings other than those listed, as necessary.

1.6. PRE-INSTALLATION CONFERENCES

1.6.1. When required in individual specification section, CMR shall convene a pre-installation conference prior to commencing work of the section. Refer to individual specification section for timing requirements of conference.

1.6.2. CMR shall require its Subcontractors and suppliers directly affecting, or affected by, work of the specific section to attend.

1.6.3. Notify the Judicial Council of California Project Manager, Project Engineer, Inspector of Record, and Architect of Record four (4) days in advance of meeting date.

1.6.4. The pre-installation conference may coincide with a regularly scheduled progress meeting.

1.6.5. CMR shall prepare agenda, preside at conference, record minutes, and distribute copies within two (2) days after conference to participants.

1.6.6. The purpose of the meeting will be to review Contract Documents, conditions of installation, preparation and installation procedures, and coordination with related work and manufacturer's recommendations.

1.6.7. Pre-installation Schedule: As a minimum, Work being installed under the Contract Documents technical sections will require pre-installation conferences. CMR shall review the technical specifications and add all additional requirements for pre-installation meetings contained in those sections.

1.7. POST CONSTRUCTION DEDICATION

1.7.1. Attendance Required: Project Superintendent, CMR, Project Manager, major Subcontractors, Construction Manager, Project Engineer, Project Inspector, and Architect of Record.

1.7.2. Preparation prior to Dedication: CMR and appropriate Subcontractors and suppliers shall:

1.7.2.1. Assist Judicial Council of California in operation of mechanical devices and systems.

1.7.2.2. Verify operation and adjust controls for communication systems.

1.7.2.3. Assist Judicial Council of California in operation of lighting systems.

END OF SECTION

SECTION 01 31 20

DOCUMENTATION REQUIREMENTS

1. GENERAL

1.1. RELATED DOCUMENTS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.10. General Conditions;
- 1.1.11. Requests for Information;
- 1.1.12. Electronic Data Transfer;
- 1.1.13. Submittals;
- 1.1.14. Contract Closeout and Final Cleaning;
- 1.1.15. Operation and Maintenance Data;
- 1.1.16. Warranties;
- 1.1.17. Record Documents;
- 1.1.18. Demonstration and Training;

1.2. RESPONSIBILITIES

The following table describes the responsibilities of the CMR related to the document creation and submittal. The table also summarizes the format that these documents need to be provided in for Judicial Council of California.

Document Type	Format (s)	Embedded Keywords
Shop Drawings	* PDF	* Document Type - "Drawing"
		* TAG # of the Major equipment on that sheet.
Project Record Documents (PRD)	* PDF	* Document Type - "Drawing"
	* DWG (or other CAD). * REVIT or NAVISWORKS.	* TAG # of the Major equipment on that sheet.
O&M	* PDF	* Document Type - "O&M"
		* Equipment TAG #
		* Technical Specifications Div #
Service Manuals	* PDF	* Document Type - "Manuals"
		* Equipment TAG #
		* Technical Specifications Div #

RFIs	* PDF	None
Approved Submittals	* PDF	* Document Type - "Submittals"
		* Equipment TAG #'s for all equipment covered in that document
		* Technical Specifications Div #
Warranty / Licensing Documents	* PDF	* Document Type - "Warranty"
		* Technical Specifications Div #
		* Execution date * Expiration Date MMDDYYYY
Certificates (Fire, Elevator, Generator AQMB, etc.)	* PDF	None
Key Schedule	* Excel	None
Record Photographs	* JPG	None

1.3. SUBMITTAL PROCESS

All documents from the construction phase are to be turned over to the Judicial Council of California and CMR shall certify that the documents listed above meet the required standards set forth herein.

1.4. NAMING CONVENTION

1.4.1. The documents shall have a consistent naming convention that includes the following components as applicable to each type of document:

Building ID:	Unique Judicial Council of California Facility ID (e.g., - 01-A1)
Building Name:	This could be changed over the life of the building so do NOT include.
Discipline:	e.g., Electrical, Mechanical, etc.
Drawings Type:	Record Drawings, Warranty, Contract, License
Division #:	Use the specification sections within the Technical Specifications
Sheet #:	e.g., E01.1.1, M3.2.1 etc.
Asset TAG #:	Unique Equipment Tag # (e.g. CHW01, CTW01, etc.) Include full Judicial Council of California ID if finalized prior to Completion
Description:	e.g., First Floor Mechanical Layout, Centrifugal Chiller, etc.

1.4.2. The detailed naming convention for each type of document is provided in the Part 2 of this document.

1.4.3. File Format

All documents shall be submitted in an electronic (digital) format. The acceptable formats include PDF. Additional hard copies of certain documents may be required and shall be in the following format:

1.4.3.1. 3-Ring binders;

1.4.3.2. White;

1.4.3.3. 3 to 5 inches;

1.4.3.4. The spine & front cover identified with:

1.4.3.4.1. Building ID;

1.4.3.4.2. Building name;

1.4.3.4.3. Division Number using the specification sections within the Technical Specifications;

1.4.3.4.4. Brief Title; and

1.4.3.4.5. Volume Number.

1.4.3.5. Each binder must contain a Table of Contents (TOC). Index the TOC using the specification sections within the Technical Specifications.

1.4.4. Embedded Key Words

Electronic documents shall contain keyword(s) for searching.

1.4.5. Media

All documents must be submitted in an electronic format unless specified otherwise.

2. PRODUCTS

All submittals shall be provided for with the following detailed naming convention for each type of document.

2.1. Submittals

2.1.1. **File Name:** <BldgID><FullSubmittal#><SubSections><Description>
Example: "07E3_02-057000-0506-0__DecorativeMetal" Format – ACAD"

2.1.2. Format – PDF

2.1.3. Embedded Keywords

2.1.4. Hard copies Required – Yes

2.2. RFIs

2.2.1. **File Name:** <BldgID><Technical Specifications#><RFI#><Description>
Example: "07E3_232123_RFI067_CWHPSquenceOfOperation"

- 2.2.2. Format – PDF
- 2.2.3. Embedded Keywords – None
- 2.2.4. Hard copies Required – No

2.3. O&M Documents / Service Manuals

- 2.3.1. **File Name:** <BldgID><Technical Specifications#><EquipmentTag><Description>
Example: “07E3_232123_CHWP1_ChilledWaterPump”
- 2.3.2. Format – PDF
- 2.3.3. Embedded Keywords
- 2.3.4. Hard copies Required – No

2.4. Warranty Licensing Documents

- 2.4.1. **File Name:** <BldgID><DocType><Technical Specifications#><CMRName><ExpDateMMDDYYYY><Tag#><Description>
Example: “07E3_Warranty033000_Conco10052020_CastInPlaceConcrete”
Example: “07E3_Service0233400_Airco12312012_AHU1B_SupplyFanMotor”
- 2.4.2. Format – PDF
- 2.4.3. Embedded Keywords
- 2.4.4. Hard copies Required – Yes

2.5. Certificates

- 2.5.1. **File Name:** <BldgID><Technical Specifications#><Description>
Example: “07E3_232123_Elevator_E1”
- 2.5.2. Format – PDF
- 2.5.3. Embedded Keywords – None
- 2.5.4. Hard copies Required – No

END OF SECTION

SECTION 01 32 16

CONSTRUCTION SCHEDULE – NETWORK ANALYSIS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions;
- 1.1.2. Coordination and Meetings; and
- 1.1.3. Submittals.

1.2. PERFORMANCE REQUIREMENTS

- 1.2.1. Ensure adequate scheduling during construction activities so Work may be prosecuted in an orderly and expeditious manner within stipulated Contract Time.
- 1.2.2. Ensure coordination of CMR and Subcontractors at all levels.
- 1.2.3. Ensure coordination of submittals, fabrication, delivery, erection, installation, and testing of Products, materials and equipment.
- 1.2.4. Ensure on-time delivery of Judicial Council of California furnished Products, materials and equipment.
- 1.2.5. Ensure coordination of jurisdictional reviews.
- 1.2.6. Prepare applications for payment.
- 1.2.7. Monitor progress of Work.
- 1.2.8. Prepare proper requests for changes to Contract Time.
- 1.2.9. Prepare proper requests for changes to Construction Schedule.
- 1.2.10. Assist in detection of schedule delays and identification of corrective actions.

1.3. QUALIFICATIONS

1.3.1. Scheduler:

- 1.3.1.1. CMR shall retain a construction scheduler to work in enough capacity to perform all of the CMR's requirements to prepare the Construction Schedule. The Scheduler shall plan, coordinate, execute, and monitor a cost/resource loaded CPM schedule as required for Project.
- 1.3.1.2. Scheduler will cooperate with Judicial Council of California and shall be available on site for monitoring, maintaining and updating schedules in a timely manner.

1.3.1.3. Judicial Council of California has the right to reject the Scheduler based upon a lack of experience as required by this Document or based on lack of performance and timeliness of schedule submittals/fragnets on past projects. CMR shall within seven (7) calendar days of Judicial Council of California's rejection, propose another scheduler who meets the experience requirements stated above.

1.3.2. **Administrative Personnel:** Five (5) years minimum experience in using and monitoring schedules on comparable projects.

1.4. SUBMITTALS

1.4.1. Submit Short Interval Schedule at each Construction Progress Meeting.

1.4.2. Submit Time Adjustment Schedule within five (5) days of commencement of a claimed delay.

1.4.3. Submit Recovery Schedules as required for timely completion of Work or when demanded by the Judicial Council of California.

1.4.4. Submit job cost reports when demanded by the Judicial Council of California.

1.4.5. Submit one (1) reproducible and two (2) copies of each schedule and cost report.

1.5. REVIEW AND EVALUATION

1.5.1. CMR shall participate in joint review of Construction Schedule and Reports with Judicial Council of California and Architect.

1.5.2. Within seven (7) days of receipt of Judicial Council of California and Architect's comments provide satisfactory revision to Construction Schedule or adequate justification for activities in question.

1.5.3. In the event that an activity or element of Work is not detected by Judicial Council of California or Architect review, such omission or error shall be corrected by next scheduled update and shall not affect Contract Time.

1.5.4. Acceptance by Judicial Council of California of corrected Construction Schedule shall be a condition precedent to making any progress payments.

1.5.5. Cost-loaded values of Construction Schedule shall be basis for determining progress payments.

1.5.6. Review and acceptance by Judicial Council of California and Architect of Preliminary Work Schedule or Construction Schedule does not constitute responsibility whatsoever for accuracy or feasibility of schedules nor does such acceptance expressly or impliedly warrant, acknowledge or admit reasonableness of activities, logic, duration, manpower, cost or equipment loading stated or implied on schedules.

1.6. FORMAT

1.6.1. Prepare diagrams and supporting mathematical analyses using Precedence Diagramming Method, under concepts and methods outlined in AGC Construction Planning and Scheduling Manual, or other method pre-approved by Judicial Council of California.

- 1.6.2. **Listings:** Reading from left to right, in ascending order for each activity.
- 1.6.3. **Diagram Size:** 42 inches maximum height x width required.
- 1.6.4. **Scale and Spacing:** To allow for legible notations and revisions.
- 1.6.5. Illustrate order and interdependence of activities and sequence of Work.
- 1.6.6. Illustrate complete sequence of construction by activity.
- 1.6.7. Provide legend of symbols and abbreviations used.

1.7. COST AND SCHEDULE REPORTS

- 1.7.1. **Activity Analysis:** Tabulate each activity of network diagram and identify for each activity:
 - 1.7.1.1. Description.
 - 1.7.1.2. Interface with outside CMRs or agencies.
 - 1.7.1.3. Number.
 - 1.7.1.4. Preceding and following number.
 - 1.7.1.5. Duration.
 - 1.7.1.6. Earliest start date.
 - 1.7.1.7. Earliest finish date.
 - 1.7.1.8. Actual start date.
 - 1.7.1.9. Actual finish date.
 - 1.7.1.10. Latest start date.
 - 1.7.1.11. Latest finish date.
 - 1.7.1.12. Total and free float.
 - 1.7.1.13. Identification of critical path activity.
 - 1.7.1.14. Monetary value keyed to Schedule of Values.
 - 1.7.1.15. Manpower requirements.
 - 1.7.1.16. Responsibility.
 - 1.7.1.17. Percentage complete.
 - 1.7.1.18. Variance positive or negative.
- 1.7.2. **Cost Report:** Tabulate each activity of network diagram and identify for each activity:

- 1.7.2.1. Description.
- 1.7.2.2. Number.
- 1.7.2.3. Total cost.
- 1.7.2.4. Percentage complete.
- 1.7.2.5. Value prior to current period.
- 1.7.2.6. Value this period.
- 1.7.2.7. Value to date.

1.7.3. **Required Sorts:** List activities in sorts or groups:

- 1.7.3.1. By activity number.
- 1.7.3.2. By amount of float time in order of early start.
- 1.7.3.3. By responsibility in order of earliest start date.
- 1.7.3.4. In order of latest start dates.
- 1.7.3.5. In order of latest finish dates.
- 1.7.3.6. Application for payment sorted by Schedule of Values.
- 1.7.3.7. Listing of activities on critical path.

1.7.4. Listing of basic input data which generates schedule.

1.8. CONSTRUCTION SCHEDULE

- 1.8.1. CMR shall develop and submit a cost loaded preliminary schedule of construction (or Preliminary Construction Schedule) as required by this Document and the Contract Documents. It shall be submitted in computer generated network format and shall be organized by Activity Codes representing the intended sequencing of the Work, and with time scaled network diagrams of activities. The Preliminary Construction Schedule shall include activities such as mobilization, preparation of submittals, specified review periods, procurement items, fabrication items, milestones, and all detailed construction activities.
- 1.8.2. Upon Judicial Council of California's acceptance of the Preliminary Construction Schedule, CMR shall update the accepted Preliminary Construction Schedule until CMR's Construction Schedule is fully developed and accepted. Since updates to the Construction Schedule are the basis for payment to CMR, submittal and acceptance of the Construction Schedule and updates shall be a condition precedent to making of monthly payments, as indicated in the General Conditions.
- 1.8.3. Failure to submit an adequate or accurate Preliminary Construction Schedule, Construction Schedule, updates thereto or failure to submit on established dates, will be considered a breach of Contract.
- 1.8.4. Failure to include any activity shall not be an excuse for completing all Work by required Completion Date.

- 1.8.5. Activities of long intervals shall be broken into increments no longer than fourteen (14) days or a value over \$20,000.00 unless approved by the Judicial Council of California or it is non-construction activity for procurement and delivery.
- 1.8.6. The Construction Schedule shall comply with the following and include the following:
 - 1.8.6.1. Provide a written narrative describing CMR's approach to mobilization, procurement, and construction during the first thirty (30) calendar days including crew sizes, equipment and material delivery, Site access, submittals, and permits.
 - 1.8.6.2. Shall designate critical path or paths.
 - 1.8.6.3. Procurement activities to include mobilization, shop drawings and sample submittals.
 - 1.8.6.4. Identification of key and long-lead elements and realistic delivery dates.
 - 1.8.6.5. Construction activities in units of whole days limited to fourteen (14) days for each activity except non-construction activities for procurement and delivery.
 - 1.8.6.6. Approximate cost and duration of each activity.
 - 1.8.6.7. Shall contain seasonal weather considerations.
 - 1.8.6.8. Indicate a date for Project Completion that is no later than Completion Date subject to any time extensions processed as part of a Change Order.
 - 1.8.6.9. Conform to mandatory dates specified in the Contract Documents.
 - 1.8.6.10. CMR shall allow for inclement weather in the Proposed Baseline Schedule by incorporating an activity titled "Rain Day Impact Allowance" as the last activity prior to the Completion Milestone. No other activities may be concurrent with it. The duration of the Rain Day Impact Allowance activity will in accordance with the Special Conditions, and will be calculated from the Notice to Proceed until the Completion.
 - 1.8.6.11. Level of detail shall correspond to complexity of work involved.
 - 1.8.6.12. Indicate procurement activities, delivery, and installation of Judicial Council of California furnished material and equipment.
 - 1.8.6.13. Designate critical path or paths.
 - 1.8.6.14. Subcontractors work at all levels shall be included in schedule.
 - 1.8.6.15. As developed shall show sequence and interdependence of activities required for complete performance of Work.
 - 1.8.6.16. Shall be logical and show a coordinated plan of Work.
 - 1.8.6.17. Show order of activities and major points of interface, including specific dates of completion.
 - 1.8.6.18. Duration of activities shall be coordinated with Subcontractors and suppliers and

shall be best estimate of time required.

1.8.6.19. Shall show description, duration and float for each activity.

1.8.7. **Activity.** An activity shall meet the following criteria:

1.8.7.1. Any portion or element of Work, action, or reaction that is precisely described, readily identifiable, and is a function of a logical sequential process.

1.8.7.2. Descriptions shall be clear and concise. Beginning and end shall be readily verifiable. Starts and finishes shall be scheduled by logical restraints.

1.8.7.3. Responsibility shall be identified with a single performing entity.

1.8.7.4. Additional codes shall identify building, floor, bid item and CSI classification.

1.8.7.5. Assigned dollar value (cost-loading) of each activity shall cumulatively equal total contract amount. Mobilization, bond and insurance costs shall be separate. General requirement costs, overhead, profit, shall be prorated throughout all activities. Activity costs shall correlate with Schedule of Values.

1.8.7.6. Each activity shall have manpower-loading assigned.

1.8.7.7. Major construction equipment shall be assigned to each activity.

1.8.7.8. Activities labeled start, continue or completion are not allowed.

1.8.8. **Equipment and Materials.** For major equipment and materials show a sequence of activities including:

1.8.8.1. Preparation of shop drawings and sample submissions.

1.8.8.2. Review of shop drawings and samples.

1.8.8.3. Finish and color selection.

1.8.8.4. Fabrication and delivery.

1.8.8.5. Erection or installation.

1.8.8.6. Testing.

1.8.9. Include a minimum of fifteen (15) days prior to Completion Date for punch lists and clean up. No other activities shall be scheduled during this period.

1.9. SHORT INTERVAL SCHEDULE

1.9.1. The Four-Week Rolling Schedule shall be based on the most recent Judicial Council of California Accepted Construction Schedule or Update. It shall include weekly updates to all construction, submittal, fabrication/procurement, and separate Work Contract activities. CMR shall ensure that it accurately reflects the current progress of the Work.

1.9.2. Shall be fully developed horizontal bar-chart-type schedule directly derived from Construction Schedule.

- 1.9.3. Prepare schedule on sheet of sufficient width to clearly show data.
- 1.9.4. Provide continuous heavy vertical line identifying first day of week.
- 1.9.5. Provide continuous subordinate vertical line identifying each day of week.
- 1.9.6. Identify activities by same activity number and description as Construction Schedule.
- 1.9.7. Show each activity in proper sequence.
- 1.9.8. Indicate graphically sequences necessary for related activities.
- 1.9.9. Indicate activities completed or in progress for previous two (2) week period.
- 1.9.10. Indicate activities scheduled for succeeding two (2) week period.
- 1.9.11. Further detail may be added if necessary to monitor schedule.

1.10. REQUESTED TIME ADJUSTMENT SCHEDULE

- 1.10.1. Updated Construction Schedule shall not show a Completion Date later than the Contract Time, subject to any time extensions processed as part of a Change Order.
- 1.10.2. If an extension of time is requested, a separate schedule entitled "Requested Time Adjustment Schedule" shall be submitted to Judicial Council of California and Architect.
- 1.10.3. Indicate requested adjustments in Contract Time which are due to changes or delays in completion of Work.
- 1.10.4. Extension request shall include forecast of Project Completion date and actual achievement of any dates listed in Contract Documents.
- 1.10.5. To the extent that any requests are pending at time of any Construction Schedule update, Time Adjustment Schedule shall also be updated.
- 1.10.6. Schedule shall be a time-scaled network analysis.
- 1.10.7. Accompany schedule with formal written time extension request and detailed impact analysis justifying extension.
- 1.10.8. Time impact analysis shall demonstrate time impact based upon date of delay, and status of construction at that time and event time computation of all affected activities. Event times shall be those as shown in latest Construction Schedule.
- 1.10.9. Activity delays shall not automatically constitute an extension of Contract Time.
- 1.10.10. Failure of Subcontractors shall not be justification for an extension of time.
- 1.10.11. Float is not for the exclusive use or benefit of any single party. Float time shall be apportioned according to needs of project, as determined by the Judicial Council of California.
- 1.10.12. Float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations, or imposed dates shall be apportioned according to benefit of Project.

- 1.10.13. Extensions will be granted only to extent that time adjustments to activities exceed total positive float of the critical path and extends Completion date.
- 1.10.14. Judicial Council of California shall not have an obligation to consider any time extension request unless requirements of Contract Documents, and specifically, but not limited to these requirements are complied with.
- 1.10.15. Judicial Council of California shall not be responsible or liable for any construction acceleration due to failure of Judicial Council of California to grant time extensions under Contract Documents should requested adjustments in Contract Time not substantially comply with submission and justification requirements of Contract for time extension requests.
- 1.10.16. In the event a Requested Time Adjustment Schedule and Time Impact Analysis are not submitted within ten (10) days after commencement of a delay it is mutually agreed that delay does not require a Contract Time extension.

1.11. RECOVERY SCHEDULE

- 1.11.1. When activities are behind Construction Schedule a supplementary Recovery Schedule shall be submitted.
- 1.11.2. CMR shall prepare and submit to the Judicial Council of California a Recovery Schedule at any time requested by the Judicial Council of California, at no cost to the Judicial Council of California.
- 1.11.3. Form and detail shall be sufficient to explain and display how activities will be rescheduled to regain compliance with Construction Schedule and to complete the Work by the Completion Date.
- 1.11.4. Maximum duration shall be one (1) month and shall coincide with payment period.
- 1.11.5. Ten (10) days prior to expiration of Recovery Schedule, CMR shall have to show verification to determine if activities have regained compliance with Construction Schedule. Based upon this verification the following will occur:
 - 1.11.5.1. Supplemental Recovery Schedule will be submitted to address subsequent payment period.
 - 1.11.5.2. Construction Schedule will be resumed.

1.12. UPDATING SCHEDULES

- 1.12.1. Review and update schedule at least ten (10) days prior to submitting an Application for Payment.
- 1.12.2. Maintain schedule to record actual prosecution and progress.
- 1.12.3. Approved Change Orders which affect schedule shall be identified as separate new activities.
- 1.12.4. Change Orders of less than \$5,000.00 value or less than three (3) days duration need not be shown unless critical path is affected.
- 1.12.5. No other revisions shall be made to schedule unless authorized by Judicial Council of

California.

- 1.12.6. **Written Narrative Report:** CMR shall include a written report to explain the Monthly Schedule Update. The narrative shall, at a minimum include the following headings with appropriate discussions of each topic:
- 1.12.6.1. Activities or portions of activities completed during previous reporting period.
 - 1.12.6.2. Actual start dates for activities currently in progress.
 - 1.12.6.3. Deviations from critical path in days ahead or behind.
 - 1.12.6.4. List of major construction equipment used during reporting period and any equipment idle.
 - 1.12.6.5. Number of personnel by trade engaged on Work during reporting period.
 - 1.12.6.6. Progress analysis describing problem areas.
 - 1.12.6.7. Current and anticipated delay factors and their impact.
 - 1.12.6.8. Proposed corrective actions and logic revisions for Recovery Schedule.
 - 1.12.6.9. Proposed modifications, additions, deletions and changes in logic of Construction Schedule.
 - 1.12.6.10. In updating the Schedule, CMR shall not modify Activity ID numbers, schedule calculation rules/criteria, or the Activity Coding Structure required.
- 1.12.7. Schedule update will form basis upon which progress payments will be made.
- 1.12.8. Judicial Council of California will not be obligated to review or process Application for Payment until schedule and Progress Report have been submitted.

1.13. DISTRIBUTION

- 1.13.1. Following joint review and acceptance of updated schedules distribute copies to Judicial Council of California, Architect, and all other concerned parties.
- 1.13.2. Instruct recipients to promptly report in writing any problem anticipated by projections shown in schedule.

2. PRODUCTS

2.1. SCHEDULING SOFTWARE

- 2.2. CMR shall utilize Primavera P6 Project Management® software (latest version) by Oracle, or Judicial Council of California-approved equivalent scheduling software to employ the Critical Path Method (CPM) in the development and maintenance of the Construction Schedule. The scheduling software shall be capable of being resource loaded with manpower, costs and materials. It shall also be capable of generating time-scaled logic diagrams, resource histograms and profiles, bar charts, layouts and reports with any and/or all activity detail.

2.3. ELECTRONIC DATA

[Project Name]
[Judicial Council of California Project No.]

Provide compact disk(s) that contain a back-up of the Proposed Baseline Schedule data on it. The electronic P6 files shall be saved in “.XER” type format.

END OF SECTION

SECTION 01 32 80

ELECTRONIC DATA TRANSFER

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions;
- 1.1.2. Documentation Requirements;
- 1.1.3. Submittals;
- 1.1.4. Contract Closeout and Final Cleaning;
- 1.1.5. Operation and Maintenance Data;
- 1.1.6. Warranties;
- 1.1.7. Record Documents;
- 1.1.8. Demonstration and Training;
- 1.1.9. LEED; and
- 1.1.10. General Commissioning Requirements.

1.2. SUMMARY

- 1.2.1. This Document includes Terms and Conditions for the transfer of the Judicial Council of California's Electronic Data to CMR for use in preparation of Submittals, Record Documents, Coordination Drawings, and related project documents.
- 1.2.2. CMR's acceptance of Electronic Data in any form shall constitute acceptance of the Terms and Conditions of this Document, including payment of indicated fees.
- 1.2.3. **THE ELECTRONIC DATA PROVIDED BY Judicial Council of California ARE THE PROPRIETARY INFORMATION OF Judicial Council of California. ALL ELECTRONIC DATA SHALL BE TREATED AS CONFIDENTIAL AND SHALL NOT BE DISCLOSED TO OR SHARED WITH OTHERS WITHOUT EXPRESS, WRITTEN CONSENT FROM THE Judicial Council of California'S EXPRESS, WRITTEN CONSENT.**

1.3. TERMS AND CONDITIONS

- 1.3.1. In consideration of CMR's request to the Judicial Council of California to deliver certain Electronic Data for use on the Project, CMR agrees to the following:
 - 1.3.1.1. Electronic Data includes but is not limited to, computer-aided design (CAD) files, and files produced by word processing, spread sheet, scheduling, data base and other software programs. The Electronic Data may be provided in an

[Project Name]

[Judicial Council of California Project No.]

original format produced by Architect or an alternate, “translated” format as requested.

- 1.3.1.2. The means by which the Electronic Data is transferred may include but are not limited to, electronic mail, File Transfer Protocol (FTP) sites, project websites, and disk copies transmitted between Judicial Council of California and CMR. CMR acknowledges that Electronic Data transferred in any manner or translated from the system and format used by Judicial Council of California’s Consultant to an alternate system or format is subject to errors that may affect the accuracy and reliability of the data and that the data may be altered, whether inadvertently or otherwise. Accordingly, the Judicial Council of California makes no warranty, express or implied, as to the accuracy of the information transferred. The Electronic Data are not the Construction Documents and differences may exist between these electronic files and corresponding hard-copy Construction Documents. Judicial Council of California reserves the right to retain hard copy originals in addition to electronic copies of the Electronic Data transferred, which originals shall be referred to and shall govern.
- 1.3.1.3. The Judicial Council of California shall issue the most current information available, but does not undertake the responsibility for providing updated information as the Project proceeds.

END OF SECTION

SECTION 01 33 00

SUBMITTALS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions;
- 1.1.2. Requests for Information;
- 1.1.3. Documentation Requirements;
- 1.1.4. Electronic Data Transfer;
- 1.1.5. Contract Closeout and Final Cleaning;
- 1.1.6. Operation and Maintenance Data;
- 1.1.7. Warranties;
- 1.1.8. Record Documents;
- 1.1.9. Demonstration and Training;

1.2. DOCUMENT INCLUDES

- 1.2.1. Submittal procedures;
- 1.2.2. Shop drawings;
- 1.2.3. Electronic Submittal Process;
- 1.2.4. Product data;
- 1.2.5. Samples;
- 1.2.6. Manufacturers' Instructions;
- 1.2.7. Manufacturers' Certificates;
- 1.2.8. Mock-Up; and

1.2.9. Deferred approval requirements.

1.3. SUBMITTAL PROCEDURES – USE OF PRE-APPROVED PROGRAM

- 1.3.1. CMR shall utilize for the submittal process a project / document management software program pre-approved by the Judicial Council of California.
- 1.3.2. CMR shall transmit each submittal in conformance with requirements of this Document. For each submittal, CMR shall:
- 1.3.2.1. Sequentially number the transmittal forms. Resubmitted submittals must have the original number with an alphabetic suffix;
 - 1.3.2.2. Identify Judicial Council of California’s project number, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate;
 - 1.3.2.3. Apply CMR's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the Work and Contract Documents. Submittals without CMR's stamp and signature will be returned without review.
- 1.3.3. Coordinate preparation and processing of submittals with performance of Work. Transmit each submittal sufficiently in advance of performance of Work to avoid delay.
- 1.3.3.1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 1.3.3.2. Coordinate transmittal of different types of submittals for related parts of Work so processing will not be delayed because of the need to review submittals concurrently for coordination.
 - 1.3.3.3. Judicial Council of California’s Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- 1.3.4. Comply with Contract Documents for list of submittals and time requirements for scheduled performance of Work.
- 1.3.5. No extension of Contract Time will be authorized because of failure to transmit submittals to the Judicial Council of California’s Architect sufficiently in advance of the Work to permit processing.
- 1.3.6. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- 1.3.7. Provide space for CMR and Architect review stamps.
- 1.3.8. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- 1.3.9. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly

report any inability to comply with provisions.

- 1.3.10. Submittals not requested will not be recognized or processed. Submittals not requested will be returned without review.

1.4. SHOP DRAWINGS

- 1.4.1. Prepare Project-specific information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard information as the basis of shop drawings. Standard information prepared without specific reference to the Project is not a shop drawing.
- 1.4.2. Do not use or allow others to use Shop Drawings which have been submitted and have been rejected.
- 1.4.3. Preparation: Fully illustrate requirements in Contract Documents. Include the following information, as applicable:
 - 1.4.3.1. Dimensions.
 - 1.4.3.2. Identification of products.
 - 1.4.3.3. Fabrication and installation drawings.
 - 1.4.3.4. Roughing-in and setting diagrams.
 - 1.4.3.5. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - 1.4.3.6. Shopwork manufacturing instructions.
 - 1.4.3.7. Templates and patterns.
 - 1.4.3.8. Schedules.
 - 1.4.3.9. Design calculations.
 - 1.4.3.10. Compliance with specified standards.
 - 1.4.3.11. Notation of coordination requirements.
 - 1.4.3.12. Notation of dimensions established by field measurements.
 - 1.4.3.13. Relationship to adjoining construction clearly indicated.
 - 1.4.3.14. Seal and signature of professional engineer if specified.
 - 1.4.3.15. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 - 1.4.3.16. All deviations, from the Contract Documents, clearly indicated.
 - 1.4.3.17. Copy of letter indicating acceptance of deviations indicated on the submittal.
- 1.4.4. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop

Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).

- 1.4.5. Do not use Shop Drawings without an appropriate final stamp from the CMR and Judicial Council of California indicating action taken in connection with construction.
- 1.4.6. Deviations from Contract Documents require specific written acceptance by the Judicial Council of California of the noted deviation and clear indication on the submittal.
- 1.4.7. All Shop Drawings shall be submitted as .pdf documents and shall comply with the formatting and numbering requirements of the document “**Documentation Requirements.**”

1.5. ELECTRONIC SUBMITTAL PROCESS

1.5.1. Submittal Procedure for Large Format shop drawings.

- 1.5.1.1. CMR shall provide six (6) paper copies of the large format Shop Drawings directly to the Judicial Council of California and the Construction Manager (CM) and CMR will upload/post an electronic transmittal (with a detailed description of the submittal including the subject, specification number and number of drawings).
- 1.5.1.2. CMR shall verify that the Schedule of Submittals and all submittal log(s) are accurate and up to date.
- 1.5.1.3. The Judicial Council of California and Architect will review and markup each Submittal and provide changes to CMR for CMR’s incorporation into the Submittal.
- 1.5.1.4. This process will continue until the CMR has provided a Submittal that is acceptable to the Judicial Council of California and the Architect.
- 1.5.1.5. Once a Submittal is accepted, the Judicial Council of California will provide a final accepted Submittal to the CMR and the CMR will closeout that one Submittal.
- 1.5.1.6. CMR shall send one (1) copy of the completed record submittal of the large format documents to a vendor for scanning and posting.

1.5.2. Product Data, Calculations and Small Format Drawings

- 1.5.2.1. CMR shall upload/post one (1) electronic copy (from manufacturer’s website or pre-scanned) of the product literature, data, calculations, and/or small format shop drawings with a Transmittal (with a detailed description of the submittal) directly to the CM.
- 1.5.2.2. The Judicial Council of California and Architect will review and markup each Submittal and provide changes to CMR for CMR’s incorporation into the Submittal.
- 1.5.2.3. This process will continue until the CMR has provided a Submittal that is acceptable to the Judicial Council of California and the Architect.
- 1.5.2.4. Once a Submittal is accepted, the Judicial Council of California will provide a

final accepted Submittal to the CMR and the CMR will closeout that one Submittal.

1.5.2.5. CMR shall send one (1) copy of the completed record submittal of the large format documents to a vendor for scanning and posting..

1.5.3. Sample Submittal Procedure – (Product / Assembly Samples)

1.5.3.1. CMR shall provide four (4) physical samples directly to the Judicial Council of California and the CM and CMR will upload/post an electronic transmittal (with a detailed description of the submittal including the subject, specification number and number of drawings).

1.5.3.2. The Judicial Council of California and Architect will review and markup each Submittal and provide changes to CMR for CMR's incorporation into the Submittal.

1.5.3.3. This process will continue until the CMR has provided a Submittal that is acceptable to the Judicial Council of California and the Architect.

1.5.3.4. Once a Submittal is accepted, the Judicial Council of California will provide a final accepted Submittal to the CMR and the CMR will closeout that one Submittal.

1.5.3.5. CMR shall send one (1) copy of the completed record submittal of the large format documents to a vendor for scanning and posting.

1.6. PRODUCT DATA

1.6.1. In addition to the above requirements, mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

1.6.2. After review, distribute in accordance with the above provisions and provide copies for Record Documents described in the Contract Documents.

1.7. SAMPLES

1.7.1. In addition to the above requirements, submit samples to illustrate functional and aesthetic characteristics of the Product in accordance with this Document, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1.7.2. Where specific colors or patterns are not indicated, provide materials and products specified in the full range of color, texture and pattern for selection by Judicial Council of California. Range shall include standard stocked color/texture/pattern, standard color/texture/pattern not stocked, but available from manufacturer, and special color/ texture/pattern available from manufacturer as advertised in product data and brochures. Unless otherwise indicated in individual specification sections, Judicial Council of California may select from any range at no additional cost to Judicial Council of California.

1.7.3. Include identification on each sample, with full Project information.

1.7.4. Submit the number of samples that CMR requires, plus one that will be retained by Architect and one by Judicial Council of California.

- 1.7.5. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

1.8. MANUFACTURER'S INSTRUCTION

- 1.8.1. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- 1.8.2. Identify conflicts between manufacturers' instructions and Contract Documents.

1.9. MANUFACTURER'S CERTIFICATES

- 1.9.1. When specified in individual specification Sections, submit manufacturers' certificate to Architect for review, in quantities specified for Product Data.
- 1.9.2. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- 1.9.3. Certificates may be recent or previous test results on material or Product, but must be acceptable to Judicial Council of California.

1.10. DEFERRED APPROVAL REQUIREMENTS

- 1.10.1. Installation of deferred approval items shall not be started until detailed plans, specifications, and engineering calculations have been accepted and signed by the Architect or Engineer in general responsible charge of design and signed by a California registered Architect or professional engineer who has been delegated responsibility covering the work shown on a particular plan or specification and approved by the agency having authority (e.g., Corrections Standards Authority, State Fire Marshall, Division of the State Architect of the Department of General Services, gas company, electrical utility company, water district, etc.). Deferred approval items for this Project are as indicated in the Summary of Work.
- 1.10.2. Unless otherwise indicated in the Contract Documents or if Judicial Council of California provides written approval of a longer time period, CMR shall submit all deferred approval items for approval within thirty (30) days of the notice to proceed with the Construction Phase.
- 1.10.3. Deferred approval drawings and specifications become part of the approved documents for the Project when they are submitted to and approved by the agency having authority.
- 1.10.4. Submit material using electronic submittal process as defined above.
- 1.10.5. Identify and specify all supports, fasteners, spacing, penetrations, etc., for each of the deferred approval items, including calculations for each and all fasteners.
- 1.10.6. Submit documents to Architect for review prior to forwarding to the agency having authority.
- 1.10.7. Documents shall bear the stamp and signature of the Structural, Mechanical, or Electrical Engineer licensed in the State of California who is responsible for the work shown on the documents.

[Project Name]
[Judicial Council of California Project No.]

- 1.10.8. Architect and its subconsultants will review the documents only for conformance with design concept shown on the documents. The Architect will then forward the Submittal to agency having authority for approval.
- 1.10.9. CMR shall respond to review comments made by agency having authority and revise and resubmit submittal to the Architect for re-submittal to agency having authority for final approval.

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

1. PART GENERAL

1. RELATED DOCUMENTS

- a Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

2. SUMMARY

- a This Section includes administrative and procedural requirements for quality assurance and quality control.
- b Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1 Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2 Specified tests, inspections, and related actions do not limit Contractor's other quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3 Requirements for Contractor to provide quality-control services required by Judicial Council of California, Judicial Council of California's Consultants, or authorities having jurisdiction are not limited by provisions of this Section.
- c Related Sections include the following:
 - 1 Section 01 32 16, "Construction Schedule-Network Analysis" for developing a schedule of required tests and inspections.
 - 2 Section 01 73 10, "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
 - 3 Divisions 02 through 49 Sections for specific test and inspection requirements.
 - 4 Section 01 45 16, "Contractor's Quality Control Program".
 - 5 Refer to Appendix for Abatement Report

3. DEFINITIONS

- a Quality-Control Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements. Services do not include contract enforcement activities performed by Judicial Council of California or their Consultants.
- b Quality-Assurance Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements.
- c Product Testing: Tests and inspections that are performed by an NRTL (National Recognized Testing Laboratory), an NVLAP (National Voluntary Laboratory Accreditation Program), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- d Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- e Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

- f Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- g Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1 Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades-people of the corresponding generic name.
- h Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

4. **CONFLICTING REQUIREMENTS**

- a General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Judicial Council of California for a decision before proceeding.
- b Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Judicial Council of California for a decision before proceeding.

5. **SUBMITTALS**

- a Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- b Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1 Specification Section number and title.
 - 2 Description of test and inspection.
 - 3 Identification of applicable standards, codes or regulations.
 - 4 Identification of test and inspection methods.
 - 5 Number of tests and inspections required.
 - 6 Time schedule or time span for tests and inspections.
 - 7 Entity responsible for performing tests and inspections.
 - 8 Requirements for obtaining samples.
 - 9 Unique characteristics of each quality-control service.
- c Reports: Prepare and submit certified written reports that include the following:
 - 1 Date of issue.
 - 2 Project title and number.
 - 3 Name, address, and telephone number of testing agency.
 - 4 Dates and locations of samples and tests or inspections.
 - 5 Names of individuals making tests and inspections.
 - 6 Description of the Work and test and inspection method.
 - 7 Identification of product and Specification Section.
 - 8 Complete test or inspection data.
 - 9 Test and inspection results and an interpretation of test results.
 - 10 Record of temperature and weather conditions at time of sample taking and testing and inspecting.

- 11 Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12 Name and signature of laboratory inspector.
 - 13 Recommendations on retesting and reinspecting.
- d Test reports shall include a description of deficiencies noted, and corrective action undertaken to resolve such deficiencies.
- e Deficiencies observed shall immediately be brought to the attention of the Contractor's field superintendent, and trade foreman. In the event deficiencies are not corrected, or if an interpretation of the Contract Documents is required, the Testing Agency shall immediately notify the Judicial Council of California and applicable Consultant, Architect, or Engineer.
- f The Testing Agency shall maintain a deficiency list of all items not corrected and shall reinspect the area after the deficiency has been corrected. The list shall include a description of the deficiency, the date and time the deficiency was observed, who was notified, the date of reinspection and description of corrective action taken. Distribute the deficiency list at least once per month.
- g At the end of the project, the Testing Agency shall submit a final signed report stating whether the work tested and inspected conforms to the contract documents.
- h Permits, Licenses, and Certificates: For Judicial Council of California's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
6. **QUALITY CONTROL**
- a General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- b Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance. Where required by the individual Specification Sections, Installer employing workers trained and approved by manufacturer, Installer being acceptable to manufacturer, and/or Installer being an authorized representative of manufacturer for both installation and maintenance.
- c Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- d Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00, "Submittal Procedures."
- e Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- f Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the State of California, and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- g Specialists: Certain Sections of the Specifications may require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

- 1 Requirement for specialists shall not supersede building codes and regulations governing the Work.
 - h Testing Agency Qualifications: A Division of the State of Architect's Accepted Laboratory or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1 Tests shall be made by an accredited testing agency with a minimum of 5 years experience in the specific type of testing to be performed. Except as otherwise provided, sampling and testing of all materials and the laboratory methods and testing equipment shall be in accordance with the applicable standards and methods of the California Building Standards code.
 - 2 For each type of inspection and testing service to be performed, the Testing Agency shall submit certification, signed and sealed by the Agency's professional engineer, of compliance with all applicable requirements. of the following:
 - a ASTM E329, "Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction."
 - b "Recommended Requirements for Independent Laboratory Qualifications" published by the American Council of Independent Laboratories.
 - 3 Furnish written certification to the Judicial Council of California that all equipment to be used has been calibrated in accordance with applicable ASTM standards within the last year and is in proper working order.
 - 4 Testing Agency Personnel Qualifications: Testing and inspection services shall be performed only by trained and experienced technicians currently qualified for the work they are to perform. Documentation of such training and experience shall be submitted to the Judicial Council of California and their Consultant upon request.
 - 5 Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.
 - i Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
 - j Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
7. QUALITY ASSURANCE
- A. Judicial Council of California Responsibilities: Where quality assurance services are indicated as Judicial Council of California's responsibility, Judicial Council of California will engage a qualified testing agency to perform these services.
 - 1 Judicial Council of California will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - 2 Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
 - b Tests and inspections not explicitly assigned to Judicial Council of California are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

- 1 Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a Contractor shall not employ same entity engaged by Judicial Council of California, unless agreed to in writing by Judicial Council of California.
 - 2 Notify testing agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
 - 3 Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 4 Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 5 Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- c Testing Agency Responsibilities: Cooperate with Judicial Council of California, Judicial Council of California's Consultants, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
- 1 Notify Judicial Council of California, their Consultants, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2 Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3 Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4 Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5 Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6 Do not perform any duties of Contractor.
- d Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
- 1 Access to the Work.
 - 2 Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3 Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4 Facilities for storage and field curing of test samples.
 - 5 Delivery of samples to testing agencies.
 - 6 Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7 Security and protection for samples and for testing and inspecting equipment at Project site.
 - 8 Furnish tools, samples of materials, design mixes, equipment and assistance as requested.
 - 9 Provide and maintain, for the sole use of the Testing Agency, adequate facilities for the safe storage and proper curing of concrete test cylinders on the project site for the first 24 hours after casting as required by ASTM C31, Method of Making and Curing Concrete Test Specimens in the Field.
 - 10 Build and store masonry test prisms in a manner acceptable to the Testing Agency. Prisms to be tested shall remain at the job site until moved by Testing Agency personnel.
 - 11 Notify Testing Agency at least 10 working days in advance of any qualification testing for welding required herein.
 - 12 Notify Testing Agency at least 24 hours prior to expected time for operations requiring testing or inspection services.
 - 13 Make arrangements with the Testing Agency and pay for additional samples and tests made for the Contractor's convenience or for retesting of failed samples.
 - 14 For deficiencies requiring corrective action, submit in writing a description of the deficiency and a proposed correction to the Judicial Council of California. After review and approval, the proposed

corrective action shall be implemented and inspected by the Testing Agency. It is the Contractor's responsibility to ascertain that the deficiency is corrected and inspected prior to the work being covered.

15 Retention of an independent Testing Agency by the Judicial Council of California shall in no way relieve the Contractor of responsibility for performing all work in accordance with contract requirements.

e Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1 Schedule times for tests, inspections, obtaining samples, and similar activities.

8. TESTS AND SPECIAL INSPECTIONS

A. Tests and Special Inspections: Judicial Council of California will engage a qualified testing agency to conduct tests and special inspections required by authorities having jurisdiction, including but not limited to, as follows:

- | | | |
|---|---------------------------|----------------------------------------------------------------|
| 1 | Miscellaneous: | Table 1704.4, item 4 – Expansion and epoxy anchors |
| 2 | Steel: | Table 1704.3, item 5A – Structural welding |
| 3 | Bolts: | Table 1704.3, item 2 – High strength bolting |
| 4 | Miscellaneous: | Table 1704.4, item 4 – Expansion and Epoxy Anchors (see above) |
| 5 | Fire resistive materials: | Section 1704.12 – Spray applied fireproofing |
1. inspected work complies with or deviates from the Contract Documents.
 2. Retesting and reinspecting corrected work.

2. PART PRODUCTS

1. GENERAL

a Do not use any materials or equipment represented by samples until tests, if required, have been made and the materials or equipment found to be acceptable. Any product which becomes unfit for use after acceptance shall not be incorporated into the work.

3. PART EXECUTION

1. TEST AND INSPECTION LOG

a Prepare a record of tests and inspections. Include the following:

- 1 Date test or inspection was conducted.
- 2 Description of the Work tested or inspected.
- 3 Date test or inspection results were transmitted to Judicial Council of California.
- 4 Identification of testing agency or special inspector conducting test or inspection.

b Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Judicial Council of California's reference during normal working hours.

2. ACCESS

a Contractor to provide and maintain access to areas to be inspected

3. REPAIR AND PROTECTION

a General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

[Project Name]

[Judicial Council of California Project No.]

- 1 Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 - 2 Comply with the Contract Document requirements for Section 01 73 10, "Cutting and Patching."
- b Protect construction exposed by or for quality-control service activities.
- c Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 42 00

GENERAL DEFINITIONS AND REFERENCES

1. GENERAL

1.1. RELATED DOCUMENTS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions; and

1.1.2. Summary of Work.

1.2. DEFINITIONS

General: Basic Contract definitions are included in the General Conditions of the Contract for Construction. The following are in addition to those definitions.

1.2.1. "Alternate": A cost or credit for certain Work that may be added to or deducted from the Project.

1.2.2. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

1.2.3. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

1.2.4. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

1.2.5. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

1.2.6. "Provide": Furnish and install, complete and ready for the intended use.

1.3. STANDARDS

1.3.1. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations as indicated in Thomson Gale™ (www.gale.com), Gale Research's "Encyclopedia of Associations" or "Encyclopedia of Associations: National Organizations of the U.S.," or in Columbia Books' "National Trade & Professional Associations of the U.S."

END OF SECTION

SECTION 01 42 13

ABBREVIATIONS AND ACRONYMS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions

1.2. DOCUMENT INCLUDES

1.2.1. Abbreviations and Acronyms for Standards and Regulations used throughout the Contract Documents shall mean the recognized name of the standards and regulations indicated in:

1.2.1.1. Thomson Gale, Gale Research's "Encyclopedia of Associations: National Organizations of the U.S." or

1.2.1.2. Columbia Books' "National Trade & Professional Associations of the U.S."

1.2.2. Some of the applicable abbreviations and acronyms have the following meanings, subject to updates or revisions based on the above-referenced publications:

- AA: Aluminum Association
- AAMA: American Architectural Manufacturers Association
- AASHTO: American Association of State Highway and Transportation Officials
- ABPA: Acoustical and Board Products Association
- ACI: American Concrete Institute
- AGA: American Gas Association
- AGC: Associated General Contractors
- AHC: Architectural Hardware Consultant
- AI: Asphalt Institute
- AIA: American Institute of Architects
- AIEE: American Institute of Electrical Engineers
- AISC: American Institute of Steel Construction
- AISI: American Iron and Steel Institute
- AMCA: Air Movement and Control Association International, Inc.
- ANSI: American National Standards Institute
- APA: American Plywood Association
- ARI: Air Conditioning and Refrigeration Institute
- ASHRAE: American Society of Heating, Refrigeration and Air Conditioning Engineers
- ASME: American Society of Mechanical Engineers
- ASSE: American Society of Sanitary Engineering
- ASTM: American Society of Testing and Materials
- AWP: American Wood Protection Association
- AWS: American Welding Society
- AWS: American Welding Society Code

- AWI: Architectural Woodwork Institute
- AWWA: American Water Works Association
- BHMA: Builders Hardware Manufacturers Association
- BIA: Brick Industry Association
- CCR: California Code of Regulations
- CLFMI: Chain Link Fence Manufacturers Institute
- CMG: California Masonry Guild
- CRA: California Redwood Association
- CRSI: Concrete Reinforcing Steel Institute
- CS: Commercial Standards
- CSI: Construction Specifications Institute
- CTI: Cooling Technology Institute
- FIA: Factory Insurance Association
- FM Global: FM Global
- FS: Federal Specification
- FSC: Forest Stewardship Council
- GA: Gypsum Association
- GANA: Glass Association of North America
- ICC: International Code Council
- IEEE: Institute of Electrical and Electronic Engineers
- IES: Illumination Engineering Society
- MIA: Marble Institute of America
- MLMA: Metal Lath Manufacturers Association
- MS: Military Specifications
- NAAMM: National Association of Architectural Metal Manufacturers
- NBFU: National Board of Fire Underwriters
- NBS: National Bureau of Standards
- NCMA: National Concrete Masonry Association
- NEC: National Electrical Code
- NEMA: National Electrical Manufacturers Association
- NFPA: National Fire Protection Association
- NMWIA: National Mineral Wool Insulation Association
- NTMA: National Terrazzo and Mosaic Association
- NWMA: National Woodwork Manufacturer's Association
- ORS: Office of Regulatory Services (California)
- OSHA: Occupational Safety and Health Act
- PCI: Precast Concrete Institute
- PCA: Portland Cement Association
- PDCA: Painting and Decorating Contractors of America
- PDI: Plumbing Drainage Institute
- PEI: Porcelain Enamel Institute
- PG&E: Pacific Gas & Electric Company
- PS: Product Standards
- SDI: Steel Door Institute; Steel Deck Institute
- SJI: Steel Joist Institute
- SSPC: Steel Structures Painting Council
- TCNA: Tile Council of North America
- TPI: Truss Plate Institute
- UBC: Uniform Building Code
- UL: Underwriters Laboratories Code

[Project Name]

[Judicial Council of California Project No.]

- UMC: Uniform Mechanical Code
- USDA: United States Department of Agriculture
- VI: Vermiculite Institute
- WCLA: West Coast Lumberman's Association
- WCLB: West Coast Lumber Bureau
- WEUSER: Western Electric Utilities Service Engineering Requirements
- WIC: Woodwork Institute of California
- WPOA: Western Plumbing Officials Association

END OF SECTION

SECTION 01 45 16

CONTRACTOR'S QUALITY CONTROL PROGRAM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section describes the requirements for implementation of a Quality Control Program by the Contractor to assure performance of the Work in conformance with the requirements of the Contract Documents.
- B. Related Work Specified Elsewhere:
 - 1. Testing and Inspection Services of Quality Control are specified in Section 014000, "Quality Requirements."

1.3 QUALITY CONTROL PROGRAM

- A. The Contractor shall prepare and submit within 30 days after the issuance of Notice to Proceed, the Quality Control Program (QCP) they intend to implement for the Work for approval by the Judicial Council of California. This Program shall be tailored to the specific requirements of the Work and shall become an active part of the construction procedures. The Quality Control Program shall include the procedures, instructions, reports and forms to be used throughout the performance of the Work. The Judicial Council of California reserves the right to review and reject all or part of the Quality Control Program as proposed by the Contractor. The Contractor shall revise and resubmit as appropriate until satisfactory to the Judicial Council of California and their Consultants. The basic objectives of the Quality Control Program are as follows:
 - 1. To ensure that all Work adheres strictly to all requirements of the Contract Documents and governing agencies.
 - 2. To produce first class workmanship.
 - 3. To prevent deficiencies through pre-construction quality control coordination.
 - 4. To detect and correct deficiencies in a timely manner.
 - 5. To provide an auditable record of all tests, inspections, procedures, non-compliance and corrections, and any other pertinent data as required by the Judicial Council of California.
- B. The Contractor shall notify the Judicial Council of California in writing of any proposed change to his Quality Control system and changes shall not be permitted if they would, in the opinion of the Judicial Council of California or their Consultants, result in nonconformance with the Contract requirements.
- C. The Contractor may select either an outside "agency" or in-house personnel to administer the program. In either case, the Quality Control staff on-site shall be responsible only for Quality Control and the Quality Control manager shall report directly to the Contractor's highest ranking Corporate Officer involved in the

Work. The management and/or control of the construction process. Quality Control staff members shall interface with the Judicial Council of California, its Inspectors and Consultants, as required and appropriate.

- D. Failure to comply with the Quality Control Program requirements stated herein may result in the withholding of monthly progress payments and/or termination of the Contractor for cause by the Judicial Council of California in accordance with the General Conditions.

1.4 REQUIREMENTS OF THE PROGRAM

- A. The Quality Control Program submittal shall include, as a minimum, the following:
1. The Quality Control organization chart, beginning with the Quality Control Manager, shall include Quality Control personnel as may be necessary to accomplish complete and adequate inspection of the Work.
 2. Names and qualifications of personnel and firms selected to implement the Quality Control Program on-site and off-site.
 3. Authority and responsibility of the Quality Control Staff.
 4. Methods of Quality Control inspection including subcontractor's work and describing name of qualified testing laboratory to be used, if applicable.
 5. Documents to be used to record inspections and tests, including those specified in the Contract.
 6. Formats for documentation and reports.
 7. A letter signed by the Responsible Managing Officer of the Contractor's firm outlining the authority of the Quality Control Manager to include, among other things, the authority as described herein. Clerical personnel sufficient to accomplish timely submittal of Quality Control Reports and other required documentation shall be provided.

1.5 QUALIFICATION OF QUALITY CONTROL MANAGER

- A. The qualifications required of the Quality Control Manager are as follows:
1. Has recent construction experience in projects of similar size and nature.
 2. Has a minimum of 10 years construction-related Quality Control experience.
- B. Responsibilities and Duties of the Quality Control Staff:
1. The Quality Control Manager shall have the authority to stop work, reject work, order work removed, initiate remedial work, propose solutions, and reject material not in compliance with the Contract.
 2. Responsibilities of the Quality Control Manager shall include, but are not limited to the following:
 - a. Present on-site during all working hours and assigned "full time" to this Project. Contractor shall designate alternate individual(s) to assume responsibilities in the temporary absence of the Quality Control Manager or when overtime work is being performed.
 - b. Have complete familiarity with the Contract Drawings and Specifications.
 - c. Establish and implement Quality Control Programs for the Contractor and with the various Sub-contractors and monitor their conformance.

- d. Present samples, mock-ups and test panels to be used as standards of quality for review by the Judicial Council of California and their Consultants.
- e. Inspect existing conditions prior to the start of new work segments.
- f. Perform in-progress and follow-up inspections on each work segment to ensure compliance with the Contract Documents. Accompany the Judicial Council of California and their Consultants on such inspections.
- g. Coordinate required tests, inspections, and demonstrations with the Judicial Council of California's Testing Agency, County and State inspectors and any other authority having jurisdiction.
- h. Inspect all materials and equipment arriving at the job site to ensure conformance to the requirements of the Contract Documents. Prepare and submit to the Judicial Council of California written reports as required by the Contract Documents.
- i. Identify, report and reject defective Work or Work not in conformance with the Contract Documents. Monitor the repair or reconstruction of rejected Work.
- j. Develop checklists to be used for the inspection of each Division of the Work.
- k. Retain specialists or outside firms for inspection of Work in areas where additional technical knowledge is required (mechanical, electrical, electronics, controls, communications, security, welding, structural, security hardware, etc.). Submit qualifications of firms and specialists to the Judicial Council of California and their Consultants for approval.
- l. Schedule and accompany the Judicial Council of California and their Consultants on any Site visits when requested.
- m. Schedule additional Site visits where appropriate.
- n. Verify and report that all materials and equipment manufactured off-site are in conformance with the Contract Documents.
- o. Prior to the start of each Division, Section and/or major item of Work required by the Contract Documents, conduct a preconstruction Quality Control meeting with responsible field and office representative and the Judicial Council of California and their Consultants. Provide the Judicial Council of California and their Consultants minutes of these meetings within 48 hours.
- p. Work closely with the Judicial Council of California to ensure optimum Quality Control. Attend Project meetings as required by the Judicial Council of California.

1.6 REPORTING PROCEDURES

- A. As a minimum, develop forms, logs and reporting procedures consisting of the following:
 1. A Quality Control meeting held monthly between the Judicial Council of California, Judicial Council of California's Consultants and the Quality Control Manager during which only Quality related topics will be reviewed.
 2. A monthly written report published at month end providing an overview of Quality Control activities, problems found and/or solved status of remedial work, status of mock-ups, anticipated problems and planned activities for the coming month, etc.
 3. Deficiency reports: Plan of action by the Contractor for correcting any known contract deficiencies including delay in scheduled progress.
 4. Weekly reports (including reports from Contractor and Subcontractors) to the Judicial Council of California describing:
 - a. Equipment and material received.
 - b. Tests and inspections performed with submittal information.
 - c. Deficiencies noted and/or corrected.
 - d. Quality Control concerns and problems.
 - e. Record keeping (as required).

1.7 IMPLEMENTATION

- A. The Contractor's Quality Control program shall be adequate to cover all operations, including both on-site and off-site and will be keyed to the proposed sequence of work and shall include as a minimum at least 3 phases of inspection for all definable items or segments of work, as follows:
1. Preparatory Inspection shall be performed prior to beginning any work on any definable segment of the Work and shall include a review of Contract requirements; verification that all materials and/or equipment have been tested, submitted, and accepted; verification that provisions have been made to provide required control testing; examination of the work area to ascertain that all preliminary work has been completed; and a physical examination of materials and equipment to assure that they conform to accepted shop drawings or submittal data and that all material and/or equipment are available. As a part of this preparatory work, Contractor's Quality Control organization will review and verify that all documents, including but not limited to; shop drawings, submittal data, method of Quality Control, product data sheets, test reports, affidavits, Certification and manufacturer's instructions have been submitted and accepted by the Judicial Council of California as required herein. Each submittal to the Judicial Council of California shall bear the date and the signature of the Contractor's Quality Control Manager indicating that he has reviewed the submittal and certified it to be in compliance with Drawings and Specifications or showing the required changes.
 2. Initial Inspection: To be performed as soon as a representative segment of the particular item of work has been accomplished and to include examination of the quality of workmanship and a review of control testing for compliance with Contract requirements, exclusion of defective or damaged materials, omissions, and dimensional requirements.
 3. Follow-up Inspection: To be performed daily or as frequently as necessary to ensure continuing compliance with Contract requirements, including control testing, until completion.
 4. The Contractor shall maintain daily current records with information as described above, in an appropriate format of all inspections and tests that the required inspection or tests have been performed. These records must cover both conforming and defective items and must include a statement that all supplies and materials, incorporated in the Work, are in full compliance with the terms of the Contract. Two legible copies must be furnished to the Judicial Council of California. The report will cover all work performed or completed subsequent to the previous report.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions; and
- 1.1.2. Temporary Tree and Plant Protection.

1.2. TEMPORARY UTILITIES

1.2.1. Fire Protection:

1.2.1.1. CMR shall provide and maintain fire extinguishers and other equipment for fire protection. Such equipment shall be designated for use for fire protection only and shall comply with all requirements of the California Fire, State Fire Marshall and/or its designee.

1.2.1.2. Where on-site welding and burning of steel is unavoidable, CMR shall provide protection for adjacent surfaces. Adhere to the following "hot work" best practices:

- 1.2.1.2.1. Make sure that all equipment is in good operating order before work starts.
- 1.2.1.2.2. Inspect the work area thoroughly before starting. Look for combustible materials in structures (partitions, walls, ceilings).
- 1.2.1.2.3. Sweep clean any combustible materials on floors around the

work zone. Combustible floors must be kept wet with water or covered with fire resistant blankets or damp sand.

- 1.2.1.2.4. Use water ONLY if electrical circuits have been de-energized to prevent electrical shock.
- 1.2.1.2.5. Remove any spilled grease, oil, or other combustible liquid.
- 1.2.1.2.6. Move all flammable and combustible materials away from the work area.

1.2.1.3.

1.2.2. Trash Removal:

1.2.2.1. CMR shall provide trash removal on a timely basis from all Site Offices and throughout the Site.

1.2.3. Temporary Facilities:

1.2.3.1. CMR shall provide sufficient space and facilities for its own force's needs.

1.3. CONSTRUCTION AIDS

1.3.1. Plant and Equipment:

1.3.1.1. CMR shall furnish, operate, and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment; and for conveyances for transporting workmen. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.

1.3.1.2. CMR shall maintain plant and equipment in safe and efficient operating condition. Damages due to defective plant and equipment, and uses made thereof, shall be repaired by CMR at no expense to the Judicial Council of California.

1.3.2. No Judicial Council of California tools or equipment shall be used by CMR or its subcontractors for the performance of the Work.

1.4. BARRIERS AND ENCLOSURES

1.4.1. CMR shall obtain Judicial Council of California's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.

- 1.4.2. CMR shall provide a six (6) foot high, chain link perimeter fence with post driven into the ground and fabric screen as a temporary barrier around construction area. CMR shall provide and maintain temporary enclosures to prevent public entry and to protect persons using other buildings and portions of the Site and/or Premises. CMR shall remove temporary fence, barriers and enclosure upon Completion of the Work.
- 1.4.3. CMR shall provide site access to existing facilities for persons using other buildings and portions of the Site, the public, and for deliveries and other services and activities.

1.5. SECURITY

CMR shall secure all construction equipment, machinery and vehicles, park and store only within fenced area, and render inoperable during non-work hours. CMR is responsible for insuring that no construction materials, tools, equipment, machinery or vehicles can be used for unauthorized entry or other damage or interference to activities and security of existing facilities adjacent to and in the vicinity of the Project Site.

1.6. TEMPORARY CONTROLS

1.6.1. Noise Control:

1.6.1.1. CMR acknowledges that adjacent facilities may remain in operation during all or a portion of the Work, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.

1.6.1.2. Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to Judicial Council of California a minimum of forty-eight (48) hours in advance of their performance.

1.6.2. Noise and Vibration:

1.6.2.1. Equipment and impact tools shall have intake and exhaust mufflers.

1.6.2.2. CMR shall cooperate with Judicial Council of California to minimize and/or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.

1.6.3. Dust and Dirt:

1.6.3.1. CMR shall conduct demolition and construction operations to minimize the

generation of dust and dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.

1.6.3.2. CMR shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt.

1.6.3.3. CMR shall ensure that all hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.

1.6.3.4. CMR shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines.

1.6.4. Water:

CMR shall not permit surface and subsurface water, and other liquids, to accumulate in or about the vicinity of the Premises. Should accumulation develop, CMR shall control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping, drainage lines, troughs, ditches, dams, or other methods.

1.6.5. Pollution:

1.6.5.1. No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.

1.6.5.2. CMR shall comply with applicable regulatory requirements and anti-pollution ordinances during the conduct of the Work including, without limitation, demolition, construction, and disposal operations.

1.6.6. Lighting

If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

1.7. PUBLICITY RELEASES

[Project Name]
[Judicial Council of California Project No.]

CMR shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s).

END OF SECTION

SECTION 01 60 00

MATERIALS AND EQUIPMENT

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions.

1.2. MATERIAL AND EQUIPMENT

1.2.1. Only items approved by the Judicial Council of California and/or Architect shall be used.

1.2.2. CMR shall submit lists of Products and other Product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.3. MATERIAL AND EQUIPMENT COLORS

1.3.1. The CMR shall comply with all schedule(s) of colors provided by the Judicial Council of California and/or Architect.

1.3.2. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.3.3. CMR shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

1.4. DELIVERY, STORAGE, AND HANDLING

[Project Name]

[Judicial Council of California Project No.]

- 1.4.1. CMR shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer. Judicial Council of California may inspect materials prior to CMR unloading the delivered materials. Judicial Council of California may reject any materials that do not conform to the Contract Documents.
- 1.4.2. CMR shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.
- 1.4.3. CMR shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.
- 1.4.4. Materials are not be acceptable that have been warehoused for long periods of time, stored or transported in improper environment, improperly packaged, inadequately labeled, poorly protected, excessively shipped, deviated from normal distribution pattern, or reassembled.
- 1.4.5. CMR shall store material so as to cause no obstructions of sidewalks, roadways, and underground services. CMR shall protect material and equipment furnished pursuant to the Contract Documents.
- 1.4.6. CMR may store materials on Site with prior written approval by the Judicial Council of California, all material shall remain under CMR's control and CMR shall remain liable for any damage to the materials. Should the Project Site not have storage area available, the CMR shall provide for off-site storage at no cost to Judicial Council of California.
- 1.4.7. When any room in Project is used as a shop or storeroom, the CMR shall be responsible for any repairs, patching, or cleaning necessary due to that use. Location of storage space shall be subject to prior written approval by Judicial Council of California.

2. PRODUCTS

2.1. MANUFACTURERS

- 2.1.1. Manufacturers listed in various sections of Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of items specified therein.
- 2.1.2. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable as meeting the requirements of the Contract Documents.

[Project Name]

[Judicial Council of California Project No.]

2.2. FACILITIES AND EQUIPMENT

CMR shall provide, install, maintain, and operate a complete and adequate facility for handling, the execution, disposal, and distribution of material and equipment as required for proper and timely performance of Work.

2.3. MATERIAL REFERENCE STANDARDS

Where material is specified solely by reference to “standard specifications” or other general reference, and if requested by Judicial Council of California, CMR shall submit for review data on actual material proposed to be incorporated into Work, listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

3. EXECUTION

3.1. WORKMANSHIP

- 3.1.1. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).
- 3.1.2. Work shall be executed by tradespersons skilled in their respective field of work. When completed, parts shall have been durably and substantially built and present a neat appearance.

3.2. COORDINATION

- 3.2.1. CMR shall coordinate installation of materials and equipment so as to not interfere with installation of other work. Adjustment or rework because of CMR’s failure to coordinate will be at no additional cost to Judicial Council of California.
- 3.2.2. CMR shall examine in-place materials and equipment for readiness, completeness, fitness to be concealed or to receive Work, and compliance with Contract Documents. Concealing or covering work constitutes acceptance of additional cost which will result should in-place materials and equipment be found unsuitable for receiving other work or otherwise deviating from the requirements of the Contract Documents.

[Project Name]
[Judicial Council of California Project No.]
3.3. COMPLETENESS

CMR shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages, utility connections, etc., in manner to assure well-balanced performance, in accordance with manufacturer's recommendations and in accordance with Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain system; sinks fit within countertop, etc. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap," "adequately anchored," "patch and refinish," "to match similar," should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

3.4. APPROVED INSTALLER OR APPLICATOR

CMR shall ensure that all installations are only performed by a manufacturer's approved installer or applicator.

3.5. MANUFACTURER'S RECOMMENDATIONS

All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative. Should Contract Documents differ from recommendations of manufacturer or directions of manufacturer's representative, CMR shall analyze differences, make recommendations to the Judicial Council of California and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the Judicial Council of California and/or the Architect.

END OF SECTION

SECTION 01 65 00

PRODUCT REQUIREMENTS

1. GENERAL

1.1. RELATED DOCUMENTS

- 1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

- 1.2.1. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

1.2.1.1. Compatibility of options between products proposed and specified.

1.2.1.2. Reliability of date calculations by Date Sensitive Equipment.

1.2.1.3. Selection of products for use in Project.

1.2.1.4. Product delivery, storage, and handling.

1.2.1.5. Manufacturers' standard warranties on products.

1.2.1.6. Special warranties.

1.2.1.7. Product substitutions.

1.2.1.8. Comparable products.

- 1.2.2. Related Sections include the following:

1.2.2.1. Division 01 Section "Allowances" for products selected under an allowance.

1.2.2.2. Division 01 Section "References" for applicable industry standards for products specified.

1.2.2.3. Division 01 Section "Warranties" for warranties for Contract closeout.

1.2.2.4. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3. DEFINITIONS

- 1.3.1. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

- 1.3.1.1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
- 1.3.1.2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
- 1.3.1.3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- 1.3.2. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- 1.3.3. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4. SUBMITTALS

- 1.4.1. Coordinate durations with General Conditions and CMR Contract.
- 1.4.2. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
 - 1.4.2.1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
 - 1.4.2.2. Completed List: Within [thirty (30)] days after date of commencement of the Work, submit [three (3)] copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - 1.4.2.3. Judicial Council of California's Action: Judicial Council of California will respond in writing to Contractor within [fifteen (15)] working days of receipt of completed product list. Judicial Council of California's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Judicial Council of California's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
- 1.4.3. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1.4.3.1. Form: Use Judicial Council of California's transmittal form at the end of this Section. The MS Word file of this form will be provided to the Contractor for use on each Substitution Request.

- 1.4.3.2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
- 1.4.3.3. Statement indicating why specified material or product cannot be provided.
- 1.4.3.4. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Judicial Council of California and separate contractors, that will be necessary to accommodate proposed substitution.
- 1.4.3.5. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
- 1.4.3.6. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
- 1.4.3.7. Samples, where applicable or requested.
- 1.4.3.8. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
- 1.4.3.9. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
- 1.4.3.10. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
- 1.4.3.11. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
- 1.4.3.12. Cost information, including a proposal of change, if any, in the Contract Sum.
- 1.4.3.13. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
- 1.4.3.14. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- 1.4.3.15. Coordinate durations with General Conditions and CMR Contract.
- 1.4.3.16. Judicial Council of California's Action: If necessary, Judicial Council of California will request additional information or documentation for evaluation within [seven (7)] days of receipt of a request for substitution. Judicial Council of California will notify Contractor of acceptance or rejection of proposed substitution within [fifteen (15)] days of receipt of request, or [seven (7)] days of receipt of additional information or documentation, whichever is later.
- 1.4.3.17. Form of Acceptance: Change Order.

- 1.4.4. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1.4.4.1. Judicial Council of California's Action: If necessary, Judicial Council of California will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Judicial Council of California will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - 1.4.4.2. Form of Approval: As specified in Section 01 33 00, "Submittal Procedures."
 - 1.4.4.3. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5. QUALITY ASSURANCE

- 1.5.1. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
- 1.5.2. Reliability of Calculations by Date Sensitive Equipment, Systems and Components:
 - 1.5.2.1. Date sensitive equipment, systems and components thereof must individually and in combination properly function and continue to correctly process, sequence and utilize date and time related data for all dates and times, which occur during a reasonable life expectancy for said equipment, systems and components thereof.
 - 1.5.2.2. Correctly process, sequence, and calculate all date and date related data for all dates prior to, through and after January 1, 2000, including leap year calculations.
 - 1.5.2.3. Software products that process date or date related data shall recognize, store and transmit date data in a format which explicitly and unambiguously specifies the correct century.
 - 1.5.2.4. Contractor shall include this requirement in all sub-contracts and equipment orders for this Project.
 - 1.5.2.5. Submittals: Provide certification from suppliers and sub-contractors providing date sensitive equipment, systems, and software that the proposed equipment, components and systems comply with these requirements.

1.6. PRODUCT DELIVERY, STORAGE, AND HANDLING

- 1.6.1. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- 1.6.2. Delivery and Handling:
 - 1.6.2.1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

- 1.6.2.2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
- 1.6.2.3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- 1.6.2.4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- 1.6.3. Storage:
 - 1.6.3.1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 1.6.3.2. Store materials in a manner that will not endanger Project structure.
 - 1.6.3.3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 1.6.3.4. Store cementitious products and materials on elevated platforms.
 - 1.6.3.5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 1.6.3.6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 1.6.3.7. Protect stored products from damage and liquids from freezing.
- 1.7. PRODUCT WARRANTIES
 - 1.7.1. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1.7.1.1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Judicial Council of California.
 - 1.7.1.2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Judicial Council of California.
 - 1.7.2. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 - 1.7.2.1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 1.7.2.2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.

1.7.2.3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

1.7.3. Submittal Time: Comply with requirements in Division 01 Section "Warranties."

2. PRODUCTS

2.1. PRODUCT SELECTION PROCEDURES

2.1.1. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

2.1.1.1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2.1.1.2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

2.1.1.3. Judicial Council of California reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

2.1.1.4. Where products are accompanied by the term "as selected," Judicial Council of California will make selection.

2.1.1.5. Where products are accompanied by the term "match sample," sample to be matched is Judicial Council of California's.

2.1.1.6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

2.1.1.7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

2.1.2. Product Selection Procedures:

2.1.2.1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.

2.1.2.2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.

2.1.2.3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

2.1.2.4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

- 2.1.2.5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
- 2.1.2.6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
- 2.1.2.7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
- 2.1.2.8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
- 2.1.2.9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches sample. Judicial Council of California's decision will be final on whether a proposed product matches.
- 2.1.2.10. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
- 2.1.2.11. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
- 2.1.2.12. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Judicial Council of California will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
- 2.1.2.13. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Judicial Council of California will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2. PRODUCT SUBSTITUTIONS

- 2.2.1. Comply with the requirements stated in the General Conditions, Article 3.11.12, "Substitutions and Approved Equals."
- 2.2.2. Conditions: Judicial Council of California will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are

not satisfied, Judicial Council of California will return requests without action, except to record noncompliance with these requirements:

- 2.2.2.1. Requested substitution offers Judicial Council of California a substantial advantage in cost, time, energy conservation, or other considerations, where the best interests of the State so requires.
- 2.2.2.2. Requested substitution does not require extensive revisions to the Contract Documents.
- 2.2.2.3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- 2.2.2.4. Substitution request is fully documented and properly submitted.
- 2.2.2.5. Requested substitution will not adversely affect Contractor's Construction Schedule.
- 2.2.2.6. Requested substitution has received necessary approvals of authorities having jurisdiction.
- 2.2.2.7. Requested substitution is compatible with other portions of the Work.
- 2.2.2.8. Requested substitution has been coordinated with other portions of the Work.
- 2.2.2.9. Requested substitution provides specified warranty.
- 2.2.2.10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3. COMPARABLE PRODUCTS

- 2.3.1. Conditions: Judicial Council of California will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Judicial Council of California will return requests without action, except to record noncompliance with these requirements:
 - 2.3.1.1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 2.3.1.2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 2.3.1.3. Evidence that proposed product provides specified warranty.
 - 2.3.1.4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 - 2.3.1.5. Samples, if requested.

SUBSTITUTION REQUEST FORM

TO: _____ DATE: _____

PROJECT: _____

We hereby submit to your consideration the following product instead of the specified item for the above referenced project:

Proposed Substitution: _____

Section _____ Paragraph _____ Specified Item _____

Attach complete technical data, including laboratory tests, if applicable.

Provide complete information below on changes to Drawings and Specifications which proposed substitution will require for its proper installation.

- A. Does the substitution affect dimensions shown on Drawings? Yes ___ No _____. If yes, clearly indicate changes.

- B. What effect does substitution have on other trades? _____

- C. What effect does substitution have on construction schedule? _____

- D. Cost difference between proposed substitution and specified item? _____
- E. Manufacturer's warranty/guarantees of the proposed and specified items are:
_____ Same _____ Different (explain on attachment)

The undersigned certifies that the function, appearance and quality are equivalent or superior to the specified item. The undersigned also certifies that all costs caused by or resulting from the requested substitution including, but not limited to, additional design work, construction changes and review time will be paid by the firm requesting the substitution.

Submitted by:
Signature: _____

Firm _____

Address _____

Date _____

Telephone _____

Evaluated by:
Accepted _____ Accepted as Noted

Not Accepted _____ Received Too Late

By _____

Firm _____

Date _____

Remarks _____

[Project Name]
[Judicial Council of California Project No.]

END OF SECTION

SECTION 01 71 10

FIELD ENGINEERING

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions.

1.2. REQUIREMENTS INCLUDED

- 1.2.1. CMR shall provide and pay for field engineering services by a California-registered engineer, required for the Project, including, without limitations:

- 1.2.1.1. Survey work required in execution of the Project.

- 1.2.1.2. Civil or other professional engineering services specified, or required to execute construction methods.

1.3. QUALIFICATIONS OF SURVEYOR OR ENGINEERS

CMR shall only use a qualified licensed engineer or registered land surveyor, to whom Judicial Council of California makes no objection.

1.4. SURVEY REFERENCE POINTS

- 1.4.1. Existing basic horizontal and vertical control points for the Project are those designated on the Drawings.

- 1.4.2. CMR shall locate and protect control points prior to starting Site Work and preserve all permanent reference points during construction. In addition CMR shall:

- 1.4.2.1. Make no changes or relocation without prior written notice to Judicial Council of California and Architect.

- 1.4.2.2. Report to Judicial Council of California and Architect when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

- 1.4.2.3. Require surveyor to replace Project control points based on original survey control that may be lost or destroyed.

1.5. RECORDS

CMR shall maintain a complete, accurate log of all control and survey work as it progresses.

1.6. SUBMITTALS

- 1.6.1. CMR shall submit name and address of Surveyor and Professional Engineer to Judicial Council of California and Architect prior to its/their work on the Project.

[Project Name]
[Judicial Council of California Project No.]

- 1.6.2. On request of Judicial Council of California and Architect, CMR shall submit documentation to verify accuracy of field engineering work, at no additional cost to the Judicial Council of California.
- 1.6.3. CMR shall submit a certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance or nonconformance with Contract Documents.

2. EXECUTION

2.1. COMPLIANCE WITH LAWS

CMR is responsible for meeting all applicable codes, OSHA, safety and shoring requirements.

2.2. NONCONFORMING WORK

CMR is responsible for any re-surveying required by correction of nonconforming work.

END OF SECTION

SECTION 01 73 10

CUTTING AND PATCHING

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions.

1.2. CUTTING AND PATCHING

1.2.1. CMR shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work or to:

1.2.1.1. Make several parts fit together properly.

1.2.1.2. Uncover portions of Work to provide for installation of ill-timed Work.

1.2.1.3. Remove and replace defective Work.

1.2.1.4. Remove and replace Work not conforming to requirements of Contract Documents.

1.2.1.5. Remove samples of installed Work as specified for testing.

1.2.1.6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

1.2.1.7. Attaching new materials to existing remodeling areas – including painting (or other finishes) to match existing conditions.

1.2.1.8. Coordinate cutting and patching to not interfere with operations of the existing building.

1.2.2. In addition to Contract requirements, upon written instructions from Judicial Council of California, CMR shall uncover Work to provide for observations of covered Work in accordance with the Contract Documents, remove samples of installed materials for testing as directed by Judicial Council of California, and remove Work to provide for alteration of existing Work.

1.2.3. CMR shall not cut or alter Work, or any part of it, in such a way that endangers or compromises the integrity of the Work, the Project, or work of others.

1.2.4. CMR shall not cut and patch operating elements and safety related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:

1.2.4.1. Primary operational systems and equipment.

1.2.4.2. Air or smoke barriers.

- 1.2.4.3. Fire-suppression systems.
- 1.2.4.4. Mechanical systems piping and ducts.
- 1.2.4.5. Control systems.
- 1.2.4.6. Communication systems.
- 1.2.4.7. Conveying systems.
- 1.2.4.8. Electrical wiring systems.
- 1.2.5. CMR shall not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing capacity to perform as intended, or that results in increased maintenance or decreased operational life of safety. Miscellaneous elements include the following:
 - 1.2.5.1. Water, moisture or vapor barriers.
 - 1.2.5.2. Membranes and flashings.
 - 1.2.5.3. Exterior curtain-wall construction.
 - 1.2.5.4. Equipment supports.
 - 1.2.5.5. Piping, ductwork, vessels and equipment.
 - 1.2.5.6. Noise and vibration control elements and systems.
 - 1.2.5.7. Shoring, bracing and sheeting.

1.3. REQUEST TO CUT, ALTER, PATCH OR EXCAVATE

- 1.3.1. CMR shall submit written notice to Judicial Council of California pursuant to the applicable notice provisions of the Contract Documents, requesting consent to proceed with the cutting or alteration (“Request”) at least ten (10) days prior to any cutting or alterations that may affect the structural safety of Project, or work of others, including the following:
 - 1.3.1.1. The work of the trades.
 - 1.3.1.2. Structural value or integrity of any element of Project.
 - 1.3.1.3. Integrity or effectiveness of weather-exposed or weather-resistant elements or systems.
 - 1.3.1.4. Efficiency, operational life, maintenance or safety of operational elements.
 - 1.3.1.5. Visual qualities of sight-exposed elements.
- 1.3.2. CMR's Request shall also include:
 - 1.3.2.1. Identification of Project.

- 1.3.2.2. Description of affected Work.
- 1.3.2.3. Necessity for cutting, alteration, or excavations.
- 1.3.2.4. Affects of Work on trades, or structural or weatherproof integrity of Project.
- 1.3.2.5. Description of proposed Work:
 - 1.3.2.5.1. Scope of cutting, patching, alteration, or excavation.
 - 1.3.2.5.2. Trades that will execute Work.
 - 1.3.2.5.3. Products proposed to be used.
 - 1.3.2.5.4. Extent of refinishing to be done.
- 1.3.2.6. Alternates to cutting and patching.
- 1.3.2.7. Cost proposal, when applicable.
- 1.3.2.8. The scheduled date the Work is to be performed and the duration of time to complete the Work.
- 1.3.2.9. Written permission of other trades whose Work will be affected.

1.4. QUALITY ASSURANCE

- 1.4.1. CMR shall ensure that cutting, fitting, and patching shall achieve security, strength, weather protection, appearance for aesthetic match, efficiency, operational life, maintenance, safety of operational elements, and the continuity of existing fire ratings.
- 1.4.2. CMR shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, colors, and that materials shall match existing construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the Judicial Council of California's decision shall be final.

1.5. PAYMENT FOR COSTS

- 1.5.1. Cost caused by ill-timed or defective Work or Work not conforming to Contract Documents, including costs for additional services of the Judicial Council of California, its consultants, including but not limited to the Architect, inspector(s), engineers, and agents, will be paid by CMR and/or deducted from the GMP by the Judicial Council of California.
- 1.5.2. CMR shall provide written cost proposals prior to proceeding with cutting and patching. Judicial Council of California shall only pay for cost of Work if it is part of the GMP or if a change has been made to the Contract in compliance with the provisions of the General Conditions. Cost of Work performed upon instructions from the Judicial Council of California, other than defective or nonconforming Work, will be paid by Judicial Council of California on approval of written Change Order.

2. PRODUCTS

2.1. MATERIALS

- 2.1.1. CMR shall provide for replacement and restoration of Work removed. CMR shall comply with the Contract Documents and with the Industry Standard(s), for the type of Work, and the Specification requirements for each specific product involved. If not specified, CMR shall first recommend a product of a manufacturer or appropriate trade association for approval by the Judicial Council of California.
- 2.1.2. Materials to be cut and patched include those damaged by the performance of the Work.

3. EXECUTION

3.1. INSPECTION

- 3.1.1. CMR shall inspect existing conditions of the Site and the Work, including elements subject to movement or damage during cutting and patching, excavating and backfilling. After uncovering Work, CMR shall inspect conditions affecting installation of new products.
- 3.1.2. CMR shall report unsatisfactory or questionable conditions in writing to Judicial Council of California as indicated in the General Conditions and shall proceed with Work as indicated in the General Conditions by Judicial Council of California.

3.2. PREPARATION

- 3.2.1. CMR shall provide shoring, bracing and supports as required to maintain structural integrity for all portions of the Project, including all requirements of the Project.
- 3.2.2. CMR shall provide devices and methods to protect other portions of Project from damage.
- 3.2.3. CMR shall, provide all necessary protection from weather and extremes of temperature and humidity for the Project, including without limitation, any work that may be exposed by cutting and patching Work. CMR shall keep excavations free from water.

3.3. ERECTION, INSTALLATION AND APPLICATION

- 3.3.1. With respect to performance, CMR shall insure its Subcontractors:
 - 3.3.1.1. Execute fitting and adjustment of products to provide finished installation to comply with and match specified tolerances and finishes.
 - 3.3.1.2. Execute cutting and demolition by methods that will prevent damage to other Work, and provide proper surfaces to receive installation of repairs and new Work.
 - 3.3.1.3. Execute cutting, demolition excavating, and backfilling by methods that will prevent damage to other Work and damage from settlement.
 - 3.3.1.4. CMR shall use original installer or fabricator to perform cutting and patching for:
 - 3.3.1.5. Weather-exposed surfaces and moisture-resistant elements such as roofing, sheet metal, sealants, waterproofing, and other trades.
 - 3.3.1.6. Sight-exposed finished surfaces.

- 3.3.2. CMR shall ensure its Subcontractors execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes as shown or specified in the Contract Documents including, without limitation, the Drawings and Specifications.
- 3.3.3. Subcontractors shall fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. CMR shall conform to all Code requirements for penetrations or the Drawings and Specifications, whichever calls for a higher quality or more thorough requirement. CMR shall maintain integrity of both rated and non-rated fire walls, ceilings, floors, etc.
- 3.3.4. CMR's Subcontractors shall restore Work which has been cut or removed and install new products to provide completed Work in accordance with requirements of the Contract Documents and as required to match surrounding areas and surfaces.
- 3.3.5. CMR's Subcontractors shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

END OF SECTION

SECTION 01 73 20

INDOOR AIR QUALITY PROCEDURES

[ARCHITECT TO MODIFY DOCUMENT TO ADDRESS WHETHER PROJECT WILL PURSUE LEED CERTIFICATION (AND TO WHAT LEVEL),]

1. GENERAL

1.1. RELATED DOCUMENTS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions;
- 1.1.2. Temporary Facilities and Controls;
- 1.1.3. [LEED;]
- 1.1.4. General Commissioning Requirements;
- 1.1.5. Contract Closeout and Final Cleaning;
- 1.1.6. Record Documents..

1.2. SUBMITTALS

- 1.2.1. Indoor Air Quality (IAQ) Construction Management Plan. Submit five (5) copies of plan within thirty (30) days of Notice to Proceed.
 - 1.2.1.1. Include a schedule of all IAQ-related construction activities in the IAQ Construction Management Plan submittal.
 - 1.2.1.2. Update plan as required during the construction process to reflect Project conditions.
- 1.2.2. Meeting Minutes: Submit minutes from CMR meetings related to the execution and verification of the IAQ Construction Management Plan.
- 1.2.3. Project Photographs: Submit to document IAQ measures implemented.
- 1.2.4. Product Data: Submit cut sheets of filtration media proposed for use.

1.3. QUALITY ASSURANCE

- 1.3.1. IAQ Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Document "Project Management and Coordination."
 - 1.3.1.1. Review methods and procedures related to IAQ management during construction.
 - 1.3.1.2. Review IAQ management requirements for each trade.

2. EXECUTION

2.1. IAQ MANAGEMENT DURING CONSTRUCTION

[Project Name]
[Judicial Council of California Project No.]

- 2.1.1. General: CMR's IAQ Construction Management Plan shall include procedures to prevent indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.
 - 2.1.1.1. CMR's Subcontractors and their employees shall be provided instruction and training in the IAQ Management Plan.
- 2.1.2. Plan Implementation:
 - 2.1.2.1. Implement waste management plan as approved by Judicial Council of California. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

1. GENERAL

1.1. RELATED DOCUMENTS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.1. General Conditions;
- 1.1.2. Temporary Facilities and Controls;
- 1.1.3. Contract Closeout and Final Cleaning; and
- 1.1.4. Drawings.

1.2. DEFINITIONS

- 1.2.1. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- 1.2.2. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- 1.2.3. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- 1.2.4. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- 1.2.5. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- 1.2.6. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3. PERFORMANCE REQUIREMENTS

- 1.3.1. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of fifty percent (50%) by weight of total waste generated by the Work.
- 1.3.2. Salvage/Recycle Requirements: Judicial Council of California's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible including the following materials:
 - 1.3.2.1. Demolition Waste; and
 - 1.3.2.2. Construction Waste.

- 1.3.3. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle one hundred percent (100%) of the following uncontaminated packaging materials:
 - 1.3.3.1. Paper
 - 1.3.3.2. Cardboard
 - 1.3.3.3. Boxes
 - 1.3.3.4. Plastic sheet and film
 - 1.3.3.5. Polystyrene packaging
 - 1.3.3.6. Wood crates
 - 1.3.3.7. Plastic pails

1.4. SUBMITTALS

- 1.4.1. Waste Management Plan: Submit three (3) copies of plan within thirty (30) calendar days after the starting date on the Notice to Proceed.
- 1.4.2. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three (3) copies of report. Include separate reports for Demolition and Construction Waste. Include the following information:
 - 1.4.2.1. Material category
 - 1.4.2.2. Generation point of waste
 - 1.4.2.3. Total quantity of waste in tons
 - 1.4.2.4. Quantity of waste salvaged, both estimated and actual in tons
 - 1.4.2.5. Quantity of waste recycled, both estimated and actual in tons
 - 1.4.2.6. Total quantity of waste recovered (salvaged plus recycled) in tons
 - 1.4.2.7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste
- 1.4.3. Waste Reduction Calculations: Before request for final inspection, submit three (3) copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- 1.4.4. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- 1.4.5. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- 1.4.6. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

- 1.4.7. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- 1.4.8. LEED Submittal: Submit LEED letter template for Credit MR 2.1 and/or 2.2 (as applicable), signed by CMR, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met. Use Judicial Council of California approved format for documentation.

1.5. QUALITY ASSURANCE

- 1.5.1. Waste Management Coordinator Qualifications: LEED Accredited Professional by U.S. Green Building Council.
- 1.5.2. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- 1.5.3. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- 1.5.4. Waste Management Conference: Conduct conference at Project Site to comply with requirements in Document "Coordination and Project Meetings." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1.5.4.1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 - 1.5.4.2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 1.5.4.3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 1.5.4.4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 1.5.4.5. Review waste management requirements for each trade.

1.6. WASTE MANAGEMENT PLAN

- 1.6.1. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- 1.6.2. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing, and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- 1.6.3. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

- 1.6.3.1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
- 1.6.3.2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
- 1.6.3.3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
- 1.6.3.4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
- 1.6.3.5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
- 1.6.3.6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project Site where materials separation will be located.
- 1.6.4. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
 - 1.6.4.1. Total quantity of waste
 - 1.6.4.2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste
 - 1.6.4.3. Total cost of disposal (with no waste management)
 - 1.6.4.4. Revenue from salvaged materials
 - 1.6.4.5. Revenue from recycled materials
 - 1.6.4.6. Savings in hauling and tipping fees by donating materials
 - 1.6.4.7. Savings in hauling and tipping fees that are avoided
 - 1.6.4.8. Handling and transportation costs. Include cost of collection containers for each type of waste
 - 1.6.4.9. Net additional cost or net savings from waste management plan

2. EXECUTION

2.1. PLAN IMPLEMENTATION

- 2.1.1. General: Implement waste management plan as approved by Judicial Council of California. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

- 2.1.1.1. Comply with Document “Temporary Facilities and Controls” for operation, termination, and removal requirements.
- 2.1.2. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- 2.1.3. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 - 2.1.3.1. Distribute waste management plan to everyone concerned within three (3) days of submittal return.
 - 2.1.3.2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- 2.1.4. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 2.1.4.1. Designate and label specific areas on Project Site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

2.2. SALVAGING DEMOLITION WASTE

- 2.2.1. Salvaged Items for Reuse in the Work:
 - 2.2.1.1. Clean salvaged items.
 - 2.2.1.2. Pack or crate items after cleaning. Identify contents of containers.
 - 2.2.1.3. Store items in a secure area until installation.
 - 2.2.1.4. Protect items from damage during transport and storage.
 - 2.2.1.5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- 2.2.2. Remove salvaged items that are to be sold or donated. Do not store on the Project Site.
- 2.2.3. Salvaged Items for Judicial Council of California's Use:
 - 2.2.3.1. Clean salvaged items.
 - 2.2.3.2. Pack or crate items after cleaning. Identify contents of containers.
 - 2.2.3.3. Store items in a secure area until delivery to Judicial Council of California.
 - 2.2.3.4. Transport items to Judicial Council of California's storage area designated by Judicial Council of California.
 - 2.2.3.5. Protect items from damage during transport and storage.

2.3. RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- 2.3.1. General: Recycle paper and beverage containers used by on-site workers.
- 2.3.2. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project Site to the maximum extent practical.
 - 2.3.2.1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project Site. Include list of acceptable and unacceptable materials at each container and bin.
 - 2.3.2.2. Inspect containers and bins for contamination and remove contaminated materials if found.
 - 2.3.2.3. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 2.3.2.4. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 2.3.2.5. Store components off the ground and protect from the weather.
 - 2.3.2.6. Remove recyclable waste off Judicial Council of California's property and transport to recycling receiver or processor.

2.4. RECYCLING DEMOLITION WASTE

- 2.4.1. Asphaltic Concrete Paving: Grind asphalt to maximum of 1-1/2-inch (38-mm) or 4-inch (100-mm) size, as required by the Technical Specifications including, without limitation, "Earthwork" or "Earth Moving."
 - 2.4.1.1. Crush asphaltic concrete paving and screen to comply with the requirements of the Technical Specifications including, without limitation, "Earthwork" or "Earth Moving," for use as general fill.
- 2.4.2. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.
- 2.4.3. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 - 2.4.3.1. Pulverize concrete to maximum 1-1/2-inch (38-mm) or 4-inch (100-mm) size, as required by the Technical Specifications including, without limitation, "Earthwork" or "Earth Moving."
 - 2.4.3.2. Crush concrete and screen to comply with the requirements of the Technical Specifications including, without limitation, "Earthwork" or "Earth Moving."
- 2.4.4. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
 - 2.4.4.1. Pulverize masonry to maximum 3/4-inch (19-mm) or 1-inch (25-mm) or 1-1/2-inch (38-mm) or 4-inch (100-mm) size, as required by the Technical Specifications including, without limitation, "Earthwork" or "Earth Moving."

- 2.4.4.1.1. Crush masonry and screen to comply with the requirements of the Technical Specifications including, without limitation, “Earthwork” or “Earth Moving.”
- 2.4.4.1.2. Crush masonry and screen to comply with the requirements of the Technical Specifications including, without limitation, “Plants” or “Exterior Improvements.”
- 2.4.4.2. Clean and stack undamaged, whole masonry units on wood pallets.
- 2.4.5. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- 2.4.6. Metals: Separate metals by type.
 - 2.4.6.1. Structural Steel: Stack members according to size, type of member, and length.
 - 2.4.6.2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- 2.4.7. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.
- 2.4.8. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- 2.4.9. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
 - 2.4.9.1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.
- 2.4.10. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
 - 2.4.10.1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- 2.4.11. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- 2.4.12. Plumbing Fixtures: Separate by type and size.
- 2.4.13. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- 2.4.14. Lighting Fixtures: Separate lamps by type and protect from breakage.
- 2.4.15. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.
- 2.4.16. Conduit: Reduce conduit to straight lengths and store by type and size.

2.5. RECYCLING CONSTRUCTION WASTE

- 2.5.1. Packaging:

- 2.5.1.1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
- 2.5.1.2. Polystyrene Packaging: Separate and bag materials.
- 2.5.1.3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project Site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
- 2.5.1.4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- 2.5.2. Site-Clearing Wastes: Chip brush, branches, and trees off site or on-site location designated by Judicial Council of California.
 - 2.5.2.1. Comply with the requirements of the Technical Specifications including, without limitation, “Plants” or “Exterior Improvements,” for use of chipped organic waste as organic mulch.
- 2.5.3. Wood Materials:
 - 2.5.3.1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
- 2.5.4. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
 - 2.5.4.1. Comply with the requirements of the Technical Specifications including, without limitation, “Plants” or “Exterior Improvements,” for use of clean sawdust as organic mulch.
- 2.5.5. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
 - 2.5.5.1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.
 - 2.5.5.1.1. Comply with the requirements of the Technical Specifications including, without limitation, “Plants” or “Exterior Improvements,” for use of clean ground gypsum board as inorganic soil amendment.

2.6. DISPOSAL OF WASTE

- 2.6.1. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project Site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 2.6.1.1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on the Project Site.
 - 2.6.1.2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- 2.6.2. Burning: Do not burn waste materials.
- 2.6.3. Disposal: Transport waste materials off the Project Site and legally dispose of them.

[Project Name]
[Judicial Council of California Project No.]

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT AND FINAL CLEANING

1. GENERAL

1.1. RELATED DOCUMENTS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.10. General Conditions;
- 1.1.11. Requests for Information;
- 1.1.12. Electronic Data Transfer;
- 1.1.13. Submittals;
- 1.1.14. Operation and Maintenance Data;
- 1.1.15. Warranties;
- 1.1.16. Record Documents;
- 1.1.17. Demonstration and Training;

- 1.1.18. Site Safety Management Plan / OCIP Manual

1.2. PRELIMINARY PROCEDURES

1.2.1. Before requesting inspection for determining date of Completion, Contractor shall complete the following.

- 1.2.1.1. Prepare a comprehensive list of items to be completed and corrected (punch list) for review by Architect/Engineer, the value of items on the list, and reasons why the Work is not complete. Complete and correct any additional items arising from Architect/Engineer's review of Punch List items.
- 1.2.1.2. Advise Judicial Council of California of pending insurance changeover requirements.
- 1.2.1.3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
- 1.2.1.4. Obtain and submit releases permitting Judicial Council of California unrestricted use of the Work and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases, if required.
- 1.2.1.5. Prepare and submit Project Record Documents, operation and maintenance manuals, Completion construction photograph prints and electronic files, damage or settlement surveys, property surveys, and similar final record information.

- 1.2.1.6. Make final changeover of permanent locks and deliver keys to Judicial Council of California. Advise Judicial Council of California's personnel of changeover in security provisions.
- 1.2.1.7. Complete startup testing of systems.
- 1.2.1.8. Submit test/adjust/balance records.
- 1.2.1.9. Terminate and remove temporary facilities from Project Site, along with mockups, construction tools, and similar elements.
- 1.2.1.10. Advise Judicial Council of California of changeover in heat and other utilities.
- 1.2.1.11. Submit changeover information related to Judicial Council of California's occupancy, use, operation, and maintenance.
- 1.2.1.12. Complete final cleaning requirements, including touchup painting.
- 1.2.1.13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

1.3. COMPLETION

- 1.3.1. Preliminary Procedures: Before requesting inspection for determining date of Completion, complete the following:
 - 1.3.1.1. Submit a final Application for Payment according to the Contract Documents.
 - 1.3.1.2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 1.3.1.3. Submit pest-control final inspection report and warranty.
 - 1.3.1.4. Instruct Judicial Council of California's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videos where required.
- 1.3.2. Inspection: Submit a written request for inspection.

1.4. LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- 1.4.1. CMR shall notify Judicial Council of California when CMR considers the Work complete. Upon notification, Contractor prepare a list of minor items to be completed or corrected ("Punch List"). Judicial Council of California and Architect will review the Punch List. CMR and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the CMR to complete all Work in accordance with the Contract Documents.
- 1.4.2. CMR and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the CMR to complete all Work in accordance with the Contract Documents.
- 1.4.3. CMR shall comply with Punch List procedures as provided herein, and maintain the presence of a Project Superintendent and Project Manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall

CMR demobilize its forces prior to completion of the Punch List. Upon receipt of CMR's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and acceptance, Judicial Council of California and Architect will inspect the Work and shall submit to CMR a final inspection report noting the Work, if any, required in order to complete in accordance with the Contract Documents. Absent unusual circumstances, this report shall consist of the Punch List items not yet satisfactorily completed.

- 1.4.4. Upon CMR's completion of all items on the Punch List and any other uncompleted portions of the Work, the CMR shall notify the Judicial Council of California and Architect, who shall again inspect such Work. If the Judicial Council of California and Architect find the Work complete and acceptable under the Contract Documents, the Judicial Council of California will notify CMR, who shall then jointly submit to the Architect and Judicial Council of California its final Application for Payment.
- 1.4.5. **Costs of Multiple Inspections.** More than two (2) requests of Judicial Council of California to make a final inspection shall be considered an additional service of Judicial Council of California, the Architect and/or the Inspector, and all subsequent costs will be invoiced to CMR and if funds are available, withheld from remaining payments.
- 1.4.6. Punch List shall be complete only upon the Judicial Council of California's determination that all items on the Punch List, and all updates to the Punch List, are complete.

1.5. WARRANTIES

- 1.5.1. Submittal Time: Submit written warranties on request of Judicial Council of California for designated portions of the Work where commencement of warranties other than date of Completion is indicated.
- 1.5.2. Organize warranty documents into an orderly sequence as required by the "Warranties" document.

2. PRODUCTS

2.1. MATERIALS

- 2.1.1. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

3. EXECUTION

3.1. FINAL CLEANING

- 3.1.1. Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. CMR shall use cleaning methods and procedures that reduce the overall impact on human health and the natural environment by reducing the amount of disposed waste, pollution and environmental degradation. If Project is subject to LEED certification, CMR shall ensure compliance with the applicable LEED requirements for final cleaning of the Site.
- 3.1.2. CMR shall employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program.

3.1.2.1. Complete the following cleaning operations before requesting final inspection:

- 3.1.2.1.1. Clean Project Site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
- 3.1.2.1.2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
- 3.1.2.1.3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
- 3.1.2.1.4. Remove tools, construction equipment, machinery, and surplus material from Project Site.
- 3.1.2.1.5. Remove snow and ice to provide safe access to building.
- 3.1.2.1.6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
- 3.1.2.1.7. Clean all surfaces and other work in accordance with recommendations of the manufacturer.
- 3.1.2.1.8. Remove spots, mortar, plaster, soil, and paint from ceramic tile, stone, and other finish materials.
- 3.1.2.1.9. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- 3.1.2.1.10. Sweep concrete floors broom clean in unoccupied spaces.
- 3.1.2.1.11. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
- 3.1.2.1.12. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
- 3.1.2.1.13. Remove labels that are not permanent.
- 3.1.2.1.14. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 3.1.2.1.14.1. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
- 3.1.2.1.15. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

- 3.1.2.1.16. Replace parts subject to unusual operating conditions.
 - 3.1.2.1.17. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - 3.1.2.1.18. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - 3.1.2.1.19. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - 3.1.2.1.20. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - 3.1.2.1.21. Leave Project Site clean and ready for occupancy.
- 3.1.3. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests.
- 3.1.4. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Judicial Council of California's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project Site and dispose of lawfully.

END OF SECTION

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.19. General Conditions;
- 1.1.20. Electronic Data Transfer;
- 1.1.21. Submittals;
- 1.1.22. Contract Closeout and Final Cleaning;
- 1.1.23. Warranties;
- 1.1.24. Record Documents;
- 1.1.25. Demonstration and Training;

1.2. QUALITY ASSURANCE

CMR shall prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.3. FORMAT

- 1.3.1. All documents required herein shall be submitted in compliance with the formatting and numbering requirements of the document "**Documentation Requirements.**"
- 1.3.2. CMR shall prepare data in the form of an instructional manual entitled "OPERATIONS AND MAINTENANCE MANUAL & INSTRUCTIONS" ("Manual").
- 1.3.3. Binders: CMR shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, CMR shall correlate data into related consistent groupings.
- 1.3.4. Cover: CMR shall identify each binder with typed or printed title "OPERATION AND MAINTENANCE MANUAL & INSTRUCTIONS"; and shall list title of Project and identify subject matter of contents.
- 1.3.5. CMR shall arrange content by systems process flow under section numbers and sequence of Table of Contents of the Contract Documents.
- 1.3.6. CMR shall provide tabbed fly leaf for each separate Product and system, with typed description of Product and major component parts of equipment.
- 1.3.7. Text: The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.

- 1.3.8. Drawings: CMR shall provide with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.

1.4. CONTENTS, EACH VOLUME

- 1.4.1. Table of Contents: CMR shall provide title of Project; names, addresses, and telephone numbers of the Architect, any engineers, subconsultants, Subcontractor(s), and CMR with name of responsible parties; and schedule of Products and systems, indexed to content of the volume.
- 1.4.2. For Each Product or System: CMR shall list names, addresses, and telephone numbers of Subcontractor(s) and suppliers, including local source of supplies and replacement parts.
- 1.4.3. Product Data: CMR shall mark each sheet to clearly identify specific Products and component parts, and data applicable to installation. Delete inapplicable information.
- 1.4.4. Drawings: CMR shall supplement Product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. CMR shall not use Project Record Documents as maintenance drawings.
- 1.4.5. Text: The CMR shall include any and all information as required to supplement Product data. CMR shall provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.5. MANUAL FOR MATERIALS AND FINISHES

- 1.5.1. Building Products, Applied Materials, and Finishes: CMR shall include Product data, with catalog number, size, composition, and color and texture designations. CMR shall provide information for re-ordering custom manufactured Products.
- 1.5.2. Instructions for Care and Maintenance: CMR shall include Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- 1.5.3. Moisture Protection and Weather Exposed Products: CMR shall include Product data listing applicable reference standards, chemical composition, and details of installation. CMR shall provide recommendations for inspections, maintenance, and repair.
- 1.5.4. Additional Requirements: CMR shall include all additional requirements as specified in the Specifications.
- 1.5.5. CMR shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.6. MANUAL FOR EQUIPMENT AND SYSTEMS

- 1.6.1. Each Item of Equipment and Each System: CMR shall include description of unit or system, and component parts and identify function, normal operating characteristics, and limiting conditions. CMR shall include performance curves, with engineering data and tests, and complete nomenclature, and commercial number of replaceable parts.
- 1.6.2. Panelboard Circuit Directories: CMR shall provide electrical service characteristics, controls, and communications.

- 1.6.3. CMR shall include color coded wiring diagrams as installed.
- 1.6.4. Operating Procedures: CMR shall include start-up, break-in, and routine normal operating instructions and sequences. CMR shall include regulation, control, stopping, shut-down, and emergency instructions. CMR shall include summer, winter, and any special operating instructions.
- 1.6.5. Maintenance Requirements: CMR shall include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- 1.6.6. CMR shall provide servicing and lubrication schedule, and list of lubricants required.
- 1.6.7. CMR shall include manufacturer's printed operation and maintenance instructions.
- 1.6.8. CMR shall include sequence of operation by controls manufacturer.
- 1.6.9. CMR shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- 1.6.10. CMR shall provide control diagrams by controls manufacturer as installed.
- 1.6.11. CMR shall provide CMR's coordination drawings, with color coded piping diagrams as installed.
- 1.6.12. CMR shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- 1.6.13. CMR shall provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- 1.6.14. Additional Requirements: CMR shall include all additional requirements as specified in Specification(s).
- 1.6.15. CMR shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.7. SUBMITTAL

- 1.7.1. Concurrent with the Schedule of Submittals as indicated in the General Conditions, CMR shall submit to the Judicial Council of California for review two (2) copies of a preliminary draft of proposed formats and outlines of the contents of the Manual.
- 1.7.2. For equipment, or component parts of equipment put into service during construction and to be operated by Judicial Council of California, CMR shall submit draft content for that portion of the Manual within ten (10) days after acceptance of that equipment or component.
- 1.7.3. On or before the CMR submits its final application for payment, CMR shall submit two (2) copies of a complete Manual in final form. The Judicial Council of California will provide comments to CMR and CMR must revise the content of the Manual as required by Judicial Council of California prior to Judicial Council of California's approval of CMR's final Application for Payment.

[Project Name]

[Judicial Council of California Project No.]

- 1.7.4. CMR must submit two (2) copies of revised Manual in final form within ten (10) days after receiving Judicial Council of California's comments. Failure to do so will be a basis for the Judicial Council of California withholding funds sufficient to protect itself for CMR's failure to provide a final Manual to the Judicial Council of California.

END OF SECTION

SECTION 01 78 36

WARRANTIES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.26. General Conditions;
- 1.1.27. Electronic Data Transfer;
- 1.1.28. Submittals;
- 1.1.29. Contract Closeout and Final Cleaning;
- 1.1.30. Operation and Maintenance Data;
- 1.1.31. Record Documents;
- 1.1.32. Demonstration and Training;

1.2. FORMAT

- 1.2.1. All documents required herein shall be submitted in compliance with the formatting and numbering requirements of the document “**Documentation Requirements.**”
- 1.2.2. Binders: CMR shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size.
- 1.2.3. Cover: CMR shall identify each binder with typed or printed title "WARRANTIES" and shall list title of Project.
- 1.2.4. Table of Contents: CMR shall provide title of Project; name, address, and telephone number of CMR and equipment supplier, and name of responsible principal. CMR shall identify each item with the number and title of the specific Specification, document, provision, or section in which the name of the Product or work item is specified.
- 1.2.5. CMR shall separate each warranty with index tab sheets keyed to the Table of Contents listing, providing full information and using separate typed sheets as necessary. CMR shall list each applicable and/or responsible Subcontractor(s), supplier(s), and/or manufacturer(s), with name, address, and telephone number of each responsible principal(s).
- 1.2.6. In addition to all warranty documentation and information required herein, CMR shall provide its Guarantee as required by the Contract Documents.

1.3. PREPARATION

- 1.3.1. CMR shall obtain warranties, executed in duplicate by each applicable and/or responsible Subcontractor(s), supplier(s), and manufacturer(s), within ten (10) days after completion of the applicable item or work. Except for items put into use with Judicial Council of

California's permission, CMR shall leave date of beginning of time of warranty until the date of completion is determined.

- 1.3.2. CMR shall verify that warranties are in proper form, contain full information, and are notarized, when required.
- 1.3.3. CMR shall co-execute submittals when required.
- 1.3.4. CMR shall retain warranties until time specified for submittal.

1.4. TIME OF SUBMITTALS

- 1.4.1. Schedule of Warranties. CMR shall provide Judicial Council of California with a schedule of warranties at least fourteen (14) days prior to submitting its other required submittals indicated herein. This will provide Judicial Council of California the opportunity to review the anticipated warranties and make any comments, suggestions or revisions Judicial Council of California may require.
- 1.4.2. For equipment or component parts of equipment put into service during construction with Judicial Council of California's permission, CMR shall submit a draft warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.
- 1.4.3. On or before the CMR submits its final application for payment, CMR shall submit all warranties and related documents in final form. CMR shall indicate any warranty related work that is being performed and incomplete at the time it submits its final application for payment. The Judicial Council of California will provide comments to CMR and CMR must revise the content of the warranties as required by Judicial Council of California prior to Judicial Council of California's approval of CMR's final Application for Payment.
- 1.4.4. For items of Work that are not completed until after the date of Completion, CMR shall provide an updated warranty for those item(s) of Work within ten (10) days after acceptance, listing the date of acceptance as start of warranty period.

END OF SECTION

SECTION 01 78 39

RECORD DOCUMENTS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.33. General Conditions;
- 1.1.34. Electronic Data Transfer;
- 1.1.35. Submittals;
- 1.1.36. Contract Closeout and Final Cleaning;
- 1.1.37. Operation and Maintenance Data;
- 1.1.38. Warranties;
- 1.1.39. Demonstration and Training;

2. RECORD DOCUMENTS

2.1. GENERAL

- 2.1.1. All documents required herein shall be submitted in compliance with the formatting and numbering requirements of the document “**Documentation Requirements.**”
- 2.1.2. “Record Documents” may also be referred to in the Contract Documents as “As-Built Drawings.”
- 2.1.3. As indicated in the Contract Documents, Judicial Council of California will provide CMR with one set of reproducible plans of the original Drawings.
- 2.1.4. CMR shall maintain at each Project Site one (1) set of marked-up Drawings and shall transfer all changes and information to those marked-up Drawings, as often as required in the Contract Documents, but in no case less than once each month. CMR shall submit to the Project Inspector one set of reproducible vellums of the Project Record Documents (“As-Built”) showing all changes incorporated into the Work since the preceding monthly submittal. The As-Built shall be available at the Project Site. The CMR shall submit reproducible vellums at the conclusion of the Project following review of the blue-line prints.
- 2.1.5. Label and date each Record Document "RECORD DOCUMENT" in legibly printed letters.
- 2.1.6. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused by without limitation Change Orders, RFI's, and Addenda, shall be accurately and legibly recorded by CMR.

- 2.1.7. Locations and changes shall be done by CMR in a neat and legible manner and, where applicable, indicated by drawing a "cloud" around the changed or additional information.

2.2. RECORD DOCUMENT INFORMATION

- 2.2.1. CMR shall record the following information:
 - 2.2.1.1. Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.
 - 2.2.1.2. Actual numbering of each electrical circuit.
 - 2.2.1.3. Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Drawings.
 - 2.2.1.4. Locations of all items, not necessarily concealed, which vary from the Contract Documents.
 - 2.2.1.5. Installed location of all cathodic protection anodes.
 - 2.2.1.6. Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.
 - 2.2.1.7. Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.
 - 2.2.1.8. Sufficient information to locate Work concealed in each building with reasonable ease and accuracy.
- 2.2.2. In some instances, this information may be recorded by dimension. In other instances, it may be recorded in relation to the spaces in the building near which it was installed.
- 2.2.3. CMR shall provide additional drawings as necessary for clarification.
- 2.2.4. CMR shall provide in an electronic format as indicated in the Contract Documents, a copy of the Drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."
 - 2.2.4.1. With the Judicial Council of California's prior approval, the CMR may provide these reproducible Drawings, in hard copy.

2.3. RECORD MATERIALS LOG

- 2.3.1. Materials Log shall be submitted prior to Completion.
- 2.3.2. Preparation: Mark Material Log to indicate the actual product installation where installation varies from that indicated in original Material Log.
- 2.3.3. Give particular attention to information on concealed materials and installations that cannot be readily identified and recorded later.
- 2.3.4. Mark copy with the proprietary name and characteristics of products, materials, and equipment furnished, including substitutions and product options selected.

[Project Name]
[Judicial Council of California Project No.]

- 2.3.5. Record the name of the manufacturer, supplier, installer, and other information necessary to provide a record of selections made.
- 2.3.6. The working copy of Materials Log shall be consistently maintained throughout construction, and shall be accessible at Project Site.

3. MAINTENANCE OF RECORD DOCUMENTS

- 3.1.** CMR shall store Record Documents apart from documents used for construction as follows:
 - 3.1.1. Provide files and racks for storage of Record Documents.
 - 3.1.2. Maintain Record Documents in a clean, dry, legible condition and in good order.
 - 3.1.3. Provide clear, legible As-Built set of Documents based on changes during construction to the Permit Set for the Architect/Engineer's preparation of Record Documents.
- 3.2.** CMR shall not use Record Documents for construction purposes.

END OF SECTION

SECTION 01 79 00

DEMONSTRATION AND TRAINING

1. GENERAL

1.1. RELATED DOCUMENTS

CMR shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

- 1.1.40. General Conditions;
- 1.1.41. Electronic Data Transfer;
- 1.1.42. Submittals;
- 1.1.43. Contract Closeout and Final Cleaning;
- 1.1.44. Operation and Maintenance Data;
- 1.1.45. Warranties;
- 1.1.46. Record Documents;

1.2. SUMMARY

- 1.2.1. This Document includes administrative and procedural requirements for on-site instruction of Judicial Council of California's personnel, including the following:
 - 1.2.1.1. Demonstration of operation of systems, subsystems, and equipment.
 - 1.2.1.2. Instruction in operation and maintenance of systems, subsystems, and equipment.
 - 1.2.1.3. Demonstration and instructional videotapes.

1.3. SUBMITTALS

- 1.3.1. Instruction Program: Submit three (3) copies of outline of instructional program for demonstration and instruction , including a schedule of proposed dates, times, length of instruction time, and instructors' names for each instruction module. Include learning objective and outline for each instruction module.
 - 1.3.1.1. At completion of instruction, submit two (2) complete set of instruction manual(s) for Judicial Council of California's use (hard copy and electronic files).
- 1.3.2. Attendance Record: For each instruction module, submit list of participants and length of instruction time.
- 1.3.3. Evaluations: For each participant and for each instruction module, submit results and documentation of performance-based test.
- 1.3.4. Demonstration and instruction Videos: Submit two (2) copies to Judicial Council of California within seven (7) days of end of each instruction module.

1.3.4.1. Identification: On each copy, provide an applied label with the following information:

1.3.4.1.1. Name of Project and Judicial Council of California Project Number.

1.3.4.1.2. Name and address of photographer.

1.3.4.1.3. Name of Judicial Council of California's Representative.

1.3.4.1.4. Name of CMR.

1.3.4.1.5. Date videotape was recorded.

1.3.4.2. Transcript: Prepared on 8-1/2-by-11-inch (215-by-280-mm) paper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding videotape. Include name of Project and date of video on each page.

1.4. COORDINATION

1.4.1. Coordinate instruction schedule with Judicial Council of California's Facilities Management Unit. Adjust schedule as required to minimize disrupting Judicial Council of California's operations. Notify at least fourteen (14) days in advance.

1.4.2. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

1.4.3. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Judicial Council of California.

1.5. INSTRUCTION PROGRAM

1.5.1. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.

1.5.2. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master.

1.6. PREPARATION

1.6.1. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.

1.6.2. Set up instructional equipment at instruction location.

1.7. INSTRUCTION

1.7.1. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between CMR and Judicial Council of California for number of participants, instruction times, and location.

[Project Name]

[Judicial Council of California Project No.]

- 1.7.2. Engage qualified instructors to instruct Judicial Council of California's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1.7.2.1. Judicial Council of California will furnish CMR with names and positions of participants.
- 1.7.3. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1.7.3.1. Schedule training with Judicial Council of California, with at least fourteen (14) days' advance notice.
- 1.7.4. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a performance-based test.
- 1.7.5. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION

SECTION 14211

MODERNIZATION OF EXISTING TRACTION ELEVATORS

PART 1 - GENERAL

- 1.01 DESCRIPTION
- A. Scope: Provide materials, labor, and services necessary for the complete modernization of existing electric traction elevators.
 - B. Elevator Lists:
 - 1. Modernize:
 - a) Passenger Elevators 1 to 3
 - b) Custody Elevators 4 & 6
 - c) Judge's Elevator 5
 - C. The Contractor shall work normal hours and normal days with the exception of noisy work, which shall be performed from 5 a.m. to 8 a.m. Noisy work is considered work which will create disruption to normal court or building operation and is performed in the hoistways/lobbies/elevator cabs. The work in the machine room is not considered to be part of this "noisy" work
 - D. Any cranes used to bring equipment into the building shall be the responsibility of the Elevator Contractor and shall be scheduled for use on weekends. Permits for cranes are the Elevator Contractor's responsibility.
 - E. Upon bidding the work, the Contractor shall indicate any additional code compliance items which may be affected as a result of this work. This shall be reported to Owner and Consultant, regardless of whether it is included in any contract document including the specifications and drawings.
 - F. If additional work is required for compatibility with the Contractor's equipment, that shall be identified and itemized with the bid submittal.
 - G. The new cab and car components shall be designed to stay within 5% of the original car weight, as stamped on the crosshead. Should the original weight be exceeded by more than 5%, comply with all ASME, A17.1 requirement and report the specific conditions to Owner and Consultant prior to manufacture of any equipment.
 - H. The Contractor is required to design all changes to not exceed a 5% increase in the original deadweight of the car enclosure, plus rated capacity. Should the total car weight be exceeded, Contractor shall be responsible for the following:
 - 1. All code required changes.
 - 2. Provide structural calculations as required by code to determine integrity and capability of existing elevator components including machine support beams, with ASME A17.1, to withstand the new weights.

3. Review of existing structural electrical and mechanical provisions for compatibility with Contractor's products.
4. Documentation shall be furnished to the enforcing code authorities verifying the results.
5. Purchaser shall not be responsible for changes to structural, mechanical, electrical or other systems required to accommodate Contractor's equipment.

1.02 NON-PROPRIETARY EQUIPMENT

A. It is recognized that each manufacturers system contains components that are proprietary to the development of their systems. The Owner may wish to have the elevator system maintained by another technically qualified service Owner and by submitting a bid for this project, the manufacturer shall guarantee that for a minimum of 20 years they will provide the following:

1. Diagnostic, adjusting and monitoring tools for all components including documents, manuals, wiring diagrams and spare parts as listed in part 3 of this specification shall be provided in each machine room, controller room or machine space as a permanent part of the installation and become the property of the Owner. Devices shall be permanent at no additional cost to Owner, shall not self-destruct, and require charging or exchange. Remote monitoring devices are excluded from this requirement, however if such devices are removed all wiring shall be neatly terminated, tied within a junction box and properly marked as to its content.
2. Manufacturer shall guarantee to support the equipment for this project with regard to notification to Owner of system corrective updates, provide and be responsible for the costs to install such updates at no cost to Owner.
3. Provide contact information for their separate parts warehouse so that the Owner or designated service Owner can order parts on a 24-hour basis and delivered with 48 hours.
4. Provide a list of parts of each component manufactured and stored at the warehouse and the retail cost of each at closeout of the project and estimated escalation cost. The cost of these parts is what would be charged to Owner or other service Owner.
5. Provide contact information for technical support so that the Owner or designated service Owner can obtain technical support on a 24-hour basis to provide assistance in troubleshooting problems. Indicate hourly rate charged to Owner or designated service Owner for such service.

1.03 CONTRACTOR RESPONSIBILITY

A. GENERAL REQUIREMENTS

1. Should additional work be required either due to code or the elevator contractor's specific requirements, these shall be noted and included with the bid. In the absence of such a list it is assumed the Contractor's equipment is compatible with the existing building system and any resulting work or revisions to the building or to the elevators shall be the responsibility of the Elevator Contractor.

2. Verify existing building systems including but not limited to mechanical, electrical system and fire life safety is compatible with the new equipment being proposed, identify any necessary modifications and include modifications in bid.
3. Provide all floor protection to disburse the weight of materials being removed and/or brought into the facility. Floor protection shall be adequate to prevent damage to existing flooring. Contractor accepts responsibility for cost of replacing any building surfaces, features or finishes damaged by their actions.
4. Provide, identify and protect clear pathway, subject to Owner's prior approval, for any and all movement and storage of equipment, material and tools, around the property and within the building.
5. Provide guards and barricades to shield people from worksite hazards, including open hoistway, machinery, materials, equipment, and tools.
6. Protect premises from damage throughout course of construction, including floors, walks, walls, thresholds, entrance frames, doors, equipment, etc. Repair or replace items damaged or marred during construction.
7. Clean and paint areas and equipment as specified.
8. Paint the machine room walls, ceilings and floors.
9. Perform code and performance related tests as specified.
10. Remove and properly dispose of discarded equipment and materials, including debris, rubbish, oil and lubricants.
11. Adjust all safety and emergency control related devices and perform code mandated safety tests.
12. Remove and legally dispose of all elevator equipment replaced by this modification. Removed equipment shall be disposed of as fast as it accumulates and shall not be staged in public spaces.
13. Contractor shall include all code required items, permits, testing, records and inspection costs.
14. Coordinate with the Contractor to restore all damaged building finishes, including carpet, door frames, walls, ceilings, etc. to pre-modernization condition.
15. All modifications to the entry/exit areas shall be the Owner responsibility but are the Contractor's responsibility to coordinate.
16. Provide fluorescent pit lighting of not less than 100 lx (10 fc), measured at the pit floor. Furnish properly located light switch and GFCI duplex outlet near pit entry.
17. Provide GFCI convenience outlets in pit for sump pump.
18. Removal all non-elevator equipment from machine room, as required by the Elevator Bureau.
19. Provide a class "ABC" fire extinguisher mounted inside each machine room.

20. Secure the storage space for tools and materials.
21. Include all costs associated with the safe hoisting of new equipment to the machine room.

1.04 RELATED

A. Building Work. The following work shall be the responsibility of the other trades.

NOTE: To the Contractor: Should additional work be required either due to code or the Contractor's specific requirements, these shall be noted and included with the bid. In the absence of such a list it is assumed the Contractor's equipment is compatible with the existing building system and any resulting work or revisions to the building or to the elevators shall be the responsibility of the Contractor.

1. Patching and finishing around entrances and adjacent flooring after installation.
2. Provide code required machine room door signage.
3. All modifications to the entry/exit areas shall be the Owner responsibility but are the Contractor's responsibility to coordinate.
4. Bevel all shaft ledges with an angle of not less than 75 degrees with the horizontal, where required.
5. Provide all required hoistway wall patching.
6. Modifications to the existing hoistway walls.
7. Wall block outs and fire rated closure for control and signal fixture boxes which penetrate walls.
8. Patching and finishing around entrances and adjacent flooring after installation.
9. All modifications to the entry/exit areas shall be the Owner responsibility but are the Contractor's responsibility to coordinate.
10. Coordinate with the Contractor to restore all damaged building finishes, including carpet, door frames, walls, ceilings, etc. to pre-modernization condition. Build back surfaces and or building areas to match pre-existing finishes.
11. Removal of all non-elevator equipment from machine room.
12. Provide storage space for tools and materials. Contractor shall be responsible for securing the area.

B. Mechanical: Refer to Mechanical Contract Documents. The following are general guidelines. Provide adequate machine room heating and cooling necessary to maintain an ambient temperature between 55 and 85 degrees Fahrenheit, with relative humidity not exceeding 85% non-condensing.

C. Electrical: Refer to the Electrical Contract Documents. The following are general guidelines.

1. Verify existing electrical system is compatible with the new equipment being

proposed, identify any necessary modifications and include modifications in bid.

2. Provide LED pit lighting of not less than 100 lx (10 fc), measured at the pit floor. Furnish properly located light switch and GFCI duplex outlet near pit entry. All to be NEMA 4 for wet application.
3. Provide one GFCI type duplex utility receptacle near each elevator hoist machine. Replace existing outlets with GFCI type. Receptacles shall be manually reset type
4. Provide single non-GFCI outlet in pit when there is an existing sump pump.
5. Provide required conduit between hoistway and remote elevator control panel.
6. Provide proper machine room lighting arranged for optimal viewing of control equipment. The light level must be a minimum of 200 lx (19 fc), measured at the machine room floor. Provide sufficient quantity of T8 fluorescent fixtures with wire cage bulb guards. Locate light switch near the lockable side of the entry door.
7. Provide properly sized, 3-phase power with lockable, fused disconnect switch at code required location for each elevator. Run feeder wires in separate code compliant conduit, terminated at each individual car controller or transformer. If alternate for auxiliary power supply is accepted, disconnect switch must be equipped with auxiliary contacts. Verify requirements with Contractor.
8. Provide 120 VAC single phase with fused disconnect switch mounted adjacent to group controller, where required. Verify requirements with Contractor.
9. Provide insulated copper grounding conductor from the main building ground to each power disconnect switch.

D. Fire Alarm—Refer to contract documents.

1.05 PURCHASER RESPONSIBILITY:

A. ACCESS TO SITE/GENERAL:

1. On-site Parking shall be provided for the Contractor.
2. Provide and designate adequate storage space for tools and materials.
3. No objects adjacent to, and below, the hall push button station shall project more than 4-inches from the wall.

B. MACHINE ROOM:

1. Service all air conditioning systems and clean all vents.

C. COMMUNICATION AND SECURITY:

1. Provide security camera equipment, where desired.
2. Provide card readers where desired.

1.06 REFERENCES

- A. California Trial Court Facilities Standards
- B. JCC Requirements
- C. Applicable Codes (Latest Edition):
 - 1. All work shall be completed in accordance with national, state and local codes in effect at time of award. All requirements of local building department and fire jurisdictions shall be fulfilled by the Contractor.
 - 2. The American Society of Mechanical Engineers, Safety Code for Elevators and Escalators (ASME A17.1)
 - 3. The American Society of Mechanical Engineers, Safety Code for Existing Elevators and Escalators (ASME A17.3 - 2005)
 - 4. American National Standard Accessible and Usable Buildings and Facilities (ICC/ANSI A117.1-Latest Edition)
 - 5. National Fire Protection Association (NFPA 13)
 - 6. National Fire Protection Association (NFPA 72)
 - 7. National Electrical Code (NFPA 72)
 - 8. Americans with Disabilities Act (ADA)
 - 9. California State Building, Fire, Elevator and Accessibility Code
 - 10. American Welding Society (AWS) D1.1 - Structural Welding Code - Steel
 - 11. Authorities having jurisdiction

1.07 CONTRACT

- A. Contractor shall advise Consultant and Owner of any discrepancies or ambiguities found in the project specifications prior to submitting bid.
- B. Contract includes all engineering, labor, tools, materials, permits, equipment, required to complete the specified work, except those items defined as to be performed by the Contractor.
- C. Contractor shall familiarize itself with the site conditions and include all incidental work that might occur or be required as part of this project.

1.08 DEFINITIONS

- A. The following definitions apply to work of this Section:
 - 1. "Owner": as used herein, refers to JCC.
 - 2. "Contractor": refers to the Contractor having the contract with Owner to furnish labor and materials for the execution of work as specified herein.

3. "Consultant": refers to the Syska Hennessy Group, Inc.
4. "Provide": to furnish and install, complete for safe operation, unless specifically indicated otherwise.
5. "Install": to erect, mount and connect complete with related accessories.
6. "Refurbish": to modify as required for like new operation and characteristics, meeting all current code requirements.
7. "Supply": to purchase, procure, acquire and deliver complete with related accessories.
8. "As required", "where required", "as needed", "if required", and "if necessary": repair or replace components to provide like new operation or meet code requirements.
9. "Work": labor and materials required for proper and complete installation.
10. "Wiring": raceway, fittings, wire, boxes, and related items.
11. "Concealed": embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces or in enclosures.
12. "Exposed": not installed underground or "concealed" as defined above.
13. "Indicated", "shown", or "noted": as indicated, shown or noted on Drawings or as specified.
14. "Similar" or "equal": of base bid manufacturer, equal in materials, weight, size, design and efficiency of specified product, conforming to "Acceptable manufacturers."
15. "Reviewed", "satisfactory", "accepted", or "directed": as reviewed, satisfactory, accepted or directed, by or to Owner.
16. Where a device or a part of equipment is referred to in the singular number, it is intended that such reference shall apply to as many such devices as are required to complete the installation.

1.09 INSTRUCTIONS TO CONTRACTORS:

- A. Bids shall be subject to all the requirements of the contract documents and any other documents issued in connection with this project.
- B. Contractor shall identify any operations and features that are unique to their product or practices.
- C. If Contractor desires to furnish items differently than specified, Contractor shall submit substitution as an alternate quotation along with bid. Contractor shall supply information in regard to the proposed substitution of components or materials.
- D. Contractor shall identify any conflicts or problems/issues with the implementation of this work. In the absence of such identification, Contractor is responsible for existing conditions

and modifications to the existing hoistway, machine rooms, elevator cars, etc. pertaining to this work, shall be the responsibility of the Contractor. Modifications to building systems, i.e. mechanical, structural, and electrical, etc., shall not be made to accommodate Contractor's equipment.

1.10 HAZARDOUS MATERIALS NOTIFICATION, TRAINING & REQUIREMENTS:

- A. If asbestos containing building materials or other hazardous materials are found to be present within the elevator machine rooms and hoistways, moving, drilling, cutting or otherwise disturbing such materials can pose a health risk and should not be attempted by untrained personnel. Contractor shall immediately notify Owner if there is need to disturb such materials as part of the project or if they observe any materials that they suspect contain asbestos or other hazardous materials that are not properly maintained.
- B. All technicians working on the project are to have undergone hazardous materials awareness training to learn about adverse health effects, necessary precautions, emergencies, inspections, and maintenance.
- C. Should removal or abatement be required, it shall be performed by others and the responsibility of the Owner.

1.11 MATERIALS:

- A. All exposed retained metal in the hoistway and on the car tops shall have all rust removed, shall be mechanically and chemically cleaned, followed immediately by the application of common, low-VOC, low-odor, rust-inhibiting coating.
- B. Stainless Steel: Type 302 or 304 or 316 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength and durability.
- C. Paint: Clean all new, exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, apply one finish coat of low-VOC, low-odor, industrial enamel paint. Galvanized metal need not be painted.

1.12 OPERATION PERFORMANCE

- A. The control system shall provide smooth acceleration and deceleration with 1/8-inch leveling accuracy at all landings, from no load to full rated load in the elevator, under normal or unloading conditions. The self-leveling shall, within its zone, be entirely automatic and independent of the operating device and shall correct for over travel and under travel. The car shall remain at the landing irrespective of load.
- B. The floor-to-floor performance time shall be is measured from the start of door close at one floor to ¾ open at the next floor:
 - 1. Passenger Elevators: 9.0 seconds
 - 2. Judge's Elevator: 10.0 seconds
 - 3. Custody Elevators: 12.0 seconds
- C. The door open time shall be measured from start of door open to fully open.
 - 1. Passenger Elevators: 1.8 seconds

2. Judge's Elevator: 1.6 seconds
 3. Custody Elevators: 2.4 seconds
- D. The door close time shall be seconds from start of door close to fully closed.
1. Passenger Elevators: 2.4 seconds
 2. Judge's Elevator: 2.2 seconds
 3. Custody Elevators: 4.4 seconds
- E. The door close time shall be based on the Code requirements with a door delay feature.
- F. The hall call door dwell time shall be based on the code requirements with a door delay feature. The door delay is the minimum acceptable time from notification that a car is answering a call (lantern and audible signal) until the doors of the car start to close. The minimum acceptable time for doors to remain fully open after answering a hall call shall not be less than 5-seconds. Time shall be calculated by the following equation:
- $$T = D / (1.5 \text{ ft/s})$$
- T = Total time in seconds.
- D = Distance from a point in the lobby 60-inches directly in front of the hall station to center line of the door opening.
- G. Car call door dwell time: The minimum acceptable time for doors to remain fully open after answering a car call shall not be less than 3-seconds, per code. Initial setting shall be 3.5-seconds.
- H. The speed of the elevator shall not vary by more than +/- 3% under loading conditions.
- I. Differential Door Timing Feature: Provide adjustable timers to vary the time that the doors remain open in response to a car or hall call. The doors shall remain open for 4.0-seconds in response to a car call and 5 to 8-seconds for a hall call. The doors shall remain open as long as passengers are crossing the threshold.
- J. Nudging: When doors are prevented from closing for 20-seconds due to failure of the proximity device or obstruction, the doors shall remain open and a buzzer shall sound.
- K. Prior to final acceptance, and again prior to the termination of the maintenance period, the elevators shall be adjusted as required to meet these performance requirements.
- 1.13 SOUND CONTROL/NOISE AND VIBRATION/RIDE QUALITY
- A. Limit overall elevator noise emissions to the building to the following maximum A-weighted sound pressure levels in any mode of operation:
1. 55-decibels measured 5-feet above the cab floor near center while running at rated speed.
 2. 55-decibels measured 5-feet above the cab floor near center while the doors are opening or closing.
 3. 55-decibels measured in the elevator lobby 10-feet from the elevator doors.

4. All elevator equipment including their supports and fastenings to building, shall be mechanically and electrically isolated from the building structure and main line power feeders to minimize objectionable noise and vibration transmission to car, building structure, or adjacent occupied areas of building.
5. Ride Quality requirements shall include a horizontal acceleration measured inside of the cab during all conditions to not exceed 12 mg peak to peak within the 1-10 MHz range.
6. Vertical acceleration and deceleration shall free of bumps, jerk, and sway, and shall be not less than 3.3 feet/sec² with initial ramp of between 0.5 and 0.75-seconds.
7. Make all necessary modifications or replacement of equipment as necessary prior to final acceptance or warranty expiration to meet the performance requirement. This shall be performed at no additional charge.

1.14 SUBMITTALS

- A. Submit the following before beginning fabrication of equipment:
 1. The source of all finishes shall be provided by Ownership. The Contractor shall coordinate procurement of those materials with the Ownership and shall direct any of its subcontractor accordingly. Sourcing of all materials and the intended manufacturer/Contractor shall be submitted for approval.
 2. Shop Drawings: Provide an electronic set of complete, fully-dimensioned shop drawings, to scale in PDF format. Include layouts of pits, overhead, plan view of hoistway, cab, machine room, equipment loads, power and heat data for all equipment and required clearances. Provide detailed signal fixture drawings and cut sheets for all major components (controller, door operator, roller guides, etc.)
 3. Details of hold-to interior dimensions shall be provided. Drawings shall include details of cab interior including plans, and elevations. Fixture details shall be submitted for review. Generic brochures shall be rejected as not job specific. All details are to reflect modification to existing conditions and exact locations of the new materials. Provide hoistway, overhead and pit sections, and plan view of pit and machine room. Include all applicable structural, electrical and mechanical loads for new equipment.. Provide manufacturer cut sheets for control system, power unit and door operator.
 4. Design Information: Provide calculations verifying the following:
 - a) Adequacy of existing electrical provisions.
 - b) Adequacy of retained equipment relative to Code requirements if car weight increased by more than 5%.
 - c) Machine room heat emissions in B.T.U.
 - d) Adequacy of existing retained elevator machine beams.
 - e) Adequacy of existing car platform structure for intended loading.

5. Samples: Provide three sets of materials and finishes exposed to public view, 6-inch by 6-inch panels or 12-inch lengths as applicable.
 6. Color Charts: Provide three sets of color charts for all paint and car interior, entrance finish selections.
 7. Product Brochures: Provide an electronic submittal in PDF format including literature on controller, landing system, motor starter, door operator and related door operating equipment, and door detector.
- B. Before acceptance of work, submit the following:
1. Provide an electronic submittal in PDF format of job specific manufacturer's equipment brochures and service manuals. Assemble manuals in chronological order according to the specification alphanumeric system. Provide in manufacturers standard binders consisting of:
 - a) Equipment and components, descriptive literature.
 - b) Performance data, model number.
 - c) Installation instructions.
 - d) Operating instructions.
 - e) Maintenance and repair instructions.
 - f) Spare parts lists.
 - g) Lubrication instructions.
 - h) Detailed, record and as-built layout drawings.
 2. Detailed, simplified, one line, wiring diagrams. Provide one complete set per manual.
 3. Diagnostics: Controller and system shall include all necessary on-board diagnostics for performance of routine maintenance and troubleshooting. Contractor shall provide all diagnostic documentation required for troubleshooting and maintaining the elevator system upon completion including a composite listing of the individual settings chosen for variable software parameters stored in the software programs.
 4. Layout Drawings: Provide a minimum of two sets of record as-built layout drawings. Drawings shall be prepared in AutoCAD. Provide one (1) complete set of drawings on compact disk.
 5. Wiring Diagrams: Provide a minimum of three (3) sets of "as-built" wiring diagrams that include all electrical circuits in the cars, hoistways and machine rooms. Diagrams shall include definition of all nomenclature and symbols. Provide two (2) sets of wiring diagrams in protective binders or in laminated format and one (1) set on compact disk.
 6. Keys: Provide six sets of keys for all keyed switches installed as part of this project,

including: controller cabinet, fire service, stop switch, service cabinet, inspection and others if provided.

7. Certificate of Warranty in accordance with Specifications.

C. Consultant shall review and return to Contractor all submittals including shop drawings, samples and color charts, where applicable. Consultant shall review all close-out documents, including service manuals, wiring diagrams, letter from structural engineer, keys, etc. and deliver to Owner upon approval.

1.15 QUALITY ASSURANCE:

A. Contractor and Maintenance Qualifications:

1. Be able to show evidence of recent, local installations of similar scope and size with the proposed control system.
2. Directly employ sufficient competent personnel within 50-miles of project to handle modernization and maintenance duties.
3. Modernization work and maintenance duties shall be separately performed by specialized crews and individuals.

B. Quality and Gauges of Materials:

1. New, best of their respective kinds free from defects. Gauges as noted.
 - a) Materials, equipment of similar application; same manufacturer, except as noted.
 - b) Entire elevator equipment shall operate without irregularities and quietly by use of high-grade materials, first class workmanship and adjustments.

1.16 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Ship in factory crated sections of a size to permit passage through available space.

B. Obtain approval and schedule delivery of material to meet Owner's requirements.

C. Storage of equipment and materials shall be coordinated with Owner.

D. Hoisting and Storage: All hoisting operations and storage of equipment and materials shall be coordinated in advance of delivery with Owner's Agent.

1. Supply a plan detailing the proposed methods for hoisting of equipment including anticipated roof preparation, hoisting times and durations, traffic control and other special requirements.
2. Supply a proposed location and size of area needed for tools, materials and equipment to be stored.
3. Schedule of anticipated delivery, hoisting and storage dates.

1.17 SEQUENCING AND SCHEDULING

A. Schedule of Operations:

1. Within thirty (30) days after contract award, the Contractor shall submit a complete plan and schedule of its proposed operations for approval. In preparation of its plan and schedule, the Contractor shall make due allowance for and include the following:
 - a) Preparation of equipment and material submittal.
 - b) Review of each submittal (four weeks)
 - c) Manufacturing lead times for the equipment.
 - d) Shipping durations and anticipated delivery dates.
 - e) Related work by other trades, whether under the Contractor's or Purchaser's responsibility.
 - f) The schedule shall be updated and resubmitted on a monthly basis.
 - g) The schedule may be in the form of a bar chart, graph or other approved system by which are shown predicted sequence, dependencies, durations, starting and completion dates for the various work units or trades involved, together with such other information relative to job progress and completion. If required, the schedule shall be submitted in PDF Format.

B. Sequence of the work:

1. The Contractor shall be responsible for providing a sequencing schedule based on the Purchaser's requirement. The Contractor shall base their bid on removing three (3) elevators from service simultaneously but never more than one of the three passenger elevators shall be out of service. Sample sequencing may be:
 - a) Custody Elevator Number 1 and Public Elevator Number 1
 - b) Judge's Elevator Number 5, Custody Elevator Number 2 and Public Elevator Number 2
 - c) Public Elevator Number 3 and Annex Elevator Number 4 (Hydraulic).

C. Interruptions of Building Elevator Service:

1. All work shall be done with a minimum amount of interference to the operation of the building. The Contractor shall not interrupt the services without the prior written permission of the Owner.
2. Contractor shall perform as much pre-work as possible, prior to removing the first elevator from service. As a minimum, all new equipment shall be hoisted to the machine room.
3. The Contractor shall be responsible for cross connection of the modernized and non-modernized Passenger Elevators.
4. The elevator shall be tested and accepted by the Owner prior to starting work on

another elevator. Contractor shall run each elevator on auto-call operation for a minimum of 72 hours without cycling doors and at least 8 hours with cycling doors, before turning the elevator over to the building.

5. Work may only begin after detailed work schedule has been approved.

6. Liquidated Damages

a) In the event the work is not completed per the contract schedule, the following liquidated damage provision shall be used to calculate the damages.

b) If the work is still not completed, as defined by the Specifications, liquidated damages will be assessed as follows: Initial assessment of 2% of contract value (defined as the original contract price plus any authorized change orders) plus 0.25% of contract value for each calendar day until the project is completed.

1.18 WARRANTY

A. The elevators and associated equipment shall be free of defective material, imperfect work and faulty operation not due to ordinary wear and tear or improper use or care, for a period of three years to run concurrent with warranty maintenance from final acceptance after completion of the final elevator. Defective work shall be repaired or replaced at no additional cost to the Owner. Provide Certificate of Warranty with start date effective on the date the Consultant accepts all work, including completion of all punch list items.

1.19 MAINTENANCE SERVICE

A. Interim Maintenance: Submit with base bid a separate monthly price to provide Full Service on the elevators, from the first day of the month following contract award until the first elevator is removed from service for modernization. Coverage shall be in accordance with Vertical Transportation Interim Maintenance Agreement.

B. Construction Maintenance: Submit with base bid a separate monthly price per elevator to provide Full Service from the date the first elevator is removed from service until all elevators are complete and warranty date is established. Coverage shall be in accordance with Vertical Transportation Construction Maintenance Agreement.

C. Warranty Maintenance: Submit with base bid a separate monthly price for three-year maintenance service during warranty period. Maintenance shall commence upon completion and acceptance of all elevator work on the final elevator. Coverage shall be in accordance with Vertical Transportation Warranty Maintenance Agreement.

D. On-Going Maintenance: Submit with base bid a separate monthly price should the maintenance be extended past the three-year period for on-going maintenance agreement following warranty period. Coverage shall be in accordance with Vertical Transportation Maintenance Agreement.

E. The Owner reserves the right to accept or reject any or all maintenance terms noted above at any time prior to their commencement date.

1.20 PROTECTION OF PERSONS AND PROPERTY

A. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work.

- B. The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury or loss to:
 - 1. Employees working on the project and other persons who may be affected thereby.
 - 2. The work, materials, and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-Subcontractors.
 - 3. The property, including but not limited to roofing, walls, ceilings, flooring, furnishings, etc. Contractor shall repair or replace all damaged items. Under no circumstances shall any employees of Contractor or subcontractor employees smoke while on-site. Contractor shall advise all employees and Subcontractors that smoking on roof may void Owner's roofing warranty and Contractor shall be responsible for all costs associated with violation of this requirement.
- C. The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner.
- D. The Contractor shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of public authority having jurisdiction for the safety of persons, property or to protect them from damage, injury or loss. He shall erect and maintain, as required by existing conditions and progress of the work, all partitions for safety and protection, including posting danger signs, and other warnings against hazards, promulgating safety regulations and notifying Owners and users of adjacent utilities. The Contractor shall restore all damaged building.
- E. In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damages, injury or loss.

1.21 PERMITS AND INSPECTION FEES

- A. The Contractor shall obtain without cost to the Owner, all permits and certificates as required.

1.22 SIGNS

- A. Provide "Temporarily out of Service for Modernization" signs and post on all affected elevator entrances at all floors.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Product of individuals, firms or corporations regularly engaged in modernizing elevators comparable with this contract and in satisfactory operation for a period of not less than five years.
- B. Qualified Contractors—or Approved Equal:
 - 1. Kone Elevator Company

2. Otis Elevator Company
3. Schindler Elevator Company
4. ThyssenKrupp Elevator Company
5. Mitsubishi Elevator Company

C. Approved Base Bid Control System:

1. Non Proprietary Equipment; Alternate for Motion Control Engineering: iControls.

2.02 OUTLINE OF EQUIPMENT

A. Passenger Elevator Numbers 1, 2, & 3 (All information shall be field verified by Contractor):

- | | |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Elevator Type: | Gearless Traction |
| 2. Contract Load, in Pounds: | Retain Existing |
| 3. Contract Speed, in FPM: | Retain Existing |
| 4. Machine Location: | Retain Existing |
| 5. Machine Type: | Retain and Refurbish Machine To New Condition |
| 6. Type of Control: | Provide new SCR Drives |
| 7. Operation | Group Automatic |
| 8. Guide Rails | Retain existing; Realign; remove all dirt, debris rust; apply one finish coat of low VOC, low odor, and industrial enamel paint on the non-running surfaces |
| 9. Buffers and Pit Channels | Retain existing; rust removed, shall be mechanically and chemically cleaned followed immediately by the application of common, low VOC low-odor, rust inhibiting coating. Test and make any modifications necessary to pass state tests. |
| 10. Roller Guide Assembly | Provide new car and counterweight assemblies and rollers. |
| 11. Traveling Cable | Provide new |
| 12. Door Operation | Provide new VVVF-AC Closed Loop type; GAL MOVFR or approved equal. |
| 13. Door Detector | Provide new infrared full screen full height of door device with differential timing, nudging and interrupted beam time. |
| 14. Car Safety and Platform | Retain and refurbish safety; test to ensure proper operation and make all necessary adjustments. Remove all rust, debris and dirt; Apply one finish coat of low VOC, low odor, and industrial enamel |

- paint all exposed areas. Check all fastenings, tighten and secure.
- Platform: tighten all fastenings, remove rust, dirt and debris and chemically clean. Restore to like new condition.
15. Cab Enclosure
New car doors with textured stainless steel finish; refer to drawings.
Interior Finishes: Refer to drawings.
16. Cab Door Equipment:
Provide all new GAL or approved equal door equipment including headers, tracks, rollers, hangers, etc.
17. Cab Sills
Retain existing; remove rust, dirt, debris, wire brush and clean. Check and tighten all fastenings. Polish sills.
18. Top of Car Inspection Station:
Provide new with light fixture and convenience outlet.
19. Hoistway Entrances:
Retain existing configuration.
20. Hoistway Entrance Equipment:
All new equipment shall be GAL or approved equal.
New interlocks, door tracks, headers, hanger's rollers and closers.
Any retained equipment: Remove all rust, dirt, debris, wire brush and shall mechanically and chemically clean all equipment which is being retained. Apply with one finish coat of low VOC, low odor, and industrial enamel paint all non-running surfaces.
21. Lobby Hoistway Sills & Sill Angles
Retain existing; remove rust, dirt, debris, wire brush and clean. Check and tighten all fastenings. Polish sills.
22. Lobby Hoistway Doors & Frames:
Provide new doors with satin stainless steel finish at all floors.
Frames: Retain existing frames; clean down, check all fastenings.
23. Car Operating Panel:
Provide new main and auxiliary applied car operating panels
Incorporate a 12" to 15" CEC Elite P.I into the main car operating panel.
24. Hall Fixtures
Provide all with new; reuse of existing boxes is acceptable. All fixtures shall be mounted to meet disabled height requirements.

- 25. Combination Hall Position Indicator and Hall Lanterns: Provide new surface mounted type with vandal resistant lens integral on same faceplate with voice annunciation as required by code and with adjustable chimes at all floors for all elevators.

- 26. Hall Call Stations: Provide new surface mount type with oversized faceplate and engraved fire exit signs.
 Provide new hall pushbutton riser and locate with the fire key switch. Fixture required at the first floor only.
 Provide fully illuminated white vandal resistant buttons and button assemblies to meet code requirements.
 Provide key switch operation to match existing.

- 27. Phase 1 Fire Recall Switch and Emergency Power switch & Jewel: Provide new at main return landing; integrate with new hall pushbutton station
- 28. Access Switches: Provide new in existing location.
- 29. Car Blower: Provide new three speed blower.
- 30. Communication System: Provide new self-dialing vandal resistant push to call two way communication system with recall, tracking and voiceless communication.
- 31. Under Car Light: Provide new car light under car platform with switch in service cabinet.
- 32. Security Systems
 Camera Provisions
 Panic Button Operation
 Car To Lobby Operation: Key switch located with the hall pushbutton at Ground Floor which will call all elevators to the main lobby floor. Provide a key switch inside the elevator car on the car operating panel. Override Key switch in service cabinet. All key switches shall have positions identified with blue bezel.
- 33. Special Features: Load weighing device, fire recall operation, emergency power operation, verbal floor and direction annunciation and communication system

B. Custody Elevator Numbers 4 & 6 (All information shall be field verified by Contractor):

- 1. Elevator Type: Gearless Traction
- 2. Contract Load, in Pounds: Retain Existing
- 3. Contract Speed, in FPM: Retain Existing
- 4. Machine Location: Retain Existing Location

5. Machine Type:	Retain and Refurbish Machine To New Condition.
6. Type of Control:	SCR Drive
7. Operation	Selective Collective
8. Car & Landing Door Type:	Retain existing type
9. Guide Rails	Retain existing; remove all dirt, debris and rust; apply one finish coat of low VOC, low odor, and industrial enamel paint on the non-running surfaces
10. Buffers and Pit Channels	Retain existing; remove all debris, rust and dirt; apply one finish coat of low VOC, low odor, and industrial enamel paint. Test and make any modifications necessary to pass state tests.
11. Roller Guide Assembly	Provide new car and counterweight assemblies and rollers.
12. Traveling Cable	Provide new
13. Door Operation	Provide new VVVF-AC Closed Loop type; GAL MOVFR or approved equal.
14. Door Detector	Provide new infrared full screen full height of door device with differential timing, nudging and interrupted beam time.
15. Car Safety and Platform	Retain and refurbish safety; test to ensure proper operation and make all necessary adjustments. Remove all rust; apply one finish coat of low VOC, low odor, and industrial enamel paint all exposed areas. Check all fastenings, tighten and secure. Platform: tighten all fastenings, remove rust and clean. Restore to like new condition.
16. Cab Enclosure	Retain existing car shell and finishes; refurbish, check and tighten all fastenings.
17. Cab Door Equipment:	Provide all new GAL or approved equal door equipment including headers, tracks, rollers, hangers, etc.
18. Cab Sills	Retain existing; remove rust, dirt, debris, wire brush and clean. Check and tighten all fastenings. Polish sills.
19. Top of Car Inspection Station:	Provide new with light fixture and convenience outlet.
20. Hoistway Entrances:	Retain existing configuration.
21. Hoistway Entrance Equipment:	All new equipment shall be GAL or approved equal. New interlocks, door tracks, headers, hanger's rollers and closers.

- Any retained equipment: Remove all rust, dirt, debris, wire brush and chemically clean all equipment which is being retained. Apply one finish coat of low VOC, low odor, and industrial enamel paint.
22. Lobby Hoistway Sills & Sill Angles
Retain existing; remove rust, dirt, debris, wire brush and clean. Check and tighten all fastenings. Polish sills.
23. Lobby Hoistway Doors & Frames:
Retain existing, clean down, check all fastenings.
Frames: Retain existing frames; clean down, check all fastenings.
24. Car Operating Panel:
Provide new main applied car operating panel.
25. Hall Fixtures
Provide all with new; reuse of existing boxes is acceptable. All fixtures shall be mounted to meet disabled height requirements.
26. Combination Hall Position Indicator and Hall Lanterns:
Provide new surface mounted type vandal resistant type with adjustable chimes at all floors for all elevators.
27. Hall Call Stations:
Provide new surface mount type with oversized faceplate and engraved fire exit signs. Provide vandal resistant buttons and button assemblies to meet CBC requirements.
Provide key switch operation to match existing.
28. Phase 1 Fire Recall Switch:
Provide new at main return landing; integrate with hall pushbutton station
29. Access Switches:
Provide new in existing location.
30. Car Blower:
Provide new three speed blower.
31. Communication System:
Provide new self-dialing vandal resistant push to call two way communication system with recall, tracking and voiceless communication.
32. Under Car Light:
Provide new car light under car platform with switch in service cabinet.
33. Security Systems
Camera Provisions
Panic Button Operation
Car To Lobby Operation: Key switch located with the hall pushbutton at Ground Floor which will call all elevators to the main lobby floor. Provide a key switch inside the elevator car on the car operating panel. Override Key switch in service cabinet. All key switches shall have positions identified with blue bezel.
34. Special Features:
Load weighing device, fire recall operation, emergency power operation, verbal floor and direction annunciation and communication

system

C. Judge's Elevator Number 5 (All information shall be field verified by Contractor):

- | | |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Elevator Type: | Geared Traction |
| 2. Contract Load, in Pounds: | Retain Existing |
| 3. Contract Speed, in FPM: | Retain Existing |
| 4. Machine Location: | Adjacent at the Top; Machine room mounted |
| 5. Machine Type: | Provide new Gearless Permanent Magnet AC Machine |
| 6. Type of Control: | Provide new VVVF-AC |
| 7. Operation | New Non-Proprietary Microprocessor I; Selective Collective |
| 8. Car & Landing Door Type: | Retain existing type. |
| 9. Guide Rails | Retain existing; realign; remove all dirt, debris rust; Apply one finish coat of low VOC, low odor, and industrial enamel paint on non-running surfaces |
| 10. Buffers and Pit Channels | Retain existing; rust removed, shall be mechanically and chemically cleaned followed immediately by the application of common, low VOC low-odor, rust inhibiting coating. Test and make any modifications necessary to pass state tests. |
| 11. Roller Guide Assembly | Provide new car and counterweight assemblies and rollers. |
| 12. Traveling Cable | Provide new |
| 13. Door Operation | Provide new VVVF-AC Closed Loop type; GAL MOVFR or approved equal. |
| 14. Door Detector | Provide new infrared full screen full height of door device with differential timing, nudging and interrupted beam time. |
| 15. Car Safety and Platform | Retain and refurbish safety; test to ensure proper operation and make all necessary adjustments. Remove all rust; Apply one finish coat of low VOC, low odor, and industrial enamel paint. Check all fastenings, tighten and secure.

Platform: remove rust. Clean and provide treatment as required. Restore to like new condition. Provide stainless steel plate over the bottom of the platform. |
| 16. Cab Enclosure | New car doors with textured stainless steel finish; refer to drawings.

Interior Finishes: Refer to drawings attached to the specification. |
| 17. Cab Door Equipment: | Provide all new GAL or approved equal door |

- equipment including headers, tracks, rollers, hangers, etc.
18. Cab Sills
Retain existing; remove rust, dirt, debris, wire brush and clean. Check and tighten all fastenings. Polish sills.
19. Top of Car Inspection Station:
Provide new with light fixture and convenience outlet.
20. Hoistway Entrances:
Retain existing configuration.
21. Hoistway Entrance Equipment:
All new equipment shall be GAL or approved equal.
New interlocks, door tracks, headers, hanger's rollers and closers.
Any retained equipment: Remove all rust, dirt, debris, wire brush and clean all equipment which is being retained. Apply one finish coat of low VOC, low odor, and industrial enamel paint on all non-running surfaces.
22. Lobby Hoistway Sills & Sill Angles
Retain existing; remove rust, dirt, debris, wire brush and clean. Check and tighten all fastenings. Polish sills.
23. Lobby Hoistway Doors & Frames:
Doors: Provide new doors with satin stainless steel finish at all floors.
Frames: Retain existing frames; clean down, check all fastenings and refinish.
24. Car Operating Panel:
Provide new main applied car operating panel.
Incorporate a 12" to 15" CEC Elite P.I into the main car operating panel.
25. Hall Fixtures
Provide all with new; reuse of existing boxes is acceptable. All fixtures shall be mounted to meet disabled height requirements.
26. Combination Hall Position Indicator and Hall Lanterns:
Provide new surface mounted type vandal resistant type with adjustable chimes at all floors for all elevators.
27. Hall Call Stations:
Provide new surface mount type with oversized faceplate and engraved fire exit signs. Provide vandal resistant buttons and button assemblies to meet CBC requirements.
Provide key switch operation to match existing.
Provide card reader/proximity type reader provisions (for future installation) wherever key switches presently exist in hall push button panels.
28. Phase 1 Fire Recall Switch:
Provide new at main return landing; integrate with hall pushbutton station

- 29. Access Switches: Provide new in existing location.
- 30. Car Blower: Provide new three speed blower.
- 31. Communication System: Provide new self-dialing vandal resistant push to call two way communication system with recall, tracking and voiceless communication.
- 32. Under Car Light: Provide new car light under car platform with switch in service cabinet.
- 33. Security Systems
 - Camera Provisions
 - Panic Button Operation
 - Car To Lobby Operation: Key switch located with the hall pushbutton at Ground Floor which will call all elevators to the main lobby floor. Provide a key switch inside the elevator car on the car operating panel. Override Key switch in service cabinet. All key switches shall have positions identified with blue bezel.
- 34. Special Features: Load weighing device, fire recall operation, emergency power operation, verbal floor and direction annunciation and communication system

2.03 MACHINE ROOM EQUIPMENT

- A. Provide equipment to fit in existing machine room space. Any and all costs for re-design of, and revisions to, building spaces and structure due to selection of Contractor, Manufacturer, change to equipment availability, production or selection shall be borne by Contractor.
- B. Hoist Machine:
 - 1. Passenger and Custody Elevators: : Hoist Machines: Existing hoist machines shall be retained and reused. The Installer shall perform all Work required for placing the machinery in first-class operating condition, including, but not limited to the following:
 - a. Repair gearbox leaks, replace seals as needed.
 - b. Motor: Provide and install quiet, new, flange-mounted, low-slip AC Motor designed specifically for elevator duty, fitted to the existing machine and compatible with new solid-state drive and existing electrical service.
 - c. Cleaning: Using cleaning solvents, thoroughly clean the entire machine and bedplate area.
 - d. Brake:
 - i. Brake assemblies shall be dismantled, inspected, cleaned and properly lubricated. Replace contaminated or worn brake linings. Replace springs, pins, bushings, sleeves, levers, liners and switch contacts as warranted. Adjust brakes for proper, equal and minimum lift and to hold 125% of full load in the car.

- ii. Brake coils shall be inspected for damage and repaired as needed. Coil cores and alignment pins and bushings shall be cleaned and properly lubricated.
 - iii. Brake switches, if required for manufacturers control system, are preferred to be proximity type.
 - e. Bearings: Retain. Replace any bearings indicating excessive heating, noise or vibration. Bearing lubrication: Remove bearing grease covers and clean bearing cavity of excess lubricant. Apply new lubricant per manufacturer's recommendations for type and filling level.
 - f. Gearbox Lubrication: Drain and flush gearbox. Replenish per manufacturer's recommendations for oil type and capacities.
 - g. Seals: Replace any leaking gear-case, bearing or shaft seals.
 - h. Worm Shaft Bearings: Replace if indicating excessive thrust, heating, noise or vibration.
 - i. Drive Sheave: Sheaves are to be retained. In the event excessive or uneven sheave wear is found, describe the condition in writing and include a separate line item price with your bid submission for replacement or re-grooving per the manufacturer's limitations.
 - j. Sheave Guarding: Provide pinch hazard cable guards protecting the areas where a hazard exists and at a minimum from the machine bed plate to the point where cables contact the sheave grooves. Integrate existing cable lubricator devices with the sheave/cable guards.
 - k. Suspension Ropes: Replace hoist ropes. Provide rope data tag following Code requirements listing rope manufacturer, installing company, construction classification, installation date, size, type, and breaking strength. Equalize cable tensions and provide rope thimble spin restraints on all cars. Provide new AC Synchronous Permanent Magnet gearless type machine with permanent magnet motor.
 - 2. Judge's Elevator: Provide a new machine which is a single worm or helical geared type with AC Synchronous or P.M.S.M. motor, gear, deflector sheave and gear case. The new machine shall be mounted in proper alignment on an isolated bedplate.
 - 3. Hire a licensed structural engineer to verify the adequacy of existing supporting structure and machine beams relative to weight increase and redistribution of loads. Provide additional support beams, as required. Include all required blocking beams and supports. Provide machine manufacturer's standard rubber isolation pads. Provide new deflector sheave and supporting structure.
- C. Passenger and Custody Elevators: Motor Drive: Provide a regenerative solid-state motor drive. Solid state units shall be designed to limit current, suppress airborne or structural noise, and shall limit the overall distortion factor at the point of connection of the elevator converter feeders to the electrical distribution system to a maximum of 3%. This shall include compensation for harmonic distortion, power factor, flicker and line notching.
 - 1. Drives, isolation transformers and ripple filter cabinets shall be sound isolated from the building structure through rubber isolation mounts or pads.

2. System will operate at plus or minus 10% of normal feeder voltage and 3% of normal frequency without damage or interruption of elevator service.
 3. The drive shall be capable of on-site programming of the acceleration and deceleration ride profiles to adjust the ride quality to drive control characteristics.
 4. The drive shall not create excessive audible noise in the elevator motor.
 5. The drive shall be capable of delivering sufficient current to accelerate the elevator to contract speed at the rated load. The drive shall provide speed regulation within 3% during all phases of acceleration, deceleration and leveling.
 6. The use of solid-state equipment shall not interfere with any of the Owner's sensitive electronic equipment. In addition, provide adequate sound suppression equipment acceptable to the Owner to control airborne and/or structure-borne noises and vibration.
 7. Inform the Owner of any possible or foreseeable problems associated with noise, vibrations, electrical interference, etc., as related to solid state equipment.
- D. Judge's Elevator: VVVF Motor Drive Remove existing motor generator and provide VVVF motor drive as follows:
1. The drive shall be capable of varying the torque on the motor during acceleration and deceleration.
 2. The drive shall be capable of on-site programming the volts per Hertz acceleration and deceleration ride profiles to adjust the ride quality to drive control characteristics.
 3. The flux vector drive shall control AC induction motors through the use of a high resolution, dual channel optical reader.
 4. The flux vector drive shall be capable of delivering 100-percent rated motor torque from base speed down to zero speed.
 5. The flux vector drive shall not use DC injection for slowdown braking.
 6. The flux vector drive shall be adjustable to achieve the required current motor voltage and frequency so as to match the characteristics of the hoist motor.
 7. The drive shall not create excessive audible noise in the elevator motor.
 8. The drive shall be capable of delivering sufficient current to accelerate the elevator to contract speed at the rated load. The drive shall provide speed regulation within 3-percent during all phases of acceleration, deceleration and leveling.
- E. Isolation Transformer: Provide necessary isolation transformers, reactors, capacitors and other devices to limit the overall Distortion Factor at the point of connection of the elevator converter feeders to the electrical distribution system to a maximum of 3-percent. This shall include compensation for the following: Harmonic distortion, Power factor, Flicker, Line Notching.

All control wiring shall be isolated from power wiring to minimize inductive coupling.

1. Submit for approval, applicable brochures and technical information as required for solid state equipment (motor drives, system processors, etc.)
 2. The use of solid state equipment shall not interfere with any of Owner's sensitive electronic equipment. In addition, provide adequate sound suppression equipment acceptable to Owner to control airborne and/or structural-borne noises and vibration.
- F. Controller: Disconnect and completely remove the existing controller and selector for each elevator and replace with a new microprocessor system.
1. Provide non-proprietary diagnostic control system from approved manufacturer. Provide NEMA – 1 enclosures and doors arranged with locks or mechanical latches.
 2. All controller components shall be designed to provide the required operation as herein specified.
 3. All assemblies, power supplies, switches, relays and other items shall be securely mounted on a substantial, self-supporting steel frame of angles or channels and shall be totally enclosed with hinged or removable covers in a floor mounted cabinet. Equipment shall not be mounted on any of the covers.
 4. All controller switches and relays shall be magnet operated with contacts of design and material to ensure maximum conductivity, long life and reliable operation without overheating or excessive wear and shall provide a wiping action to prevent sticking due to fusion.
 5. Where time delay relays are used in the circuits, they shall be of an acceptable design that is reliable and consistent, such as condenser timing or electronic timing circuits. No dashpot time relays shall be used.
 6. Each device on all panels shall be properly identified by name, letter, or standard symbol that shall be neatly stencil painted (or otherwise marked), in an indelible and legible manner, on device or panel. Identification markings shall be coordinated with identical markings used on wiring diagrams. The ampere rating shall be marked adjacent to all fuse holders. All spare conductors shall be neatly formed, laced and identified.
 7. Safety switch shall cut off current, automatically apply brake and stop car upon current failure or upon operation of any electrical safety device.
 8. All high voltage (110-volt or above) contact points inside the controller cabinet shall be protected from accidental contact when the doors are open.
 9. Controllers shall be designed, tested and certified for Electromagnetic Interference (EMI) immunity in compliance with EN12015.
 10. Provide adequate ventilation fans.
 11. Provide isolated input with opto-isolation modules.
 12. Power Supplies: All power supplies utilized shall be UL recognized. They shall all have short-circuit protection.

13. Frame: All assemblies, power supplies, chassis, switches, relays, and other items shall be securely mounted on a substantial, self-supporting steel frame. The equipment shall be completely enclosed with covers. No equipment is to be mounted on the covers.
 14. Wiring: All factory wiring shall utilize UL labeled copper wires. All wiring interconnections shall be neatly routed. All wiring connections to studs of terminals shall be made by means of solder or solder less lugs.
 15. Marking: All components shall be clearly and permanently identified adjacent to each device and shall be identical to the wiring diagram.
 16. Terminals shall be provided for a future connection to a computerized test system. An adequate number of terminals shall be provided so as to monitor all of the various functions of the elevators. These shall include but not be limited to car positions, running functions up and down, door open and close, hall and car calls, door protective devices, safety circuits, elevator recapture, etc.
 17. Printed Circuits and Related Hardware:
 18. All solid-state hardware and devices shall have built-in noise suppression devices that provide a level of noise immunity compliant with EN12015.
 19. Power supplies shall have noise suppression devices provided.
 20. All inputs from external devices (such as pushbuttons) and all outputs to external devices (such as indicators, relays) shall be isolated.
 21. The use of relays as input/output devices is not acceptable.
 22. A separate regulated power supply shall be used for each computer chassis.
 23. The control circuits shall be so designed so that one side of the power supply is grounded to provide for testing.
 24. Under no circumstances shall the safety circuits be affected by accidental grounding of any part of the system.
 25. In the event of a power failure or interruption, the system shall be designed so that it will start properly when power is returned.
 26. System memory shall be provided so that data shall not be lost in the event of a power failure or disturbance.
- G. Auxiliary Disconnects shall be provided where the equipment is not in the line of sight of the Main Line Disconnects. These are the responsibility of the Contractor.
- H. Speed Regulation:
- The rate of acceleration and deceleration of the cars under any condition of load shall be as nearly constant as is possible with the method of control specified and employed and shall be independent of the operating devices in the car.
- The acceleration, deceleration and velocity shall all be computer controlled. The detection of velocity and position of the car shall be fed into the computer. The computer

shall compare this information with the velocity profile and adjust as necessary to insure a fast and smooth acceleration and deceleration curve. The minimum acceleration/deceleration shall be 3.3 feet/sec² and shall change uniformly.

- I. Diagnostic Tools: Subcontractor shall provide all diagnostic tools and documentation required for the adjustment, troubleshooting, and reprogramming of the elevator system upon completion, including:
 - 1. Passwords or identification codes required to gain access to each software program in order to perform diagnostics or program changes.
 - 2. A composite listing of the individual settings chosen for variable software parameters stored in the software programs.
 - 3. A complete dictionary of fault codes with recommended steps for resolution, in sequence from highest to lowest probable cause.
 - 4. Provide one project laptop capable of and configured for displaying elevator status, hoistway position and direction, door position and direction, approximate percentage loading, existing issue and direction of hall and car calls and any current or recent faults for troubleshooting the equipment. It is the intent that the laptop be left on-site for diagnostic use in each control room.
- J. Encoder: Provide solid-state, optical, digital-count type, mechanically coupled to car, machine or car governor.
- K. Provide vibration sound isolation to eliminate structure-borne sound being transmitted to the building. Vibration isolators shall be equivalent to Mason Industries Model RBA or SWM waffle pad with neoprene grommet and washer isolated bolt attachment. Select isolators to compress a minimum of 0.1-inches under load.
- L. Seismic Protective Features: Provide per the Code requirements.
- M. Governor and Tension Sheave:
 - 1. Elevators 1 & 2, 4, 5 & 6: Governor: Provide new centrifugal type governor.
 - 2. All Elevators: Tension Sheave: Provide new with tension weight.
 - 3. Elevators 1 & 2: Governor Rope: Provide new.
 - 4. All Elevators: Adjustment: The governor shall be accurately adjusted and full-load, full-speed tested to operate within limits specified by code. All adjustable parts shall be sealed. Provide each unit with a test tag.

2.04 SYSTEM OPERATION AND FEATURES

- A. Selective Collective Operation—Judge's and Custody Elevators:
 - 1. Controls shall be a microprocessor based system.
 - 2. Registration of car call button shall cause the car to start. The car shall respond to its own car calls and corridor calls, in the direction of travel, and in order in which the landings are reached.

3. The car shall remain at the arrival floor for an adjustable interval to permit passenger transfer. Doors shall close after a predetermined interval, unless the car is parked at the main floor, after opening unless closing is interrupted by car door reversal device or door open button in car.
 4. Delayed Car Protection: The system shall automatically disassociate a car from the Duplex system in the event the car is delayed for a predetermined time. The car shall be automatically restored to the Duplex System when the cause of the delay has been eliminated.
 5. Programmed Door Control: Separate adjustable times shall be provided for each car to establish minimum passenger transfer time for car stops, intermediate floor hall call stops and lobby floor stops. All timing shall be computerized to coincide with traffic demands.
 6. Designated Parking: The system shall provide for cars to park as designated by the Duplex system or park at its last call.
 7. Provisions shall be made in the dispatch computer so that the elevator system dispatching can be modified at a future time. The system shall be so designed that the modifications to the software shall be all that is required to revise the dispatching. It shall be further designed so that there will be minimum shut down time should changes be required.
- B. Group Supervisory System: Passenger Elevators 1, 2, & 3:
1. Provide a temporary cross connection between the modernized and non-modernized controllers.
 2. Provide a solid state microprocessor dispatch system that shall provide for continuously changing operations in various traffic situations, and efficiently handle the varying passenger traffic demands:
 3. Provide reprogrammable software as provided by MCE or approved equal.
 4. The system shall provide for a continuously changing program of varying combinations when there are landing calls registered. These shall include components of incoming, outgoing, interflow and special traffic in varying intensities.
 5. The main floor up call is to be given priority.
 6. The system shall measure the call waiting times on all floors, and determine through forecasting whether the elevator on becoming vacant shall continue in the previous running direction or reverse and assist in concentrated inter-floor traffic in specific areas of the building.
 7. The system shall have forecasting capabilities that will assign the desired degree of priority to any additional entrance floor.
 8. The system shall constantly evaluate the service quality of all forecasted waiting times. The process of optimization will allocate the landing calls with no final assignment established until the total quality of passenger service is assessed.
 9. A light traffic mode is assumed when there are no registered landing calls within a preset time. During periods of traffic, elevators shall be parked in anticipation of

- new landing calls. At least one elevator is to be parked at the main floor. Other elevators can be parked at upper or lower floors, as previously stated. The elevators shall be parked with the doors closed. The need for parking shall be checked by the system at frequent intervals.
10. With the increasing traffic intensity, a priority method of call assignments shall be initiated. Priority of service for landing calls is determined by the call waiting time in relation to the prevailing traffic condition. The system shall prevent waiting times that are excessive as compared to the traffic intensity.
 11. Peak type of demands shall be recognized by monitoring the total traffic flow including a predominance of car calls in one direction, a high intensity of landing calls in one direction, a sudden high percentage of load increase when answering landing calls, main floor landing hall call intensities and departure of elevators from a designated floor with a predetermined load several times in a preset time.
 12. The system operation shall continuously change by demand and shall not require forced system changes to provide optimum operation and call response.
 13. Dispatch Protection: The system shall automatically provide dispatching in the event of failure of the primary system. A visible and audible alarm shall be provided to indicate loss of the dispatching computer.
 14. Delayed Car Protection: The system shall automatically disassociate a car from the Group System in the event the car is delayed for a predetermined time. The car shall be automatically restored to the Group System when the cause of the delay has been eliminated.
 15. Designated Parking: The system shall provide for cars to park as designated by the Group Controller or park at its last call.
- C. Independent Service: Provide controls to remove elevator from normal operation and provide control of the elevator from car buttons only. Car shall travel at contract speed and shall not respond to corridor calls.
 - D. Car Top Inspection Operation: Provide new per Code requirements.
 - E. Emergency Recall Operation (Fire Service): Provide operation and equipment per Code requirements. Contractor shall provide relays, wiring, and terminal strips to receive signals from the fire alarm system.
 - F. Load Weighing: Provide automatic load weighing device for passenger elevators set at approximately 80% of full load. The device when activated shall cause the elevator to bypass corridor calls and shall initiate dispatch of car at main terminal prior to elapse of normal dispatching interval. Provide adjustable setting from 50 - 80% of full load.
 - G. False Call Canceling: Provide device to cancel all passenger car calls when car loading is not equal to the number of calls registered.
 - H. Differential Door Timing Feature: Provide adjustable timers to vary the time that the doors remain open in response to a car or hall call. The doors shall remain open for 3.5-seconds in response to a car call and 5 to 8-seconds for a hall call.
 - I. Nudging: When doors are prevented from closing for 20-seconds due to failure of the proximity device or obstruction, the doors shall close at reduced speed and a buzzer shall sound.

- J. Fan and Light Output Timer: Provide an adjustable timer (Range 5 to 10-minutes) that when activated will turn off the fan and light within the car. The time will start when the car becomes inactive.
 - K. Ascending Car Over-speed and Unintended Car Movement Protection: Provide future operation to prevent the elevator from striking the hoistway overhead and prevent unintended car movement per code.
 - L. Seismic Operation: Provide operation and equipment per Code.
- 2.05 SECURITY SYSTEM:
- A. Interface with building security systems shall be required.
 - B. Cameras: Provisions Only; All Elevators:
 - 1. Provisions for future camera provisions shall be installed for all elevators. These provisions shall include wiring and mounting brackets.
 - 2. One (1) pair wires shall be provided and installed per elevator cab in traveler cable. Shielding shall not be required. Must be separated from 480 v power sources.
 - 3. Wire shall be terminated in machine room with connection point for MCM outside of machine room. MTM to distribute from machine room as needed
 - C. Judge's Elevator: Provisions for future card/proximity readers shall be installed for Judge's elevator. The security systems such as the hardware, the readers, etc. are not to be included in the elevator modernization scope of work. Floor by floor control for each card reader in machine room with location for extra circuit board installation. This is a function of the card reader software. The elevator controller shall be programmed to receive a signal for each floor button to be activated.
 - 1. Provisions only between the elevator machine room and the car/hall pushbuttons are included
 - 2. These provisions will include wiring, filler plates and mounting brackets on the car operating panels (insider the car) and at each hall pushbutton station
 - D. Traveling cable will include adequate wiring for the security system and tracking of registered calls. The following will be required:
 - 1) A minimum of three (3) conductor wires per card reader is required. Additional shielded pair will be provided.
 - 2) One pair shielded pair per card reader
 - 3) A total of 5 wires per card reader in traveler cable.
 - E. All Elevators: Provide a Panic Button in each car and a two-way intercom system which will allow for the Sheriff to communicate with passengers in any of the elevators. This system shall be separate and exclusive from the telephone 24 hour system. This system shall be connected to a sheriff's station at a pre-designated location. Wiring and conduit

from the elevator machine room to this station shall be the responsibility of the Contractor.

- F. Car To Lobby: All Elevators: Key switch located adjacent to the hall pushbutton at the Ground Floor for each group of elevators which will call all elevators to the Ground Floor and key switch inside the elevator car on the car operating panel. Override Key switch in service cabinet. All key switches shall have positions identified with blue bezel. The cars shall park and remain at the landing until the manual override switch is activated.
- G. Panic Button/Communication: All Elevators: This shall be a two-way system and activation of the panic button can occur either by the passenger inside the elevator or from a remote location by a designated building personnel. Activation of the panic button will illuminate a jewel and audible signal in the elevator and in the Sheriff's control panel.

2.06 SEISMIC

- A. Provide a minimum of one seismic switch for each single or group of elevators. A dual axis seismic switch shall activate per code requirements in both vertical and horizontal directions.
- B. Each elevator shall have a dual counterweight derailment device. The counterweight frame shall include derailment rings.
- C. Provide retainer plates on all car and counterweight guides.

2.07 HOISTWAY EQUIPMENT

- A. Guide Rails and Brackets:
 - 1. Retain existing car and counterweight guide rail brackets.
 - 2. Thoroughly clean all guide rails free of grease, oil and other foreign substances, file and remove all rough edges and surfaces. Realign, and tighten bracket bolts and guide rail clips as required for smooth and quiet operation of car and counterweight. Provide additional rail brackets or backing as required by code or as necessary to meet ride quality standards.
- B. Buffers:
 - 1. Existing car and counterweight oil buffers shall be refurbished. Clean thoroughly, flush and refill units with new oil.
 - 2. Provide inspection ladder and under car platform, where required by code.
 - 3. Apply one finish coat of low VOC, low odor, and industrial enamel paint on exterior of buffer and stencil number the car number on each buffer.
 - 4. Buffers shall be load tested and tagged prior to turnover.
- C. Pit Stop Switch: Provide new red colored stop switches to meet code requirements.
- D. Alarm Bell: Provide car top alarm bell and second alarm bell inside hoistway at lobby level.
- E. Counterweight Roller Guides:
 - 1. Roller Guides: Provide new roller type guides to provide smooth and quiet ride free

of rumbles, bumps, vibrations, and excessive sway. Guides shall consist of three or more spring mounted rollers per guide assembly (3 1/2-inch minimum diameter) to maintain rail contact and include adjustable stops. Rollers shall be constructed of neoprene or other similar sound deadening material. Rollers shall have high memory characteristics, enabling the rollers to quickly regain their round shape after an elevator sits still overnight or for a moderate period of time. Provide adapter plates and mounting hardware as necessary.

- F. Compensation: If required with the manufacturer's application provide as:
1. Provide new Whisper-Flex® compensating chains of appropriate quantity and size.
 2. Provide new Swayless® dampening device for each compensating chain.
- G. Final Terminal Stopping Devices:
1. Final Device Operation: New final limit switches located at top and bottom of the hoistway shall be arranged to automatically stop the car and counterweight within the predetermined over travel limits, independently of all other devices.
 2. Rollers: Switches shall be equipped with engaging arms provided with polyurethane-tired rollers for engagement with cams.
- H. Electrical Wiring: Terminal connections for all conductors at equipment panels, center of hoistway and on elevator car shall be made with terminal blocks or studs having identifying numbers. All conductor connections shall be made with terminal eyelets of the solderless type.
1. Conductors: Provide copper insulated wiring with flame retarding and moisture resisting outer cover. Install in galvanized metal wireways and raceways. Conductors from shaft riser to door interlocks shall be SF-2 type or equal, maximum operating temperature 392-degrees F. All terminations shall be insulated to maintain integrity of wiring. Flexible conduit may be used for short connections. Provide 10-percent conductors throughout.
 2. Traveling Cables: UL- labeled fire and moisture resistant outer braid and steel supporting strand. Provide a minimum of eight (8) pairs of shielded communication wires and car lighting circuits.
 3. Provide wiring as required for fire alarm initiating devices, emergency two way communication, and firefighter's phone jacks, paging speaker's intercom, announcement speakers and card reader interface.
 4. Remote Wiring: Provide wiring between machine room, hoistway and remote locations of guard, security, life safety and fire control panels.
 5. Work Light and Plug Receptacles: Provide on top and bottom of car with lamp guards.
 6. Stop Switches: Provide Code required stop switches in the pit, near the governor access door, in the machinery spaces of machine room less elevators and where split level machine rooms occur.
 7. Provide NEMA4 weatherproof electrical equipment and wiring identified for use in wet locations when any electrical devices are located less than four (4) feet above the pit floor.

8. Note: Conduits or other wiring shall not be exposed in the lobby or other occupied parts of the building.
- I. Raceway: Remove all rust, wire brush, clean and Apply one finish coat of low VOC, low odor, and industrial enamel paint. Retain existing raceway where suitable and replace sections as necessary for new equipment. Modify lower section, where required, to accommodate proper pit ladder access.

2.08 DOORS AND ENTRANCE EQUIPMENT

- A. Retained Equipment: Remove all rust, dirt, debris; clean all surfaces on the hoistway and lobby side. Apply one finish coat of low VOC, low odor, and industrial enamel paint on all non-running surfaces.
- B. Frames: Retain existing entrance frames. Remove all rust, debris and dirt from face and back side of frames. Clean both hoistway and lobby side of frames. Remove all scratches and dents. If removal of existing braille plate's scars or leaves marks on the jambs, clean and refinish jambs as necessary to restore to like new finish. Apply one finish coat of low VOC, low odor, and industrial enamel paint to match existing.
- C. Provide new rubber door strike astragals for all center opening hoistway doors.
- D. Remove existing and provide new Braille plates centered at a height of 60-inches above the floor, mounted at each entrance side jamb. Match design of car Braille plates. Provide epoxy adhesively mounted plates; no rivets or visible fasteners. Braille and Designation plates shall have white characters with black background at typical floors. Plates shall be manufactured by SCS, Vison Mark or Entrada; cast design.
- E. Sills and Sill Angles: Reuse existing; check and tighten all fastenings. Polish all sills.
- F. Struts: Reuse existing and clean thoroughly. Check and tighten all fastenings.
- G. Headers: Provide new.
- H. Dust Covers: Reuse existing. Align, adequately reinforce and secure as required. Replace any missing covers or fasteners. Check and tighten all fastenings.
- I. Fascia: Reuse existing and clean thoroughly. Align, adequately reinforce and secure as necessary to prevent contact with the car. Replace any missing fascia and fasteners. Check and tighten all fastenings. Paint floor number on fascia.
- J. Door Panels:
 1. Stencil paint 4-inch high floor number on the back of each landing door panel
 2. Passenger Elevators and Judge's Elevator at all floors:
 - a) Provide new 14 gauge panels with a satin stainless steel finish. Provide rubber astragals on leading edge. Each door panel shall have two gibs which shall remain in the sill the entire length of door travel. Any cladding shall wrap around the trailing edge of the door a minimum of 1/2"
 - b) Provide 14 gauge sight guards with finish to match doors.

3. Custody Elevators at All Floors:
 - a) Reuse existing door panels. Align and plumb doors as required for smooth operation.
 - b) Provide two new door guides per panel.
 - c) Sight Guards: Retain existing sight guards. Replace where missing or damaged with finish to match existing door panels.
 - K. Door Hangers: Provide new removable two-point suspension type with provisions for vertical and lateral adjustments. Sheaves shall be 2 ½-inch diameter with sealed or roller bearings.
 - L. Door Tracks: Provide new removable steel tracks with smooth roller contact surface.
 - M. Door Closers: Spring, spirator or jamb/strut mounted counterweight type. Design and adjust to ensure smooth, quiet mechanical close of doors.
 - N. Interlocks: Provide new interlocks and door release roller assembly at each entrance. Where door release assembly is replaced with new design, roller assembly shall be mounted to an 8-inch by 6-inch (10-gauge) reinforcement plate, properly screwed to the back of each landing door. Reinforcement plate shall be equipped with two (2) ¼-20 by 1-inch long self-clinching zinc studs designed specifically for door release roller assembly attachment. Where new interlock design is provided, the interlock shall be the same make as the door operator.
- 2.09 CAR EQUIPMENT
- A. All existing equipment shall have all rust, dirt and debris removed, wire brushed, cleaned and apply one finish coat of low VOC, low odor, and industrial enamel paint. Platform: Reuse existing platform. Balance in order to distribute, as evenly as possible, the pressure of the individual guides on the guide rails surfaces. Tighten fasteners and clean. Modify underside as required for code compliance.
 - B. Car Frame:
 1. Retain and refurbish existing car frame. Remove rust, wire brushed, clean and apply one finish coat of low VOC, low odor, and industrial enamel paint.
 2. Square and adjust frame within guide rails in order to center, as evenly as possible, between the guide rail surfaces. Tighten fasteners and clean.
 3. Stencil paint 4" high car number on crosshead.
 - C. Under Car Lighting: Provide new incandescent light fixture with bulb guard in NEMA 4 water tight and weather resistant box. Provide switch in service cabinet to turn light on/off.
 - D. Platform:
 1. Retain and refurbish existing platform.
 2. Balance in order to distribute, as evenly as possible, the pressure of the individual guides on the guide rail surfaces. Tighten fasteners and clean.

3. Provide new rubber platform isolation pads.
 4. Repair or replace any missing or damaged brace or support angles.
- E. Test at full load and full speed at the end of the equipment modernization. Replace all defective components or devices that do not function properly, including new safety actuating ropes as required.
- F. Toe Guard: Provide new 48", apply one finish coat of low VOC, low odor, and industrial enamel paint.
- G. Roller Guides: Provide new roller type guides to provide smooth and quiet ride free of rumbles, bumps, vibrations, and excessive sway. Guides shall consist of three or more adjustable, spring-mounted rollers per guide assembly (3 1/2-inch minimum diameter) to maintain rail contact and include adjustable stops. Rollers shall be constructed of neoprene or other similar sound deadening material. Rollers shall have high memory characteristics, enabling the rollers to quickly regain their round shape after an elevator sits still overnight or for a moderate period of time. Provide adapter plates and mounting hardware as necessary.
- H. Door Hangers: Provide new removable two-point suspension type with provisions for vertical and lateral adjustments. Sheaves shall be 2 1/2-inch diameter with sealed or roller bearings. Hangers shall be galvanized metal or treated with 3 coats of Rustoleum.
- I. Door Tracks: Removable steel tracks with smooth roller contact surface.
- J. Door Protection: Infrared detector: Provide a door proximity edge that projects an infrared curtain of light guarding the door opening. Unit shall extend the height of the door panel. Arrange to reopen doors if one beam of the curtain is penetrated. Unit shall have Transmitters and Receivers spaced at a minimum distance to provide the maximum amount of protection within the height of the doorway. Systems which have the availability to turn off or on individual zones within the curtain will not be allowed. Door Detector shall extend the entire height of the door panel.
- K. Door Operator: Provide new VVVF-AC, high speed, closed-loop door operator to automatically open and close the car and hoistway doors. The doors shall be capable of smooth and quiet operation without slam or shock.
1. Opening speed shall not be less than 3.0-f.p.s. with reversal in no more than 2-1/2-inches.
 2. An auxiliary-closing device shall automatically close hoistway doors if car leaves the landing zone.
 3. In case of a power interruption, it shall be possible to manually operate car and hoistway doors from inside the cab.
- L. Door Restrictor: Provide new mechanical zone lock. Electronic door restrictor shall not be allowed.
- M. Car Door Contact: Electrical contact shall prevent the operation of the elevator by normal operating devices unless car doors are closed or within tolerances allowed by Code.
- N. Emergency Exit Contact: Provide electrical contact to shut-off power to the elevator if emergency exit is open.

- O. Car Top Service Guardrail: Provide a 42-inch high railing on the car top with intermediate rail, toe board and stationary posts, where required by Code.

2.10 CAR ENCLOSURE

- A. All retained metal shall have the rust, dirt, and debris removed, wire brushed and cleaned; Apply one finish coat of low VOC, low odor, and industrial enamel paint. If removal of rust compromises the integrity of the equipment, the Contractor shall indicate as such with their bid.

- B. All Elevators:

- 1. General: The enclosure shall be adequately reinforced and ventilated to meet Code requirements. Weigh all interiors and verify weight of new interiors is per code and manufacturers weight requirements. Provide verification of weights prior to ordering any material. Check and tighten all fastenings. Confirm the structural integrity of the cab shell and platform.
- 2. Confirm the structural integrity of the cab shell and platform. Repair platform and remove all rust. Check for termites and any deterioration. Replace platform if necessary. If platform is to be retained check and tighten all fastening. Broken welds on the floor support braces shall be re-welded or replaced. Reinforce the existing platform as required. The Contractor shall survey the sub floor to ensure it is free of deterioration and rust. The broken welds on the floor support braces underneath the floor shall be either replaced or repaired.

- C. Custody Elevators:

- 1. Ensure there is adequate ventilation and if necessary provide new vent slots.
- 2. Ensure and modify if necessary unobstructed access to the emergency exit.
- 3. Verify weight of interiors is per code and manufacturers weight requirements. Provide verification of weights.
- 4. Check and tighten all fastenings of all retained materials.
- 5. Replace ceiling and lights with new to match existing.
- 6. Provide new EPCO Flexi light emergency cab lighting system, capable of re-lighting two normal -light fixtures. Emergency light transformer and fixture to be mounted in a water tight/weather proof enclosure.
- 7. Handrail check and tighten all fastenings.

- D. Passenger and Judge's Elevators:

- 1. An approved company shall manufacture car enclosure. Interior finishes as manufactured by Forms + Surfaces, City Lift, Sterling Corporation or approved equal. Provide the following features:
- 2. Shell: Arrange shell to accept interior panels as specified. Check and tighten all fastenings. Provide one coat of paint on the interior.
- 3. Refer to attached drawings for all new finishes.

4. Canopy: Check and tighten all fastenings. Modify canopy for light fixtures. Lighting fixtures that uniformly distribute not less than foot-candles of light at handrail height as required by Code. Provide clear and easily accessible access to the emergency exit per Code requirements.
5. Drop Ceiling and Lighting: Provide new EPCO Flexi light emergency cab lighting system, capable of re-lighting two normal down-light fixtures. Emergency light transformer and fixture to be mounted in a water tight/weather proof enclosure.
6. Floor Covering Provide new as shown on the drawings.
7. Transom, Front Return Panels and Entrance Columns: Provide as detailed on the drawings.
8. Car Door Panels: Door panels shall be 14 gauge hollow metal flush door construction, furniture steel. Provide reinforcement by formed vertical sections running full height of door. Doors shall be provided with two removable, gibs with fire tabs, located at the leading and trailing edge of the door panel. Finish shall be textured stainless steel. There shall be no visible exposed or protruding fasteners.
9. Ventilation: Three-speed type AA exhaust blower mounted to car canopy on isolated rubber grommets.

2.11 SIGNALS AND FIXTURES

- A. All new fixtures shall be provided.
- B. Car Operating Panel
 1. Provide new applied-type main car operating panel in compliance with applicable Code
 - a) Car Operating Panel: Provide new illuminating stainless steel vandal resistant pushbuttons or approved equal product. Faceplate shall have Satin stainless steel finish. Faceplate shall have continuous hinge with three point latching.
 - b) Provide a keyed stop switch and alarm bell button, door open and door close buttons. All floor pushbuttons shall be located no higher than 48-inches above the car floor, the keyed in car stop switch and alarm button shall be located no lower than 35-inches above finished floor height. Provide fire service cabinet, phase 2 switch, fire jewel, call cancel button, emergency light fixture, and voice annunciation grill and flush mounted speaker grill for the Hands Free telephone.
 - c) Braille/Arabic designations shall be identified by a minimum of 5/8-inch Arabic numeral, standard alphabet character, or standard symbol immediately to the left of the control button. Braille shall be located immediately below the numeral, character or symbol. Controls and emergency equipment shall be identified by raised symbols, including but not limited to, door open, door close, alarm bell, emergency stop and telephone. The call button for the main entry floor shall be designated by a raised star at the left of the floor designation. Braille and Arabic designations shall be flush with inconspicuous mechanical mounting. The plaques shall have raised white characters on a black background. Provide cast Oval Surround style Braille plates as provided by Entrada,

Vison Mark or SCS.

- d) Provide a lockable service cabinet with concealed hinges. Cabinet door shall be flush with the faceplate with hairline joints.
 - 1) Cabinet shall contain the following toggle type controls:
 - (a) Light toggle switch.
 - (b) Three speed fan switch.
 - (c) Inspection keyed switch.
 - (d) Independent service toggle switch.
 - (e) Emergency Light test button
 - (f) Duplex 120 volt, A.C. GFCI convenience outlet.
 - 2) Light switch for under car platform light.
 - 3) 2 USB Ports and key board plug in for programing the Digital Display. All programing for the Elite PI shall be possible thru the ports in the service cabinet.

- e) Engrave the following; the font shall be as directed by architect and code:
 - 1) Elevator Number. Minimum ½-inch high lettering.
 - 2) Elevator Capacity below Elevator Number.
 - 3) Building Name and Address.
 - 4) Fire Instruction signage.
 - 5) All Code Required Signage/Verbiage Shall be engraved on the new car operating panel.

- f) Floor Annunciator: Provide new digitized voice annunciator providing both male and female voices in a system capable of up to 5-minutes of speech. Provide concealed speaker. Messages shall include the following announcements:
 - 1) Floor number and direction of travel.
 - 2) Notice of doors closing prior to nudging operation.
 - 3) Notice of car on independent service.
 - 4) Emergency operation announcements:
 - 5) Firefighter's Service, "Elevator returning to lobby."

- C. Car Position Indicator: Provide new segmented digital readout type with 2-inch high (minimum) indications at upper section of car operating panel. Indicator shall provide car position and direction of travel. Incorporate in CEC Digital Display for Passenger and Judge's elevator.
- D. CEC Digital Display; Passenger and Judge's Elevators:
 - 1. CE Electronics, Elite PI Display: Provide on main car operating panel. Use to display information and customize with USB port or from main control station. Provide a 12 inch minimum display. Display elevator position, direction of travel and priority messages. The system shall also be capable of displaying floor-based messages, time, date, temperature as well as scheduled messages.
 - 2. Configure display to provide messages such as security override, fire service, earthquake alert, special club activities, etc.
- E. Fixture Requirements: Provide new faceplates constructed of Satin brushed stainless steel at all floors, minimum thickness 1/8-inch. All edges shall be relieved. All hall fixtures to have concealed fasteners. Wherever feasible, reuse existing electrical boxes; otherwise, perform all required cutting and patching. Extend faceplates as required to cover holes left by removal of existing fixture.
- F. Hall Pushbutton Station:
 - 1. Passenger Elevators No. 1, 2 and 3: Provide a new second riser for the Passenger elevators. A new hall pushbutton fixture shall be provided for the second riser at the Main Lobby Floor only.
 - 2. All Elevators: The existing hall pushbutton riser: The new stations shall include flush mounted satin stainless steel faceplate. Extend faceplates as required to cover holes left by removal of existing fixture. Centerline of riser to be at 3-foot-6-inches above the finished floor. Buttons shall have a minimum dimension of 3/4-inch, be raised 1/8-inch plus or minus 1/32-inch above the surrounding surface, and have a detectable mechanical motion. A minimum clear space of 3/8-inch separation shall be provided. Button design shall be vandal resistant fully illuminated white. Provide spanner type security fasteners. New fixtures shall be equipped with key switches where they are existing.
- G. Fire Key Switch, Fire Sign and In Case of Fire Sign:
 - 1. Locate the fire key switch and Emergency Power switch and jewel with the hall pushbutton at the main return landing.
 - 2. Provide Code required pictograph Fire signs incorporated with the hall buttons, at all floors. Provide 3-position Code required Phase I key switch and operational instructions engraved minimum 1/8-inch high on the faceplate at the main return floor. In Case of Fire signs minimum 1/2-inch high shall be integral within the faceplate, at all floors. Faceplate edges shall be relieved. Finish shall be stainless steel No. 4 brushed finish. Backfill for engraving shall be epoxy filled. Integral signs shall be as follows:
 - a) Fire Signs. Minimum 1/2-inch high lettering.
 - b) Fire Operational Instructions. Minimum 1/8-inch high lettering.
 - 3. Provide spanner type security fasteners. Finish matching faceplate.

- H. Hoistway Access Switch: Mount in existing location and reuse existing electrical boxes; otherwise, coordinate all required cutting and patching. Extend faceplates as required to cover holes left by removal of existing fixture.
- I. Combination Hall Position Indicators/Hall Lanterns: Provide new digital position indicators with vandal resistant arrows in an integral fixture. Provide with satin stainless steel faceplate. Provide arrow shaped up and down lanterns with audible signals at each entrance per architectural drawings. The visual signal for each direction, minimum 2 ½-inches by 2 ½-inches, shall be visible from the proximity of the hall station. Indicators shall have audible signals consisting of voice annunciation and volume adjustable chimes that sound once for the up direction and twice for the down direction of travel. Extend faceplates as required to cover holes left by removal of existing fixture.

2.12 COMMUNICATION AND SECURITY SYSTEMS

- A. Telephone System: Provide automatic dial Hands Free telephone station located in the car station. A button shall suitably identify activation of auto dialer for the visually impaired. Speaker shall be mounted without faceplate or visible fasteners and located either behind the control station or within the telephone box. Communication shall be capable of being heard from any location within the car enclosure. Provide a means to communicate to each car individually from telephone unit at the elevator control panel, in compliance with ASME A17.1, rule 2.27.1.1.4.
 - 1. Provide a telephone symbol minimum 2-inch high, and raised 1/32-inch with Braille indications adjacent to a separate activation button mounted on the control panel.
 - 2. Provide engraved emergency instructions above the activation button. Instructions shall read: TO USE EMERGENCY TELEPHONE, PRESS BUTTON BELOW. DIALING WILL OCCUR AUTOMATICALLY. Identical instructions in Braille shall be provide below the engraved instructions.
 - 3. Provide a visual indication, approximately ¾-inch in diameter, or a jewel that illuminates once a call has been received. Instructions under the visual indicator or within the lighted jewel shall read: ASSISTANCE IS ON THE WAY.
- B. Provide wiring from car to telephone terminal box in elevator machine room.
- C. Mount fire alarm speaker on each car top and run required wiring from speaker to life safety terminal box in machine room. Speakers to be provided by fire alarm contractor.
- D. Mount security camera in each elevator cab and run required wiring from car top junction box to security camera terminal box in machine room. Security cameras to be provided by Owner.

PART 3 - EXECUTION

3.01 EXAMINATION OF EXISTING BUILDING AND CONTRACT DOCUMENTS

- A. Contractor shall carefully examine all existing building conditions and be informed as to facilities for delivery of materials and equipment, floor loading limitations, and be familiar with difficulties that may be encountered in completing execution of all work, prior to bid.
- B. Contractor will be held to have examined all specifications and all other data pertaining

to work.

- C. The Owner shall bear no responsibility for any incomplete or missing wiring diagrams or other data that may be needed to adapt the new equipment to the existing equipment. Obtaining such information from other sources is the Contractor's responsibility.
- D. No consideration or allowance will be granted for failure to visit site, or for alleged misunderstanding of materials to be furnished, or work to be done, it being understood that tender of proposal carries with it agreement to all items and conditions referred to herein.

3.02 MAJOR ALTERATION - INCREASE IN DEAD WEIGHT

- A. The Contractor is required to design all changes to not exceed a 5% increase in the original deadweight of the car enclosure, plus rated capacity. Should the total car weight be exceeded, Contractor shall be responsible for all code required changes. Documentation shall be furnished to the enforcing code authorities verifying the results.

3.03 FIELD QUALITY CONTROL

- A. Tests:
 - 1. Perform as required by code, and authorities having jurisdiction.
 - 2. Provide labor, material, equipment and connections.
 - 3. Repair or replace defective work as required.
 - 4. Pay for restoring or replacing damaged work due to tests.
- B. Final Inspection: When all work is completed, and tested, notify the Owner in writing that the elevator is ready for final inspection and acceptance test. A testing and inspection date shall then be arranged. The proper operation of every part of the elevator system and compliance with contract requirements of the code shall be demonstrated to the Owner. Furnish all test instruments, weights, and materials, required at the time of final inspection. The following tests shall be made on each elevator at the time of final inspection:
 - 1. Test Period: The elevator shall be subjected to a test for a period of one hour continuous run, with full specified load in the car. During the test run, the car shall be stopped at all floors in both directions of travel for a standing period of 10-seconds per floor.
 - 2. Speed Load Tests: The actual speed of the elevator car shall be determined in both directions of travel with full contract load and with no load in the elevator car. Speed shall be determined by a tachometer. The actual measured speed of elevator car with full load shall be within 5% of rated speed. The maximum difference in actual measured speeds obtained under the various conditions outlined between the UP and the DOWN directions shall be checked.
 - 3. Floor-to-floor times with no load in the car, balanced load in the car and full load in the car shall be checked.
 - 4. Car Leveling Tests: Elevator car leveling devices shall be tested for accuracy of landing at all floors with no load in the car, balanced load, and full load, in both directions of travel. Accuracy of floor landing (plus or minus 1/8-inch) shall be

determined both before and after the full-load run test.

5. Final System Tests for Smoke Detection/Fire Elevator Recall: After work is completed, conduct a final test of entire system. Perform testing "after hours" unless normal business hours testing is authorized by Owner. Submit results on approved test report forms.
6. Re-inspection: If any equipment is found to be damaged or defective, or if the performance of the elevator does not conform to the requirements of the contract specifications or the Safety Code, no approval or acceptance of the elevators shall be issued until all defects have been corrected. When the repairs and adjustments have been completed and the discrepancies corrected the Owner shall be notified and the elevator shall be re-inspected. Rejected elevators shall not be used until they have been re-inspected and approved.

3.04 ADJUSTING, CLEANING, LUBRICATION AND PAINTING

- A. In order to maintain cleanliness throughout the project, Contractor shall thoroughly clean all hoistways, car tops, pits and landing sills free of dirt, grease, oil and debris, prior to disabling the first elevator from service for modernization.
- B. Perform the following work prior to final testing and acceptance:
 1. Adjust all equipment for optimum performance, including controllers, motors, motor drive, landing systems, hoistway switches, door operating equipment and safety equipment to achieve the required performance levels.
 2. Thoroughly clean all equipment and equipment areas free of all dust, dirt, debris and excessive oil and grease.
 3. Lubricate all equipment in accordance with manufacturer's guidelines.
 4. Patch and paint exposed work soiled or damaged during installation. Repair to match adjoining work prior final acceptance.
 5. Clean and paint the following equipment and areas: Hoist machine, machine room floor, car top, buffers and pit floor.

3.05 INSTRUCTIONS

- A. Upon completion of all work, the Contractor shall provide an instruction period. Instructions shall be given by competent supervisory personnel and shall apply to actual field conditions. The instructions shall cover, but shall not be limited to the following:
 1. Operation of elevators under emergency conditions, maintenance, adjustment, troubleshooting and diagnostic procedures.
 2. Operation and maintenance of smoke detectors and elevator fire recall system.
 3. Operation of elevator communication, door reversal device, etc.

END OF SECTION

SECTION 14241

MODERNIZATION OF EXISTING HYDRAULIC ELEVATOR

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: Provide materials, labor, and services necessary for the complete modernization of existing electric hydraulic elevators.
 - 1. Modernize one hydraulic elevator located in the Annex.
- B. The Contractor shall work normal hours and normal days with the exception of noisy work, which shall be performed from 5 a.m. to 8 a.m. Noisy work is considered work which will create disruption to normal court or building operation and is performed in the hoistways/lobbies/elevator cabs. The work in the machine room is not considered to be part of this "noisy" work
- C. Any cranes used to bring equipment into the building shall be the responsibility of the Elevator Contractor and shall be scheduled for use on weekends. Permits for cranes are the Elevator Contractor's responsibility
- D. Upon bidding the work, the Contractor shall indicate any additional code compliance items which may be affected as a result of this work. This shall be reported to Owner and Consultant, regardless of whether it is included in any contract document including the specifications and drawings.
- E. If additional work is required for compatibility with the Contractor's equipment, that shall be identified and itemized with the bid submittal.
- F. The new cab and car components shall be designed to stay within 5% of the original car weight, as stamped on the crosshead. Should the original weight be exceeded by more than 5%, comply with all ASME, A17.1 requirement and report the specific conditions to Owner and Consultant prior to manufacture of any equipment.
- G. The Contractor is required to design all changes to not exceed a 5% increase in the original deadweight of the car enclosure, plus rated capacity. Should the total car weight be exceeded, Contractor shall be responsible for the following:
 - 1. All code required changes.
 - 2. Provide structural calculations as required by code to determine integrity and capability of existing elevator components including machine support beams, with ASME A17.1, to withstand the new weights.
 - 3. Review of existing structural electrical and mechanical provisions for compatibility with Contractor's products.
 - 4. Documentation shall be furnished to the enforcing code authorities verifying the results.
 - 5. Owner shall not be responsible for changes to structural, mechanical, electrical or

other systems required to accommodate Contractor's equipment.

1.02 NON-PROPRIETARY EQUIPMENT

- A. It is recognized that each manufacturers system contains components that are proprietary to the development of their systems. The Owner may wish to have the elevator system maintained by another technically qualified service provider and by submitting a bid for this project, the manufacturer shall guarantee that for a minimum of 20 years they will provide the following:
1. Diagnostic, adjusting and monitoring tools for all components including documents, manuals, wiring diagrams and spare parts as listed in part 3 of this specification shall be provided in each machine room, controller room or machine space as a permanent part of the installation and become the property of the Owner. Devices shall be permanent at no additional cost to Owner, shall not self-destruct, and require charging or exchange. Remote monitoring devices are excluded from this requirement, however if such devices are removed all wiring shall be neatly terminated, tied within a junction box and properly marked as to its content.
 2. Manufacturer shall guarantee to support the equipment for this project with regard to notification to Owner of system corrective updates, provide and be responsible for the cost to install such updates at no cost to Owner.
 3. Provide contact information for their separate parts warehouse so that the Owner or designated service provider can order parts on a 24-hour basis and delivered within 48 hours.
 4. Provide a list of parts of each component manufactured and stored at the warehouse and the retail cost of each at closeout of the project and estimated escalation cost. The cost of these parts is what would be charged to Owner or other service provider
 5. Provide contact information for technical support so that the Owner or designated service provider can obtain technical support on a 24-hour basis to provide assistance in troubleshooting problems. Indicate hourly rate charged to Owner or designated service provider for such service.

1.03 CONTRACTOR RESPONSIBILITY

A. GENERAL REQUIREMENTS

1. Should additional work be required either due to code or the elevator contractor's specific requirements, these shall be noted and included with the bid. In the absence of such a list it is assumed the Contractor's equipment is compatible with the existing building system and any resulting work or revisions to the building or to the elevators shall be the responsibility of the Elevator Contractor.
2. Verify existing building systems including but not limited to mechanical, electrical system and fire life safety is compatible with the new equipment being proposed, identify any necessary modifications and include modifications in bid.
3. Provide all floor protection to disburse the weight of materials being removed and/or brought into the facility. Floor protection shall be adequate to prevent damage to existing flooring. Contractor accepts responsibility for cost of replacing

any building surfaces, features or finishes damaged by their actions.

4. Provide, identify and protect clear pathway, subject to Owner's prior approval, for any and all movement and storage of equipment, material and tools, around the property and within the building.
5. Provide guards and barricades to shield people from worksite hazards, including open hoistway, machinery, materials, equipment, and tools.
6. Protect premises from damage throughout course of construction, including floors, walks, walls, thresholds, entrance frames, doors, equipment, etc. Repair or replace items damaged or marred during construction.
7. Clean and apply one finish coat of low VOC low odor, industrial enamel paint on areas and equipment as specified.
8. Apply one finish coat of low VOC low odor, industrial enamel paint on the machine room walls, ceilings and floors.
9. Perform code and performance related tests as specified.
10. Remove and properly dispose of discarded equipment and materials, including debris, rubbish, oil and lubricants.
11. Adjust all safety and emergency control related devices and perform code mandated safety tests.
12. Remove and legally dispose of all elevator equipment replaced by this modification. Removed equipment shall be disposed of as fast as it accumulates and shall not be staged in public spaces.
13. Contractor shall include all code required items, permits, testing, records and inspection costs.
14. Coordinate with the Contractor to restore all damaged building finishes, including carpet, door frames, walls, ceilings, etc. to pre-modernization condition.
15. All modifications to the entry/exit areas shall be the Owner's responsibility but are the Contractor's responsibility to coordinate.
16. Provide fluorescent pit lighting of not less than 100 lx (10 fc), measured at the pit floor. Furnish properly located light switch and GFCI duplex outlet near pit entry.
17. Provide GFCI convenience outlets in pit for sump pump.
18. Removal all non-elevator equipment from machine room, as required by the Elevator Bureau.
19. Provide a class "ABC" fire extinguisher mounted inside each machine room.
20. Secure the storage space for tools and materials.
21. Include all costs associated with the safe hoisting of new equipment to the machine room.

1.04 RELATED BUILDING WORK.

- A. The following work shall be the responsibility of the other trades.
1. Patching and finishing around entrances and adjacent flooring after installation.
- B. Provide code required machine room door signage.
2. All modifications to the entry/exit areas shall be the Owner's responsibility but are the Contractor's responsibility to coordinate.
 3. Bevel all shaft ledges with an angle of not less than 75 degrees with the horizontal, where required.
 4. Provide all required hoistway wall patching.
 5. Modifications to the existing hoistway walls.
 6. Wall block outs and fire rated closure for control and signal fixture boxes which penetrate walls.
 7. Patching and finishing around entrances and adjacent flooring after installation.
 8. All modifications to the entry/exit areas shall be the Owner's responsibility but are the Contractor's responsibility to coordinate.
 9. Coordinate with the Contractor to restore all damaged building finishes, including carpet, door frames, walls, ceilings, etc. to pre-modernization condition. Build back surfaces and or building areas to match pre-existing finishes.
 10. Removal of all non-elevator equipment from machine room.
 11. Provide storage space for tools and materials. Contractor shall be responsible for securing the area.
- B. Mechanical: Refer to Mechanical Contract Documents. The following are general guidelines. Provide adequate machine room heating and cooling necessary to maintain an ambient temperature between 55 and 85 degrees Fahrenheit, with relative humidity not exceeding 85% non-condensing. The existing ventilation for the machine room for the Annex elevator will remain in place.
- C. Electrical: Refer to the Electrical Contract Documents. The following are general guidelines.
1. Verify existing electrical system is compatible with the new equipment being proposed, identify any necessary modifications and include modifications in bid.
 2. Provide LED pit lighting of not less than 100 lx (10 fc), measured at the pit floor. Furnish properly located light switch and GFCI duplex outlet near pit entry. All to be NEMA 4 for wet application.
 3. Provide one GFCI type duplex utility receptacle near each elevator hoist machine. Replace existing outlets with GFCI type. Receptacles shall be manually reset type

4. Provide single non-GFCI outlet in pit when there is an existing sump pump.
 5. Provide required conduit between hoistway and remote elevator control panel.
 6. Provide proper machine room lighting arranged for optimal viewing of control equipment. The light level must be a minimum of 200 lx (19 fc), measured at the machine room floor. Provide sufficient quantity of T8 fluorescent fixtures with wire cage bulb guards. Locate light switch near the lockable side of the entry door.
 7. Provide properly sized, 3-phase power with lockable, fused disconnect switch at code required location for each elevator. Run feeder wires in separate code compliant conduit, terminated at each individual car controller or transformer. If alternate for auxiliary power supply is accepted, disconnect switch must be equipped with auxiliary contacts. Verify requirements with Contractor.
 8. Provide 120 VAC single phase with fused disconnect switch mounted adjacent to group controller, where required. Verify requirements with Contractor.
 9. Provide insulated copper grounding conductor from the main building ground to each power disconnect switch.
- D. Fire Alarm—Refer to contract documents; Minimally the following is required?
1. Provide code compliant elevator recall fire alarm panel.
 2. Provide addressable smoke detectors installed in accordance with NFPA 72 and City of Pasadena building code, capable of initiating Phase 1 Emergency Recall Operation and notifying the Fire Department via the Central Monitoring station or City Tie Fire Alarm Box where required.
 3. Provide required main and alternate floor signals with wiring and contacts terminated in junction box, located in appropriate machine room. Machine room and elevator hoist way must be equipped with at least one smoke detector and one heat detector within 18" of each sprinkler head. Include required signals to flash the in-car fire hat in the event smoke or heat detector is activated in the machine room or hoistway.

1.05 OWNER RESPONSIBILITY:

A. ACCESS TO SITE/GENERAL:

1. On-site Parking shall be provided for the Contractor.
2. Provide and designate adequate storage space for tools and materials.
3. No objects adjacent to, and below, the hall push button station shall project more than 4-inches from the wall.

B. MACHINE ROOM:

1. Service all air conditioning systems and clean all vents.

C. COMMUNICATION AND SECURITY:

1. Provide security camera equipment, where desired.

2. Provide card readers where desired.

1.06 REFERENCES

- A. California Trail Court Facilities Standards.
- B. JCC Requirements
- C. Applicable Codes (Latest Edition):
 1. All work shall be completed in accordance with national, state and local codes in effect at time of award. All requirements of local building department and fire jurisdictions shall be fulfilled by the Contractor.
 2. The American Society of Mechanical Engineers, Safety Code for Elevators and Escalators (ASME A17.1)
 3. The American Society of Mechanical Engineers, Safety Code for Existing Elevators and Escalators (ASME A17.3 - 2005)
 4. American National Standard Accessible and Usable Buildings and Facilities (ICC/ANSI A117.1-Latest Edition)
 5. National Fire Protection Association (NFPA 13)
 6. National Fire Protection Association (NFPA 72)
 7. National Electrical Code (NFPA 72)
 8. American with Disabilities Act (ADA)
 9. California State Building, Fire, Elevator and Accessibility Code
 10. American Welding Society (AWS) D1.1 - Structural Welding Code - Steel
 11. Authorities having jurisdiction

1.07 CONTRACT

- A. Contractor shall advise Consultant and Owner of any discrepancies or ambiguities found in the project specifications prior to submitting bid.
- B. Contract includes all engineering, labor, tools, materials, permits, equipment, required to complete the specified work, except those items defined as to be performed by the Contractor.
- C. Contractor shall familiarize itself with the site conditions and include all incidental work that might occur or be required as part of this project.

1.08 DEFINITIONS

- A. The following definitions apply to work of this Section:
 1. "Owner": as used herein, refers to Pasadena Courthouse Association.

2. "Contractor": refers to the Contractor having the contract with Owner to furnish labor and materials for the execution of work as specified herein.
3. "Consultant": refers to the Syska Hennessy Group, Inc.
4. "Provide": to furnish and install, complete for safe operation, unless specifically indicated otherwise.
5. "Install": to erect, mount and connect complete with related accessories.
6. "Refurbish": to modify as required for like new operation and characteristics, meeting all current code requirements.
7. "Supply": to purchase, procure, acquire and deliver complete with related accessories.
8. "As required", "where required", "as needed", "if required", and "if necessary": repair or replace components to provide like new operation or meet code requirements.
9. "Work": labor and materials required for proper and complete installation.
10. "Wiring": raceway, fittings, wire, boxes, and related items.
11. "Concealed": embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces or in enclosures.
12. "Exposed": not installed underground or "concealed" as defined above.
13. "Indicated", "shown", or "noted": as indicated, shown or noted on Drawings or as specified.
14. "Similar" or "equal": of base bid manufacturer, equal in materials, weight, size, design and efficiency of specified product, conforming to "Acceptable manufacturers."
15. "Reviewed", "satisfactory", "accepted", or "directed": as reviewed, satisfactory, accepted or directed, by or to Owner.
16. Where a device or a part of equipment is referred to in the singular number, it is intended that such reference shall apply to as many such devices as are required to complete the installation.

1.09 INSTRUCTIONS TO CONTRACTORS:

- A. Bids shall be subject to all the requirements of the contract documents and any other documents issued in connection with this project.
- B. Contractor shall identify any operations and features that are unique to their product or practices.
- C. If Contractor desires to furnish items differently than specified, Contractor shall submit substitution as an alternate quotation along with bid. Contractor shall supply information in regard to the proposed substitution of components or materials.

- D. Contractor shall identify any conflicts or problems/issues with the implementation of this work. In the absence of such identification, Contractor is responsible for existing conditions and modifications to the existing hoistway, machine rooms, elevator cars, etc. pertaining to this work, shall be the responsibility of the Contractor. Modifications to building systems, i.e. mechanical, structural, and electrical, etc., shall not be made to accommodate Contractor's equipment.

1.10 HAZARDOUS MATERIALS NOTIFICATION, TRAINING & REQUIREMENTS:

- A. If asbestos containing building materials or other hazardous materials are found to be present within the elevator machine rooms and hoistways, moving, drilling, cutting or otherwise disturbing such materials can pose a health risk and should not be attempted by untrained personnel. Contractor shall immediately notify Owner if there is need to disturb such materials as part of the project or if they observe any materials that they suspect contain asbestos or other hazardous materials that are not properly maintained.
- B. All technicians working on the project are to have undergone hazardous materials awareness training to learn about adverse health effects, necessary precautions, emergencies, inspections, and maintenance.
- C. Should removal or abatement be required, it shall be performed by others and the responsibility of the Owner.

1.11 MATERIALS:

- A. All exposed retained metal in the hoistway and on the car tops shall have all rust removed, shall be mechanically and chemically cleaned, followed immediately by the application of common, low-VOC, low-odor, rust-inhibiting coating. Stainless Steel: Type 302 or 304 or 316 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength and durability.
- B. Paint: Clean all new exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, provide one finish coat of low VOC, low odor, and industrial enamel paint. Galvanized metal need not be painted.

1.12 OPERATION PERFORMANCE

- A. The control system shall provide smooth acceleration and deceleration with 1/8-inch leveling accuracy at all landings, from no load to full rated load in the elevator, under normal or unloading conditions. The self-leveling shall, within its zone, be entirely automatic and independent of the operating device and shall correct for over travel and under travel. The car shall remain at the landing irrespective of load.
- B. The floor-to-floor performance time shall be 15.0 as measured from the start of door close at one floor to ¾ open at the next floor.
- C. The door open time shall be 2.5 seconds as measured from start of door open to fully open.
- D. The door close time shall be 3.6 seconds as measured from start of door close to fully closed.

- E. The door close time shall be based on the Code requirements with a door delay feature.
- F. The hall call door dwell time shall be based on the code requirements with a door delay feature. The door delay is the minimum acceptable time from notification that a car is answering a call (lantern and audible signal) until the doors of the car start to close. The minimum acceptable time for doors to remain fully open after answering a hall call shall not be less than 5-seconds. Time shall be calculated by the following equation:
$$T = D / (1.5 \text{ ft/s})$$

T = Total time in seconds.

D = Distance from a point in the lobby 60-inches directly in front of the hall station to center line of the door opening.
- G. Car call door dwell time: The minimum acceptable time for doors to remain fully open after answering a car call shall not be less than 3-seconds, per code. Initial setting shall be 3.5-seconds.
- H. The speed of the elevator shall not vary by more than +/- 5% under loading conditions.
- I. Differential Door Timing Feature: Provide adjustable timers to vary the time that the doors remain open in response to a car or hall call. The doors shall remain open for 4.0-seconds in response to a car call and 5 to 8-seconds for a hall call. The doors shall remain open as long as passengers are crossing the threshold.
- J. Nudging: When doors are prevented from closing for 20-seconds due to failure of the proximity device or obstruction, the doors shall remain open and a buzzer shall sound.
- K. Prior to final acceptance and prior to the termination of the maintenance period, the elevators shall be adjusted as required to meet these performance requirements.

1.13 SOUND CONTROL/NOISE AND VIBRATION/RIDE QUALITY

- A. Limit overall elevator noise emissions to the building to the following maximum A-weighted sound pressure levels in any mode of operation:
 - 1. 55-decibels measured 5-feet above the cab floor near center while running at rated speed.
 - 2. 55-decibels measured 5-feet above the cab floor near center while the doors are opening or closing.
 - 3. 55-decibels measured in the elevator lobby 10-feet from the elevator doors.
 - 4. All elevator equipment including their supports and fastenings to building, shall be mechanically and electrically isolated from the building structure and main line power feeders to minimize objectionable noise and vibration transmission to car, building structure, or adjacent occupied areas of building.
 - 5. Ride Quality requirements shall include a horizontal acceleration measured inside of the cab during all conditions to not exceed 15 mg peak to peak within the 1-10 MHz range.
 - 6. Vertical acceleration and deceleration shall free of bumps, jerk, and sway, and shall be not less than 3.3 feet/sec² with initial ramp of between 0.5 and 0.75-seconds.

7. Make all necessary modifications or replacement of equipment as necessary prior to final acceptance or warranty expiration to meet the performance requirement. This shall be performed at no additional charge.

1.14 SUBMITTALS

A. Submit the following before beginning fabrication of equipment:

1. The source of all finishes shall be provided by Ownership. The Contractor shall coordinate procurement of those materials with the Ownership and shall direct any of its subcontractor accordingly. Sourcing of all materials and the intended manufacturer/Contractor shall be submitted for approval.
2. Shop Drawings: Provide an electronic set of complete fully dimensioned shop drawings, to scale in PDF format. Include layouts of pits, overhead, plan view of hoistway, cab, machine room, equipment loads, power and heat data for all equipment and required clearances. Provide detailed signal fixture drawings and cut sheets for all major components (controller, door operator, roller guides, etc.)
3. Details of hold-to interior dimensions shall be provided. Drawings shall include details of cab interior including plans, and elevations. Fixture details shall be submitted for review. Generic brochures shall be rejected as not job specific. All details are to reflect modification to existing conditions and exact locations on the new materials. Provide hoistway, overhead and pit sections, and plan view of pit and machine room. Include all applicable structural, electrical and mechanical loads for new equipment. Provide manufacturer cut sheets for control system, power unit and door operator.
4. Design Information: Provide calculations verifying the following:
 - a) Adequacy of existing electrical provisions.
 - b) Adequacy of retained equipment relative to Code requirements if car weight increased by more than 5%.
 - c) Machine room heat emissions in B.T.U.
 - d) Adequacy of existing retained elevator machine beams.
 - e) Adequacy of existing car platform structure for intended loading.
5. Samples: Provide three sets of materials and finishes exposed to public view, 6-inch by 6-inch panels or 12-inch lengths as applicable.
6. Color Charts: Provide three sets of color charts for all paint and car interior, entrance finish selections.
7. Product Brochures: Provide an electronic submittal in PDF format including of literature on controller, landing system, motor starter, door operator and related door operating equipment, and door detector.

B. Before acceptance of work, submit the following:

1. Provide an electronic submittal in PDF format of job specific manufacturer's equipment brochures and service manuals. Assemble manuals in chronological order according to the specification alphanumeric system. Provide in manufacturers standard binders consisting of:
 - a) Equipment and components, descriptive literature.
 - b) Performance data, model number.
 - c) Installation instructions.
 - d) Operating instructions.
 - e) Maintenance and repair instructions.
 - f) Spare parts lists.
 - g) Lubrication instructions.
 - h) Detailed, record and as-built layout drawings.
 2. Detailed, simplified, one line, wiring diagrams. Provide one complete set per manual.
 3. Diagnostics: Controller and system shall include all necessary on-board diagnostics for performance of routine maintenance and troubleshooting. Contractor shall provide all diagnostic documentation required for troubleshooting and maintaining the elevator system upon completion including a composite listing of the individual settings chosen for variable software parameters stored in the software programs.
 4. Layout Drawings: Provide a minimum of two sets of record as-built layout drawings. Drawings shall be prepared in AutoCAD. Provide one (1) complete set of drawings on compact disk.
 5. Wiring Diagrams: Provide a minimum of three (3) sets of "as-built" wiring diagrams that include all electrical circuits in the cars, hoistways and machine rooms. Diagrams shall include definition of all nomenclature and symbols. Provide two (2) sets of wiring diagrams in protective binders or in laminated format and one (1) set on compact disk.
 6. Keys: Provide six sets of keys for all keyed switches installed as part of this project, including: controller cabinet, fire service, stop switch, service cabinet, inspection and others if provided.
 7. Certificate of Warranty in accordance with Specifications.
- C. Consultant shall review and return to Contractor all submittals including shop drawings, samples and color charts, where applicable. Consultant shall review all close-out documents, including service manuals, wiring diagrams, letter from structural engineer, keys, etc. and deliver to Owner upon approval.

1.15 QUALITY ASSURANCE:

- A. Contractor and Maintenance Qualifications:

1. Be able to show evidence of local installations of similar scope and size with the proposed control system.
 2. Directly employ sufficient competent personnel within 50-miles of project to handle modernization and maintenance duties.
 3. Modernization work and maintenance duties shall be separately performed by specialized crews and individuals.
- B. Quality and Gauges of Materials:
1. New, best of their respective kinds free from defects. Gauges as noted.
 - a) Materials, equipment of similar application; same manufacturer, except as noted.
 - b) Entire elevator equipment shall operate without irregularities and quietly by use of high-grade materials, first class workmanship and adjustments.

1.16 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Ship in factory crated sections of a size to permit passage through available space.
- B. Obtain approval and schedule delivery of material to meet Owner's requirements.
- C. Storage of equipment and materials shall be coordinated with Owner.
- D. Hoisting and Storage: All hoisting operations and storage of equipment and materials shall be coordinated in advance of delivery with Owner.
 1. Supply a plan detailing the proposed methods for hoisting of equipment including anticipated roof preparation, hoisting times and durations, traffic control and other special requirements.
 2. Supply a proposed location and size of area needed for tools, materials and equipment to be stored.
 3. Schedule of anticipated delivery, hoisting and storage dates.

1.17 SEQUENCING AND SCHEDULING

- A. Schedule of Operations:
 1. Within thirty (30) days after contract award, the Contractor shall submit a complete plan and schedule of its proposed operations for approval. In preparation of its plan and schedule, the Contractor shall make due allowance for and include the following:
 - a) Preparation of equipment and material submittal.
 - b) Review of each submittal (four weeks)
 - c) Manufacturing lead times for the equipment.
 - d) Shipping durations and anticipated delivery dates.

- e) Related work by other trades, whether under the Contractor's or Owner's responsibility.
 - f) The schedule shall be updated and resubmitted on a monthly basis.
 - g) The schedule may be in the form of a bar chart, graph or other approved system by which are shown predicted sequence, dependencies, durations, starting and completion dates for the various work units or trades involved, together with such other information relative to job progress and completion. If required, the schedule shall be submitted in PDF Format.
- B. Sequence of the work:
- 1. The Contractor shall be responsible for providing a sequencing schedule based on the Owner's requirement. The Contractor shall base their bid on removing three (3) elevators from service simultaneously but never more than one of the three passenger elevators shall be out of service. Sample sequencing may be:
 - a) Custody Elevator Number 1 and Public Elevator Number 1
 - b) Judge's Elevator Number 5, Custody Elevator Number 2 and Public Elevator Number 2
 - c) Public Elevator Number 3 and Annex Elevator Number 4 (Hydraulic).
- C. Interruptions of Building Elevator Service:
- 1. All work shall be done with a minimum amount of interference to the operation of the building. The Contractor shall not interrupt the services without the prior written permission of the Owner.
 - 2. Contractor shall perform as much pre-work as possible, prior to removing the first elevator from service. As a minimum, all new equipment shall be hoisted to the machine room.
 - 3. The Contractor shall be responsible for cross connection of the modernized and non-modernized Passenger Elevators.
 - 4. The elevator shall be tested and accepted by the Owner prior to starting work on another elevator. Contractor shall run each elevator on auto-call operation for a minimum of 72 hours without cycling doors and at least 8 hours with cycling doors, before turning the elevator over to the building. During door cycling period, Contractor shall provide personnel in the elevator at all times, preventing the public from entering the elevator.
 - 5. Work may begin after detailed work schedule has been approved.
 - 6. Liquidated Damages
 - a) In the event the work is not completed per the contract schedule, the following liquidated damage provision shall be used to calculate the damages.
 - b) If the work is still not completed, as defined by the Specifications, liquidated damages will be assessed as follows: Initial assessment of 2% of

contract value (defined as the original contract price plus any authorized change orders) plus 0.25% of contract value for each calendar day until the project is completed.

1.18 WARRANTY

- A. The elevators and associated equipment shall be free of defective material, imperfect work and faulty operation not due to ordinary wear and tear or improper use or care, for a period of three years concurrent with the warranty maintenance from final acceptance after completion of the final elevator. Defective work shall be repaired or replaced at no additional cost to the Owner. Provide Certificate of Warranty with start date effective on the date the Consultant accepts all work, including completion of all punch list items.

1.19 MAINTENANCE SERVICE

- A. Interim Maintenance: Submit with base bid a separate monthly price to provide Full Service on the elevators, from the first day of the month following contract award until the first elevator is removed from service for modernization. Coverage shall be in accordance with Vertical Transportation Interim Maintenance Agreement.
- B. Construction Maintenance: Submit with base bid a separate monthly price per elevator to provide Full Service from the date the first elevator is removed from service until both elevators are complete and warranty date is established. Coverage shall be in accordance with Vertical Transportation Construction Maintenance Agreement.
- C. Warranty Maintenance: Submit with base bid a separate monthly price for three-year maintenance service during warranty period. Maintenance shall commence upon completion and acceptance of all elevator work on the final elevator. Coverage shall be in accordance with Vertical Transportation Warranty Maintenance Agreement.
- D. On-Going Maintenance: Submit with base bid a separate monthly price should the maintenance be extended past the three-year period. Coverage shall be in accordance with Vertical Transportation Maintenance Agreement.
- E. The Owner reserves the right to accept or reject any or all maintenance terms noted above at any time prior to their commencement date.

1.20 PROTECTION OF PERSONS AND PROPERTY

- A. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work.
- B. The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury or loss to:
 - 1. Employees working on the project and other persons who may be affected thereby.
 - 2. The work, materials, and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-Subcontractors.
 - 3. The property, including but not limited to roofing, walls, ceilings, flooring, furnishings, etc. Contractor shall repair or replace all damaged items. Under no

circumstances shall any employees of Contractor or subcontractor employees smoke while on-site. Contractor shall advise all employees and Subcontractors that smoking on roof may void Owner's roofing warranty and Contractor shall be responsible for all costs associated with violation of this requirement.

- C. The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner.
- D. The Contractor shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of public authority having jurisdiction for the safety of persons, property or to protect them from damage, injury or loss. He shall erect and maintain, as required by existing conditions and progress of the work, all partitions for safety and protection, including posting danger signs, and other warnings against hazards, promulgating safety regulations and notifying Owners and users of adjacent utilities. The Contractor shall restore all damaged building
- E. In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damages, injury or loss.

1.21 PERMITS AND INSPECTION FEES

- A. The Contractor shall obtain without cost to the Owner, all permits and certificates as required.

1.22 SIGNS

- A. Provide "Temporarily out of Service for Modernization" signs and post on all affected elevator entrances at all floors.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Product of individuals, firms or corporations regularly engaged in modernizing elevators comparable with this contract and in satisfactory operation for a period of not less than five years.
- B. Qualified Contractors—or Approved Equal:
 - 1. Kone Elevator Company
 - 2. Otis Elevator Company
 - 3. Schindler Elevator Company
 - 4. ThyssenKrupp Elevator Company
 - 5. Mitsubishi Elevator Company
- C. Approved Base Bid Control System:
 - 1. Non-Proprietary Equipment. Alternate for Motion Control Engineering: iControls or approved equal.

2.02 OUTLINE OF EQUIPMENT

A. Annex Elevator No. 7 (All information shall be field verified by Contractor):

- | | |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Elevators Type: | Hydraulic Direct Plunger |
| 2. Contract Load, in Pounds: | Retain Existing |
| 3. Contract Speed, in FPM: | Retain Existing |
| 4. Machine Location: | As presently located |
| 5. Power Unit | Retain existing; Check and tighten all fastenings; make all necessary adjustments. |
| 6. Type of Control: | Soft Start AC |
| 7. Operation | Selective Collective |
| 8. Guide Rails | Retain existing; remove all dirt, debris rust; Apply one finish coat of low VOC, low odor, and industrial enamel apply one finish coat of low VOC low odor, industrial enamel paint on non-running surfaces |
| 9. Buffers and Pit Channels | Retain existing; remove all debris, rust and dirt; Apply one finish coat of low VOC, low odor, and industrial enamel apply one finish coat of low VOC low odor, industrial enamel paint on non-running surfaces. Test and make any modifications necessary to pass state tests. |
| 10. Plunger and Cylinder | Provide new PVC Casing; new plunger and new cylinder |
| 11. Roller Guide Assembly | Provide new car assemblies and rollers. |
| 12. Traveling Cable | Provide new |
| 13. Door Operation | Provide new VVVF-AC Closed Loop type; GAL MOVFR or approved equal. |
| 14. Door Detector | Provide new infrared full screen full height of door device with differential timing, nudging and interrupted beam time. |
| 15. Car Platform | Check all fastenings, tighten and secure.
Platform: remove rust, dirt and debris and clean. .
Apply one finish coat of low VOC, low odor, and industrial enamel paint |
| 16. Cab Enclosure | New car doors with textured stainless steel finish; refer to drawings.
Interior Finishes: Refer to drawings attached to the specification. |
| 17. Cab Door Equipment: | Provide all new GAL or approved equal door equipment including headers, tracks, rollers, hangers, etc. |

18. Cab Sills
Retain existing; remove rust, debris and dirt, wire brush, clean and polish. Apply one finish coat of low VOC, low odor, and industrial enamel paint Check and tighten all fastenings.
19. Top of Car Inspection Station:
Provide new with light fixture and convenience outlet.
20. Hoistway Entrances:
Retain existing configuration.
21. Hoistway Entrance Equipment:
All new equipment shall be GAL or approved equal.
New interlocks, door tracks, headers, hanger's rollers and closers.
Any retained equipment: Remove all rust, dirt, debris, wire brush and clean all equipment which is being retained. Apply one finish coat of low VOC, low odor, and industrial enamel paint on all non-running surfaces.
22. Lobby Hoistway Sills & Sill Angles
Retain existing; remove rust, dirt, debris, wire brush and clean. Apply one finish coat of low VOC, low odor, and industrial enamel paint Check and tighten all fastenings
23. Lobby Hoistway Doors & Frames:
Doors: Provide new doors with satin stainless steel finish at all floors.
Frames: Retain existing frames; Apply one finish coat of low VOC, low odor, and industrial enamel paint Check all fastenings and refinish.
24. Car Operating Panel:
Provide new main applied car operating panel.
Incorporate a 12" to 15" CEC Elite P.I. into the new applied car operating panel.
25. Hall Fixtures
Provide all with new; reuse of existing boxes is acceptable. All fixtures shall be mounted to meet disabled height requirements.
26. Combination Hall Position Indicator and Hall Lanterns:
Provide new surface mounted type vandal resistant type with adjustable chimes at all floors for all elevators.
27. Hall Call Stations:
Provide new surface mount type with oversized faceplate and engraved fire exit signs. Provide fully illuminated white vandal resistant buttons and button assemblies to meet CBC requirements.
Provide key switch operation to match existing.

- | | |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 28. Phase 1 Fire Recall Switch: | Provide new at main return landing; integrate with hall pushbutton station |
| 29. Access Switches: | Provide new in existing location. |
| 30. Car Blower: | Provide new three speed blower. |
| 31. Communication System: | Provide new self-dialing vandal resistant push to call two way communication system with recall, tracking and voiceless communication. |
| 32. Under Car Light: | Provide new car light under car platform with switch in service cabinet. |
| 33. Special Features: | Fire recall operation, emergency power operation, verbal floor and direction annunciation and communication system |

2.03 MACHINE ROOM EQUIPMENT

- A. Provide equipment to fit in existing machine room space. Any and all costs for re-design of, and revisions to, building spaces and structure due to selection of Contractor, Manufacturer, change to equipment availability, production or selection shall be borne by Contractor.
- B. Hydraulic Pump Unit: Retain Existing; check and tighten all fastenings. Adjust motor and shut off valves as required. Test muffler and make necessary adjustment.
- C. A pressure switch shall be mounted in line to prevent loss of oil.
- D. Controller: Microprocessor-based AC type with unit valve suitable for operation specified and capable of providing smooth, comfortable car acceleration and retardation. Limit the difference in car speed between full load and no load to not more than $\pm 10\%$ of the contract speed in either direction.
- E. Controller: Disconnect and completely remove the existing controller and selector for each elevator and replace with a new microprocessor system.
 - 1. Non-proprietary diagnostic control system from approved manufacturer. Provide NEMA – 1 enclosures and doors arranged with locks or mechanical latches.
 - 2. All controller components shall be designed to provide the required operation as herein specified.
 - 3. All assemblies, power supplies, switches, relays and other items shall be securely mounted on a substantial, self-supporting steel frame of angles or channels and shall be totally enclosed with hinged or removable covers in a floor mounted cabinet. Equipment shall not be mounted on any of the covers.
 - 4. All controller switches and relays shall be magnet operated with contacts of design and material to ensure maximum conductivity, long life and reliable operation without overheating or excessive wear and shall provide a wiping action to prevent sticking due to fusion.
 - 5. Where time delay relays are used in the circuits, they shall be of an acceptable

design that is reliable and consistent, such as condenser timing or electronic timing circuits. No dashpot time relays shall be used.

6. Each device on all panels shall be properly identified by name, letter, or standard symbol that shall be neatly stencil painted (or otherwise marked), in an indelible and legible manner, on device or panel. Identification markings shall be coordinated with identical markings used on wiring diagrams. The ampere rating shall be marked adjacent to all fuse holders. All spare conductors shall be neatly formed, laced and identified.
7. Safety switch shall cut off current, automatically apply brake and stop car upon current failure or upon operation of any electrical safety device.
8. All high voltage (110-volt or above) contact points inside the controller cabinet shall be protected from accidental contact when the doors are open.
9. Controllers shall be designed, tested and certified for Electromagnetic Interference (EMI) immunity in compliance with EN12015.
10. Provide adequate ventilation fans.
11. Provide isolated input with opto-isolation modules.
12. Power Supplies: All power supplies utilized shall be UL recognized. They shall all have short-circuit protection.
13. Frame: All assemblies, power supplies, chassis, switches, relays, and other items shall be securely mounted on a substantial, self-supporting steel frame. The equipment shall be completely enclosed with covers. No equipment is to be mounted on the covers.
14. Wiring: All factory wiring shall utilize UL labeled copper wires. All wiring interconnections shall be neatly routed. All wiring connections to studs of terminals shall be made by means of solder or solder less lugs.
15. Marking: All components shall be clearly and permanently identified adjacent to each device and shall be identical to the wiring diagram.
16. Terminals shall be provided for a future connection to a computerized test system. An adequate number of terminals shall be provided so as to monitor all of the various functions of the elevators. These shall include but not be limited to car positions, running functions up and down, door open and close, hall and car calls, door protective devices, safety circuits, elevator recapture, etc.
17. Printed Circuits and Related Hardware:
18. All solid-state hardware and devices shall have built-in noise suppression devices that provide a level of noise immunity compliant with EN12015.
19. Power supplies shall have noise suppression devices provided.
20. All inputs from external devices (such as pushbuttons) and all outputs to external devices (such as indicators, relays) shall be isolated.
21. The use of relays as input/output devices is not acceptable.

22. A separate regulated power supply shall be used for each computer chassis.
 23. The control circuits shall be so designed so that one side of the power supply is grounded to provide for testing.
 24. Under no circumstances shall the safety circuits be affected by accidental grounding of any part of the system.
 25. In the event of a power failure or interruption, the system shall be designed so that it will start properly when power is returned.
 26. System memory shall be provided so that data shall not be lost in the event of a power failure or disturbance.
- F. Auxiliary Disconnects shall be provided where the equipment is not in the line of sight of the Main Line Disconnects. These are the responsibility of the Contractor.
- G. Diagnostic Tools: Subcontractor shall provide all diagnostic tools and documentation required for the adjustment, troubleshooting, and reprogramming of the elevator system upon completion, including:
- Passwords or identification codes required to gain access to each software program in order to perform diagnostics or program changes.
- A composite listing of the individual settings chosen for variable software parameters stored in the software programs.
- A complete dictionary of fault codes with recommended steps for resolution, in sequence from highest to lowest probable cause.
- Provide one project laptop capable of and configured for displaying elevator status, hoistway position and direction, door position and direction, approximate percentage loading, existing issue and direction of hall and car calls and any current or recent faults for troubleshooting the equipment. It is the intent that the laptop be left on-site for diagnostic use in each control room.
- H. Provide vibration sound isolation to eliminate structure-borne sound being transmitted to the building. Vibration isolators shall be equivalent to Mason Industries Model RBA or SWM waffle pad with neoprene grommet and washer isolated bolt attachment. Select isolators to compress a minimum of 0.1-inches under load. Seismic Protective Features: Provide per the Code requirements.

2.04 SYSTEM OPERATION AND FEATURES

- A. Selective Collective Operation—Annex Elevator:
1. Controls shall be a microprocessor based system.
 2. Registration of car call button shall cause the car to start. The car shall respond to its own car calls and corridor calls, in the direction of travel, and in order in which the landings are reached.
 3. The car shall remain at the arrival floor for an adjustable interval to permit passenger transfer. Doors shall close after a predetermined interval, unless the car is parked at the main floor, after opening unless closing is interrupted by car door reversal device or door open button in car.

4. Delayed Car Protection: The system shall automatically disassociate a car from the Duplex system in the event the car is delayed for a predetermined time. The car shall be automatically restored to the Duplex System when the cause of the delay has been eliminated.
 5. Programmed Door Control: Separate adjustable times shall be provided for each car to establish minimum passenger transfer time for car stops, intermediate floor hall call stops and lobby floor stops. All timing shall be computerized to coincide with traffic demands.
 6. Designated Parking: The system shall provide for cars to park as designated by the Duplex system or park at its last call.
 7. Provisions shall be made in the dispatch computer so that the elevator system dispatching can be modified at a future time. The system shall be so designed that the modifications to the software shall be all that is required to revise the dispatching. It shall be further designed so that there will be minimum shut down time should changes be required.
- B. Independent Service: Provide controls to remove elevator from normal operation and provide control of the elevator from car buttons only. Car shall travel at contract speed and shall not respond to corridor calls.
- C. Car Top Inspection Operation: Provide new per Code requirements.
- D. Hydraulic Elevator Low Oil Control: Should the elevator determine a low oil condition, the elevator shall be automatically returned to the bottom floor and park until the condition is remedied.
- E. Emergency Recall Operation (Fire Service): Provide operation and equipment per Code requirements. Contractor shall provide relays, wiring, and terminal strips to receive signals from the fire alarm system.
- F. Hydraulic Elevator Battery Lowering: In the event of a power loss, the elevator shall return to the lowest landing and the doors shall automatically open. The elevator shall then automatically deactivate. The standby power source shall be a 12 volt DC battery unit with solid state charger and testing. Battery to be rechargeable with a ten year life. Upon restoration of normal power, the elevator shall automatically resume its operation.
- G. Differential Door Timing Feature: Provide adjustable timers to vary the time that the doors remain open in response to a car or hall call. The doors shall remain open for 3.5-seconds in response to a car call and 5 to 8-seconds for a hall call.
- H. Nudging: When doors are prevented from closing for 20-seconds due to failure of the proximity device or obstruction, the doors shall close at reduced speed and a buzzer shall sound.
- I. Fan and Light Output Timer: Provide an adjustable timer (Range 5 to 10-minutes) that when activated will turn off the fan and light within the car. The time will start when the car becomes inactive.
- J. Ascending Car Over-speed and Unintended Car Movement Protection: Provide future operation to prevent the elevator from striking the hoistway overhead and prevent unintended car movement per code.
- K. Seismic Operation: Provide operation and equipment per Code.

2.05 SECURITY SYSTEM:

- A. Interface with building security systems shall be required.
- B. Cameras: Provisions Only; All Elevators:
 - 1. Provisions for future camera provisions shall be installed for all elevators. These provisions shall include wiring and mounting brackets.
 - 2. One (1) pair wires shall be provided and installed per elevator cab in traveler cable. Shielding shall not be required. Must be separated from 480 v power sources.
 - 3. Wire shall be terminated in machine room with connection point for MCM outside of machine room. MTM to distribute from machine room as needed
- C. Provide a Panic Button in each car and a two-way intercom system which will allow for the Sheriff to communicate with passengers in any of the elevators. This system shall be separate and exclusive from the telephone 24 hour system. This system shall be connected to a sheriff's station at a pre-designated location. Wiring and conduit from the elevator machine room to this station shall be the responsibility of the Contractor.
- D. This shall be a two way system and activation of the panic button can occur either by the passenger inside the elevator or from a remote location by a designated building personnel. Activation of the panic button will illuminate a jewel and audible signal in the elevator and in the Sheriff's control panel.

2.06 SEISMIC

- A. Provide a minimum of one seismic switch for each single or group of elevators. A dual axis seismic switch shall activate per code requirements in both vertical and horizontal directions.

2.07 HOISTWAY EQUIPMENT

- A. Guide Rails and Brackets:
 - 1. Retain existing car guide rail brackets.
 - 2. Thoroughly clean all guide rails free of grease, oil and other foreign substances, file and remove all rough edges and surfaces. Realign, and tighten bracket bolts and guide rail clips as required for smooth and quiet operation of car. Provide additional rail brackets or backing as required by code or as necessary to meet ride quality standards.
- B. Buffers:
 - 1. Existing car spring buffers shall be refurbished. Clean thoroughly, flush and refill units with new oil.
 - 2. Provide inspection ladder and under car platform, where required by code.
 - 3. Apply one finish coat of low VOC, low odor, and industrial enamel paint on the exterior of buffer and stencil number the car number on each buffer.

4. Buffers shall be load tested and tagged prior to turnover.
- C. Hydraulic Jack Assembly:
1. Cylinder: Provide a seamless steel pipe and design head to receive unit type packing.
 2. Provide water tight PVC casing.
 3. Plunger: Provide a polished seamless steel pipe. The lengths shall not exceed 24'-0"
 4. Provide over speed valves and shut off valve adjacent to the jack unit.
- D. Well Hole and Casing:
1. Reuse the existing jack hole. Provide all necessary drilling and expand hole diameter as required for the new jack unit. Remove existing jack and oil. Removal of all spoils shall be the elevator contractor's responsibility.
 2. Drilling rig and attachments, access to the building, and any associated drilling costs shall be included. A rock clause shall not be acceptable.
 3. Install a PVC watertight casing which shall be capable of accommodating the new jack unit and additional fluid capacity.
 4. Seal well opening at the pit floor with hydraulic quick setting cement.
 5. Provide vision and access ports in the PVC.
- E. Pit Stop Switch: Provide new red colored stop switches to meet code requirements.
- F. Alarm Bell: Provide car top alarm bell and second alarm bell inside hoistway at lobby level.
- G. Final Terminal Stopping Devices:
1. Final Device Operation: New final limit switches located at top and bottom of the hoistway shall be arranged to automatically stop the car within the predetermined over travel limits, independently of all other devices.
 2. Rollers: Switches shall be equipped with engaging arms provided with polyurethane-tired rollers for engagement with cams.
- H. Electrical Wiring: Terminal connections for all conductors at equipment panels, center of hoistway and on elevator car shall be made with terminal blocks or studs having identifying numbers. All conductor connections shall be made with terminal eyelets of the solderless type.
1. Conductors: Provide copper insulated wiring with flame retarding and moisture resisting outer cover. Install in galvanized metal wireways and raceways. Conductors from shaft riser to door interlocks shall be SF-2 type or equal, maximum operating temperature 392-degrees F. All terminations shall be insulated to maintain integrity of wiring. Flexible conduit may be used for short connections. Provide 10-percent conductors throughout.

2. Traveling Cables: UL- labeled fire and moisture resistant outer braid and steel supporting strand. Provide a minimum of eight (8) pairs of shielded communication wires and car lighting circuits.
 3. Provide wiring as required for fire alarm initiating devices, emergency two way communication, and firefighter's phone jacks, paging speaker's intercom, announcement speakers and card reader interface.
 4. Remote Wiring: Provide wiring between machine room, hoistway and remote locations of guard, security, life safety and fire control panels.
 5. Work Light and Plug Receptacles: Provide on top and bottom of car with lamp guards.
 6. Stop Switches: Provide Code required stop switches in the pit, near the governor access door, in the machinery spaces of machine room less elevators and where split level machine rooms occur.
 7. Provide NEMA4 weatherproof electrical equipment and wiring identified for use in wet locations when any electrical devices are located less than four (4) feet above the pit floor.
 8. Note: Conduits or other wiring shall not be exposed in the lobby or other occupied parts of the building.
- I. Raceway: Remove all rust, wire brush, clean and apply one finish coat of low VOC, low odor, and industrial enamel paint. Retain existing raceway where suitable and replace sections as necessary for new equipment. Modify lower section, where required, to accommodate proper pit ladder access.

2.08 DOORS AND ENTRANCE EQUIPMENT

- A. Retained Equipment: Remove all rust, dirt, debris; clean all surfaces on the hoistway and lobby side. Apply one finish coat of low VOC, low odor, and industrial enamel paint on all non-running surfaces.
- B. Frames: Retain existing entrance frames. Remove all rust, debris and dirt from face and back side of frames. Clean both hoistway and lobby side of frames. Clad existing frames with satin stainless steel as detailed on the drawings.
- C. Provide new rubber door strike astragals.
- D. Remove existing and provide new Braille plates centered at a height of 60-inches above the floor, mounted at each entrance side jamb. Match design of car Braille plates. Provide epoxy adhesively mounted plates; no rivets or visible fasteners. Braille and Designation plates shall have white characters with black background at typical floors. Plates shall be manufactured by SCS, Vison Mark or Entrada; cast design.
- E. Sills and Sill Angles: Reuse existing; check and tighten all fastenings.
- F. Struts: Reuse existing and clean thoroughly. Check and tighten all fastenings.
- G. Header: Provide new.
- H. Dust Covers: Reuse existing. Align, adequately reinforce and secure as required. Replace any missing covers or fasteners. Check and tighten all fastenings.

- I. Fascia: Reuse existing and clean thoroughly. Align, adequately reinforce and secure as necessary to prevent contact with the car. Replace any missing fascia and fasteners. Check and tighten all fastenings. Paint floor number on fascia.
 - J. Door Panels:
 - 1. Stencil paint 4 inch high floor numbers on the back of each landing door panel.
 - 2. Annex Elevator at all floors:
 - a) Provide new 14 gauge panels with a satin stainless steel finish. Provide rubber astragals on leading edge. Each door panel shall have two gibs which shall remain in the sill the entire length of door travel. Any cladding shall wrap around the trailing edge of the door a minimum of ½"
 - b) Provide 14 gauge sight guards with finish to match doors.
 - K. Door Hangers: Provide new removable two-point suspension type with provisions for vertical and lateral adjustments. Sheaves shall be 2 ½-inch diameter with sealed or roller bearings.
 - L. Door Tracks: Provide new removable steel tracks with smooth roller contact surface.
 - M. Door Closers: Spring, spirator or jamb/strut mounted counterweight type. Design and adjust to ensure smooth, quiet mechanical close of doors.
 - N. Interlocks: Provide new interlocks and door release roller assembly at each entrance. Where door release assembly is replaced with new design, roller assembly shall be mounted to an 8-inch by 6-inch (10-gauge) reinforcement plate, properly screwed to the back of each landing door. Reinforcement plate shall be equipped with two (2) ¼-20 by 1-inch long self-clinching zinc studs designed specifically for door release roller assembly attachment. Where new interlock design is provided, the interlock shall be the same make as the door operator.
- 2.09 CAR EQUIPMENT
- A. All existing equipment shall have all rust, dirt and debris removed, wire brushed, cleaned and apply one finish coat of low VOC, low odor, and industrial enamel paint.
 - B. Platform: Reuse existing platform. Balance in order to distribute, as evenly as possible, the pressure of the individual guides on the guide rails surfaces. Tighten fasteners and clean. Modify underside as required for code compliance.
 - C. Car Frame:
 - 1. Retain and refurbish existing car frame. Remove rust, wire brushed, cleaned and apply one finish coat of low VOC, low odor, and industrial enamel paint.
 - 2. Square and adjust frame within guide rails in order to center, as evenly as possible, between the guide rail surfaces. Tighten fasteners and clean.
 - 3. Stencil paint 4" high car number on crosshead.
 - D. Under Car Lighting: Provide new incandescent light fixture with bulb guard in NEMA 4 water tight and weather resistant box. Provide switch in service cabinet to turn light on/off.

- E. Platform:
 - 1. Retain and refurbish existing platform.
 - 2. Balance in order to distribute, as evenly as possible, the pressure of the individual guides on the guide rail surfaces. Tighten fasteners and clean.
 - 3. Provide new rubber platform isolation pads.
 - 4. Repair or replace any missing or damaged brace or support angles.
- F. Test at full load and full speed at the end of the equipment modernization. Replace all defective components or devices that do not function properly, including new safety actuating ropes as required.
- G. Toe Guard: Provide new 48", paint with one coat of black enamel.
- H. Roller Guides: Provide new roller type guides to provide smooth and quiet ride free of rumbles, bumps, vibrations, and excessive sway. Guides shall consist of three or more adjustable spring mounted rollers per guide assembly (3 1/2-inch minimum diameter) to maintain rail contact and include adjustable stops. Rollers shall be constructed of neoprene or other similar sound deadening material. Rollers shall have high memory characteristics, enabling the rollers to quickly regain their round shape after an elevator sits still overnight or for a moderate period of time. Provide adapter plates and mounting hardware as necessary.
- I. Door Hangers: Provide new removable two-point suspension type with provisions for vertical and lateral adjustments. Sheaves shall be 2 1/2-inch diameter with sealed or roller bearings. Hangers shall be galvanized metal or treated with 3 coats of Rustoleum.
- J. Door Tracks: Removable steel tracks with smooth roller contact surface.
- K. Door Protection: Infrared detector: Provide a door proximity edge that projects an infrared curtain of light guarding the door opening. Unit shall extend the height of the door panel. Arrange to reopen doors if one beam of the curtain is penetrated. Unit shall have Transmitters and Receivers spaced at a minimum distance to provide the maximum amount of protection within the height of the doorway. Systems which have the availability to turn off or on individual zones within the curtain will not be allowed. Door Detector shall extend the entire height of the door panel.
- L. Door Operator: Provide new VVVF-AC, high speed, closed-loop door operator to automatically open and close the car and hoistway doors. The doors shall be capable of smooth and quiet operation without slam or shock.
 - 1. Opening speed shall not be less than 3.0-f.p.s. with reversal in no more than 2-1/2-inches.
 - 2. An auxiliary-closing device shall automatically close hoistway doors if car leaves the landing zone.
 - 3. In case of a power interruption, it shall be possible to manually operate car and hoistway doors from inside the cab.
- M. Door Restrictor: Provide new mechanical zone lock. Electronic door restrictor shall not be allowed.

- N. Car Door Contact: Electrical contact shall prevent the operation of the elevator by normal operating devices unless car doors are closed or within tolerances allowed by Code.
- O. Emergency Exit Contact: Provide electrical contact to shut-off power to the elevator if emergency exit is open.
- P. Car Top Service Guardrail: Provide a 42-inch high railing on the car top with intermediate rail, toe board and stationary posts, where required by Code.

2.10 CAR ENCLOSURE

- A. All retained metal shall have the rust, dirt, and debris removed, wire brushed and cleaned; Apply one finish coat of low VOC, low odor, and industrial enamel paint. If removal of rust compromises the integrity of the equipment, the Contractor shall indicate as such with their bid.
- B. Annex Elevator:
 - 1. An approved company shall manufacture car enclosure. Interior finishes as manufactured by Forms + Surfaces, City Lift, Sterling Corporation or approved equal. Provide the following features:
 - 2. General: The enclosure shall be adequately reinforced and ventilated to meet Code requirements. Weigh all interiors and verify weight of new interiors is per code and manufacturers weight requirements. Provide verification of weights prior to ordering any material. Check and tighten all fastenings. Confirm the structural integrity of the cab shell and platform.
 - 3. Confirm the structural integrity of the cab shell and platform. Repair platform and remove all rust. Check for termites and any deterioration. Replace platform if necessary. If platform is to be retained check and tighten all fastening. Broken welds on the floor support braces shall be re-welded or replaced. Reinforce the existing platform as required. The Contractor shall survey the sub floor to ensure it is free of deterioration and rust. The broken welds on the floor support braces underneath the floor shall be either replaced or repaired.
 - 4. Shell: Arrange shell to accept interior panels as specified. Check and tighten all fastenings. Provide one coat of paint on the interior.
 - 5. Refer to attached drawings for all new finishes.
 - 6. Canopy: Check and tighten all fastenings. Modify canopy for light fixtures. Lighting fixtures that uniformly distribute not less than foot-candles of light at handrail height as required by Code. Provide clear and easily accessible access to the emergency exit per Code requirements.
 - 7. Drop Ceiling and Lighting: Provide new EPCO Flexi light emergency cab lighting system, capable of re-lighting two normal down-light fixtures. Emergency light transformer and fixture to be mounted in a water tight/weather proof enclosure.
 - 8. Floor Covering Provide new as shown on the drawings.
 - 9. Transom, Front Return Panels and Entrance Columns: Provide as detailed on the drawings.
 - 10. Car Door Panels: Door panels shall be 14 gauge hollow metal flush door

construction, furniture steel. Provide reinforcement by formed vertical sections running full height of door. Doors shall be provided with two removable, gibs with fire tabs, located at the leading and trailing edge of the door panel. Finish shall be textured stainless steel. There shall be no visible exposed or protruding fasteners.

11. Ventilation: Three-speed type AA exhaust blower mounted to car canopy on isolated rubber grommets.

2.11 SIGNALS AND FIXTURES

A. All new fixtures shall be provided.

B. Car Operating Panel

1. Provide new applied type main car operating panel in compliance with applicable Code.
 - a) Car Operating Panel: Provide new illuminating stainless steel vandal resistant pushbuttons or approved equal product. Faceplate shall have Satin stainless steel finish. Faceplate shall have continuous hinge with three point latching.
 - b) Provide a keyed stop switch and alarm bell button, door open and door close buttons. All floor pushbuttons shall be located no higher than 48-inches above the car floor, the keyed in car stop switch and alarm button shall be located no lower than 35-inches above finished floor height. Provide fire service cabinet, phase 2 switch, fire jewel, call cancel button, emergency light fixture, and voice annunciation grill and flush mounted speaker grill for the Hands Free telephone.
 - c) Braille/Arabic designations shall be identified by a minimum of 5/8-inch Arabic numeral, standard alphabet character, or standard symbol immediately to the left of the control button. Braille shall be located immediately below the numeral, character or symbol. Controls and emergency equipment shall be identified by raised symbols, including but not limited to, door open, door close, alarm bell, emergency stop and telephone. The call button for the main entry floor shall be designated by a raised star at the left of the floor designation. Braille and Arabic designations shall be flush with inconspicuous mechanical mounting. The plaques shall have raised white characters on a black background. Provide cast Oval Surround style Braille plates as provided by Entrada, Vison Mark or SCS.
 - d) Provide a lockable service cabinet with concealed hinges. Cabinet door shall be flush with the faceplate with hairline joints.
 1. Cabinet shall contain the following toggle type controls:
 - (i) Light toggle switch.
 - (ii) Three speed fan switch.
 - (iii) Inspection keyed switch.
 - (iv) Independent service toggle switch.

- (v) Emergency Light test button
 - (vi) Duplex 120 volt, A.C. GFCI convenience outlet.
 - (vii) Light switch for under car platform light.
- e) Engrave the following; the font shall be as directed by architect and code:
- 1. Elevator Number. Minimum ½-inch high lettering.
 - 2. Elevator Capacity below Elevator Number.
 - 3. Building Name and Address.
 - 4. Fire Instruction signage.
 - 5. All Code Required Signage/Verbiage Shall be engraved on the new car operating panel.
- f) Floor Annunciator: Provide new digitized voice annunciator providing both male and female voices in a system capable of up to 5-minutes of speech. Provide concealed speaker. Messages shall include the following announcements:
- 1. Floor number and direction of travel.
 - 2. Notice of doors closing prior to nudging operation.
 - 3. Notice of car on independent service.
 - 4. Emergency operation announcements:
 - 5. Firefighter's Service, "Elevator returning to lobby."
- C. Car Position Indicator: Provide new segmented digital readout type with 2-inch high (minimum) indications at upper section of car operating panel. Indicator shall provide car position and direction of travel.
- D. Fixture Requirements: Provide new faceplates constructed of Satin brushed stainless steel at all floors, minimum thickness 1/8-inch. All edges shall be relieved. All hall fixtures to have concealed fasteners. Wherever feasible, reuse existing electrical boxes; otherwise, perform all required cutting and patching. Extend faceplates as required to cover holes left by removal of existing fixture.
- E. Hall Pushbutton Station: Provide a single riser for each elevator. Station shall include flush mounted satin stainless steel faceplate. Extend faceplates as required to cover holes left by removal of existing fixture. Centerline of riser to be at 3-feet-6-inches above the finished floor. Buttons shall have a minimum dimension of 3/4-inch, be raised 1/8-inch plus or minus 1/32-inch above the surrounding surface, and have a detectable mechanical motion. A minimum clear space of 3/8-inch separation shall be provided. Button design shall be vandal resistant fully illuminated white Provide spanner type security fasteners.
- F. Fire Key Switch, Fire Sign and In Case of Fire Sign:

1. Locate the fire key switch with the hall pushbutton at the main return landing.
 2. Provide Code required pictograph Fire signs incorporated with the hall buttons, at all floors. Provide 3-position Code required Phase I key switch and operational instructions engraved minimum 1/8-inch high on the faceplate at the main return floor. In Case of Fire signs minimum 1/2-inch high shall be integral within the faceplate, at all floors. Faceplate edges shall be relieved. Finish shall be stainless steel No. 4 brushed finish. Backfill for engraving shall be epoxy filled. Integral signs shall be as follows:
 - a) Fire Signs. Minimum 1/2-inch high lettering.
 - b) Fire Operational Instructions. Minimum 1/8-inch high lettering.
 3. Provide spanner type security fasteners. Finish matching faceplate.
- G. Hoistway Access Switch: Mount in existing location and reuse existing electrical boxes; otherwise, coordinate all required cutting and patching. Extend faceplates as required to cover holes left by removal of existing fixture.
- H. Combination Hall Position/Hall Lanterns Provide new digital position indicators with vandal resistant arrows in an integral fixture. Provide with stainless steel faceplate in locations where presently existing. Extend faceplates as required to cover holes left by removal of existing fixture. Provide arrow shaped up and down lanterns with audible signals at each entrance per architectural drawings. The visual signal for each direction, minimum 2 ½-inches by 2 ½-inches, shall be visible from the proximity of the hall station. Indicators shall have audible signals consisting of voice annunciation and volume adjustable chimes that sound once for the up direction and twice for the down direction of travel. Extend faceplates as required to cover holes left by removal of existing fixture.

2.12 COMMUNICATION AND SECURITY SYSTEMS

- A. Telephone System: Provide automatic dial Hands Free telephone station located in the car station. A button shall suitably identify activation of auto dialer for the visually impaired. Speaker shall be mounted without faceplate or visible fasteners and located either behind the control station or within the telephone box. Communication shall be capable of being heard from any location within the car enclosure. Provide a means to communicate to each car individually from telephone unit at the elevator control panel, in compliance with ASME A17.1, rule 2.27.1.1.4.
1. Provide a telephone symbol minimum 2-inch high, and raised 1/32-inch with Braille indications adjacent to a separate activation button mounted on the control panel.
 2. Provide engraved emergency instructions above the activation button. Instructions shall read: TO USE EMERGENCY TELEPHONE, PRESS BUTTON BELOW. DIALING WILL OCCUR AUTOMATICALLY. Identical instructions in Braille shall be provide below the engraved instructions.
 3. Provide a visual indication, approximately ¾-inch in diameter, or a jewel that illuminates once a call has been received. Instructions under the visual indicator or within the lighted jewel shall read: ASSISTANCE IS ON THE WAY.
- B. Provide wiring from car to telephone terminal box in elevator machine room.
- C. Mount fire alarm speaker on each car top and run required wiring from speaker to life

safety terminal box in machine room. Speakers to be provided by fire alarm contractor.

- D. Mount security camera in each elevator cab and run required wiring from car top junction box to security camera terminal box in machine room. Security cameras to be provided by Owner.

PART 3 - EXECUTION

3.01 EXAMINATION OF EXISTING BUILDING AND CONTRACT DOCUMENTS

- A. Contractor shall carefully examine all existing building conditions and be informed as to facilities for delivery of materials and equipment, floor loading limitations, and be familiar with difficulties that may be encountered in completing execution of all work, prior to bid.
- B. Contractor will be held to have examined all specifications and all other data pertaining to work.
- C. The Owner shall bear no responsibility for any incomplete or missing wiring diagrams or other data that may be needed to adapt the new equipment to the existing equipment. Obtaining such information from other sources is the Contractor's responsibility.
- D. No consideration or allowance will be granted for failure to visit site, or for alleged misunderstanding of materials to be furnished, or work to be done, it being understood that tender of proposal carries with it agreement to all items and conditions referred to herein.

3.02 MAJOR ALTERATION - INCREASE IN DEAD WEIGHT

- A. The Contractor is required to design all changes to not exceed a 5% increase in the original deadweight of the car enclosure, plus rated capacity. Should the total car weight be exceeded, Contractor shall be responsible for all code required changes. Documentation shall be furnished to the enforcing code authorities verifying the results.

3.03 FIELD QUALITY CONTROL

- A. Tests:
 - 1. Perform as required by code, and authorities having jurisdiction.
 - 2. Provide labor, material, equipment and connections.
 - 3. Repair or replace defective work as required.
 - 4. Pay for restoring or replacing damaged work due to tests.
- B. Final Inspection: When all work is completed, and tested, notify the Owner in writing that the elevator is ready for final inspection and acceptance test. A testing and inspection date shall then be arranged. The proper operation of every part of the elevator system and compliance with contract requirements of the code shall be demonstrated to the Owner. Furnish all test instruments, weights, and materials, required at the time of final inspection. The following tests shall be made on each elevator at the time of final inspection:

1. Test Period: The elevator shall be subjected to a test for a period of one hour continuous run, with full specified load in the car. During the test run, the car shall be stopped at all floors in both directions of travel for a standing period of 10-seconds per floor.
2. Speed Load Tests: The actual speed of the elevator car shall be determined in both directions of travel with full contract load and with no load in the elevator car. Speed shall be determined by a tachometer. The actual measured speed of elevator car with full load shall be within 5% of rated speed. The maximum difference in actual measured speeds obtained under the various conditions outlined between the UP and the DOWN directions shall be checked.
3. Floor-to-floor times with no load in the car, balanced load in the car and full load in the car shall be checked.
4. Car Leveling Tests: Elevator car leveling devices shall be tested for accuracy of landing at all floors with no load in the car, balanced load, and full load, in both directions of travel. Accuracy of floor landing (plus or minus 1/8-inch) shall be determined both before and after the full-load run test.
5. Final System Tests for Smoke Detection/Fire Elevator Recall: After work is completed, conduct a final test of entire system. Perform testing "after hours" unless normal business hours testing is authorized by Owner. Submit results on approved test report forms.
6. Re-inspection: If any equipment is found to be damaged or defective, or if the performance of the elevator does not conform to the requirements of the contract specifications or the Safety Code, no approval or acceptance of the elevators shall be issued until all defects have been corrected. When the repairs and adjustments have been completed and the discrepancies corrected the Owner shall be notified and the elevator shall be re-inspected. Rejected elevators shall not be used until they have been re-inspected and approved.

3.04 ADJUSTING, CLEANING, LUBRICATION AND PAINTING

- A. In order to maintain cleanliness throughout the project, Contractor shall thoroughly clean all hoistways, car tops, pits and landing sills free of dirt, grease, oil and debris, prior to disabling the first elevator from service for modernization.
- B. Perform the following work prior to final testing and acceptance:
 1. Adjust all equipment for optimum performance, including controllers, motors, motor drive, landing systems, hoistway switches, door operating equipment and safety equipment to achieve the required performance levels.
 2. Thoroughly clean all equipment and equipment areas free of all dust, dirt, debris and excessive oil and grease.
 3. Lubricate all equipment in accordance with manufacturer's guidelines.
 4. Patch and paint exposed work soiled or damaged during installation. Repair to match adjoining work prior final acceptance.
 5. Clean and paint the following equipment and areas: Hoist machine, machine room floor, car top, buffers and pit floor.

3.05

INSTRUCTIONS

- A. Upon completion of all work, the Contractor shall provide an instruction period. Instructions shall be given by competent supervisory personnel and shall apply to actual field conditions. The instructions shall cover, but shall not be limited to the following:
1. Operation of elevators under emergency conditions, maintenance, adjustment, troubleshooting and diagnostic procedures.
 2. Operation and maintenance of smoke detectors and elevator fire recall system.
 3. Operation of elevator communication, door reversal device, etc.

END OF SECTION

APPENDIX



February 9, 2017

Abatement Scope of Work and Specification Elevator Upgrade Project

**Pasadena Courthouse (19-J1)
300 East Walnut Avenue
Pasadena, California
RMAR 16-087-01**

Prepared for:

Judicial Council of California
Under contract to:
Barragan Corp International
41707 Winchester Rd
Suite 304
Temecula, CA 92590

Prepared By:

Mark Smith
Forensic Analytical Consulting Services
2959 Pacific Commerce Drive
Rancho Dominguez, California 90221
Office Phone # 310-668-5600
msmith@forensicanalytical.com

FACS Project #PJ31431 - Revision 1

Table of Contents

Section 1 - Scope of Work	1
Section 2 - General Requirements	3
Section 3 - Abatement Specification	14
Section 4 - Clean-up Procedures	32
Section 5 - Clearance Testing	34
Section 6 - Waste Disposal.....	37
Section 7 - Safety	40
Attachment 1: Certification of Visual Inspections	
Attachment 2: Certification of Final Visual Inspections	
APPENDIX A: Pre-Renovation Survey Report	

1.0 SCOPE OF WORK

1.0 General

1.0.1 This work shall include:

- Asbestos materials and lead-containing/lead painted components that may be impacted by the Owner's overall renovation project are delineated in the asbestos and lead survey report by Forensic Analytical Consulting Services (FACS) dated January 10, 2017, that is attached and incorporated into this specification (Reference Appendix A). **The Abatement Trade contractor, through review of the asbestos and lead survey report, review of the project drawings, site inspection, and discussion with the project architects and engineers shall determine the amount and extent of asbestos abatement and lead-related construction activities required to facilitate the project, which may include all or only a portion of the materials identified in the FACS report.** The Abatement Trade Contractor is responsible for field verification of all quantities impacted by the renovation project and measurements, and shall issue his bid based solely on his measurements and inspections. The Owner or Consultant shall not be responsible for failure of the Trade Contractor to verify quantities and measurements of materials should identified materials be present in greater quantities than the approximate quantities given.
- Proper removal and disposal of asbestos-containing materials impacted by the renovation project.
- Potential disturbance and/or removal and disposal of lead-containing and lead-based paint as necessary to facilitate the project. All renovation work shall comply with the Cal/OSHA Lead in Construction Standard (8 CCR 1532.1) and Lead Safe Work Practices (CDPH Title 17 regulations). *The majority of the work is anticipated to be accomplished following the lead in construction standard and using lead-safe work practices. In the event that the work is sub-contracted, the lead work will be considered abatement. Lead abatement is not addressed by this specification. If sub-contracted lead abatement work is performed, compliance with the California Title 17 requirements for lead abatement (notification, certification, work practices, etc.) is required.*
- Construction and maintenance of temporary access ways as necessary, and preservation of fire exit pathways

The Trade Contractor shall perform the following tasks:

- (1) Obtain all required local, state, and federal permits,
- (2) Initial site cleanup,
- (3) Work area preparations,
- (4) Asbestos removal
- (5) Gross removal and fine cleaning,

- (6) Lock down encapsulation, as applicable
- (7) Final cleanup,
- (8) Proper disposal of waste materials

- 1.0.2 The Abatement Trade Contractor shall furnish all labor, materials, equipment, and services necessary, or required for the performance of the work in accordance with the contract documents and this technical specification, and all local, state, and federal regulations, statutes, or rules.
- 1.0.3 This work shall be done in strict accordance with the specifications. Compliance with all applicable Federal, State and local regulations and the use of the best available technology, procedures and methods for preparation, execution, clean up, disposal and safety are required. This compliance is the sole responsibility of the Abatement Trade Contractor (herein Trade Contractor).
- 1.0.4 The work shall also include construction and maintenance of temporary construction barriers and access ways as necessary. All access ways will be constructed according to the appropriate fire-rating as required by governing regulations.
- 1.0.5 The Trade Contractor shall ensure active utilities (phone, electrical, etc.) and all finishes scheduled to remain are not damaged during the project.
- 1.0.6 The Trade Contractor is reminded that:
 - a. The building will be occupied by court personnel and public.

1.1 Specific

- 1.1.1 Work hours shall be as designated by the Owner.
- 1.1.2 The movement of asbestos & lead-containing waste from the building shall only be performed during hours as designated by the Owner.
- 1.1.3 All polyethylene (plastic) sheeting and wood used shall be fire-retardant.

2.0 GENERAL REQUIREMENTS

2.0 Furnished by Trade Contractor

- 2.0.1 Trade Contractor shall, as a part of this Scope of Work, supply, install, properly maintain, and remove all temporary construction facilities and utilities necessary for full and complete performance of the project.
- 2.0.2 The type of facilities, move-in and move-out dates, and locations on jobsite shall be subject to and in accordance with the review and approval of Owner (herein, JCC) or Consultant. Such items shall include, but not be limited to, the following:
- (1) All equipment for the proper handling, movement, filtration, and or differential pressurization of workspace air.
 - (2) All temporary structures, including change rooms and or decontamination units.
 - (3) All sanitary facilities, including janitorial services, etc.
 - (4) First aid facilities.
 - (5) Communication devices.
 - (6) Transportation facilities, on and off site.
 - (7) Maintenance of Trade Contractor's lay-down, storage and work areas and roads within such areas.
 - (8) Rigging and scaffolding.
 - (9) Electric panel and distribution wiring. Connections to and disconnections from the power source shall be by the Trade Contractor.
 - (10) Any equipment necessary for the distribution of supply and the filtration of all water produced, used or retained at the site, and facilities for proper disposal of wastewater.
 - (11) Temporary lighting.

2.1 Furnished by Owner

2.1.1 Owner or Owner's designee (Construction Manager - herein, CMAR) shall supply or cause to be supplied the following temporary construction facilities and utilities to Trade Contractor, without cost to the Trade Contractor, for or in connection with the performance of the work.

- (1) Construction and potable water at points on the jobsite as designated by Owner's designee. Connections to and disconnections from the water supply shall be by the Trade Contractor.
- (2) Electrical power at least one point on job-site. Proper connections to and disconnections from the power supply shall be by the Trade Contractor.

2.2 Notices and Submittals

A Minimum of 5 Working Days Prior to the Commencement of the Work, the Contactor shall submit all items in the below subsections to the Consultant, CMAR & JCC (one copy submitted to each entity).

- 2.2.1 Copy of the Written Notice of Proposed Abatement activity to the applicable air pollution control agency(ies).
- 2.2.2 Copy of Written Notice of Proposed Abatement activity to the Cal/OSHA Regional office or any other agency having jurisdiction.
- 2.2.3 Written proof that all required permits, licenses, and registrations have been applied for and received. This shall include Asbestos Abatement Trade Contractor Licenses.
- 2.2.4 Transporter and disposal and recycling or facilities' permit documentation, demonstrating regulatory compliance for the facility to receive the type of waste to be disposed (or material for recycling)
- 2.2.5 A three-ring binder containing the following items for each Abatement Trade Contractor's employee and sub-Trade Contractor's employee that will be working inside a regulated area on this project (which shall be updated during the project as new workers are added to the abatement crew):
 - (1) Documentation that Contractor's employees, including foreman, supervisor and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of abatement activities have received training as required by 8 CCR §1529(b) ("Competent Person") and 8 CCR §1529(k)(9) ("Workers). All training certificates shall be current within one year.
 - (2) Proof of employee medical exams as required by Cal/OSHA regulations, within the last 12 calendar months.
 - (3) Certification of respirator fit test, performed within the last 12 calendar months.
 - (4) Blood lead test results within the last 12 months for workers performing lead removal.
 - (5) For work defined as "Lead Abatement", during all phases of work Contractor shall have at least one supervisory employee per work area (individual building) currently certified by the California Department of Public Health as a Certified Lead Supervisor as specified in CCR Title 17, Section 35008. All "Lead Abatement" work shall be performed by employees currently certified by California Department of Public Health as a Certified Lead Worker as specified in CCR Title 17, Section 35009.
 - (6) For non-abatement lead work, employees must provide a certificate of attendance for a lead-related construction course from an accredited training provider.
- 2.2.6 A detailed plan of the procedures proposed for use in complying with the requirements of this specification and applicable regulations. The Trade

Contractor shall include in the plan the location and layout of the decontamination areas, methods to be used to assure the safety of the building occupants and public, and contingency plan if final clearance air testing does not pass required levels. The Trade Contractor shall expand upon the closing out of the building's HVAC system, protection of electrical and life safety systems, method of removal to prohibit emissions from the work area (including fall-through of asbestos material or water into the building through roof openings, seams, and the like), and disposal of debris and contaminated material. *The work plan must also include information on any roof cutter or other mechanical equipment proposed to be used for exterior work, and the wetting and dust control methods that will be implemented (to ensure materials are removed adequately wet and that the discharge of visible emissions is prevented).* **The plan shall be reviewed by the Consultant, CMAR & JCC prior to the commencement of the work. All components of the plan must be in compliance with these specifications.** Any modifications required shall be reflected in a revised plan by the Trade Contractor prior to work progressing.

- 2.2.7 A contingency plan for emergencies including accidental release or emissions from the work area, fire, accident, power failure, differential air system failure, or any other event that may require modification or abridgement of decontamination or work area isolation procedures. Include in this plan specific procedures for decontamination or work area isolation. Note that nothing in this specification should impede safe exiting or providing of adequate medical attention in the event of an emergency.
- 2.2.8 When rental equipment is to be used in removal areas or in the transportation of waste materials, a copy of a written notification provided to the rental company informing them of the nature of the use shall be submitted.
- 2.2.9 The Trade Contractor shall provide legible copies of the Safety Data Sheets (SDS) and manufacturer's information sheet and instructions for all substances used in the course of the work and comply with all parts of 8 CCR 5194. Any substance or material for which the Owner or Consultant may object shall be immediately replaced with a substance or material that will be acceptable. Objections by the Owner or Consultant may be based on environmental issues, health and safety standards, or other issues of which the Owner or Consultant may express to the Trade Contractor. Delays resulting from the replacement of materials shall be solely at the Trade Contractor's cost.
- 2.2.10 OSHA Lead-Work Pre-Job Notification (as applicable): The contractor shall provide written notification to the nearest Cal/OSHA Division District Office in the manner prescribed by subsections (p)(1) through (p)(4) when work is planned that includes the disturbance more than 100 square feet of any lead containing material containing greater than 0.5% lead by weight

2.3 Air Testing and Other Tests

- 2.3.1 The Trade Contractor is solely responsible for providing all tests required by the specified applicable regulations, codes and standards. Trade Contractor will pay for these or any tests performed for their use. At minimum, 25% of workers performing asbestos abatement on each shift are required to have personal air monitoring conducted on a daily basis. Results shall be posted daily at the job site.
- 2.3.2 At their option, the Owner will provide additional air testing at the work site. The Owner will pay for these tests, except where payment by the Trade Contractor is required, as noted elsewhere in these specifications. These tests may include, but are not limited to:
- Clearance testing,
 - Work area samples,
 - Barrier samples,
 - Outside air samples, and
 - Personal samples.

2.4 Inspections by Trade Contractor

- 2.4.1 The Trade Contractor acknowledges and agrees that he has sole and primary responsibility and obligations to the Owner to make inspections of his own work at all stages of construction, that he has sole responsibility to supervise or superintend the performance of the work, and that said work shall be in strict adherence and compliance with the methods materials, regulations, and required standards specified herein.
- 2.4.2 Prior to commencing the work, the Trade Contractor shall convene an initial construction meeting, recognized as the “Pre-construction conference”. The Trade Contractor will provide at least 1-week advance notice to all participants prior to convening the Pre-Construction Conference. This is an organizational meeting to review safety issues, responsibilities and personnel assignments, to identify any visible damage to the existing structure or its condition, and to locate the containment and decontamination areas and temporary facilities including power, light, water, etc.
- 2.4.3 Any items for which the Trade Contractor will not be held responsible (whether pre-existing or anticipated to be affected by the abatement) shall be listed on a walk-through inspection report and agreed upon by the Owner. (The walk-through inspection shall be coordinated by the Trade Contractor, and should include the presence of the CMAR and Owner’s representative). The Trade Contractor shall be held responsible for repairing, at his expense, any damage which was not listed, or which was the result of the abatement or his negligence.

2.5 Superintendent (Foreman), Craftsmen

- 2.5.1 The Trade Contractor shall have a job superintendent/foreman present on the job site at all times that work is in progress. The superintendent shall be thoroughly familiar with and experienced at asbestos abatement and other related work and shall be familiar with and shall enforce the use of all safety procedures and equipment. He shall be knowledgeable of all EPA, OSHA and NIOSH requirements and guidelines. Superintendent shall have successfully completed and passed an examination for a 40-hour Cal/OSHA approved asbestos abatement training course.
- 2.5.2 The superintendent assigned to this project shall be able to read and speak English fluently and be able to communicate with the Consultant in a professional and constructive manner.
- 2.5.3 Skilled craftsmen experienced in each respective trade shall execute all phases of the work.

2.6 Disposal of Wastewater

- 2.6.1 Any water produced by the decontamination of items removed from the work area or persons shall be collected; filtered through a system capable of trapping particles 5 microns and larger, specifically designed to remove asbestos fibers; and disposed into a local sanitary system. (Waste water resulting from water blast procedures, or similar abatement procedures other than showers, shall be containerized and transported to an appropriately permitted waste processing facility.)
- 2.6.2 It is the Trade Contractor's responsibility to comply with any local wastewater systems' regulation regarding the disposal of wastewater from asbestos abatement activities.

2.7 Waste Disposal Sites and Methods

- 2.7.1 The Trade Contractor shall not dispose of any asbestos-contaminated waste, debris, or refuse in any location or manner other than the pre-established, approved landfill, using methods specified herein, and in accordance with Federal State, or local regulations.
- 2.7.2 The Trade Contractor shall not store any bags, drums, or wrapped asbestos-containing materials or other waste at any location inside or outside the building, other than temporarily staging inside the work area, or an approved and properly prepared fully-enclosed container which shall be locked at all times when not being loaded by the Trade Contractor. ***All asbestos waste shall be removed from the work area after each shift or when the work is left unattended. At no time shall the Trade Contractor use the regulated area as a storage location for waste.***

2.8 Toilet Facilities

- 2.8.1 The Trade Contractor shall provide adequate toilet facilities outside of the work area for the exclusive use by employees of trade contractor, and to be removed upon completion of scope of work. No worker shall modify, alter, or by any means use the existing building drain, or toilet facilities inside the work area; nor shall any worker use the decontamination unit shower for toileting. *Any shower used for this purpose shall be disassembled and disinfected by the Trade Contractor. Any down-time as a result of this procedure shall be at the Trade Contractor's expense.*
- 2.8.2 All required decontamination procedures shall be followed prior to the use of these facilities.

2.9 Project Records

- 2.9.1 The Trade Contractor shall maintain project records, which will, at a minimum contain and conform to the following:
- Documentation of all Notices and Submittals
 - Permits/Licenses/Registrations
 - Medical Documentation – Proof of employee physicals
 - Employee respirator fit test documentation
 - Employee training documentation
 - Results of personal air sampling
 - Differential pressure monitor recording charts (where applicable)
 - Work area entry sign-in log, completed daily, or as warranted, with the following information: Employee/visitor name, entry/exit time, company name (if visitor), and date
 - Description of daily work performed
 - Any damages to the structure or furnishings
 - Any loss of differential air pressure, if applicable
 - Any accidents or injuries (including minor accidents)
 - Results of any air samples collected by Trade Contractor
 - Signature of superintendent on daily logs
 - Waste or water testing records, if applicable
 - Copies of all waste manifests (and recycling receipts)
 - Copies of project-related correspondence
- 2.9.2 These records shall be kept up to date and available at the work site. **Upon completion of site work, one (1) copy of the required records shall be submitted to the Owner within 30 days.**
- 2.9.3 The Trade Contractor shall not request final payment until the Owner has reviewed the final submittal package described above.

2.10 Work Area Communications

- 2.10.1 Before work begins the Trade Contractor shall provide 2-way communication equipment capable of linking the personnel in the work area to those stationed outside, so that communications can be maintained without worker decontamination. **This system shall be available to the Consultant to allow communications with the foreman inside containment.** This system shall remain operational until the containment has passed final clearance and the Consultant has approved reoccupation.

2.11 Authority to Stop Work

- 2.11.1 The Owner or Consultant has the authority to stop any or all activities at any time that conditions are not within these specifications, contractual restrictions, or any applicable regulations; or that an unsafe condition exists. The decision to stop work is solely at the discretion of the Owner and Consultant.
- 2.11.2 The “stopped” activity shall not continue until the conditions have been corrected to the satisfaction of the Owner or Consultant.
- 2.11.3 Standby time occurring during a work stoppage for the above-described conditions shall be at the Trade Contractor’s expense and shall not be a valid reason for delay in scheduled completion of project.

2.12 Codes and Regulations

- 2.12.1 **GENERAL APPLICABILITY OF CODES, REGULATIONS, AND STANDARDS:** Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith. The most current issue of each document shall apply. Where conflict among requirements or with these specifications exists, the more strict or stringent requirement or interpretation shall apply.

1. **FEDERAL REGULATIONS:** Those which govern abatement work or hauling and disposal of waste materials include but are not limited to the following:

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), including but not limited to:

- a. Asbestos Regulations Title 29, Part 1910, Section 1001 of the Code of Federal Regulations

- b. Respiratory Protection Title 29, Part 1910, Section 134 of the Code of Federal Regulations
- c. Construction Industry Title 29, Part 1926.1101, of the Code of Federal Regulations
- d. Access to Employee Exposure & Medical Records Title 29, Part 1910, Section 20 of the Code of Federal Regulations
- e. Hazard Communication Title 29, Part 1910, Section 1200 of the Code of Federal Regulations
- f. Specifications for Accident Prevention Signs and Tags Title 29, Part 1910, Section 145 of the Code of Federal Regulations
- g. Code of Federal Regulations (CFR) – Pertaining to lead
 29 CFR 1926, Construction Standards
 29 CFR 1926.62, Lead in Construction Standard
 40 CFR Part 50.12, Ambient Air Quality Standard for Lead
 40 CFR Parts 261, 265, and 268, Hazardous Waste Management
 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

U.S. Environmental Protection Agency (EPA) including but not limited to:

- g. Worker Protection Rule
 40 CFR Part 763, Subpart G
 CPTS 62044, FLR 2843-9
 Federal Register, Vol. 50, No. 134, 7/12/85
- h. Regulation for Asbestos
 Title 40, Part 61, Sub-part A of the Code of Federal Regulations
- i. Regulation for Lead
 Title 40, Part 61, Sub-part A of the Code of Federal Regulations
- j. National Emission Standard for Asbestos
 Title 40, Part 61, Subpart M (Revised Subpart B) of the Code of Federal Regulations
- k. Asbestos Hazard Emergency Response Act (AHERA)
 Regulations 40 CFR 763 Subpart E

U.S. Department of Transportation (DOT), including but not limited to:

- l. Hazardous Substances: Final Rule
 Regulation 49 CFR, Parts 171 and 172.

2. STATE AND LOCAL REGULATIONS: Abide by all state and local regulations which govern abatement work or hauling and disposal of waste materials including but not limited to:

- a. Asbestos Construction Safety Order
Title 8, California Administrative Code, Section 1529
- b. Respiratory Protection
Title 8, California Administrative Code, Section 5144
- c. Medical and Environmental Records
Title 8, California Administrative Code, Section 3204
- d. Registration and Permits
Title 8, California Administrative Code, Section 341
- e. Hazardous Wastes
Title 13, Title 22
- f. Safe Drinking Water and Toxic Enforcement Act of 1986 Title 22,
California Administrative Code, Division 2, Section 12000.
- g. Lead Construction Safety Order
Title 8, California Administrative Code, Section 1532.1
- h. California Dept. of Public Health Lead Regulations
Accreditation, Certification, and Work Practices
For Lead-Based Paint and Lead Hazards
Title 17, California Administrative Code, Division 1, Chapter 8

California Labor Code, Division 5 (beginning with Section 6300)

- i. Registration for Asbestos Related Work
Section 6501.5
- j. Asbestos - Defined
Section 6501.7
- k. Asbestos Related Work - Defined
Section 6501.8
- l. Determination if Asbestos is Present
Section 6501.9

- m. Permits-Issuance Requirements
Section 6502
- n. Safety Conference - Asbestos Handling Jobs
Section 6503

California Health and Safety Code, Division 20 (commencing with Section 24200)

- o. Disposal (Section 25000)

California Senate and Assembly Bills:

- p. AB 2040 Asbestos Abatement (chapter 1587 of the statutes of 1985)
- q. SB 2575 Asbestos Abatement (chapter 1443 of the statutes of 1986)
- r. SB 2572 Asbestos Abatement (chapter 1451 of the statutes of 1986)
- s. AB 1809 Asbestos Abatement (chapter 574 of the statutes of 1986)
- t. AB 2070 Asbestos Abatement (chapter 116 of the statutes of 1986)

Regional and local – including but not limited to:

- u. South Coast Air Quality Management District

3. STANDARDS: Those which govern abatement work or hauling and disposal of waste materials include but are not limited to the following:

American National Standards Institute (ANSI)
1430 Broadway New York, New York 10018 (212) 354-3300

- a. Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2-79
- b. Practices for Respiratory Protection Publication Z88.2-80

4. EPA GUIDANCE DOCUMENTS: Those which discuss asbestos abatement work or hauling and disposal of asbestos waste materials are listed below for the Trade Contractor's information only. These documents do not describe the work and are not a part of the work of this contract.

- a. Guidance for Controlling Asbestos-Containing Materials in Buildings (Purple Book) EPA 560/5-85-024
- b. Asbestos Waste Management Guidance. EPA 530-SW-85-007.

5. **HUD GUIDELINES :** Those which discuss lead remediation work or hauling and disposal of lead waste materials are listed below for the Trade Contractor's information only. These documents do not describe the work and are not a part of the work of this contract.
 - a. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, U.S. Department of Housing and Urban Development, Office of Healthy Homes and Lead Hazard Control (2012)

2.13 Warning Signs

- 2.13.1 The Trade Contractor shall adhere to all warnings, labels, and posting of such notices specified herein or required by Federal, State, or Local agencies. These notices shall be posted in English and if appropriate, in any other language necessary for all workers and visitors to clearly understand.

3.0 ABATEMENT SPECIFICATION

3.1 Work Area

- 3.1.1 Each work area shall be discussed with the Consultant prior to preparation. As a minimum, topics will include ingress and egress points, work areas, containment procedures, and decontamination system. This may be accomplished at the pre-construction conference.
- 3.1.2 Prior to commencing any preparation of the work area(s) for removal operations, the Trade Contractor shall post all required documents, arrange for the lock out of all electrical and HVAC (for exterior and roof work - includes adjacent HVAC intakes within a 20 foot radius outside of the work area perimeter), and erect any physical barriers in order that the work area may be secured (as applicable). Any project-required records shall be up to date and available for review at the job site.
- 3.1.3 Any worker for which proper documentation has not been received by the Consultant shall not be allowed to perform any duties other than general maintenance activities until such time as written documentation is received. General maintenance is restricted to the duties that do not require entrance to regulated work areas and/or the use of respiratory protection equipment.
- 3.1.4 The Trade Contractor is responsible for work area security upon establishing and preparing the work area.

Note: Only Authorized Visitors Will Be Allowed On the Work Site

3.2 Lead-Containing Components

- 3.2.1 General demolition shall be conducted according to the lead in construction standard and must utilize lead safe work practices, including containment to prevent migration of lead dust from the work area, and must include documentation of lead safe work practices (such as a supervisor's log and/or photographs).
- 3.2.2 Salvage of components – As according to project design, various building components may be salvaged and reused. For preparation for re-paint/reuse, the following procedures shall be followed.
 - a. Post appropriate warning signs. Cordon off Work Area at a minimum of 15 feet from the area of work.
 - b. Containment can be a combination of rigid barriers, non-rigid barriers and engineering controls. Contain the work area so that no lead dust or debris may migrate from the work area. Containment must also capture and control any water or other liquids used to control dust and vapors from any chemicals used to remove materials or clean the

work area. Work practices must be documented in the supervisor's log and/or photographs.

- c. Don appropriate PPE.
- d. Carefully remove the paint (as needed to obtain the desirable substrate finish; e.g. remove loose & flaking paints). Manual, mechanical and/or chemical removal methods may be used. Any chemicals to be used must be pre-authorized by the Owner or Owner's Representatives. Constantly mist the work areas with amended water to minimize dust levels. Have a HEPA vacuum readily accessible to clean up loose debris. Surface must be rendered in an end condition as required to produce a smooth substrate for application of any new coatings.
- e. Once the desired substrate/paint condition is obtained, repaint of the surfaces can be performed. (For components where sections of original paint remains, initial application of a lead-blocking primer coating should be considered.)

3.2.3 Lead roof flashing is present at various areas of the roof. If impacted by the project, the Trade Contractor is responsible for the recycling (in accordance with all governing regulations) of all known or assumed lead-containing components that are affected by the renovation project (following removal of any adhered asbestos materials, such as roof mastics). If components can be shown not to contain hazardous substances, then they may be handled accordingly.

3.3 Initial Site Clean-Up

3.3.1 Shut down electric power, as applicable. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements, including ground fault circuit interrupters (GFCI).

3.3.2 Shut down, or arrange for shut down, and then isolate heating, cooling, and ventilating air systems and install critical barriers.

3.3.3 Moveable and loose items located in the work area and not removed by the Owner shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and shall be removed from the work areas to a temporary location designated by the Owner. The items will be received by and protected from future damage or loss by the Owner, and shall be relocated by the Owner. Non-moveable items shall be protected in place.

3.4 Work Area Preparation

GENERAL

- 3.4.1 Work area shall be completely sealed airtight and contained. All openings shall be sealed securely with plastic sheeting. Any fixed objects or equipment within the proposed work area will be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and enclosed with the two (2) separate layers of plastic sheeting, with clean air ducted into the enclosure for cooling equipment, if necessary.
- 3.4.2 Areas immediately adjacent to removal areas such as corridors or hallways which do not receive asbestos material removal, but are necessary routes to and from work areas, shall be protected with plastic on floors, walls, and ceilings.
- 3.4.3 Establish emergency and fire exits from the work areas in accordance with code. Additionally, the abatement trade contractor shall not block existing fire exits or routes.

All exits shall be marked in bold lettering “EXIT” or “Emergency Exit”

- 3.4.4 Install Asbestos Abatement Trade Contractor’s communication equipment. Equipment should be operating properly and maintained as such during removal and clean-up operation as detailed in this specification.
- A. Preparation of Floors
1. All flooring in full enclosures where Class I abatement work will be performed that is not to be abated, shall be covered with two layers of 6-mil. fire-rated polyethylene sheeting.
 2. Polyethylene sheeting on floors shall extend at least 18" up all vertical surfaces in the work area.
 3. Polyethylene shall be sized to minimize seams. If the floor area necessitates seams, those on successive layers of sheeting shall overlap to reduce the potential for water to penetrate to the flooring material. A distance of at least six feet between seams is sufficient. No seams shall be located at wall/floor joints.
 4. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material.
 5. All stairs within the work area shall be covered with two layers of 6-mil. fire-rated polyethylene sheeting. The polyethylene sheeting shall be fixed to each runner with furring strips to prevent slippage.

The top layer of polyethylene sheeting shall be covered with a non-slip surface.

6. Contractor shall take extra measures to protect any carpeting that is to remain in the work area. If carpet gets wet, removal and disposal of the carpet as asbestos waste will be required.

B. Preparation of Walls

1. All walls in full enclosures where Class I abatement work will be performed that is not to be abated, shall be covered with two layers of 6-mil. fire-rated polyethylene sheeting.
2. Polyethylene shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.
3. Wall sheeting shall overlap floor sheeting by at least 12" beyond the wall/floor joint to provide a better seal against water damage.
4. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when negative pressure ventilation systems are in use.
5. Contractor shall provide clear plexiglass viewing window(s) 12" x 12", in each full enclosure work area. The windows shall be located as directed by the Consultant or Owner/CMAR and kept unobstructed at all times so the abatement work can be observed without entering the work area.
6. If only flooring/mastic will be abated using non-mechanical means, full wall sheeting will not be required. In this case, the Contractor shall cover all walls in the work area with one layer of 6-mil. fire-rated polyethylene sheeting extending at least 48" up the walls.

C. Other Requirements

1. Contractor shall construct a full enclosure decontamination facility as detailed in this specification, unless otherwise approved by the Monitoring Consultant.
2. Contractor shall construct a waste container pass-out airlock as detailed in this specification, unless otherwise approved by the Monitoring Consultant.

3. Establish and continuously maintain negative air pressure differential of at least - 0.02 inches of water gauge. Air filtration devices shall be situated in a manner as to move contaminated air away from the breathing zone of the worker and toward the filtration device.

3.4.5 **Preparation - Mini-Enclosure (Small-scale removal)**

The following describes the requirements for mini-enclosure preparation during abatement work, as required to facilitate small scale removal or contractor-assist activities:

- A. Abatement trade contractor shall construct all mini-enclosures using rigid framing (e.g. fire-rated wood, metal or PVC tubing) to support barriers. For interior ceiling work (potentially impacting asbestos fireproofing), the framing shall extend through any suspended ceiling grid and attach to (or be positioned directly adjacent to the deck of the above floor/roof).
- B. Mini-enclosures shall be sized to allow sufficient space for two workers to work efficiently and comfortably.
- C. Both sides of the framing shall be covered with a layer of 6-mil. fire-retardant polyethylene sheeting with staggered joints and sealed in place.
- D. Contractor shall construct a small change room of 6-mil. polyethylene sheeting and rigid framing. The change room shall be contiguous to the mini enclosure, and shall be adequate in size to allow workers to vacuum off protective coveralls and remove them prior to donning new coveralls and, if applicable, proceeding to the central worker decontamination facility. Clean, hot and cold, potable water and clean towels shall be available in the change room for workers to wash hands, arms and face.
- E. Contractor shall construct a central worker decontamination facility as detailed in this specification.
- F. Establish negative air pressure. Air filtration devices shall be situated in a manner as to move contaminated air away from the breathing zone of the worker and toward the filtration device.
- G. Contractor shall use local exhaust ventilation where required by applicable regulation.

3.4.6 **Preparation - Glovebag Removal**

The following describes the requirements for preparation during removal of TSI using glovebag techniques:

A. Install Critical Barriers

1. Shut down HVAC serving the work area and seal off all openings in the work area including corridors, doorways, ducts, grills, diffusers, pipe chases, drains, and grates with one layer 6-mil fire-rated polyethylene sheeting and duct tape.
2. Seal all windows in the work area with one layer of 6-mil fire-rated polyethylene sheeting taped independently to the wall.

B. Preparation of Floors

1. All flooring where glovebag abatement work will be performed, shall be covered with one layer of 6-mil. fire-rated polyethylene sheeting.
2. Polyethylene sheeting on floors shall extend at least six feet beyond the glove bag removal area.
3. Polyethylene shall be sized to minimize seams. If the floor area necessitates seams, sheeting shall be staggered to reduce the potential for water to penetrate to the flooring material. A distance of at least six feet between seams is sufficient.
4. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material.
5. All stairs within the work area shall be covered with two layers of 6-mil. fire-rated polyethylene sheeting. The polyethylene sheeting shall be fixed to each runner with furring strips to prevent slippage. The top layer of polyethylene sheeting shall be covered with a non-slip surface.

C. Other Requirements

1. Contractor shall construct a full enclosure decontamination facility as detailed in this specification.
2. Contractor shall construct a waste container pass-out airlock as detailed in this specification.
3. Establish negative air pressure differential >0.02 inches of water gauge. Air filtration devices shall be situated in a manner as to move contaminated air away from the breathing zone of the worker

and toward the filtration device.

4. Glovebags shall be individually smoke tested by the Contractor prior to abatement beginning. Monitoring Consultant shall either observe the smoke testing or retest at least 10% of all glovebags.
5. Contractor shall use ventilation HEPA vacuum on all glovebags upon removal from the pipe to evacuate air from the bag prior to sealing.

3.5 Decontamination Enclosure Systems

- 3.5.1 The decontamination enclosure systems shall be constructed, affixed, and connected in such a manner as not to compromise the air-tightness of the containment. For work areas where exterior stucco or roofing is removed manually (no use of roof cutters or powered equipment for removal), the decontamination enclosure does not require a shower (two-stage decon may be used).
- 3.5.2 Build suitable PVC, wood or metal stud frame; or use an existing room or enclosure approved by the Consultant. Portable, pre-fabricated units may be used if approved by the Consultant. Approval will be based upon, but not limited to, construction, floor plan, dimensions, materials, sizes, thickness, plumbing, electrical outlets, etc.
- 3.5.3 Connect to work area with framed-in tunnels, or to work area ingress/egress point.
- 3.5.4 In all cases, access between contaminated and uncontaminated rooms or areas shall be through a decontamination enclosure system. In all cases, access between any two rooms within the decontamination enclosure shall be through an air lock with two overlapping (Z-flap) curtained doorways.
- 3.5.5 The decontamination Enclosure system shall be maintained to ensure that the barriers, air locks, and plastic linings are effectively sealed and taped. Repairs shall be undertaken immediately upon discovery of a defect.
- 3.5.6 Visually inspect and thoroughly clean the Decontamination Enclosure System at the beginning and the end of each work shift.
- 3.5.7 Prefabricated showers shall be cleaned upon arrival at the jobsite. Consultant will approve the showers before putting into service. **At no time shall the Asbestos Abatement Trade Contractor's workers use the showers as toilet facilities.**

3.5.8 Worker and visitor Decontamination Enclosure:

- (1) Construct a worker's and visitor's decontamination enclosure adjoining the work area consisting of three (3) totally enclosed chambers: shower room, flanked by an equipment room, and a clean room.
- (2) The equipment room shall contain an air lock leading to the shower room. In addition, the equipment room shall:
 - (a) Contain a marked receptacle for the discarding of contaminated clothing prior to entering the shower room.
 - (b) Contain a marked receptacle for reusable clothing which is contaminated and is not to be removed from the regulated area.
- (3) The shower room shall be connected to the equipment room and the clean room by an air lock. An additional pan shall be placed below the stall of sufficient size to contain five (5) cubic feet of water. It shall contain the following:
 - (a) At least one shower with hot and cold or warm water. If necessary, Trade Contractor shall provide portable hot water heater to supply hot water. Water supply shall be turned off after each shift.
 - (b) Removable shower grate approved by Consultant.
 - (c) Sufficient soap, shampoo, and disposable towels at all times.
 - (d) Opaque curtains at each air lock.
- (4) The shower room shall not leak, and the water shall be appropriately filtered and/or properly disposed.
- (5) The clean room shall be connected to the shower room by one air lock, with a curtained doorway leading to any other non-contaminated space within the Worker Decontamination Enclosure.
 - (a) It shall be large enough to provide storage for the worker's street clothes, towels, or any other non-contaminated items. Alternate clean storage area may be made available upon request/as required.

4.5.9 Equipment Decontamination Enclosure:

- (1) Construct an equipment decontamination enclosure consisting of two (2) totally enclosed chambers: a washroom and a holding area.
 - (a) The washroom constituting an air lock shall be connected to the holding area by a curtained doorway.
 - (b) The holding area will be connected to any uncontaminated area by a curtained doorway.
- (2) These spaces shall be for the cleaning and decontamination of bagged wastes. In addition, this is preferred ingress and egress point for equipment. All equipment will be thoroughly decontaminated before removal to an uncontained area.
- (3) Water shall be collected, filtered, and/or properly disposed (see General Requirements).

3.10 Personal Protective Equipment and Decontamination Steps

- 3.10.1 Personnel inside the work area(s) shall wear adequate personal protective equipment. At a minimum this shall include full-body disposable clothing and a half-face air purifying respirator.
- 3.10.2 Any person entering the work area shall:
- (1) Remove **all** street clothes in a clean change room and put on clean disposable protective clothing. Don appropriate boots/shoes, which shall be cleanable or shall remain in equipment room between shifts.
 - (2) Put on and utilize the proper respiratory equipment. Proceed through the decontamination unit into the work area.
- 3.10.3 Any person exiting the work area shall:
- (1) Remove any gross contamination while still in the work area.
 - (2) Proceed to the dirty change room and remove the protective clothing and discard it as contaminated waste.
 - (3) Enter the shower area and thoroughly wash body and hair and decontaminate respirator (for removal via manual methods, decontaminate with a HEPA vacuum or wet wipes/spray), then proceed through the air lock into the clean change room.
 - (4) Any contaminated clothing (including footwear) shall remain in the dirty room and be discarded as contaminated waste, unless they can be properly decontaminated.

3.11 Final Work Area Preparation

- 3.11.1 All drain lines, conduit, and pipes or other components that will remain inside the work area but not subjected to abatement procedures shall be HEPA vacuumed and wet wiped to remove dust or debris, wet wiped and prepared by covering with a minimum of two (2) separate layers of 4-mil plastic securely fastened with tape and/or glue.

3.12 Pre-Abatement Inspection

- 3.12.1 Prior to the beginning of removal activities, the Trade Contractor shall verify completion of preparation and request the Consultant to conduct an inspection of the work area. The purpose of this inspection will be to visually determine if all appropriate procedures, methods, and measures have been adhered to prior to full abatement. It will include:
- (1) Inspection of the work area,
 - (2) Inspection of barriers, air locks, curtained doorways and emergency exits (as applicable),
 - (3) Inspection of the Decontamination Enclosure System,

- (4) Inspection of respiratory protection equipment,
- (5) Inspection to verify that all notices and warnings have been posted,
- (6) Inspection to verify the Asbestos Abatement Trade Contractor's workers have proper submittals and the daily log book is up to date.

3.12.2 No abatement shall commence until all required items detailed in this specification are in compliance and the Consultant has given written approval to begin asbestos removal.

3.13 Removal Activities - General

3.13.1 The Consultant shall approve all methods for the removal. If solvents are used, the solvent shall be required to conform to a minimum of the following standards:

- (1) Flash Point (open or closed cup) >200 °F,
- (2) Auto Ignition Temperature >6000 °F,
- (3) pH Neutral
- (4) Aromatic Vapors <100 PPM, and
- (5) Will not react with water.

3.13.2 The Trade Contractor shall use respirator cartridges capable of filtering any applicable air contaminants in addition to the HEPA filter. Only cartridges manufactured with combination capabilities shall be used for protection against a combination of contaminants. Taped or glued stacked individual cartridges are not acceptable.

3.13.3 Spray material with amended water, using equipment recommended by the manufacturer capable of providing an airless "mist" application to reduce the release of fibers and sufficient to prevent visible emissions. Saturate the material sufficiently so that the amended water penetrates to the substrate without causing excess dripping. Using wet methods, remove asbestos-containing materials. Removed asbestos and contaminated items shall be promptly bagged/burrito wrapped. These materials shall not be placed into lined dumpsters/containers without being properly bagged. Shrouded equipment (with integral wetting and HEPA filtration) is required for all mechanical removal that produces friable asbestos.

3.13.4 Do not allow the material to dry out. Removed materials shall be promptly bagged/burrito wrapped. These materials shall not be placed into lined dumpsters/containers without being properly bagged.

3.13.5 When the removal procedure has been completed, the Trade Contractor shall remove all debris and dispose of it in accordance to local, state, and federal regulations.

3.13.6 For lead flashing waste (if applicable), the waste shall be recycled. Lead paint and painted components must be evaluated to determine waste characteristics for disposal.

3.13.6 The Environmental Consultant will inspect and approve all controls before any abatement is undertaken.

3.14 Removal Activities

3.14.1 Abatement of Exterior/Roofing Materials

- a. The abatement activity will include asbestos-containing stucco/plaster or roofing material removal as specified by the Owner and/or Owner's Representative. The Abatement Trade Contractor shall be responsible for adequately protecting its employees, the building and work area from injury or damage which may arise from the effects of inclement weather such as rain or high winds. The Abatement Trade Contractor shall coordinate access to all required areas of the facility with the Owner and/or Owners Representative. The Abatement Trade Contractor shall coordinate exterior surface (e.g. wall) or roofing removal with Owner and Re-Roofing Contractor.
- b. It is recommended the actual removal of the exterior material be done in small sections, as appropriate. If the Trade Contractor elects to saw cut, grind or abrade (or use other mechanical means) to remove the ACM then said portion of the ACM will become RACM (friable) during the removal and will need to be handled and disposed accordingly.
- c. The Trade Contractor shall post appropriate warning signage and establish the regulated area as described above.
 - At a minimum contractor will require workers to wear half-mask air purifying respirators with HEPA cartridges and **blue** full-body disposable coveralls. No street clothes or shoes may be worn under the coveralls; each worker shall take a full body shower or decontaminate within the two-stage decon prior to leaving the regulated area.
 - High-speed abrasive disc saws that are not equipped with appropriate engineering controls shall not be used. Use of compressed air for removal of asbestos is prohibited. Dry sweeping is prohibited.
 - An appropriate mechanical device, sealed chute, or other acceptable method shall be used for safe transfer of the containerized asbestos-containing waste material from the roof to the ground. Chutes shall be sealed in a manner that prevents dust or fibers from escaping during use. All waste must be bagged prior to removal from roof work area. Use of alternate methods, such as dust tight chute attached to sealed roll-off bin in lieu of bagging waste on the roof, requires pre-approval prior to project start.

- If encapsulant is used, encapsulate substrate surface using an encapsulant that will not prevent adhesion of replacement roofing.
- The Trade Contractor shall install fall protection systems in accordance with 8 CCR 1669.

3.14.2 Abatement of Interior Surfacing Materials

- a. Mist the ACM with amended water using an airless sprayer to reduce the release of fibers. Saturate the material sufficiently to wet it to the substrate without excessive dripping or delamination. Mist the material continuously during the abatement work to keep it damp and minimize asbestos fiber dispersion.
- b. Do not allow water to accumulate on the floor.
- c. Remove the ACM and any overspray from all surfaces. When surfacing materials are applied to a substrate that is not cleanable, (e.g. plaster on wood lath or acoustical ceiling sprayed-on gypsum board) the contractor shall also remove/demolish the substrate.
- d. The ACM shall be removed in small sections, placing it in labeled 6-mil. polyethylene disposal bags. Do not allow material to dry before sealing bags. Disposal bags shall have air evacuated with a HEPA vacuum prior to sealing.
- e. Do not allow ACM to accumulate on the floor or other surfaces in the work area.
- f. After removing the ACM, wet wipe all surfaces and use a nylon brush to remove all remaining material.

3.14.3 Glovebag Abatement of TSI

- a. Place all necessary supplies, tools and equipment inside the glovebag.
- b. Slip the glovebag over the piping or fitting, fold the open edges together, and seal the opening with duct tape.
- c. Allow Monitoring Consultant to smoke test each glove bag to test the integrity.
- d. When feasible, Contractor shall use a HEPA vacuum with an adjustable exhaust rate to create local exhaust ventilation.
- e. Glovebag abatement procedures shall be performed with a minimum of two

workers.

- f. Thoroughly wet the material inside the bag with amended water. Apply adequate amended water to ensure the material remains wet at all times.
- g. After the material has been thoroughly wetted, carefully remove the material and place in the bottom of the bag.
- h. Wet clean the piping or fitting until free of visible residue using spray water and a nylon brush. Seal any exposed ends of pipe insulation still remaining.
- i. Clean the inside of the glovebag by misting and wiping sides of the bag and moving all debris to the bottom of the bag.
- j. Hold all reusable tools inside the bag in one gloved hand, pull the hand outward, inverting the gloves, and twist it to create a pouch. Tape the pouch, and cut the bag between the pouch and the tape, still holding the pouch twisted closed. Immediately transfer the tools from the pouch to water and decontaminate, as needed.
- k. Remove the air from the glovebag, turn off the HEPA vacuum, remove the hose and seal the side port. Twist the bag's open end tightly into a gooseneck fold, and seal it with tape. Fold the loose end over the taped neck and retape it, thereby double sealing the bag.
- l. Remove and place glovebag with its contents into proper asbestos disposal bag.

3.14.4 Abatement of Miscellaneous Materials

1. Vinyl Asbestos Tile (VAT)
 - a. Remove any remaining carpeting, minimizing breakage of tiles that adhere to the carpeting. If in the opinion of the Monitoring Consultant the breakage of the tiles is minimal, the carpeting may be disposed of as noncontaminated waste.
 - b. Dampen the VAT surface with a fine spray of amended water. All floor surfaces shall be kept damp throughout the abatement.
 - c. Remove the VAT in a manner that minimizes breakage of tiles. Contractor shall not use powered vibrating tools or blowtorches to remove VAT.
 - d. VAT shall be kept adequately wet and shall be bagged before it is allowed to dry. Waste shall be placed in properly labeled asbestos

disposal bags.

2. Vinyl Sheet Flooring

- a. Remove any remaining carpeting, preventing disturbance of any sheet flooring that is adhered to the carpeting. If any sheet flooring becomes detached from the floor during carpet removal, the carpeting shall be disposed of as asbestos contaminated waste.
- a. Dampen the linoleum surface with a fine spray of amended water. All floor surfaces shall be kept damp throughout the abatement.
- c. Remove the sheet flooring in a manner as to minimize the tearing of the felt backing.
- d. Continuously saturate the exposed felt backing with amended water during removal.
- e. Contractor shall remove any remaining felt from the substrate.
- f. Sheet flooring shall be kept adequately wet and shall be bagged before it is allowed to dry. Waste shall be placed in properly labeled asbestos disposal bags to be disposed of as friable asbestos waste.

3. Mastic

- a. Contractor shall use only mastic removers for which MSDS was submitted with pre-job submittals.
- b. Mastic abated with solvents shall be abated in accordance with the manufacturer's recommended procedures.
- c. After removing the mastic, wet wipe all surfaces and use a nylon brush or scraper to remove all remaining material.
- d. All rags, towels or sorbent used to collect or clean the mastic and solvent shall be disposed of as asbestos-contaminated waste.
- e. If mechanical means of removal are to be used, prior approval of the method is required, and waste shall be disposed of as friable asbestos waste.

4. Ceiling Tiles

- a. Mist the ceiling tiles with amended water using an airless sprayer to reduce the release of fibers. Saturate the tiles sufficiently to wet it

without excessive dripping or delamination. Mist the material continuously during the abatement work to keep it damp and minimize asbestos fiber dispersion.

- b. Do not allow water to accumulate on the floor.
- c. Remove the tiles and immediately place them in labeled 6-mil. polyethylene disposal bags and seal closed after evacuating air from the bag with a HEPA vacuum.
- d. Remove asbestos-contaminated ceiling supports, as directed by the Owner/operator, wet wipe and decontaminate for disposal as regular waste. If the ceiling supports are to remain, HEPA vacuum and wet wipe to remove any dust or debris.

5. Gypsum Wallboard and Joint Tape Compound

- a. Mist the wallboard with amended water using an airless sprayer to reduce the release of fibers. Saturate the wallboard sufficiently to wet it without excessive dripping or delamination. Mist the material continuously during the abatement work to keep it damp and minimize asbestos fiber dispersion.
- b. Remove the wallboard, with continuous wetting, in a manner so as to minimize the generation of airborne fibers.
- c. Power saws shall not be used unless equipped with local HEPA exhaust ventilation.
- d. The wallboard shall be removed in small sections, placing it in labeled 6-mil. polyethylene disposal bags. Do not allow material to dry before sealing bags.
- e. Do not allow wallboard to accumulate on the floor or other surfaces in the work area.
- f. After removing the wallboard, wet wipe all surfaces and use a nylon brush to remove all remaining material.

6. Transite

- a. Wet the transite surface with a fine spray of amended water. Transite shall be kept damp throughout the abatement.
- b. Remove transite in a manner so as to minimize the breakage and the generation of airborne fibers.

- c. Power saws shall not be used unless equipped with local HEPA exhaust ventilation.
- d. Transite shall be removed in small sections, placing it in labeled 6-mil. polyethylene disposal bags. Do not allow material to dry before sealing bags. If large sections of transite are removed intact the Contractor may choose to double wrap the material in polyethylene sheeting and tape.
- e. Cleanup any remaining debris using wet methods and HEPA vacuuming.

7. Fire Doors

- a. Remove doors at hinges and wrap with two layers of polyethylene sheeting and label for proper disposal.
- b. If hardware or other items are to be salvaged, Contractor shall remove the door and bring to or establish a regulated area. Once within the regulated area the contractor shall remove and decontaminate the salvaged items. Following removal, duct tape all openings and wrap with two layers of polyethylene sheeting and label for proper disposal.

3.14.5 Other Methods – Hole Drilling (contractor assist related activities)

- a. This procedure is used for drilling holes through cementitious (or otherwise rigid asbestos building components) with an impact drill and masonry bit for installation of new equipment.
- b. The following equipment and supplies are required for this procedure: Impact drill with masonry bit, shaving cream, wet paper towels, plastic sealable bags. Alternately, a drill fitted with HEPA Vacuum attachment (localized exhaust) may be used in place of shaving cream method.
- c. Establish regulated area with site access control, and install polyethylene sheeting below area to be drilled.
- d. Before starting to drill, wet several paper towels and fold them flat.
- e. Place a wet paper towel with a hole in the middle flat on the floor so that the surface to be drilled shows through the hole.

- f. Drill the hole(s) using foam to keep the work contained, as follows:
 - Position the drill bit on the mark and apply the shaving cream, making a mound about two-inches in diameter and an inch deep around the drill bit.
 - Turn the drill on low speed and slowly drill through the surface to the required depth.
 - If concrete dust or other component debris/shavings become visible on the shaving cream, add more shaving cream
 - Turn off the drill and slowly retract the bit without disturbing the debris, concrete dust and shaving cream around the hole.
- g. Wipe the debris, concrete dust and shaving cream off the drill bit.
- h. Pick up the paper towel with the dust and shaving cream. Do not step on any dust or shaving cream.
- i. HEPA vacuum and wet wipe work areas surfaces to remove any dust or debris.
- j. Put all waste/towels in labeled 6-mil. polyethylene disposal bags immediately after use.
- k. Seal disposal bags closed after evacuating air from the bag with a HEPA vacuum.

3.15 Waste and Equipment Pass-Out Procedures

- A. Clean the external surfaces of all work materials and equipment thoroughly by wet wiping and/or HEPA vacuuming before moving items into the equipment room. Once in the equipment room work materials and equipment shall be cleaned until they are free of all visible debris before being transferred to uncontaminated areas.
- B. The Contractor shall notify the Monitoring Consultant prior to removing anything from the work area. All items will be subject to inspection by the Monitoring Consultant, who will designate items requiring additional cleaning.
- C. Asbestos-Containing Waste Pass-Out Procedures
 - 1. Asbestos-Containing Waste that has been containerized shall be transported out of the work area through the waste container pass-out airlock.

2. Waste pass-out procedures shall utilize two teams of workers, an "inside" team and an "outside" team.
3. The inside team wearing appropriate protective clothing and respirators for inside the work area shall cut away the plastic wrapping around each drum and then clean the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components) using HEPA vacuums and wet wiping techniques. Each container shall then be placed in the second chamber. No worker from the inside team shall enter the second chamber.
4. The outside team wearing appropriate protective clothing and respirators, shall enter the airlock from outside the work area and remove the drums and other containers from the airlock to the outside. No worker from the outside team shall further enter the work area through the airlock.
5. Containerized waste shall be transported, from the pass-out airlock to the waste storage container in covered lined rolling carts.
6. Hours of waste load-out, routes through the building and use of elevators as dictated by Owner.
7. Asbestos-containing waste shall not be stored outside the work area. Waste shall only be stored in a secure pre-approved area.
8. Contractor shall provide a completed waste manifest at least two working days prior to the scheduled hauling of the waste, to be signed by the Generator. The date and time of the pickup shall be provided with the manifest.
9. All waste shall be packaged in a manner to prevent tears to containers. If Owner/operator or Monitoring Consultant notice torn containers Contractor may be required to take additional precautions (e.g. canvas bags, boxes, fiber drums, etc.)

4.0 CLEAN-UP PROCEDURES

4.1 Gross Clean-Up

Immediately upon removal of asbestos or lead materials, the following clean-up procedures shall commence:

- 4.1.1 Collect the material that has been removed and place it into sealable plastic bags (6 mil thick minimum). Each bag shall be cleaned, wet wiped, evacuated of air with a HEPA vacuum, sealed airtight, and removed from the work area. All plastic bags and containers must be imprinted with required and Specified Warnings and/or Labels.
- 4.1.2 Clean the external surfaces of the containers thoroughly in the work area. Next, move the bags out of the Work area into the Equipment Decontamination Enclosure. Proper equipment decontamination requires:
 - (1) Remove gross contamination in work area
 - (2) In Washroom, wet clean the bags/containers thoroughly
 - (3) Place in a clear sealable plastic bag (6-mil thick minimum) with required warnings and/or labels.
 - (4) Seal with as little free air space as possible, twist top of bag, gooseneck, and wrap with duct tape.
 - (5) Move bag/container into Holding Area
 - (6) Once in the Holding Area, all bags and containers shall be handled by workers, wearing respiratory protection and uncontaminated, clean protective clothing entering from the uncontaminated area. No worker shall exit through the Equipment Decontamination Enclosure.
- 4.1.3 The loading out of waste shall be as specified by the Owner. The Trade Contractor shall lock out the elevator during movement of these materials to prevent unauthorized personnel from entering (as applicable). At no time shall the Trade Contractor leave bags/drums of waste material unattended.
- 4.1.4 Bags and/or drums must be stored in a secured (locked) fully enclosed container which has been lined with a minimum of one layer of 6-mil plastic. Containers shall be removed to predetermined and authorized landfills as soon as possible.
- 4.1.5 The Trade Contractor shall not store any bags, drums, or wrapped asbestos or lead waste materials at any location inside or outside the building, other than inside the approved container which shall remain locked at all times.
- 4.1.6 All waste containers shall be properly labeled according to 8 CCR 1529, 5194 (HAZCOM), 49 CFR 171-179 (USDOT), 40 CFR 61 Subpart M (NESHAP), and any local regulations and state regulations as required.

4.1.7 The Trade Contractor shall maintain a clean work area at all times and shall thoroughly clean the decontamination enclosure system at the end of each work day or work shift.

4.2 Final Clean-Up Sequence

4.2.1 Following abatement activities, clean-up remaining gross accumulations of waste materials.

4.2.2 Remove all visible accumulations of debris.

4.2.3 Wet clean and HEPA vacuum the entire work area.

4.2.4 All equipment and containers shall be decontaminated and removed, with the exception of the equipment necessary to perform the final visual clearance by the Consultant.

4.2.5 Remove the first layer of plastic sheeting and dispose of it as asbestos-contaminated waste. Care should be taken to avoid pulling down the remaining plastic sheeting (critical barriers).

4.2.6 Wet clean and HEPA vacuum the work area again.

4.2.7 The Trade Contractor shall request visual clearance by the Consultant when the following criteria have been met:

- (1) Completion of abatement activities,
- (2) Adequate clean-up of the work area and decontamination facility, and successfully inspected by Trade Contractor's Superintendent,
- (3) Proper disposal of all waste materials,
- (4) Removal of all unnecessary equipment.

4.2.8 Complete the "Certificate of Pre-Encapsulation Visual Inspection" (See Attachment 1). This form shall be completed by the Trade Contractor following completion of removal work, cleanup and visual inspection of the work area, and prior to application of post-removal encapsulant, and submitted to the Consultant's representative. The Consultant shall perform a visual inspection to verify the Trade Contractor's findings. Following successful visual inspection by the Trade Contractor and the Environmental Consultant, use of encapsulant shall be at the discretion of the trade contractor and subject to the owner's approval.

4.2.9 If the inspection does not meet the required criterion (no dust or debris present in the work area), the Trade Contractor shall be required to re-clean and re-inspect the work area, and request re-inspection from the Consultant.

5.0 CLEARANCE TESTING

5.1 Work Area Encapsulation and Plastic Removal

5.1.1 When the containment has met the criterion for visual clearance (no visible dust) the Trade Contractor shall perform the following task: All areas of the regulated area where asbestos-containing/asbestos-contaminated material has been removed, and all plastic sheeting shall receive one (1) coat of lockdown encapsulant.

NOTE: Use of encapsulant subject to Owner approval.

5.1.2 All necessary containment devices, including the decontamination facility shall remain in place and operational.

5.1.3 Re-clean and HEPA vacuum the work area.

5.1.4 Remove the final layer of plastic, but leave critical barriers and protection over fixed objects in place.

5.1.5 The Trade Contractor shall request visual clearance by the Consultant when the following criteria have been met:

- (1) Completion of encapsulation and encapsulant has dried,
- (2) Adequate clean-up of the work area and decontamination facility, and successfully inspected by Trade Contractor's Superintendent,
- (3) Proper disposal of all waste materials,
- (4) Removal of all unnecessary equipment.

5.1.6 The Consultant will visually inspect the work area. Once the area is approved, the Consultant may continue with Final Air Clearance Testing.

5.1.7 Complete the "Certificate of Final Visual Inspection" (See Attachment 2). This form shall be completed by the by the Trade Contractor following completion of removal work, cleanup and final visual inspection of the work area and submitted to the Environmental Consultant's representative. The Environmental Consultant shall perform a visual inspection to verify the Trade Contractor's findings, prior to collection of final clearance air samples (clearance air samples to be collected only for a contained work area).

5.1.8 If the inspection does not meet the required criterion (no dust or debris present in the work area), the Trade Contractor shall be required to re-clean and re-inspect the work area, and request re-inspection from the Consultant

5.2 Final Clearance

- 5.2.1 *For manual roofing or exterior component removal work, clearance will be achieved by means of a visual inspection only.* For areas where containment is required, the standards for final asbestos air clearance are: equal to, or less than 0.01 fibers/cc of air as determined by Phase Contrast Microscopy (PCM), in accordance with NIOSH Method 7400 protocol; or 70 structures/mm² as determined by Transmission Electron Microscopy (TEM) in accordance with AHERA protocol.
- 5.2.2 If the testing does not meet the clearance criterion and re-cleaning and retesting is required, the Trade Contractor shall be required to comply with the clean-up procedures and clearance testing standards as previously described for each re-test.
- 5.2.3 Once has the work area has met the criterion for clearance, the Trade Contractor shall remove the remaining critical barriers in the work area. The decontamination chamber(s) shall be disassembled and removed from the work area. Dispose of all plastic and expendables used in the completion of the work as contaminated waste.
- 5.2.4 If any materials requiring removal remain where the decontamination chamber or other facilities were located, the Trade Contractor shall remove them using a portable containment and the methods described previously herein.
- 5.2.5 A visual inspection may be performed following lead work in order to determine the completion of the scope of work and the presence of any remaining lead containing debris.
- 5.2.6 Wipe samples may be collected from the floor of each of the Work Areas. Clearance levels (maximum lead concentrations) for the project are listed below:
- 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) for interior floor surfaces
 - 250 $\mu\text{g}/\text{ft}^2$ for interior (non-floor) horizontal surfaces
 - 400 $\mu\text{g}/\text{ft}^2$ for exterior floor and exterior horizontal surfaces
 - 1,000 parts per million (ppm) for soil
- 5.2.7 Any wipe samples and appropriate field blanks collected shall be analyzed by the Atomic Absorption Flame Method.
- 5.2.8 If the Work Area is not visibly clean or if wipe sample results determine Work Area is not clean, the Contractor will reclean using HEPA vacuums and TSP solution, or similar. Additional wipe samples will be collected after recleaning and subject to same clearance levels as stated above.

5.2.9. The contractor shall be released only after all areas have been cleared according to the above criteria and accepted by the Owner.

6.0 DISPOSAL OF WASTE

6.1 Description of Requirements

- 6.1.1 Package all asbestos-containing waste material and contaminated debris in accordance with the provisions of this Specification and applicable state and federal regulations, and dispose of the waste at a landfill approved for the disposal of asbestos in compliance with all applicable local, state and federal regulations.
- 6.1.2 Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags labeled with two labels and text as described by local, state and federal regulations. Alternate methods require written pre-approval prior to project start.
- 6.1.2 For lead shielding waste, package as necessary to prevent container damage and recycle, as appropriate.

6.2 Execution

Asbestos

- 6.2.1 Double-bag (two 6-mil polyethylene disposal bags) all asbestos-containing waste and contaminated debris; bags shall not be over-filled and shall be securely sealed (after evacuation of air via HEPA vacuum) to prevent accidental opening or leakage.
- 6.2.2 As the containers are moved from the work area, wet wipe the exterior of the containers to remove all contamination from them before they are moved into the dumpster. All waste must be bagged prior to removal from roof work area. An appropriate mechanical device or other acceptable method shall be used for safe and intact transfer of the asbestos-containing waste material from the roof to the ground. *Alternate methods, such as sealed chutes in lieu of bagging waste on the roof, require written pre-approval prior to project start.*
- 6.2.3 Exercise care before and during transport to insure that no unauthorized persons have access to the material.
- 6.2.4 Uniform Hazardous Waste Manifests are required for disposal of hazardous wastes. The Judicial Council of California's Real Estate and Facilities Management's Environmental Compliance and Sustainability Unit (ECU) is the point of contact for hazardous waste (e.g., friable asbestos waste) disposal, including EPA ID numbers and the required manifest. In order to properly dispose of any asbestos containing waste, contact the ECU (following the steps outlined in the JCC's Asbestos Work Permit and Management Process program). Asbestos materials removed via mechanical means is classified as friable asbestos waste.

- 6.2.5 The Trade Contractor may transport all non-friable asbestos waste (including most roofing materials removed by manual methods) on a non-hazardous asbestos waste manifest. These manifests shall be provided by the Trade Contractor, reviewed by the consultant and signed by the Owner or Owner's designee.
- 6.2.5 The Trade Contractor shall notify and coordinate timing with the Owner and Asbestos Consultant prior to removing each waste vehicle from the job-site. The Asbestos Consultant will verify the general conditions and quantity of the load and review the manifest. Owner's representative will sign the manifest.
- 6.2.6 Trade Contractor shall dispose of asbestos waste and asbestos-contaminated waste at a landfill that is licensed to accept asbestos waste.
- 6.2.7 Transport friable asbestos waste using a transporter licensed as a hazardous waste hauler by the State of California.
- 6.2.8 Vehicles used to transport asbestos-containing waste shall be marked with placards as appropriate.
- 6.2.9 At disposal site, carefully unload sealed plastic bags or containers from the truck.
- 6.2.10 At completion of hauling and disposal of each load, the Trade Contractor shall submit copies of the manifest (or trip ticket/bill of lading), with signatures of the disposal or recycling facility, to the Owner.

LEAD

- 6.2.11 The Contractor shall provide for secure on-site storage of lead related waste. Waste storage location, equipment, containers and methods shall be in compliance with the requirements of 40 CFR 262 and 265 and California Code of Regulations Title 22, and are subject to prior approval by Owner and/or Owner's Representative.
- 6.2.12 Construction materials removed from each Work Area must be evaluated to determine waste characteristics prior to disposal.
- 6.2.13 Removed intact lead coated components shall be properly segregated, wrapped in 6 mil polyethylene sheeting, labeled and securely sealed with duct tape.
- 6.2.14 Each Lead related waste stream (chips, dust, tiles, rags, disposable protective clothing, etc.) produced shall be placed in properly segregated, labeled and sealed containers.

- 6.2.15 All waste containers and packaged waste shall be stored in a designated, secure waste storage area and labeled "PENDING ANALYSIS" with the following information:
- A. Waste Category (Chip/Dust and Removed Components)
 - B. Date Accumulated
 - C. Name and Address of Owner
 - D. Origin of Waste
- 6.2.16 All waste shall be considered hazardous until waste characterization has been performed under the California Code of Regulations, Title 22, including using one or more of the following testing procedures:
- A. Total Threshold Limit Concentration (TTLC)
 - B. Waste Extraction Test (WET)
 - C. Toxicity Characteristic Leaching Procedure (TCLP)
- 6.2.17 All waste shall remain stored in secured waste storage areas until results of waste characterization are available. Due to analytical methods of these tests, this may require storage for up to ten working days. Based on the testing protocols, any waste containing greater than or equal to 5 ppm lead using WET or TCLP tests or any waste containing greater than or equal to 1000 ppm using the TTLC test shall be considered a hazardous waste.
- 6.2.18 A minimum of four (4) representative samples will be collected from each category of waste generated. The Contractor is responsible for conducting and all costs associated with waste characterization testing.

7.0 SAFETY

7.1 General

The Trade Contractor shall be solely responsible for the safety, and efficiency, and adequacy of his plant, appliances, and methods, and for any damages that may result from their improper construction, maintenance, or operations. He shall erect and properly maintain at all times, as required by the condition and progress of the work, proper safeguards for the protection of the workmen and the public, and shall post warning signs around the site.

- 7.1.1 The Trade Contractor shall designate a responsible member of his organization on the work site, whose duty shall be the detection, recognition, and prevention of accidents and potential accidents. In the absence of notice to the contrary, filed in writing to the Consultant, this person shall be the licensed asbestos supervisor of the Trade Contractor.
- 7.1.2 The Trade Contractor shall provide fall protection for employees per applicable regulations.

7.2 Workers and Crews

- 7.2.1 The Trade Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work crew any person not skilled in the work assigned, nor anyone who has not received notice and instructions on the dangers of asbestos and hazardous materials exposure and the reduction of the dangers associated with their removal. They shall also receive training in the proper use of respirators, safety procedures, equipment, clothing, and work procedures.
- 7.2.2 The Trade Contractor shall remove any employee from the project not adhering to any standard, regulation, code, or requirement set forth herein.
- 7.2.3 The Trade Contractor shall be responsible for setting the size of his work crews. During removal operations, a minimum of two (2) workers shall be in the work area at any time. Under no circumstances should workers be allowed to work alone inside the containment.

7.3 Electrical

- 7.3.1 Due to the extreme conditions present during abatement activities, the Trade Contractor is responsible for assuring work areas are safe from electrical hazards. An adequate Ground Fault Interrupter system shall be used as required in the National Electrical Code. Lines from power sources will have a Ground Fault Interrupter system installed so as to reduce the length of unprotected run to a minimum.

7.3.2 The Trade Contractor shall be responsible for damages resulting from the disruption of building power as a result of the Work.

7.4 Fire Protection

The Trade Contractor shall comply with the following minimum requirements or the governing codes, whichever is more stringent.

7.4.1 Fire extinguishers are required in the work areas at a rate of one per 3,000 sq. ft or within 75 ft of anywhere in the work area.

7.4.2 The minimum number of fire extinguishers will be one in the contained work area and one in the clean area.

7.4.3 Existing active systems will be protected in place and protected in a manner to provide maximum active time (e.g., uncover active detectors during non-work hours)

ATTACHMENT 1

CERTIFICATION OF VISUAL INSPECTIONS

The following "Certificate of Pre-Encapsulation Visual Inspection" shall be completed by the Contractor and the Environmental Consultant's representative following completion of removal work, cleanup and visual inspection of the work area, and prior to application of post-removal encapsulant.

CERTIFICATE OF PRE-ENCAPSULATION VISUAL INSPECTION

PROJECT: _____

WORK AREA INSPECTED: _____

CONTRACTOR'S CERTIFICATION

The Contractor hereby certifies that he has visually inspected the Work Area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit, sheet plastic, etc.) and has found no dust, debris or residue.

by: (Signature) _____ Date _____

(Print Name) _____

(Print Title) _____

ENVIRONMENTAL CONSULTANT CERTIFICATION

The Environmental Consultant hereby certifies that he has visually inspected the Work Area following the contractor's inspection and that to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

by: (Signature) _____ Date _____

(Print Name) _____

(Print Title) _____

ATTACHMENT 2

CERTIFICATION OF FINAL VISUAL INSPECTIONS

The following "Certificate of Final Visual Inspection" shall be completed by the Contractor and the Environmental Consultant's representative following completion of removal work, cleanup and final visual inspection of the work area, and prior to collection of final clearance air samples.

CERTIFICATE OF FINAL VISUAL INSPECTION

PROJECT: _____

WORK AREA INSPECTED: _____

CONTRACTOR'S CERTIFICATION

The Contractor hereby certifies that he has performed a final visual inspection of the Work Area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit, sheet plastic, etc.) and has found no dust, debris or residue.

by: (Signature) _____ Date _____

(Print Name) _____

(Print Title) _____

ENVIRONMENTAL CONSULTANT CERTIFICATION

The Environmental Consultant hereby certifies that he has visually inspected the Work Area following the contractor's inspection and that to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

by: (Signature) _____ Date _____

(Print Name) _____

(Print Title) _____

APPENDIX A

PRE-RENOVATION SURVEY REPORT



February 9, 2017

Pre-Renovation Asbestos and Lead Survey Report Elevator Upgrade Project Revision 2

**Pasadena Courthouse (19-J1)
300 East Walnut Avenue
Pasadena, California
RMAR 16-087-01**

Prepared for:

**Judicial Council of California
Under contract to:
Barragan Corp International
41707 Winchester Rd
Suite 304
Temecula, CA 92590**

Prepared By:

**Mark Smith
Forensic Analytical Consulting Services
2959 Pacific Commerce Drive
Rancho Dominguez, California 90221
Office Phone # 310-668-5600
msmith@forensicanalytical.com**

FACS Project #PJ31431 – Revision 2

Contents

Introduction	1
Methodology	1
Findings	2
Conclusions and Discussion	2
Recommendations	3
Limitations	4

Appendix A: Asbestos Results Table

Appendix B: Lead Results Table

Appendix C: Laboratory Reports and Chain of Custody Documents

Appendix D: Personnel and Laboratory Certifications

Appendix E: HKA Asbestos Survey report (11/13/14) excerpts

Introduction

Forensic Analytical Consulting Services, Inc. (FACS) was retained by Judicial Council of California through contract with Barragan Corp International (BCI) to perform a pre-renovation asbestos and lead survey of the Pasadena Courthouse (19-J1) located at 300 East Walnut Avenue in Pasadena, California. This survey was limited to suspect asbestos-containing building materials and lead-containing coatings or materials that may be disturbed during the planned Elevator Upgrade Project. A list of all suspect materials identified and sampled are included in Appendix A and B of this report. The visual inspection, bulk sample collection, and survey documentation was performed by Mark Smith and Russell Ragsdale. Mark Smith (Certified Asbestos Consultant #00-2736) and Russell Ragsdale (Certified Asbestos Consultant #10-4690) are AHERA-trained Building Inspectors. In addition, Mark Smith (CDPH#7160) is a Lead Inspector/Risk Assessor certified by the California Department of Health Services (CDPH). Russell Ragsdale (CDPH# 19489) is a CDPH-certified Lead Sampling Technician. The initial survey was conducted on October 24, 2016. Supplemental testing, to address added work scope (replacement of elevator cab flooring), was conducted December 13, 2016. Following submission of Revision 1, additional scope was identified (replacement of elevator controls). This report Revision (2) adds the additional asbestos materials that will be impacted during control demo.

Methodology

Our investigation consisted of the following:

- Review of project drawings and applicable inspection reports to develop the project sampling plan
- Visual inspection
- Documentation of relevant conditions
- Collection of samples of suspect asbestos-containing materials and lead-containing coatings and materials
- Submitting samples to a laboratory accredited by NVLAP for asbestos analysis and accredited by CDPH for lead analysis
- Presenting analytical results, conclusions, and recommendations in a report

FACS reviewed project diagrams (Pasadena Courthouse Elevator Modernization, dated 8/18/16) to help identify the project scope and impacted areas. FACS also reviewed the following applicable asbestos inspection report to determine prior sampled materials:

- HKA Elevator Consulting, Inc. letter dated November 13, 2014 revision.

The survey was restricted to the materials or components that would be disturbed by the project. All other areas of the building and other suspected asbestos-containing materials or lead-containing coatings or materials were not inspected or tested during this survey.

The types, numbers, and locations of samples were determined based on provided information, visual observations, regulatory requirements, and other project management considerations.

Samples were collected from representative components and paints/coating, not every individual component. Lead results are attributed to like components and coatings in the same general area of the representative component that was sampled.

Findings

Asbestos

Asbestos survey results are summarized in the attached table (Appendix A).

Asbestos was identified in the following materials:

- Elevator door core insulation
- Acoustic ceiling - Annex
- Fireproofing
- Sand plaster – Elevator control room
- Stucco
- Elevator cab flooring (identified in supplemental site visit on 12/13/16)
- Elevator Control – Arc Shields (assumed asbestos)

The detailed laboratory report and completed Sampling Data Form (Chain of Custody) are contained in Appendix C.

Lead

Testing of various paint systems at the site affected by the planned renovation resulted in lead detection in five of the six paints tested. Untested paint systems are presumed to be lead-based paint (pre-1978) or lead-containing paint (for post 1978 constructed buildings).

For a detailed description of the materials sampled and analyzed see the lead sample results table in Appendix B.

Conclusions and Discussion

Asbestos

Materials for which sample analysis by PLM results in greater than one percent asbestos (for any one sample collected from a homogeneous material) are classified as asbestos-containing material (ACM) under regulations promulgated by (but not limited to) the following agencies: federal EPA, South Coast Air Quality Management District (SCAQMD), California EPA (Cal-EPA), federal OSHA and Cal/OSHA. These materials are also classified as asbestos-containing construction material (ACCM) under Cal/OSHA and California Contractor Licensing Board (CSLB) regulations.

The agencies use the following definitions:

Federal EPA: materials containing greater than one percent asbestos are ACM

SCAQMD: materials containing greater than one percent asbestos are ACM

Cal/OSHA: materials containing greater than 0.1% asbestos by weight are ACCM

CSLB: materials containing greater than 0.1% asbestos by weight are ACCM

Materials shown in the table as containing asbestos are regulated materials under the EPA and SCAQMD regulations, Cal/OSHA regulations, and numerous additional regulations.

SCAQMD Rule 1403 requires (with limited exceptions) that both friable and non-friable ACM in buildings be removed prior to maintenance, repairs, renovation or demolition that would disturb the material. Work involving

the disturbance of asbestos-containing material also requires ten working days prior notification to SCAQMD (exemption for less than 100 square feet) and notification to Cal/OSHA.

Lead

Lead results given in this report are compared to current Cal/OSHA (8 CCR 1532.1) regulatory levels related to lead content in materials, the Los Angeles County level of 0.06%, and to the CDPH lead-based paint level of 0.5% lead or greater. Cal/OSHA recognizes that paint containing lead equal to or greater than 0.06% by dry weight, or paint involved in certain higher-risk activities with even lower concentrations of detectable lead, can pose a health hazard to employees engaged in lead-related construction work.

The current Cal/OSHA Lead in Construction Safety Standard (8 CCR 1532.1) regulation applies to all construction work where an employee may be occupationally exposed to lead. Therefore, work performed on surfaces containing **any amount of lead (even below 0.06%)** must comply with the standard, including an exposure assessment (personal air monitoring) to determine if the airborne lead exposure levels are within acceptable limits.

Because lead was detected in the affected paint, the Cal/OSHA Lead in Construction Standard (8 CCR 1532.1) should be followed. The Standard requires exposure assessment when performing a “trigger” task defined in the Standard (e.g., manual demolition, welding, torch burning, etc.) or for any task that will disturb paint when the paint contains 0.06% lead or greater. For “trigger” tasks there are requirements for respiratory protection, training, blood testing, etc. during the initial monitoring (interim protection) as if the exposure was above the Permissible Exposure Limit (PEL), until air testing results are received that demonstrate otherwise. Most of the additional provisions of the Standard depend upon the results of the exposure assessment. Additional controls (lead-safe work practices) are required by Los Angeles County for paints with 0.06% lead or more and by CDPH for lead-based paints.

Recommendations

1. All asbestos-containing materials affected by the renovation must be removed by a licensed asbestos abatement contractor prior to the work planned for the project. These materials must not be disturbed, except by a licensed asbestos abatement contractor who complies with all applicable regulations.
2. Loose and flaking paints should be rendered intact/stabilized prior to construction, using appropriate work practices. Waste created during any lead work must be appropriately segregated and the waste streams tested and disposed of in accordance with regulatory requirements.
3. Lead-safe work practices must be used when disturbing any paint at or above 0.06% lead (Los Angeles County) and identified or presumed lead-based paint or components.
4. If any additional suspect asbestos-containing material is discovered during planned work, the material must be tested for asbestos content prior to any disturbance. Untested paints are presumed to contain 0.06% lead or more, or for older buildings (pre-1978 construction) untested paints are presumed to be lead-based paint.
5. Under the California Health and Safety Code Section 25915 et. seq., notification about asbestos containing construction materials must be provided initially by the building owner within 15 days of receipt of the information to co-owners, tenants, employees, contract workers, or others who may encounter the material, and the notification must be provided annually thereafter. Notification of new asbestos information (such as any ACM or ACCM identified in this report) must be provided within 15 days of the end of each 90-day period. Under Cal/OSHA regulation, this information must also be provided to

contractors, sub-contractors or others whose work may disturb ACM or ACCM, prior to submission of bids and performance of work.

6. For further assistance with regulatory requirements, FACS should be consulted, and the applicable regulations should be reviewed.

Limitations

This investigation is limited to the conditions and practices observed and information made available to FACS. The methods, conclusions and recommendations provided are based on FACS' judgment, expertise and the standard of practice for professional service. They are subject to the limitations and variability inherent in the methodology employed. As with all environmental investigations, this investigation is limited to the defined scope and does not purport to set forth all hazards, nor indicate that other hazards do not exist.

Please do not hesitate to contact our offices at 310-668-5600 with any questions or concerns. Thank you for the opportunity to assist the Judicial Council of California and Barragan Corp International in promoting a more healthful environment.

FORENSIC ANALYTICAL



Mark Smith
CAC No. 00-2736
CDPH Lead Cert. No. 7160

FORENSIC ANALYTICAL



Stephen Long
CAC No. 92-0580
CDPH Lead Cert. No. 2202

Appendix A

Asbestos Results Table



Pre-Renovation Asbestos Survey Summary
Pasadena Courthouse – Elevator Upgrade Project
Survey Dates: October 24 & December 13, 2016 – Lab report numbers: B230005 & B232262

Sample Numbers	Material Description	Location(s) of Material	Asbestos Content (percent)	Asbestos Regulatory Classification	Approximate Quantity*
01A-D	Concrete	Throughout hoistways	ND	NA	-
02A-C	Elevator door core insulation	Throughout elevator doors (assumed present in elevator 7)	55%	Friable	600 SF
03A-C	Unfinished plaster	Elevator 7 Basement Machine Room – South wall	ND	NA	-
04A-C	Sand plaster	Basement hallway outside Elevator 7	ND	NA	-
05A-D	Smooth plaster	Elevator 5 – lobbies, 1 st floor main lobby, Elevator 4 – 1 st & 5 th floor lobby, Elevator 6 – 4 th , 5 th & 6 th floor lobbies	ND	NA	-
06	2'x2' Ceiling tile (new install)	3 rd floor elevator lobby	ND	NA	-
07A-C	2'x2' Ceiling tile	Elevator lobbies – Floors 2, 4, 5 & 6	ND	NA	-
08A	12-inch ceiling tile and mastic	Elevator 4 – basement lobby	ND	NA	-
09A-B	Sand textured plaster	Elevator 4 – 6 th floor lobby	ND	NA	-
10A-C	Rolled roof field	Elevator control room roof	ND	NA	-
11A-C	Roofing mastic (white over black)	Elevator control room roof	ND	NA	-
12A-C	Acoustic ceiling	Annex building corridors (elevator 7 lobbies)	2%	Friable	10 SF
F1A-C	Black sheet flooring (with underlying original tile layer)	Cabs floors at elevator 2, 3, 4 & 6	2% (in underlying tile and mastic layers)	Class 1 Nonfriable	250 SF
B1A-B	Basecove and adhesive	Various cab wall base	ND	NA	-

ND = Not detected
feet

Trace = less than one percent

TEM = Transmission Electron Microscopy

NA = Not applicable

SF = square feet

LF = linear

FRIABLE ASBESTOS-CONTAINING MATERIAL is material containing more than one percent (1%) asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

CLASS I NONFRIABLE ASBESTOS-CONTAINING MATERIAL is material containing more than one percent (1%) asbestos, and that, when dry, can be broken, crumbled, pulverized, or reduced to powder in the course of demolition or renovation activities. Actions which may cause material to be broken, crumbled, pulverized, or reduced to powder include physical wear and disturbance by mechanical force, such as, but not limited to, sanding, sandblasting, cutting or abrading, improper handling or removal or leaching of matrix binders. Class I nonfriable asbestos-containing material includes, but is not limited to, fractured or crushed asbestos cement products, transite materials, mastic, roofing felts, roofing tiles, cement water pipes and resilient floor covering.

CLASS II NONFRIABLE ASBESTOS-CONTAINING MATERIAL is all other material containing more than one percent (1%) asbestos, that is neither friable nor Class I nonfriable.

NOTE: This summary table must not be used alone. Important explanations and limitations are contained in the accompanying survey report text. Percent asbestos content is based upon visual area estimation (point count or TEM analysis was not performed), unless noted otherwise in the table. See laboratory Bulk Asbestos Analysis report(s) for percent asbestos content of each layer.

***Approximate quantity impacted by project. All quantities are approximate. Contractors submitting bids for work must field verify quantities.**

Pre-Renovation Asbestos Survey Summary Pasadena Courthouse – Elevator Upgrade Project					
Sample Numbers	Material Description	Location(s) of Material	Asbestos Content (percent)	Asbestos Regulatory Classification	Approximate Quantity*
MB1A-C	Mortar bed and wall trim mastic	Lobby walls (marble backing & trim adhesive)	ND	NA	-
F2A-B	12-inch floor tile (brown marble) and mastic	Elevator 5 cab (multiple layers)	2% - tile of underlying layer	Class 1 Nonfriable	70 SF
F4A	Black with white speck sheet flooring (with assumed underlying original layer)	Elevator 1 Cab floor	Assumed ACM	Class 1 Nonfriable	70 SF
F3A-B	9-inch brown floor tile and mastic	Elevator 7 Cab floor	ND	NA	-
12A-C	Acoustic ceiling	Annex building corridors (elevator 7 lobbies)	2%	Friable	10 SF
N/A – Historic project sampling	Fireproofing	Throughout ceiling plenums above suspended ceilings (exposed in basement)	Known ACM	Friable	Not quantified
N/A	Elevator Control – Arc Shields	Elevator Machine Rooms	Assumed ACM	Class 1 Nonfriable	10 SF
HKA report	Sand plaster	Elevator Control/Machine rooms 1-6	Less than 1%	Class 1 Nonfriable	100 SF
HKA report	Stucco	Exterior walls (including exterior of control room and ceiling at roof elevator lobby)	Less than 1%	Class 1 Nonfriable	100 SF

ND = Not detected
feet

Trace = less than one percent

TEM = Transmission Electron Microscopy

NA = Not applicable

SF = square feet

LF = linear

FRIABLE ASBESTOS-CONTAINING MATERIAL is material containing more than one percent (1%) asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

CLASS I NONFRIABLE ASBESTOS-CONTAINING MATERIAL is material containing more than one percent (1%) asbestos, and that, when dry, can be broken, crumbled, pulverized, or reduced to powder in the course of demolition or renovation activities. Actions which may cause material to be broken, crumbled, pulverized, or reduced to powder include physical wear and disturbance by mechanical force, such as, but not limited to, sanding, sandblasting, cutting or abrading, improper handling or removal or leaching of matrix binders. Class I nonfriable asbestos-containing material includes, but is not limited to, fractured or crushed asbestos cement products, transite materials, mastic, roofing felts, roofing tiles, cement water pipes and resilient floor covering.

CLASS II NONFRIABLE ASBESTOS-CONTAINING MATERIAL is all other material containing more than one percent (1%) asbestos, that is neither friable nor Class I nonfriable.

NOTE: This summary table must not be used alone. Important explanations and limitations are contained in the accompanying survey report text. Percent asbestos content is based upon visual area estimation (point count or TEM analysis was not performed), unless noted otherwise in the table. See laboratory Bulk Asbestos Analysis report(s) for percent asbestos content of each layer.

***Approximate quantity impacted by project. All quantities are approximate. Contractors submitting bids for work must field verify quantities.**

Appendix B

Lead Results Table

Lead Survey Summary (Lab Report # M178302) Pasadena Court Survey Date: October 24, 2016				
Sample Number	Component	Substrate	Color	Result (wt%)
PC-01	Wall – Elevator hoistways	Concrete	Yellow	0.066
PC-02	Wall/Ceilings – Elevator machine room	Plaster	Beige	0.02
PC-03	Floor – Elevator machine room	Concrete	Grey	<0.02
PC-04	Wall/Ceilings – Various	Plaster	Off-white	0.44
PC-05	Wall/Ceilings – Various	Plaster	Pink	0.092
PC-05	Wall/Ceilings – Various	Plaster	Yellow	0.14

“<” means “less than”

California Department of Public Health (CDPH) defines lead-based paint as paint containing greater than 0.5% lead.

The Cal/OSHA Lead in Construction standard contains requirements for paint containing greater than **0.06%** lead, although for certain tasks (i.e., manual demolition, scraping, welding) exposure assessment is required where paint is present that contains any amount of lead.

Appendix C

Laboratory Reports and Chain of Custody Documents





Bulk Asbestos Analysis

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

Forensic Analytical Consulting Svcs
Mark Smith
2959 Pacific Commerce Drive
Rancho Dominguez, CA 90221

Client ID: LA05
Report Number: B230005
Date Received: 10/24/16
Date Analyzed: 10/27/16
Date Printed: 10/27/16
First Reported: 10/27/16

Job ID/Site: PJ31431; Pasadena Courthouse: Elevator Modernization Project ACM Survey,
300 East Walnut Avenue, Pasadena CA 91101
Date(s) Collected: 10/24/2016

FALI Job ID: LA05
Total Samples Submitted: 33
Total Samples Analyzed: 29

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
01A	51020964						
Layer: Grey Cementitious Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
01B	51020965						
Layer: Grey Cementitious Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
01C	51020966						
Layer: Grey Cementitious Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
02A	51020967						
Layer: Beige Fibrous Material		Chrysotile	55 %				
Total Composite Values of Fibrous Components:		Asbestos (55%)					
Cellulose (45 %)							
02B	51020968	Comment: Sample not analyzed due to prior positive result in series.					
02C	51020969	Comment: Sample not analyzed due to prior positive result in series.					
03A	51020970						
Layer: Off-White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
03B	51020971						
Layer: Off-White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Client Name: Forensic Analytical Consulting Svcs

Report Number: B230005

Date Printed: 10/27/16

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
03C	51020972						
Layer: Off-White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (ND)					
01D	51020973						
Layer: Grey Cementitious Material			ND				
Layer: Off-White Non-Fibrous Material			ND				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (ND)					
04A	51020974						
Layer: Beige Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (ND)					
04B	51020975						
Layer: Beige Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (ND)					
04C	51020976						
Layer: Beige Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (ND)					
05A	51020977						
Layer: Beige Plaster			ND				
Layer: White Plaster			ND				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (ND)					
05B	51020978						
Layer: Beige Plaster			ND				
Layer: White Plaster			ND				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (ND)					
05C	51020979						
Layer: Beige Plaster			ND				
Layer: White Plaster			ND				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (ND)					

Client Name: Forensic Analytical Consulting Svcs

Report Number: B230005

Date Printed: 10/27/16

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
06	51020980						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %)	Fibrous Glass (45 %)						
07A	51020981						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %)	Fibrous Glass (45 %)						
07B	51020982						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %)	Fibrous Glass (45 %)						
07C	51020983						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %)	Fibrous Glass (45 %)						
08A	51020984						
Layer: Brown Mastic			ND				
Layer: Tan Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (75 %)							
09A	51020985						
Layer: Off-White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
09B	51020986						
Layer: Beige Plaster			ND				
Layer: White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
10A	51020987						
Layer: White Roof Shingle			ND				
Layer: White Semi-Fibrous Material			ND				
Layer: Black Tar			ND				
Layer: Tan Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (2 %)	Fibrous Glass (5 %)	Synthetic (5 %)					

Client Name: Forensic Analytical Consulting Svcs

Report Number: B230005

Date Printed: 10/27/16

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
10B	51020988						
Layer: White Roof Shingle			ND				
Layer: White Semi-Fibrous Material			ND				
Layer: Black Tar			ND				
Layer: Tan Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (5 %)	Fibrous Glass (5 %)	Synthetic (5 %)					
10C	51020989						
Layer: White Roof Shingle			ND				
Layer: White Semi-Fibrous Material			ND				
Layer: Black Tar			ND				
Layer: Tan Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (2 %)	Fibrous Glass (5 %)	Synthetic (5 %)					
11A	51020990						
Layer: White Coating			ND				
Layer: White Roof Shingle			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Synthetic (20 %)						
11B	51020991						
Layer: White Coating			ND				
Layer: White Roof Shingle			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Synthetic (20 %)						
11C	51020992						
Layer: White Coating			ND				
Layer: White Roof Shingle			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Synthetic (20 %)						
12A	51020993						
Layer: Beige Non-Fibrous Material			ND				
Layer: Grey Semi-Fibrous Material		Actinolite	Trace	Chrysotile	2 %		
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (Trace)							
12B	51020994	Comment: Sample not analyzed due to prior positive result in series.					
12C	51020995	Comment: Sample not analyzed due to prior positive result in series.					

Client Name: Forensic Analytical Consulting Svcs

Report Number: B230005

Date Printed: 10/27/16

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
5D	51020996						
Layer: Beige Plaster			ND				
Layer: White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							



Tiffani Ludd, Laboratory Supervisor, Rancho Dominguez Laboratory

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

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

CLIENT:
 LA05
 Forensic Analytical Consulting Services
 2959 Pacific Commerce Drive,
 Rancho Dominguez, CA 90221

Site: President Center
PM: MS

Sample Date: 10/24/16
Turnaround Time: 24 hr 48 hr Extended (3 days) Rush
Analysis: PLM Standard PLM Point Count
Special Instructions: ANALYZE 1ST POS. TO BE

Phone/Fax: _____
FACS Client No.: _____
FACS Job No.: PJ31431

Material Description	Material Location(s)	Approx. Quant.	Friable?	Cond.	Sample Number	Sample Location
CONCRETE	1-G HORIZ WAY 5	N/A	N	G	01A	ELEV 3; PIT; NORTH
					01B	4 PT, NORTH
					01C	5 PIT, SOUTH
FLOOR DOOR CONCRETE	FLOOR 1-G; DOOR	300g	Y	B	02A	ELEV 3 DOOR
					02B	4 DOOR
					02C	5 DOOR
UNFINISHED PLASTER	FLOOR 7; SOUTH WALK BASEMENT MACHINE ROOM	100g	N	G	03A	W
					03B	CR
					03C	R
CONCRETE	7 HORIZ WAY 9	N/A	N	G	01D	ELEV 7; PIT NORTH

Legend:
 DW = Gypsum JC = Joint Compound VFT = Vinyl Floor Tile BB = Baseboard MAS = Mastic ADH = Adhesive FP = Fireproofing Square Feet: SF; Linear Feet: LF
 VSF = Vinyl Sheet Flooring ACTP = Acoustic Ceiling Tile/Panel ACS = Sprayed-on Acoustical Ceiling Material WT = Wall Texture FD = Fire Friable: Yes / No
 Door TSI = Thermal System Insulation/Exp. Jt. = Expansion Joint PEN = Penetration

Condition: 1 Good / 2 Damaged / 3 Significant Damage

Sampled & Relinquished by: [Signature]

Date & Time: 10/24/16 1606

Received by: [Signature]

Date & Time: 10/24/16 4:10p

CLIENT: LA05 Forensic Analytical Consulting Services
 2959 Pacific Commerce Drive,
 Rancho Dominguez, CA 90221

Site: PRELIMINARY COUNT
Sampled by: MS/RAR

Phone/Fax: _____ **Sample Date:** 10/24/16
Turnaround Time: 24 hr 48 hr **Extended** (3 days) Rush
Analysis: PLM Standard **PLM Point Count**
Special Instructions: 1st POSITIVE

FACS Client No.: _____ **FACS Job No.:** PJ31431
PM: MS

Material Description	Material Location(s)	Approx. Quant.	Friable?	Cond.	Sample Number	Sample Location
SAND PLASTER	BASEMENT WALL OUTSIDE ELEV 7	N/A	N	G	04A	CEILING BASEMENT WALL OUTSIDE ELEV #7 MACHINA RM
					04B	OUTSIDE ELEV
					04C	OUTSIDE RECESS RM
SMOOTH PLASTER	ELEV. 5 LOBBY	N/A	N	G	05A	6TH FL, NE
	MAIN FLOOR BASEMENT LOBBY				05B	5TH FL, NE
	1ST FL LOBBY				05C	3RD FL, NOL
2x2 CEILING TILE	3RD FL LOBBY	N/A	N	G	06C	3RD MAIN LOBBY; W
	LOBBY (NEW INSTALL)				07A	2ND FL - LOBBY - B
2x2 PLASTER CEILING TILE	MAIN LOBBY, MS 24, 25, 6	N/A	Y	G	07B	5TH FL - LOBBY - B
					07C	6TH FL - LOBBY - B

DW = Gypsum **JC** = Joint Compound **VFT** = Vinyl Floor Tile **BB** = Baseboard **MAS** = Mastic **ADH** = Adhesive **FP** = Fireproofing **SF** = Square Feet; **LF** = Linear Feet; **LF** = Friable: Yes / No
VSF = Vinyl Sheet Flooring **ACT/P** = Acoustic Ceiling Tile/Panel **ACS** = Sprayed-on Acoustical Ceiling Material **WT** = Wall Texture **FD** = Fire Door **TSI** = Thermal System Insulation **Exp. Jt.** = Expansion Joint **PEN** = Penetration

Relinquished by: _____ **Date & Time:** _____
Relinquished by: _____ **Date & Time:** _____
Relinquished by: _____ **Date & Time:** _____

Sampled & Relinquished by: MS/RAR **Date & Time:** 10/24/16
Received by: MS/RAR **Date & Time:** 1606
Received by: MS/RAR **Date & Time:** 4:10 PM

CLIENT: LA05
 Forensic Analytical Consulting Services
 2959 Pacific Commerce Drive,
 Rancho Dominguez, CA 90221

Phone/Fax: _____
Sample Date: 10/24/16
Turnaround Time: 24 hr 48 hr Extended (3 days) Rush
Analysis: PLM Standard PLM Point Count
Special Instructions: 1st POSITIVE

Site: Pasadena Court
PM: MS

FACS Client No.: _____ **FACS Job No.:** PJ31431
Sampled by: MS/RE

Material Description	Material Location(s)	Approx. Quant.	Friable?	Cond.	Sample Number	Sample Location
12" ACT w/ glue Porehole, white	Elev. #4 Basement Ceiling	N/A	N	G	08A	Basement Elev. 4 Ad's to Elev. Ceiling
MOORE BRAND TRAX. PMS-774	Elev. #4 Lobby				09A	6th Floor Elev. lobby, S.W.
					09B	
					10A	Penthouse roof, West
					10B	
					10C	
					11A	Penthouse roof, North
					11B	
					11C	

DW = Gypsum **JC** = Joint Compound **VFT** = Vinyl Floor Tile **BB** = Baseboard **MAS** = Mastic **ADH** = Adhesive **FP** = Fireproofing **SF** = Square Feet; **LF** = Linear Feet; **Friable**: Yes / No
VSF = Vinyl Sheet Flooring **ACT/P** = Acoustic Ceiling Tile/Panel **ACS** = Sprayed-on Acoustical Ceiling Material **WT** = Wall Texture **FD** = Fire Door **TSI** = Thermal System Insulation / Exp. Jt. = Expansion Joint **PEN** = Penetration

Condition: 1 Good / 2 Damaged / 3 Significant Damage

Sampled & Relinquished by: [Signature] **Date & Time:** 10/24/16 1606
Received by: [Signature] **Date & Time:** 10/24/16 4:10 pm

CLIENT: LA05 Forensic Analytical Consulting Services
 2959 Pacific Commerce Drive,
 Rancho Dominguez, CA 90221

Phone/Fax: Sample Date: 10/24/16
 Turnaround Time: 24 hr 48 hr Extended (3 days) Rush
 Analysis: PLM Standard PLM Point Count
 Special Instructions:

Site: Pasadena Court PM: MS
 Sampled by: MS/RL FACS Client No.: FACS Job No.: R731431

Material Description	Material Location(s)	Approx. Quant.	Friable?	Cond.	Sample Number	Sample Location
Acoustic Ceiling	1st Floor Lobby Thousand Annex Bldg Ceiling	1/2	Y	G	12A	Elev. 7 @ 1st floor lobby, E
	2nd Floor Lobby	1	Y	J	12B	2nd floor lobby, E
		1	Y	J	12C	↓
					5D	↓

Per
marks
add
sample
Carilla

DW = Gypsum JC = Joint Compound VFT = Vinyl Floor Tile BB = Baseboard MAS = Mastic ADH = Adhesive FP = Fireproofing
 VSF = Vinyl Sheet Flooring ACT/P = Acoustic Ceiling Tile/Panel ACS = Sprayed-on Acoustical Ceiling Material WT = Wall Texture FD = Fire
 Door TSI = Thermal System Insulation Exp. Jt. = Expansion Joint PEN = Penetration

Sampled & Relinquished by: *MS/RL* 10/24/16
 Relinquished by: *Carilla* 10/24/16
 Date & Time: 1606
 Received by: *Carilla* D/O
 Date & Time: 10/24/16 4:10 pm

Square Feet: SF; Linear Feet: LF
 Friable: Yes / No
 Condition: 1 Good / 2 Damaged / 3 Significant Damage



Bulk Asbestos Analysis

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

Forensic Analytical Consulting Svcs
Mark Smith
2959 Pacific Commerce Drive
Rancho Dominguez, CA 90221

Client ID: LA05
Report Number: B232262
Date Received: 12/13/16
Date Analyzed: 12/15/16
Date Printed: 12/15/16
First Reported: 12/15/16

Job ID/Site: PJ31431; Pasadena Courthouse: Elevator Modernization Project ACM Survey,
300 East Walnut Avenue, Pasadena CA 91101
Date(s) Collected: 12/13/2016

FALI Job ID: LA05
Total Samples Submitted: 13
Total Samples Analyzed: 13

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
F1A	51030165						
Layer: Black Sheet Flooring			ND				
Layer: Fibrous Backing			ND				
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)	Fibrous Glass (5 %)	Synthetic (10 %)					
F1B	51030166						
Layer: Black Sheet Flooring			ND				
Layer: Fibrous Backing			ND				
Layer: Tan Mastic			ND				
Layer: Beige Tile		Chrysotile	2 %				
Layer: Black Mastic		Chrysotile	3 %				
Layer: Grey Non-Fibrous Material			ND				
Layer: Beige Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (10 %)	Fibrous Glass (Trace)	Synthetic (5 %)					
F1C	51030167						
Layer: Black Sheet Flooring			ND				
Layer: Fibrous Backing			ND				
Layer: Tan Mastic			ND				
Layer: Black Felt			ND				
Layer: Brown Mastic			ND				
Layer: Beige Non-Fibrous Material			ND				
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)	Fibrous Glass (5 %)	Synthetic (10 %)					
B1A	51030168						
Layer: Black Non-Fibrous Material			ND				
Layer: Off-White Mastic			ND				
Layer: Brown Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
B1B	51030169						
Layer: Brown Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Client Name: Forensic Analytical Consulting Svcs

Report Number: B232262

Date Printed: 12/15/16

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
MB1A	51030170						
Layer: Off-White Mortar			ND				
Layer: Black Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
MB1B	51030171						
Layer: Off-White Mortar			ND				
Layer: Black Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
MB1C	51030172						
Layer: Off-White Mortar			ND				
Layer: Black Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
F2A	51030173						
Layer: Brown Tile			ND				
Layer: Clear Mastic with Debris			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
F2B	51030174						
Layer: Brown Tile			ND				
Layer: Clear Mastic			ND				
Layer: Beige Tile		Chrysotile	2 %				
Layer: Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (Trace)							
F3A	51030175						
Layer: Brown Sheet Flooring			ND				
Layer: Brown Mastic			ND				
Layer: Black Felt			ND				
Layer: Brown Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (30 %) Synthetic (3 %)							
F3B	51030176						
Layer: Brown Sheet Flooring			ND				
Layer: Brown Mastic			ND				
Layer: Black Felt			ND				
Layer: Brown Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (30 %) Synthetic (3 %)							

Client Name: Forensic Analytical Consulting Svcs

Report Number: B232262

Date Printed: 12/15/16

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
F4A	51030177						
Layer: Black Tile			ND				
Layer: Tan Mastic with Debris			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							



Tiffani Ludd, Laboratory Supervisor, Rancho Dominguez Laboratory

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

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

SAMPLING DATA FORM

CLIENT: LA05
Forensic Analytical Consulting Services
 2959 Pacific Commerce Drive
 Rancho Dominguez, CA 90221

Site: PRASADANA - FL2A
Sampled by: M. SMITH

Special Instructions: Email results to msmith and mrvivas@forensicanalytical.com
FACS Job No.: P331431

Phone/Fax: _____ **Sample Date:** 12/13/16
Turnaround Time: X 24 hr 48 hr Extended (days) RUSH/ASAP
Analysis: XX PLM Standard PLM Point Count ST Position

Material Description	Material Location(s)	Sample Number	Sample Location
BLACK VSF w/CIRCLE PATTERN	CAB 2, 3, 4, 6	F1A	CAB 2
↓	↓	F1B	CAB 3 - w/energy NEW WAFER ON TOP
↓	↓	F1C	CAB 4
BLACK BRASS CORK SAND	VARIOUS CAB BASES	D1A	CAB 1
↓	↓	B1D	CAB 2
MONTEAL BRICK w/ TRIM w/MSI	LOBBY - MOUNTAIN WAFER	M1A	6TH LOBBY
↓	↓	B	1 ST LOBBY - R
↓	↓	b	↓
↓	↓	b	W
12" BRICK MOUNTAIN FF MS.	CAB 5	F2A	CAB 5 SW
↓	↓	b	↓
		b	NW

DW = Gypsum **JC** = Joint Compound **VFT** = Vinyl Floor Tile **BB** = Baseboard **MAS** = Mastic **ADH** = Adhesive **FP** = Fireproofing
VSF = Vinyl Sheet Flooring **ACT/P** = Acoustic Ceiling Tile/Panel **ACS** = Sprayed-on Acoustical Ceiling Material **WT** = Wall Texture **FD** = Fire Door **TSI** = Thermal System Insulation **Exp. Jt.** = Expansion Joint **PEN** = Penetration

Relinquished by: _____ **Relinquished by:** _____
Date & Time: 12/13/16 @ 1528 **Date & Time:** _____
Received by: _____ **Received by:** _____
Date & Time: 12/13/16 @ 3:30pm **Date & Time:** _____

Square Feet: SF; Linear Feet: LF
 Friable: Yes / No
 Condition: 1 Good/ 2 Damaged/ 3 Significant Damage

CLIENT: LA05
 Forensic Analytical Consulting Services
 2959 Pacific Commerce Drive,
 Rancho Dominguez, CA 90221

Phone/Fax: _____ **Sample Date:** 12/13/16
Turnaround Time: 24 hr 48 hr Extended (___ days) Rush
Analysis: PLM Standard PLM Point Count
Special Instructions: 1st Positive

Site: PABADIAN A - EREN **PM:** _____

Sampled by: M-SMITH **FACS Client No.:** _____ **FACS Job No.:** PJ3431

Material Description	Material Location(s)	Approx. Quant.	Friable?	Cond.	Sample Number	Sample Location
9" Brown Fy. Mastic	CAB 7				F3A	CAB 7, SW
White Black Speck VSF	↓ CAB 1				F3B	NE
					F4A	CAB 1

Legend: DW = Gypsum, JC = Joint Compound, VFT = Vinyl Floor Tile, BB = Baseboard, MAS = Mastic, ADH = Adhesive, FP = Fireproofing, VSF = Vinyl Sheet Flooring, ACT/P = Acoustic Ceiling Tile/Panel, ACS = Sprayed-on Acoustical Ceiling Material, WT = Wall Texture, FD = Fire Door, TSI = Thermal System Insulation, Exp. Jt. = Expansion Joint, PEN = Penetration

Squared & Relinquished by: _____ **Relinquished by:** _____
Date & Time: 12/13/16 @ 1526 **Date & Time:** _____
Received by: M Adams **Received by:** _____
Date & Time: 12/13/16 3:30pm **Date & Time:** _____

Condition: 1 Good / 2 Damaged / 3 Significant Damage



Metals Analysis of Paints

Forensic Analytical Consulting Svcs
Mark Smith
2959 Pacific Commerce Drive

Rancho Dominguez, CA 90221

Client ID: LA05
Report Number: M178302
Date Received: 10/24/16
Date Analyzed: 10/26/16
Date Printed: 10/26/16
First Reported: 10/26/16

Job ID / Site: PJ31431; Pasadena Courthouse: Elevator Modernization Project ACM Survey,
300 East Walnut Avenue, Pasadena CA 91101

Date(s) Collected: 10/24/16

FALI Job ID: LA05

Total Samples Submitted: 6

Total Samples Analyzed: 6

Sample Number	Lab Number	Analyte	Result	Result Units	Reporting Limit*	Method Reference
PC-01	LM133090	Pb	0.06	wt%	0.03	EPA 3050B/7000B
Comment:	Insufficient sample size for repeatable analysis.					
PC-02	LM133091	Pb	0.02	wt%	0.02	EPA 3050B/7000B
Comment:	Insufficient sample size for repeatable analysis.					
PC-03	LM133092	Pb	< 0.02	wt%	0.02	EPA 3050B/7000B
Comment:	Insufficient sample size for repeatable analysis.					
PC-04	LM133093	Pb	0.44	wt%	0.02	EPA 3050B/7000B
PC-05	LM133094	Pb	0.092	wt%	0.008	EPA 3050B/7000B
PC-06	LM133095	Pb	0.14	wt%	0.006	EPA 3050B/7000B

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

Beatriz Hinojosa, Laboratory Supervisor, Rancho Dominguez Laboratory

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



PAINT CHIP SAMPLE REQUEST FORM

Client: LA05 FACS Los Angeles Barragan Corp International - Los Angeles	Sampled by: MS/RP	PM: Mark Smith	Date: 10/24/16
Contact: Mark Smith Phone: (310) 668-5600	Special Instructions: E-mail results to msmith@forensicanalytical.com and mivas@forensicanalytical.com		
Site: Pasadena Courthouse: Elevator Modernization Project ACM Survey	Turnaround Time:	1-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> 3-Day <input checked="" type="checkbox"/> 5-Day <input type="checkbox"/> Other <input type="checkbox"/>	Due Date and Time:
Client No.: C16026	FACS Job #: PJ31431	<input checked="" type="checkbox"/> Flame AA (Pb) / <input type="checkbox"/> Other:	

Sample Number	Sample Location	Component	Color	Substrate	Condition
PC-01	Elev. #3 Pit, North Wall	WALL/CORNINGS	Yellow	Concrete	I
PC-02	Elev. 1,2,3+5 Machine Room, West Wall		Beige	Plaster	I
PC-03	↓, Floor		Gray	Concrete	I
PC-04	Elev. #7 Machine Room, outside Elev, North		Off-Whit	Plaster	I
PC-05	Elev. #5 6th floor lobby, NE		Pink	Plaster	I
PC-06	Elev. #5 3rd floor lobby, N		Yellow	Plaster	↓

Substrate: wood metal concrete plaster drywall brick

Shipped via: FedEx Airborne UPS US Mail Courier Drop Off Other:

Relinquished by: [Signature] **Date & Time:** 10/24/16 1609 **Received by:** [Signature] **Date & Time:** 10/24/16 4:10p

Relinquished by: [Signature] **Date & Time:** **Received by:** [Signature] **Date & Time:**

Condition Acceptable Yes No

Condition Acceptable Yes No

Appendix D

Personnel and Laboratory Certifications



State of California Department of Public Health

Lead-Related
Construction
Certificate

Certificate
Type

Expiration
Date



Inspector/Assessor	09/24/2017
Project Monitor	09/24/2017

Mark A. Smith

ID #: 7160

DEPARTMENT OF INDUSTRIAL RELATIONS

Division of Occupational Safety and Health

Asbestos Unit

2424 Arden Way, Suite 495

Sacramento, CA 95825-2417

(916) 574-2993 Office (916) 483-0572 Fax

<http://www.dir.ca.gov/dir/databases.html> actu@dir.ca.gov

003232736C

200

Forensic Analytical**Mark A Smith****2959 Pacific Commerce Drive****Rancho Dominguez CA 90221****March 14, 2016**

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailling information within 15 days of the change.

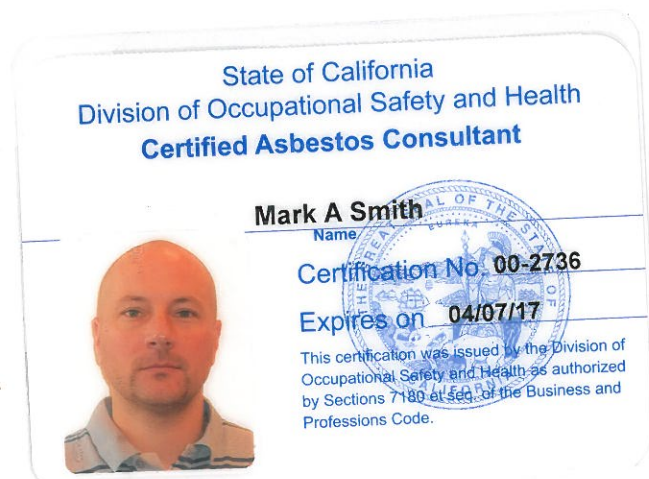
Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached (Revised 10/24/2012)



DEPARTMENT OF INDUSTRIAL RELATIONS

Division of Occupational Safety and Health

Asbestos Unit

2424 Arden Way, Suite 495

Sacramento, CA 95825-2417

(916) 574-2993 Office (916) 483-0572 Fax

<http://www.dir.ca.gov/dir/databases.html> actu@dir.ca.gov

010254690C

344

September 24, 2015

Russell J Ragsdale, II
5046 Leonis St.
Commerce CA 90040

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailling information within 15 days of the change.

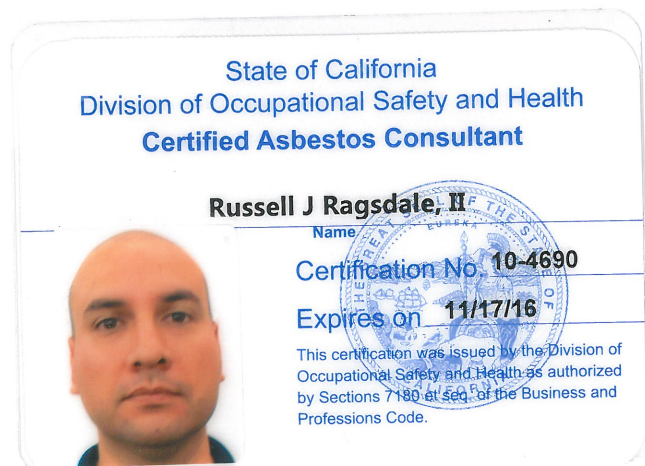
Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal - Card Attached (Revised 10/24/2012)



State of California Department of Public Health

Lead-Related Construction Certificate	Certificate Type	Expiration Date
	Project Monitor	01/16/2015
	Sampling Technician	01/16/2016

Russell J. Ragsdale ID #: **19489**



Mr. Russell J. Ragsdale II
5046 Leonis Street
Commerce, California 90040



AIHA

Laboratory Accreditation
Programs, LLC

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Forensic Analytical Laboratories, Inc.

2959 Pacific Commerce Dr., Rancho Dominguez, CA 90221

Laboratory ID: 101629

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ INDUSTRIAL HYGIENE Accreditation Expires: September 01, 2018
- ✓ ENVIRONMENTAL LEAD Accreditation Expires: September 01, 2018
- ✓ ENVIRONMENTAL MICROBIOLOGY Accreditation Expires: September 01, 2018
- FOOD Accreditation Expires:
- ✓ UNIQUE SCOPES Accreditation Expires: September 01, 2018

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

William Walsh, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 15: 03/30/2016

Date Issued: 09/29/2016



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

Forensic Analytical Laboratories, Inc.
 2959 Pacific Commerce Dr., Rancho Dominguez, CA 90221

Laboratory ID: **101629**
 Issue Date: 09/29/2016

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 12/01/1995

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/ Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA/600/M4-82-020, 1982 EPA/600/R-93/116, 1993	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
Miscellaneous Core	Gravimetric		NIOSH 0500 (Modified)	
			NIOSH 0600 (Modified)	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>



AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

Forensic Analytical Laboratories, Inc.
2959 Pacific Commerce Dr., Rancho Dominguez, CA 90221

Laboratory ID: **101629**
Issue Date: 09/29/2016

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air analysis is not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 05/01/2014

Field of Testing (FoT)	Technology sub-type/ Detector	Method	Method Description <i>(for internal methods only)</i>
Paint		EPA SW-846 3050B	
		EPA SW-846 7000B	
Soil		EPA SW-846 3050B	
		EPA SW-846 7000B	
Settled Dust by Wipe		NIOSH 7082	
		NIOSH 9100	
		OSHA ID 105 Modified	
Airborne Dust		NIOSH 7082	

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

Forensic Analytical Laboratories, Inc.
 2959 Pacific Commerce Dr., Rancho Dominguez, CA 90221

Laboratory ID: **101629**
 Issue Date: 09/29/2016

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Unique Scopes Laboratory Accreditation Program (Unique Scopes)

Initial Accreditation Date: 05/01/2014

Unique Scope Category	Field of Testing (FoT)	Method	Method Description <i>(for internal methods only)</i>
Consumer Product Testing	Lead in Paint and Other Similar Surface Coatings	16 CFR Part 1303 (CPSC-CH-E1001-08.1)	MET 214
		16 CFR Part 1303 (CPSC-CH-E1002-08.1)	MET 215
		16 CFR Part 1303 (CPSC-CH-E1003-09)	MET 213

A complete listing of currently accredited Unique Scope laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>

Appendix E

HKA Asbestos Survey report (11/13/14) excerpts

building(s) and annually thereafter. Specific notification requirements are outlined in Assembly Bill 3713 and California Health and Safety Code 25915-25919.7.

There are potential liabilities associated with the presence, and removal, of ACM. Precautionary measures, as outlined herein, should be taken in accordance with the guidelines set forth by the EPA, the Occupational Safety and Health Administration (OSHA) and other regulatory agencies.

9. Limitations

The conclusions presented in this report are professional opinions based solely upon visual observations at the site and laboratory analysis of the tested samples. They are intended exclusively for the purpose outlined herein, and for the site location and project indicated.

This limited report is intended for the sole use of HKA Elevator Consulting, Inc. The use or re-use of this document or the findings, conclusion or recommendations presented herein, by any other party or parties is at the sole risk of said user.

Services performed by National Econ Corporation were conducted in a manner consistent with that of the care and skill ordinarily and currently exercised by members of the same profession that even the most comprehensive Scope of Services might fail to detect environmental liabilities on a particular site. Therefore, National Econ Corporation cannot act as insurers and cannot "certify" that a site is free of environmental contamination.

No expressed or implied representation or warranty is included or intended in our reports, except that our services were performed, within the limits prescribed by the Scope of Services, with the customary thoroughness and competence of our profession.

Information and opinions presented herein apply to the existing and reasonable foreseeable site conditions at the time of our investigation. They cannot necessarily apply to site changes of which this office is unaware and has not had the opportunity to review. Changes in the conditions of this property may occur with time due to natural processes or works of man on the subject property or on adjacent properties. Changes in applicable standards may also occur as a result of legislation of the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control.

TABLE I
SURVEY SUMMARY

SAMPL E NUMBE R	MATERIAL DESCRIPTIO N	MATERIA L LOCATIO N	HOMO (1)	ASBESTOS TYPE FOUND	%	S/T/ M (2)	F/NF (3)	CONDITIO N	ACCESS- IBI LITY	ESTIMATE D QUANTITY
300-01	Wall Plaster	Control Room	Y	Chrysotile	<1	M	NF	GOOD	HIGH	N/A To Project
300-02	Wall Plaster	Control Room	Y	Chrysotile	<1	M	NF	GOOD	HIGH	N/A To Project
300-03	Wall Plaster	Control Room	Y	Chrysotile	<1	M	NF	GOOD	HIGH	N/A To Project
300-04	Stucco	Exterior	Y	Chrysotile	<1	M	NF	GOOD	HIGH	N/A To Project
300-										N/A

05	Stucco	Exterior	Y	Chrysotile	<1	M	NF	GOOD	HIGH	To Project
300-06	Stucco	Exterior	Y	Chrysotile	<1	M	NF	GOOD	HIGH	N/A To Project

Note: Be advised that any materials found to be asbestos containing are not limited to the areas in which the samples were collected. All like materials are to be included in any actions implemented.

PHOTOS



**Right People
Right Perspective
Right Now**

www.forensicanalytical.com