

CITY OF BERKELEY

DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECTS



PROJECT MANUAL

Corporation Yard Green Room and Building H Improvements

SPECIFICATION NO. 25-11706-C Reissue

April 2025

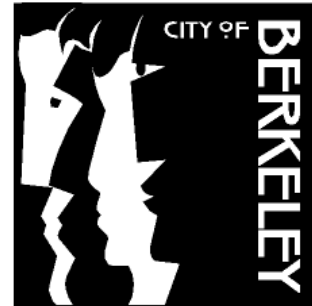
ADVERTISEMENT DATE: Tuesday, April 8, 2025

PRE-BID CONFERENCE: 1:00PM Tuesday, April 15, 2025

BID OPENING DATE: 2:00PM Tuesday, May 6, 2025

CITY OF BERKELEY

DEPARTMENT OF PUBLIC WORKS



PROJECT MANUAL

Corporation Yard Green Room and Building H Improvements

at

1326 Allston Way
Berkeley, CA 94702


**SPECIFICATION NO. 25-11706-C Reissue
April 2025**

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**ENGINEERING DIVISION
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DOCUMENT 00 1113**NOTICE INVITING BIDS****ARTICLE 1 - INVITATION TO BID**

- 1.01 Notice Inviting Bids:** City of Berkeley ("City") will receive sealed Bids at City of Berkeley, Purchasing Manager's Office, located at the Martin Luther King Jr. Civic Center, 2180 Milvia Street, Third Floor, Berkeley, CA 94704, Telephone (510) 981-7320, until **2:00PM Tuesday, May 6, 2025** for the following public work:

**SPECIFICATION NO. 25-11706-C Reissue
CITY OF BERKELEY
Corporation Yard Green Room and Building H Improvements
1326 Allston Way**

- 1.02 Project Description:** Building renovations, including roofing, flooring, finishes, restrooms, lighting, HVAC, electrical, plumbing, and ancillary work in accordance with the terms and conditions of the Contract Documents. Work shall be completed within **224** Calendar Days from the date when Contract Time commences to run.
- 1.03 Procurement of Bidding Documents:**
Bidding Documents contain the full description of the Work. Bidders may obtain Bidding Documents by Tuesday, April 8, 2025 from City of Berkeley's Public Works website under Current Construction Project Bid Opportunities:
<https://berkeleyca.gov/doing-business/working-city/bid-proposal-opportunities>
For information pertaining to the Bidding Documents, please contact the Project Manager, Titus Chen, 1947 Center Street, 4th Floor, Berkeley, CA 94704, by Email at TChen@berkeleyca.gov or by Telephone at (510) 981-6410 or by FAX **(510) 981-6390**.
- 1.04 Planholders List:**
Bidders are responsible for notifying Titus Chen, via email at TChen@berkeleyca.gov to be included on the Planholders List. Please include the following in the email subject header: "Planholders list for Specification No. 25-11706-C Reissue for Corporation Yard Green Room and Building H Improvements". In the body of the email, please state the Name of the Company Representative, Company Name, Address, Telephone Number, Fax Number, and Email Address.
- 1.05 Instructions:** Bidders shall refer to Document 00 2113 (Instructions to Bidders) for required documents and items to be submitted in a sealed envelope for deposit into the Bid Box, located at **City of Berkeley, Purchasing Manager's Office, Martin Luther King Jr. Civic Center, 2180 Milvia Street, Third Floor, Berkeley, CA 94704, Telephone (510) 981-7320** no later than the time and date set forth in Paragraph 1.01 above.
- 1.06 Pre-Bid Site Visit:** City will conduct a Non-Mandatory Pre-Bid Conference and Site Visit at 1326 Allston Way. The location of work is not open to the public during normal business or daylight hours. It is recommended that potential bidders visit the site independently to review site conditions prior to bid. City will conduct a Pre-Bid Conference and Site Visit at 1326 Allston Way, at 1:00PM Tuesday, April 15, 2025
- 1.07 Bid Preparation Cost:** Bidders are solely responsible for the cost of preparing their Bids.
- 1.08 Reservation of Rights:** City specifically reserves the right, in its sole discretion, to reject any or all Bids, to re-bid, or to waive inconsequential defects in bidding not involving time, price or quality

of the work. City may reject any and all Bids and waive any minor irregularities in the Bids.

ARTICLE 2 - LEGAL REQUIREMENTS

- 2.01 Required Contractor's License(s):** A California "B" contractor's license is required to bid this contract. Joint ventures must secure a joint venture license prior to award of this Contract. Specialty work may require a specialty contractor's license, held by Bidder or a listed subcontractor.
- 2.02 Bid Alternates:** Bid alternates are identified in Document 00 4113 (Bid Form). The determination of lowest bid shall be based upon: Base contract bid price only.
- 2.03 Substitution of Securities:** City will permit the successful bidder to substitute securities for any retention monies withheld to ensure performance of the contract, as set forth in Document 00 6290 Escrow Agreement For Security Deposits In Lieu Of Retention and incorporated herein in full by this reference, in accordance with Section 22300 of the California Public Contract Code.
- 2.04 Prevailing Wage Laws:** The successful Bidder must comply with all prevailing wage laws applicable to the Project, and related requirements contained in the Contract Documents. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are on file at <http://www.dir.ca.gov/oprl/pwd/> and are deemed included in the Bidding Documents. The successful Bidder shall post the applicable prevailing wage rates at the Site.
- 2.05 Community Workforce Agreement:** This contract **WILL** be subject to the Community Workforce Agreement approved by the Berkeley City Council on June 23, 2015 (See Document 00 6580 – City of Berkeley Contracting Policies). The successful bidder and all subcontractors, at any tier, **WILL** be required to sign an Agreement to be Bound as a condition precedent to entering into any contract for this project.
- 2.06 First Source Construction Agreement:** This contract **WILL NOT** be subject to the First Source Construction Agreement (See Document 00 6580 – City of Berkeley Contracting Policies).
- 2.07** This contract **WILL NOT** be subject to Supplementary Conditions for Federal Funding. Section 00 7201.

END OF SECTION

DOCUMENT 00 2113**INSTRUCTIONS TO BIDDERS**

Bids are requested by City of Berkeley ("City"), for a general construction contract, or work described in general, as set forth in Document 00 1113 (Notice Inviting Bids), and the following additional terms.

ARTICLE 1 - PROCEDURES FOR SUBMISSION OF BIDS**1.01 Required Pre-Bid Conference and Site Visit**

- A. City **WILL** conduct a Non-Mandatory Pre-Bid Conference and Site Visit at 1326 Allston Way, at 1:00PM Tuesday, April 15, 2025. The location of work is not open to the public during normal business or daylight hours. It is recommended that potential bidders visit the site independently to review site conditions prior to bid.
- B. Questions regarding the site and the Bid Documents may be sent to the City's Representative to clarify such matters as Bidders may request. The Site Visit may be the Bidders' only opportunity to investigate conditions at the Site. Other Pre-Bid Site Visits may be scheduled at City's sole discretion, depending on staff availability.
- C. City will issue Minutes of the Pre-Bid Conference, which shall constitute the sole and exclusive record and statement of the results of the Pre-Bid Conference. The Minutes issued by City are not Contract Documents.

1.02 Required Pre-Bid Investigations

- A. Prior to submission of Bid, Bidder must conduct a careful examination of Bidding Documents and understand the nature, extent, and location of Work to be performed. Refer to Document 00 7200 (General Conditions) on required pre-bid investigations.
- B. Bidders may examine any available existing conditions information (e.g., record documents, specifications, studies, drawings of previous work), as well as applicable environmental assessment information (if any) regarding the Project, which will be posted on the website location indicated in Document 00 1113 (Notice Inviting Bids), paragraph 1.03.

1.03 Bidder Questions and Answers

- A. Bidders must direct all questions about the meaning or intent of Bidding Documents to City's Project Manager in writing as indicated in Document 00 1113 (Notice Inviting Bids), paragraph 1.03. Interpretations or clarifications considered necessary by City in response to such questions will be issued by written Addenda posted to the City's website.
- B. Questions received less than ten (10) calendar days prior to the date for opening Bids may not be answered.
- C. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect, and Bidders shall not rely on oral statements.

1.04 Addenda

- A. Addenda may also be issued to modify the Bidding Documents as deemed advisable by City. Addenda shall be acknowledged by number in Document 00 4113 (Bid Form) and shall be part of the Contract Documents. A complete listing of Addenda may be secured from City on the website as indicated in Document 00 1113 (Notice Inviting Bid), paragraph 1.03.
 1. It is the Contractor's responsibility to check the City's website for Addenda prior to submitting their bid.

ARTICLE 2 - RECEIPT OF BIDS**2.01** Date and Time

- A. Sealed Bids will be received by the City until the date and time indicated in Document 00 1113 (Notice Inviting Bids). All Bid envelopes will be time-stamped to reflect their submittal time. City shall reject all Bids received after the specified time and will return such Bids to Bidders unopened. Bidders must submit Bids in accordance with this Document 00 2113.

2.02 Two Envelope Bid Submission:

- A. City will receive Bids in opaque sealed 10 inch x 13 inch envelopes, containing the required items described herein.
- B. Bidders must submit Bids in two envelopes: "Envelope A – Bid Submittals" and "Envelope B – Statement of Qualifications."
- C. Bidders should mark their Bid envelopes using the name, address, identifying information and specification number, indicated in Document 00 1113 (Notice Inviting Bids).

2.03 Required Contents of "Envelope A – Bid Submittals"

- A. Document 00 4113 (Bid Form). Bidders must submit Bids on Document 00 4113 (Bid Form) in accordance with the provisions of Document 00 4113. Bidders must complete all Bid items and supply all information required by Bid documents and specifications.
- B. Document 00 4313 (Bond Accompanying Bid). Bidders must submit Document 00 4313 (Bond Accompanying Bid) accompanied by a cashier's check, certified check (certified without qualification and drawn on a solvent bank of the State of California or a National Bank doing business in the State of California) or completed form of Document 00 4313 of not less than 10% of the base Bid, payable to City and completed in accordance with the provisions of Document 00 4313.
- C. Document 00 4314 (Bidder Registration and Experience Form). Bidders must submit Document 00 4314 (Bidder Registration and Experience Form), completed in accordance with the provisions of Document 00 4314.
- D. Document 00 4330 (Subcontractor List). Bidders must submit Document 00 4330 (Subcontractors List) completed in accordance with the provisions of Document 00 4330. The Subcontractors List must include the names of all subcontractors for those subcontractors who will perform any portion of work, including labor, rendering of service, or specially fabricating and installing a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in excess of one half of one percent (0.5%) of the total Bid amount. Any violation of this requirement may result in a Bid being deemed non-responsive and not being considered.
- E. Document 00 4519 (Non-Collusion Affidavit). Bidders must submit Document 00 4519 (Non-Collusion Affidavit) completed in accordance with the provisions of Document 00 4519.
- F. Document 00 4546 (Bidder Certifications). Bidders must submit Document 00 4546 (Bidder Certification) completed in accordance with the provisions of Document 00 4546.

2.04 Required Contents of "Envelope B – Statement of Qualifications"

- A. Document 00 4513 (Statement of Qualifications for Construction Work). Bidder must submit Document 00 4513 (Statement of Qualifications for Construction Work) in accordance with the provisions of Document 00 4513.

ARTICLE 3 - BID OPENING AND EVALUATION**3.01** Determination of Apparent Low Bidder

- A. City will open each Bidders' Envelope A at the time and place indicated in Document 00 1113 (Notice Inviting Bids), initially evaluate them for responsiveness, and determine an Apparent Low Bidder as specified herein.

- B. Apparent Low Bid will be determined solely on the total amount of all Bid items based on terms contained in Document 00 1113 (Notice Inviting Bids) and Document 00 4113 (Bid Form). All Bidders are required to submit Bids on all Bid items (including any alternates).
- C. For the purposes of award, the apparent low Bidder will be the conforming responsible Bidder offering the lowest total amount for the Total Base Bid shown in the Bid Form. Once the low bidder is determined as herein described, the City reserves the right to award any combination of Additive Bid alternates, or not award any Additive Bid alternates, as it deems to be in the best interest of the City, regardless of whether the total bid of the particular combination selected is higher or lower than any other bidder for that same combination.
- D. For the Apparent Low Bidder only, City will open Envelope B and evaluate the Apparent Low Bidder for responsiveness to the requirements of Document 00 4513 and for Responsibility.
- E. If Apparent Low Bidder is determined to be non-responsive or non-responsible, then City may proceed to the next Apparent Low Bidder's Bid pursuant to any procedures determined in its reasonable discretion, and proceed for all purposes as if this Apparent Low Bidder were the original Apparent Low Bidder.

3.02 Evaluation of Bids

- A. Bids must be full, complete, clearly written and using the required forms. Bidders shall make any change in the Bid by crossing out the original entry, entering and initialing the new entry. Bidder's failure to submit all required documents strictly as required entitles City to reject the Bid as non-responsive. All Bidders must submit Bids containing each of the fully executed documents supplied in this Project Manual.
- B. In evaluating Bids, City will consider Bidders' qualifications, whether or not the Bids comply with the prescribed requirements, unit prices, and other data, as may be requested in Document 00 4113 (Bid Form) or prior to the Notice of Award.
- C. City may conduct reasonable investigations and reference checks of Bidder and other persons and organizations as City deems necessary to assist in the evaluation of any Bid and to establish Bidder's responsibility, qualifications, financial ability and ability to perform the Work in accordance with the Contract Documents to City's satisfaction within the prescribed time. Submission of a Bid constitutes Bidder's consent to the foregoing.
- D. City shall have the right to consider information provided by sources other than Bidder. City shall also have the right to communicate directly with Bidder's surety regarding Bidder's bonds.
- E. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between written words and figures will be resolved in favor of the words.
- F. Bids shall be deemed to include the written responses of the Bidder to any questions or requests for information of City made as part of Bid evaluation process after submission of Bid.

3.03 Reservation of Rights

- A. City reserves the right to reject any or all nonconforming, non-responsive, unbalanced, or conditional Bids, and to reject the Bid of any Bidder as non-responsive as a result of any error or omission in the Bid, or if City believes that it would not be in the best interest of Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by City. For purposes of this paragraph, an "unbalanced Bid" is one having nominal prices for some Bid items and enhanced prices for other Bid items.
- B. City may retain Bid securities and Bid bonds of other than the Apparent Low Bidder for a period of 90 Days after award or full execution of the Contract, whichever first occurs.
- C. City may reject any or all Bids and waive any informalities or minor irregularities in the Bids. City also reserves the right, in its discretion, to reject any or all Bids and to re-Bid the Project.

ARTICLE 4 - MANDATORY BID PROTEST PROCEDURES**4.01 Submission of Written Bid Protest**

- A. Any Bid protest in connection with the construction contract or work described in general in Document 00 1113 (Notice Inviting Bids) must be submitted in writing to the Project Manager as indicated in Document 00 1113, paragraph 1.03 before 3:30 p.m. of the fifth Business Day following opening of the Bidders' envelopes.
- B. The initial protest document must contain a complete statement of the basis for the protest.
- C. The protest must refer to the specific portion of the document that forms the basis for the protest.
- D. The protest must include the name, address, and telephone number of the person representing the protesting party.
- E. Only Bidders who the City otherwise determines are responsive and responsible are eligible to protest a Bid; protests from any other Bidder will not be considered. In order to determine whether a protesting Bidder is responsive and responsible, City may evaluate all information contained in any protesting Bidder's Bid, and conduct the same investigation and evaluation as City is entitled to take regarding an Apparent Low Bidder.
- F. The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.

4.02 Exclusive Remedy

- A. The procedure and time limits set forth in this paragraph are mandatory and are Bidder's sole and exclusive remedy in the event of Bid protest. Bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings. A Bidder may not rely on a protest submitted by another Bidder, but must timely pursue its own protest.

ARTICLE 5 - AWARD AND EXECUTION OF CONTRACT**5.01 Notice of Intent to Award and Submittal of Executed Contract Documents**

- A. If Contract is to be awarded, it will be awarded to the lowest responsible responsive Bidder. City will issue Document 00 5100 Notice of Intent to Award. Such Award, if made, will be made within sixty (60) calendar days after the opening of the Bid Proposals.
- B. Successful Bidder must execute and submit to City the "Required Contract Documents and Proof of Insurance" set forth below, by 5:00 p.m. of the 10th calendar Day following the Notice of Intent to Award.

5.02 Required Contract Documents and Proof of Insurance

- A. Document 00 5200 (Agreement), fully executed by successful Bidder. Submit **two** originals and an emailed PDF, each bearing an original signature (in blue ink) and initials on each page.
- B. Document 00 6113.13 (Construction Performance Bond), fully executed by successful Bidder and surety, in the amount set forth in Document 00 6113.13. Submit **two** originals and an emailed PDF.
- C. Document 00 6113.16 (Construction Labor and Material Payment Bond), fully executed by successful Bidder and surety, in the amount set forth in Document 00 6113.16. Submit **two** originals and an emailed PDF.
- D. Document 00 6536 (Guaranty), fully executed by successful Bidder. Submit **two** originals and an emailed PDF.
- E. Insurance certificates and endorsements required by Document 00 7316 (Supplementary Conditions — Insurance and Indemnification): Submit **one** original set and an emailed PDF.
- F. Document 006580 (City Contracting Policies), fully executed by successful bidder. Submit **one** original set and an emailed PDF.

5.03 Failure to Execute and Deliver Documents:

- A. If Bidder to whom Contract is awarded, within the period described in this Document 00 2113, fails or neglects to execute and deliver all required Contract Documents and file all required bonds, insurance certificates, and other documents, City may, in its sole discretion, rescind the award, recover on Bidder's surety bond, or deposit Bidder's cashier's check or certified check for collection, and retain the proceeds thereof as liquidated damages for Bidder's failure to enter into the Contract Documents. Bidder agrees that calculating the damages City may suffer as a result of Bidder's failure to execute and deliver all required Contract Documents would be extremely difficult and impractical and that the amount of Bidder's required Bid security shall be the agreed and presumed amount of City's damages.
- B. Upon such failure to timely deliver all required Contract Documents as set forth herein, City may determine the next Apparent Low Bidder and proceed accordingly. Such Award, if made, will be made within sixty (60) calendar days after the opening of the Bid Proposals.

ARTICLE 6 - GENERAL CONDITIONS AND REQUIREMENTS**6.01 Modification of Commencement of Work:**

- A. City expressly reserves the right to modify the date for the Commencement of Work under the Contract and to independently perform and complete work related to Project. City accepts no responsibility to Contractor for any delays attributed to its need to complete independent work at the Site.
- B. City shall have the right to communicate directly with Apparent Low Bidder's proposed performance bond surety, to confirm the performance bond. City may elect to extend the time to receive faithful performance and labor and material payment bonds.

6.02 Conformed Project Manual:

- A. Following Award of Contract, City may prepare a conformed Project Manual reflecting Addenda issued during bidding, which will, failing objection, constitute the approved Project Manual.

6.03 Payment Bond:

- A. If the Project described in Document 00 1113 (Notice Inviting Bids) involves an expenditure in excess of twenty-five thousand dollars (\$25,000), the successful Bidder must file a payment bond with and approved by City prior to entering upon the performance of the Work, in accordance with Civil Code § 3247.

6.04 Wage Rates:

- A. The successful Bidder must comply with all prevailing wage laws applicable to the Project, and related requirements contained in the Contract Documents. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are on file at <http://www.dir.ca.gov/oprl/pwd/> and are deemed included in the Bidding Documents. The successful Bidder shall post the applicable prevailing wage rates at the Site.

6.05 Withdrawal of Bids:

- A. Bidders may withdraw their Bids at any time prior to the Bid opening time fixed in this Document 00 2113, only by written request for the withdrawal of Bid filed with City's Purchasing Department, at 2180 Milvia Street, 3rd Floor, Berkeley, CA 94704. Bidder or its duly authorized representative shall execute request to withdraw Bid.

6.06 Ineligible Contractors and Subcontractors:

- A. No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

- B. City shall not accept a Bid from a Bidder who is ineligible to bid or work on, or be awarded, a public works project pursuant to California Labor Code section 1777.1 or 1777.7. Bidders and the Contractor who is awarded the project contract shall not utilize, or allow work by, any subcontractor who is ineligible to bid or work on, or be awarded, a public works project pursuant to California Labor Code Section 1777.1 or 1777.7. (See California Public Contract Code Section 6109.) The California Division of Labor Standards Enforcement publishes a list of debarred contractors and subcontractors on the Internet at www.dir.ca.gov/DLSE/debar.html.

6.07 Substitutions:

- A. Bidders must base their Bids on products and systems specified in Contract Documents or listed by name in Addenda. City will consider substitution requests only for "or equal items." Bidders wanting to use "or equal" item(s) may submit Document 00 6325 (Substitution Request Form) no later than 35 calendar days after Notice of Award. As a limitation on Bidder's privilege to request substitution of "or equal" items, City has found that certain items are designated as City standards and certain items are designated to match existing items in use on a particular public improvement either completed or in the course of completion or are available from one source. As to such items, City will not permit substitution. Such items are described in the Bidding Documents.

6.08 Definitions:

- A. All abbreviations and definitions of terms used in this Document 00 2113 are set forth in Document 00 7200 (General Conditions) and Section 01 4200 (References and Definitions).

END OF SECTION

DOCUMENT 00 3132**GEOTECHNICAL DATA AND EXISTING CONDITIONS****ARTICLE 1 - REPORTS AND INFORMATION ON EXISTING CONDITIONS****1.01 Inspection of Reports:**

- A. City, its consultants, and prior contractors may have collected documents providing a general description of the Site and conditions of the Work. These documents may consist of geotechnical reports for and around the Site, contracts, contract specifications, tenant improvement contracts, as-built drawings, utility drawings, and information regarding Underground Facilities (collectively, "Existing Conditions Data".)
- B. Bidders may inspect Geotechnical and Existing Conditions Data. These documents are listed in Section 01 1100 (Summary) and are available for review at the address identified therein. Copies may be obtained for the cost of reproduction and handling upon Bidder's payment for the costs.
- C. Existing Conditions Data is for information only and does not describe labor, materials or equipment furnished by Contractor, but rather, information regarding conditions of the work. Such Existing Conditions Data is not a Contract Document.

ARTICLE 2 - USE OF EXISTING CONDITIONS DATA**2.01 Above-Ground Existing Conditions:**

- A. City makes no warranty or representation of existing aboveground conditions, as-built conditions, or other aboveground actual conditions verifiable by reasonable independent investigation. These conditions are verifiable by Bidder by the performance of its own independent investigation that Bidder must perform prior to bidding and Bidder must not rely on the information supplied by City regarding existing conditions.
- B. Bidder represents and agrees that in submitting its Bid, it is not relying on any information regarding above-ground existing conditions supplied by City.

2.02 Underground Facilities:

- A. Information supplied regarding existing Underground Facilities at or contiguous to the Site is based on information furnished to City by others (e.g., the builders of such Underground Facilities or others).
- B. City assumes responsibility for only the general accuracy, completeness or thoroughness of information regarding Underground Facilities that are owned by City. This express assumption of responsibility applies only if Bidder has conducted the independent investigation required of it under Document 00 7200 (General Conditions) and discrepancies were not apparent. Bidder is solely responsible for any interpretation or conclusion drawn from this information.
- C. City is not responsible for information regarding Underground Facilities owned by others.

2.03 Hazardous Materials Surveys:

- A. Bidders may rely on this data and information for general accuracy regarding the locations of potentially hazardous materials subject of the Work. City does not warrant and makes no representation regarding the completeness or thoroughness of any data or information regarding existing conditions or hazardous materials, including, but not limited to, quantities, characteristics, volumes, or associated structural features. Bidder represents and agrees that in submitting a Bid it is not relying on any such data, information or deductions.
- B. Data and information regarding the locations of hazardous materials are not part of Contract Documents.

2.04 Geotechnical Data:

- A. Bidder may rely upon the general accuracy of the "technical data" contained in the geotechnical reports and drawings identified above, but only insofar as it relates to subsurface conditions,

provided Bidder has conducted the independent investigation required of it and discrepancies were not apparent.

- B. The term “technical data” shall include actual reported depths, reported quantities, reported soil types, reported soil conditions, and reported material, equipment, or structures that were encountered during subsurface exploration. The term “technical data” does not include, and Bidder may not rely upon, any other data, interpretations, opinions or information shown or indicated in such drawings or reports that otherwise relate to subsurface conditions or described structures. The term “technical data” shall not include the location of Underground Facilities.
- C. Bidder may not rely on the completeness of reports and drawings for the purposes of bidding or construction. Bidder is solely responsible for any interpretation or conclusion drawn from any “technical data” or any other data, interpretations, opinions, or information contained in supplied geotechnical data.
- D. Except as expressly set forth in this Document 00 3132, City does not warrant, and makes no representation regarding, the accuracy or thoroughness of any geotechnical data.
- E. Bidder represents and agrees that in submitting its Bid, it is not relying on any geotechnical data supplied by City, except as specifically set forth herein.

ARTICLE 3 - INVESTIGATIONS

3.01 Required Investigations:

- A. Before submitting a Bid, each Bidder shall be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site or otherwise, which may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of Contract Documents.
- B. Bidders shall advise City in writing during the Bid period of any questions, suppositions, inferences or deductions Bidders may have for City’s review and response.
- C. City has provided time in the period prior to bidding for Bidder to perform these investigations.

3.02 Access to Site for Investigations:

- A. During the Pre-Bid Site Visit(s), City will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a Bid. The Bidder may request alternate dates and times to access the site. Such request must be made in writing at least ten (10) calendar days prior to bid. Bidders must fill all holes and clean up and restore the Site to its former conditions upon completion of such explorations, investigations, tests, and studies. Such investigations may be performed only under the provisions of Document 00 2113 (Instructions to Bidders) and Document 00 7200 (General Conditions) including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such investigation work. Each Bidder shall supply all equipment required to perform any investigations as each Bidder deems necessary. City has the right to limit the number of pieces of machinery operating at one time due to safety concerns.

END OF SECTION

DOCUMENT 00 4113
BID FORM

TO CITY OF BERKELEY

THIS BID IS SUBMITTED BY:

(Firm/Company Name)

Re:Corporation Yard Green Room and Building H Improvements at 1326 Allston Way, Specification No. 25-11706-C Reissue

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with City of Berkeley in the form included in the Contract Documents, Document 00 5200 (Agreement), to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Sum and within the Contract Time indicated in this Bid and in accordance with all other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Contract Documents, Document 00 1113 (Notice Inviting Bids), and Document 00 2113 (Instructions to Bidders), including, without limitation, those dealing with the disposition of Bid Security. This Bid will remain subject to acceptance for 60 calendar days after the day of Bid opening, unless there is a bid protest, then 90 calendar days after the day of bid opening. Bidder will sign and submit Document 00 5200 (Agreement) and other documents required by Document 002113, paragraph 5.02 (Required Contract Documents and Proof of Insurance) within 20 calendar days after receipt of City’s Notice of Intent to Award.
3. In submitting this Bid, Bidder represents that Bidder has examined all of the Contract Documents, performed all necessary Pre-Bid investigations as set forth in Document 00 5200 (Agreement) Article 6 (Contractor’s Representation), received the Pre-Bid conference minutes (if any), and received the following Addenda:

Addendum Number	ADDENDUM DATE	Signature of Bidder

4. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sums of money listed in the following Schedule of Bid Prices:

SCHEDULE OF BID PRICES

All Bid items, including lump sums and unit prices, must be filled in completely. Bid items are described in Section 01 1100 (Summary of Work). Quote in figures only, unless words are specifically requested.

ITEM	DESCRIPTION	PRICE (\$)
1	All work of the Contract Documents for the Corporation Yard Green Room, other than work separately provided for under other bid items, i.e. excluding Bid Items 2-4	
	Total Bid Price: (Bid Item 1)	

Total Bid Price: (Bid Item 1)

(Words)

Bid Alternates (To be priced for City consideration; these items will not be used to determine lowest bid on bid opening day. However, one of more may be added to the project at the sole discretion of the City.)

ITEM	DESCRIPTION	PRICE (\$)
2	Additive Alternate #1: All work of the Contract Documents for Corporation Yard Building H.	
3	Additive Alternate #2: Rooftop equipment screen for Green Room, see Plan 1/A2.33, Exterior Elevations 1/A3.11, 4/A3.11, Sections 1/A3.31, 2/A3.31 and associated Detail 7/A6.41. See Structural Plan 1/S2.11 and associated Details 2, 3, and 5/S2.11 and 3/S3.10.	
4	Additive Alternate #3: Steel bracket supported canopy for Green Room. See Plans 1/A2.33, 1/A2.41, and associated Details 2, 3/A2.41, and 1, 3, 4/A6.11 and 1/A6.13. See Structural Plan 1/S2.11 and associated Detail 4/S3.10.	

5. Subcontractors for work included in all Bid items are listed on Document 00 4330 (Subcontractors List) submitted herewith.
6. The undersigned Bidder understands that City reserves the right to reject this Bid, but that this Bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

- 7. If written notice of the acceptance of this Bid, hereinafter referred to as Notice of Intent to Award, is mailed or delivered to the undersigned Bidder within the time described in Paragraph 2 of this Document 00 4113 or at any other time thereafter before it is withdrawn, the undersigned Bidder will execute and deliver the documents required by Document 00 2113 (Instructions to Bidders) within the times specified therein.
- 8. Notice of Award or request for additional information may be addressed to the undersigned Bidder at the address set forth below.
- 9. The undersigned Bidder herewith encloses cash, a cashier's check, or certified check of or on a responsible bank in the United States, or a corporate surety bond furnished by a surety authorized to do a surety business in the State of California, in form specified in Document 00 2113 (Instructions to Bidders), in the amount of ten percent (10%) of the Total Bid Price and made payable to City of Berkeley.
- 10. The undersigned Bidder agrees to commence Work under the Contract Documents on the date established in Document 00 7200 (General Conditions) and to complete all Work within the time specified in Document 00 5200 (Agreement).
- 11. The undersigned Bidder agrees that, in accordance with Document 00 7200 (General Conditions), liquidated damages for failure to complete all Work in the Contract within the time specified in Document 00 5200 (Agreement) shall be as set forth in Document 00 5200.
- 12. The names of all persons interested in the foregoing Bid as principals are:

IMPORTANT NOTICE: If Bidder or other interested person is a corporation, give the legal name of corporation, state where incorporated, and names of president and secretary thereof; if a partnership, give name of the firm and names of all individual co-partners composing the firm; if Bidder or other interested person is an individual, give first and last names in full.

NAME OF BIDDER: _____

licensed in accordance with an act for the registration of Contractors, and with license number: _____ Expiration: _____.

(Place of Incorporation, if Applicable)	(Principal)
	(Principal)
	(Principal)

I certify (or declare) under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

(Signature of Bidder)

NOTE: If Bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If Bidder is a

partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address:

Contractor's Representative(s):

(Name/Title)

(Name/Title)

(Name/Title)

Officers Authorized to Sign Contracts

(Name/Title)

(Name/Title)

(Name/Title)

Telephone Number(s):

(Area Code) (Number)

(Area Code) (Number)

Fax Number(s):

(Area Code) (Number)

(Area Code) (Number)

Date of Bid:

END OF SECTION

DOCUMENT 00 4313
BOND ACCOMPANYING BID

KNOW ALL BY THESE PRESENTS:

That the undersigned

(Name of Contractor)

as Principal and the undersigned as Surety are held and firmly bound unto City of Berkeley,
as obligee, in the penal sum of _____

(Dollar Amount in Words)

Dollars (\$_____) lawful money of the United States of America being at least ten
percent (10%) of the aggregate amount of said Principal

_____’s base Bid, for the payment of which,
well and truly to be made, we bind ourselves, our successors, executors, administrators, and assigns,
jointly and severally, firmly by these presents.

WHEREAS, the said Principal is submitting a Bid for

Specification No. 25-11706-C Reissue
Corporation Yard Green Room and Building H Improvements
at 1326 Allston Way.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Bid submitted by the said Principal
be accepted and the Contract be awarded to said Principal and said Principal shall within the required
periods enter into the Contract so awarded and provide the required Construction Performance Bond,
Construction Labor and Material Payment Bond, insurance certificates, Guarantee, and all other
endorsements, forms, and documents required under Document 00 2113 (Instructions to Bidders), then
this obligation shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument this _____
day of _____, 20____.
(Month)

(Corporate Seal) By _____
Principal

By _____
Surety

(Corporate Seal) By _____
Attorney in Fact

END OF SECTION

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DOCUMENT 00 4314
BIDDER REGISTRATION FORM
INSTRUCTIONS

In order to register to undertake work for City of Berkeley, Bidder **must**:

- 1) Fill out this registration form completely; do not leave blanks.
- 2) Provide certificates of insurance or a letter evidencing coverage complying with Document 00 4513 (Statement of Qualifications).

INDEPENDENT CONTRACTOR REGISTRATION

Contractor's License # _____

Date: _____ Fed I.D. # _____

Full Corporate Name of Company: _____

Street Address: _____

Mailing Address: _____

Phone: _____ Fax: _____

Name of Principal Contact: _____

Type of Business: _____ Sole Proprietor _____ Partnership
 _____ Non-Profit 501(c)(3) _____ Corporation
 _____ other (please explain: _____)

INSURANCE

Workers' Compensation:

Carrier: _____

Address: _____

Phone and Fax: _____

Policy Number: _____

General Liability:

Carrier: _____

Address: _____

Phone and Fax: _____

Policy Number: _____

Policy Limits: \$ _____

A.M. Best Rating: _____

Automobile Liability:

Carrier: _____

Address: _____

Phone and Fax: _____

Policy Number: _____

Policy Limits: \$ _____

A.M. Best Rating: _____

All-risk Course of Construction (if applicable, as required by Document 00 7316 [Supplementary Conditions – Insurance]):

Carrier: _____

Address: _____

Phone and Fax: _____

Policy Number: _____

Policy Limits: \$ _____

A.M. Best Rating: _____

Professional Liability (if applicable, as required by Document 00 7316 [Supplementary Conditions – Insurance]):

Carrier: _____

Address: _____

Phone and Fax: _____

Policy Number: _____

Policy Limits: \$ _____

A.M. Best Rating: _____

**Pollution Legal Liability Insurance (if applicable, as required by Document 00 7316
[Supplementary Conditions – Insurance]):**

Carrier: _____

Address: _____

Phone and Fax: _____

Policy Number: _____

Policy Limits: \$ _____

A.M. Best Rating: _____

**BIDDER CERTIFIES, UNDER PENALTY OF PERJURY, THAT THE FOREGOING
INFORMATION IS CURRENT AND ACCURATE AND AUTHORIZES OWNER, AND ITS AGENTS AND
REPRESENTATIVES TO OBTAIN A CREDIT REPORT AND/OR VERIFY ANY OF THE ABOVE
INFORMATION.**

SIGNATURE

DATE

SAFETY EXPERIENCE

The following statements as to the Bidder's safety experience are submitted with the Bid, as part thereof, and the Bidder guarantees the truthfulness and accuracy of all information.

- 1. List Bidder's interstate Experience Modification Rate for the last three years.

[20_] _____ [20_] _____ [20_] _____

- 2. Use Bidder's last year's Cal/OSHA 200 log to fill in the following number of injuries and illnesses:

- a. Number of lost workday cases _____

- b. Number of medical treatment cases _____

- c. Number of fatalities _____

- 3. Employee hours worked last year _____

- 4. State the name of Bidder's safety engineer/manager:

Attach a resume or outline of this individual's safety and health qualifications and experience.

I CERTIFY, UNDER PENALTY OF PERJURY, THAT THE FOREGOING INFORMATION IS CURRENT AND ACCURATE AND I AUTHORIZE OWNER, AND ITS AGENTS AND REPRESENTATIVES TO OBTAIN A CREDIT REPORT AND/OR VERIFY ANY OF THE ABOVE INFORMATION.

BIDDER:

By: _____
Signature

Its: _____
Title

Date _____

END OF SECTION

**DOCUMENT 00 4330
SUBCONTRACTORS LIST**

Bidder submits the following information as to the subcontractors Bidder intends to employ if awarded the Contract.

Full Name of Subcontractor (Sub.) and Address of Mill or Shop	Sub.'s License No.	Description of Work: Reference to Bid Items	Sub.'s Bid Amount	Sub.'s Depart. Of Industrial Relations No.

(Bidder to attach additional sheets if necessary)

END OF SECTION

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DOCUMENT 00 4513**STATEMENT OF QUALIFICATIONS FOR CONSTRUCTION PROJECTS****ARTICLE 1 – GENERAL INFORMATION****1.01 Minimum Bidder Qualifications.**

- A. Bidders must be duly licensed in accordance with the California Business & Professions Code and have a history of work performance sufficient to meet the requirements of a responsible bidder in the California Public Contract Code Section 1104.
- B. Bidders must have three (3) years experience as a continuously operating entity engaged in the performance of similar work.
- C. Bidders must demonstrate successful experience with type of work of this Project, to include, within the past year, completed two (2) projects of a similar nature and complexity with a contract dollar amount of (i.) at least 75% of the amount of Bidder's Bid or (ii.) 125% of such amount in the aggregate.

1.02 Measurement.

- A. Bidder's compliance with the minimum qualification requirements will be measured by Bidder's experience as an operating entity and also by the experience of the supervisory personnel who will have responsible charge of the various major components of the Work.
- B. If Bidder subcontracts portions of the Work, City, in its determination of whether the minimum qualification requirements have been met, may consider the qualifications of the Subcontractor's supervisory personnel.
- C. The qualifications of the Key Personnel are to be submitted with the Statement of Qualifications ("SOQ"), by providing the information described in this Document 00 4513.

ARTICLE 2 – Required Contents of SOQ Submission**2.01 Transmittal Letter**

- A. The Transmittal Letter shall name the proposed prime contractor, its legal structure (i.e., corporation, partnership, limited partnership, joint venture). If a joint venture or partnership is proposed, Bidder shall identify partner and/or member of the joint venture and their roles and responsibilities.

2.02 Submittals:

- A. Completed Questionnaire. Bidder shall include a completed Statement of Qualification Questionnaire in the form attached to this Document 00 4513 as Attachment "A".
- B. License: Evidence of a valid contractor's license and required licenses of all licensees of persons who are Key Personnel necessary to perform the Work.
- C. Litigation History. Description of litigation history for the past three years, including names of involved parties, nature of dispute, and disposition.

2.03 Additional Submittals:

After bid opening, Contractor maybe required to supply the City with the following submittals upon request.

- A. Resumes of Proposed Key Personnel. Bidder shall provide a resume for each named Key Personnel of Bidder, to include as necessary: Years of experience; Education - degrees, schools and years obtained; Professional Registrations; Fluency in English (Yes/No); At least two client references, including contact names, addresses and telephone numbers, and description of projects of a similar nature worked on in the past five years.
- B. Audited or Reviewed Financial Statements. Include audited or reviewed financial statements for the three most recently completed fiscal years for Bidder and each member of any proposed

consorting or joint venture. Also include audited or reviewed financial statements for the three most recently completed fiscal years for any parent companies) of Bidder and each member of any proposed consortium or joint venture.

- C. Surety Letter re: Capability to Provide Required Performance and Payment Bonds. Bidder shall include a letter from a surety duly licensed to do business in the State of California, having a financial rating from A.M. Best Company of A-, VIII or better, that the surety has agreed to provide Bidder with the required performance and payment bonds in accordance with the requirements set forth in Documents 00 6113.13 (Construction Performance Bond) and 00 6113.16 (Construction Labor and material Payment bond), each in the penal sum of the Contractor's bid when submitted. Owner shall have the right to verify with the surety that the surety, based upon the Bid prices, will issue the required bonds under the conditions stated.
- D. Insurer Letter re: Capability to Provide the Required Insurance. Bidder shall provide a letter from an insurance underwriter, having a financial rating reasonably acceptable to City, confirming that the insurer will provide Bidder the required coverages and amounts specified in the Contract Documents.
- E. Description of Human and Physical Resources. Bidder shall identify, describe, and quantify for itself, the following technical information for the construction work: Description and location of manufacturing facilities, naming products and quantifying production capacity and current demand; Description of field organization(s), naming skills and equipment; Description of safety program quality control procedures, and safety experience.

2.04 Format.

- A. The SOQ shall be clear and concise to enable management-oriented personnel to make a thorough evaluation and arrive at a sound determination as to whether the SOQ meet City's requirement. To this end, the SOQ should be so specific, detailed and complete as to demonstrate clearly and fully that the Bidder has a thorough understanding of and has demonstrated knowledge of the requirements to perform the Work (or applicable portion thereof).
- B. Any explanation requested by a Bidder regarding the meaning or interpretation of this Document 00 4513 must be requested in writing and with sufficient time allowed for a reply to reach Bidder before the submission of its SOQ. Oral explanations or instructions will not be binding. Any information provided to any prospective Bidder concerning this Document 00 4513 will be furnished to all prospective Bidders as an Addendum to the Bidding Documents.

STATEMENT OF QUALIFICATION QUESTIONNAIRE FOLLOWS ON NEXT PAGE

ATTACHMENT "A" – STATEMENT OF QUALIFICATION QUESTIONNAIRE

Bidders shall complete the entire Statement of Qualification Questionnaire and submit it in accordance with Document 00 2113 (Instructions to Bidders) and Document 00 4513 (Statement of Qualifications). Failure to complete the questionnaire or inclusion of any false statement(s) shall be ground for immediate disqualification.

CONTACT INFORMATION

Company Name: _____

Owner of Company: _____

Contact Person: _____

Address: _____

Phone: _____ Fax: _____

PART A: GENERAL INFORMATION

1. Does Bidder possess a valid and current California Contractor's license for the work proposed? Yes ___ No ___
2. Does Bidder have a minimum of **\$2,000,000** liability insurance coverage? Yes ___ No ___
3. Has Bidder's License been revoked at any time in the last five years? Yes ___ No ___
4. Has Bidder been "default terminated" by an Owner (other than for convenience), or has a Surety completed a contract for Bidder within the last five years? Yes ___ No ___
5. Has Bidder been convicted more than twice for failure to pay prevailing wages in the last three years? Yes ___ No ___
6. Will Bidder provide copies of its reviewed or audited financial statements and accompanying notes for the last three years, if requested? Yes ___ No ___

**Bidder may be disqualified if any answer to questions 1, 2, or 6 is No.
 Bidder may be disqualified if any answer to questions 3, 4, or 5 is Yes.**

PART B: SAFETY, PREVAILING WAGE, DISPUTES AND BONDS

(SAFETY)

1. Has Cal/OHSA, Federal OSHA, the EPA or any Air Quality Management Owner cited Bidder in the past five years?
 Yes ___ No ___ If yes, attach description of each citation.
2. How often does Bidder require documented safety meetings be held for:

Field Supervisor	Weekly _____	Bi-Weekly _____	Monthly _____	Less Than Monthly _____
Employees	Weekly _____	Bi-Weekly _____	Monthly _____	Less Than Monthly _____
New Hires	Weekly _____	Bi-Weekly _____	Monthly _____	Less Than Monthly _____
Subcontractors	Weekly _____	Bi-Weekly _____	Monthly _____	Less Than Monthly _____
3. How often does Bidder conduct documented safety inspections?
 Quarterly _____ Semi-annually _____ Annually _____ Other _____

4. Does Bidder have home office safety representatives who visit/audit the job site?
Quarterly _____ Semi-annually _____ Annually _____ Other _____
5. What is Bidder's Interstate Experience Modification Rate? _____. (A rating in excess of **[1]** may constitute grounds for disqualification as non-responsible).

(PREVAILING WAGE PROVISIONS)

6. Has Bidder been fined, penalized or otherwise found to have violated any prevailing wage or labor code provision? If yes, attach description of each occurrence.
Yes _____ No _____

(LICENSE PROVISIONS)

7. Has Bidder changed names or license numbers in the past 5 years? If so, please state reason for change.
Yes _____ No _____ Reason: _____

(DISPUTES)

8. Has Bidder had any claims, litigation, or disputes ending in mediation or arbitration, or termination for cause associated with any project in the past 5 years? If yes, attach description of each instance including details of total claim amount, settlement amount, and Owner's name and phone number.
Yes _____ No _____

(BONDING)

9. Bonding Capacity – Provide documentation from Bidder's surety identifying the following:
Name of bonding company/surety: _____
Name of Surety Agent: _____
Surety Agent address: _____
Surety Agent phone number: _____
Is surety a California-admitted surety? Yes _____ No _____
Is surety listed in the current edition of the California Department of the Treasury's Listing of approved sureties? Yes _____ No _____
List surety's A.M. Best Rating: _____
What is Bidder's total bonding capacity? _____
What percent does Bidder pay for bonds? _____

PART C: EXPERIENCE OF PRIME CONTRACTOR

The nature of this Project requires prior similar experience for the firm and the Key Personnel assigned. Summarize similar project experience below and provide the detailed project information requested:

Prime Contractor. List three projects of similar size and scope to the Work of the Contract, completed in the past two (2) years, and indicate who were the superintendent, project manager and scheduler.

NOTE: this listing will be used to assess compliance with the stated minimum qualifications in Section 1.01.

Project Name	Construction Cost (\$)	Year Completed	Name of Project Superintendent	Name of Project Manager	Name of Project Scheduler

List Key Personnel that will be assigned to the Work of the current Project and their experience/training with the projects listed above:

Project Manager: _____

Project Superintendent: _____

Project Scheduler: _____

Recent Projects.

Provide information about three (3) of its most currently completed projects. Names and references must be current and verifiable. This listing will be used to assess compliance with the stated minimum qualifications in Section 1.01. If a separate sheet is used, it must contain all of the following information:

1. Project Name: _____
Location: _____
Owner: _____
Owner Contact (name and phone): _____
Architect/Engineer: _____
Architect/Engineer Contact (name and phone number): _____
Const. Mgr. or Project Mgr. (name and phone number): _____
Description of Project, Scope of Work Performed: _____

Total Construction Cost: _____
Total Change Order Amount: _____
Did Change Orders exceed 10% of original contract sum? _____ If yes, please explain on separate sheet.
Original Scheduled Date of Completion: _____
Time Extensions Granted (number of calendar days): _____
Actual Date of Completion: _____
Number of Stop Notices filed by Subcontractors or Suppliers: _____
2. Project Name: _____
Location: _____
Owner: _____
Owner Contact (name and phone): _____
Architect/Engineer: _____
Architect/Engineer Contact (name and phone number): _____
Const. Mgr. or Project Mgr. (name and phone number): _____
Description of Project, Scope of Work Performed: _____

Total Construction Cost: _____

Total Change Order Amount: _____

Did Change Orders exceed 10% of original contract sum? _____ If yes, please explain on separate sheet.

Original Scheduled Date of Completion: _____

Time Extensions Granted (number of calendar days): _____

Actual Date of Completion: _____

Number of Stop Notices filed by Subcontractors or Suppliers: _____

3. Project Name: _____

Location: _____

Owner: _____

Owner Contact (name and phone): _____

Architect/Engineer: _____

Architect/Engineer Contact (name and phone number): _____

Const. Mgr. or Project Mgr. (name and phone number): _____

Description of Project, Scope of Work Performed: _____

Total Construction Cost: _____

Total Change Order Amount: _____

Did Change Orders exceed 10% of original contract sum? _____ If yes, please explain on separate sheet.

Original Scheduled Date of Completion: _____

Time Extensions Granted (number of calendar days): _____

Actual Date of Completion: _____

Number of Stop Notices filed by Subcontractors or Suppliers: _____

PART D: FINANCIAL INFORMATION

1. Has Bidder ever reorganized under the protection of bankruptcy laws?

Yes _____ No _____ If yes, please state when _____

2. If Bidder has had the general liability carrier identified in Document 00 4314 (Bidder Registration and Safety Experience Form) for less than 5 years, please provide additional information below for balance of the last 5 years:

Agency Name: _____

Contact Name: _____

Phone Number _____

Carrier: _____ A.M. Best Rating: _____

Carrier: _____ A.M. Best Rating: _____

Carrier: _____ A.M. Best Rating: _____

3. Has Bidder ever had insurance terminated by a carrier? Yes _____ No _____

If yes, explain on a separate signed sheet marked with correlating cross-reference to this paragraph of the questionnaire.

Bidder hereby declares under penalty of perjury that all the information provided in this questionnaire is true and correct.

SIGNATURE

TITLE

END OF SECTION

DOCUMENT 00 4519
NON-COLLUSION AFFIDAVIT

PUBLIC CONTRACT CODE §7106

NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

_____, being first duly sworn,
(Name of Principal of Bidder)

deposes and says that he or she is _____
(Office of Affiant)

of _____, the party
(Name of Bidder)

making the foregoing Bid, that the Bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the Bid is genuine and not collusive or sham; that Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham Bid, and has not directly or indirectly colluded, conspired, connived or agreed with any bidder or anyone else to put in a sham Bid, or that anyone shall refrain from bidding, and that the Bidder has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the Bid price of Bidder or any other bidder, or to fix any overhead, profit or cost element of the Bid price, or of that of any other bidder, or to secure any advantage against City, or anyone interested in the proposed contract; that all statements contained in the Bid are true; and further, that Bidder has not, directly or indirectly, submitted its Bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, Bid depository, or to any member or agent thereof to effectuate a collusive or sham Bid.

Executed under penalty of perjury under the laws of the State of California:

(Name of Bidder)

(Signature of Principal)

Subscribed and sworn before me _____

This _____ day of _____, 20__

Notary Public of the State of _____

In and for the County of _____

My Commission expires _____

(Seal)

NOTE: If Bidder is a partnership or a joint venture, this affidavit must be signed and sworn to by every member of the partnership or venture.

NOTE: If Bidder [including any partner or venturer of a partnership or joint venture] is a corporation, this affidavit must be signed by the Chairman, President, or Vice President and by the Secretary, Assistant Secretary, Chief Financial Officer, or Assistant Treasurer.

NOTE: If Bidder's affidavit on this form is made outside the State of California, the official position of the person taking such affidavit shall be certified according to law.

END OF SECTION

DOCUMENT 00 4546

BIDDER CERTIFICATIONS

TO BE EXECUTED BY ALL BIDDERS AND SUBMITTED WITH BID

The undersigned Bidder certifies to City as set forth in sections 1 through 5 below.

1. STATEMENT OF CONVICTIONS

By my signature hereunder, I hereby swear, under penalty of perjury, that no more than one final, unappealable finding of contempt of court by a Federal Court has been issued against Bidder within the past two years because of failure to comply with an order of a Federal Court or to comply with an order of the National Labor Relations Board.

2. CERTIFICATION OF WORKER'S COMPENSATION INSURANCE

By my signature hereunder, as the Contractor, I certify that I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Contract.

3. CERTIFICATION OF PREVAILING WAGE RATES AND RECORDS

By my signature hereunder, as the Contractor, I certify that I am aware of the provisions of Section 1773 of the California Labor Code, which requires the payment of prevailing wage on public projects. Also, that the Contractor and any subcontractors under the Contractor shall comply with California Labor Code §1776, regarding wage records, and with California Labor Code §1777.5, regarding the employment and training of apprentices. It is the Contractor's responsibility to ensure compliance by any and all subcontractors performing work under this Contract.

4. CERTIFICATION OF COMPLIANCE WITH PUBLIC WORKS CHAPTER OF LABOR CODE

By my signature hereunder, as the Contractor, I certify that I am aware of Sections 1777.1 and 1777.7 of the California Labor Code and Contractor and Subcontractors and am eligible to bid and work on public works projects.

5. CERTIFICATION OF ADEQUACY OF CONTRACT AMOUNT

By my signature hereunder, as the Contractor, pursuant to Labor Code Section 2810(a), I certify that, if awarded the Contract based on the undersigned's Bid, the Contract will include funds sufficient to allow the Contractor to comply with all applicable local, state, and federal laws or regulations governing the labor or services to be provided. I understand that Owner will be relying on this certification if it awards the Contract to the undersigned.

BIDDER:

(Name of Bidder)

Date: _____, [20] By: _____
(Signature)

Name: _____
(Print Name)

Its: _____
(Title)

END OF SECTION

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DOCUMENT 00 5100**NOTICE OF INTENT TO AWARD**

Dated _____

TO: _____

ADDRESS: _____

CONTRACT NO.: _____

CONTRACT FOR: City of Berkeley
**Corporation Yard Green Room and Building H Improvements AT 1326
Allston Way**

The Contract Sum of your contract is X Dollars and X Cents (\$[Contract Sum]).

1. Two copies of the proposed Contract Documents listed below accompany this Notice of Award.
2. You must comply with the following conditions precedent by **5:00 p.m.** of the **20th Day** following the date of this Notice of Award, that is, by Day of Week, Month Day, Year.
 - a. Deliver to Owner **two** fully executed counterparts and an emailed PDF copy of Document 00 5200 (Agreement). Each copy of Document 00 5200 (Agreement) must bear your original signature on the signature page and your initials on each page.
 - b. Deliver to Owner **two** originals and an emailed PDF of Document 00 6113.13 (Construction Performance Bond), executed by you and your surety.
 - c. Deliver to Owner **two** originals and an emailed PDF of Document 00 6113.16 (Construction Labor and Material Payment Bond), executed by you and your surety.
 - d. Deliver to Owner **two** original copies and an emailed PDF of Document 00 6536 (Guaranty), each executed by you.
 - e. Deliver to Owner **one** original set and an emailed PDF of the insurance certificates with endorsements required under Document 00 7316 (Supplementary Conditions – Insurance).
 - f. Deliver to Owner **one** original copy and an emailed PDF of all documents found in Document 00 6580 (City of Berkeley Contracting Policies) executed by you.
3. Failure to comply with these conditions within the time specified will entitle Owner to consider your Bid abandoned, to annul this Notice of Award, and to declare your Bid security forfeited.
4. Within 21 calendar days after you comply with the conditions in Paragraph 2 of this Document 00 5100, Owner will return to you one fully signed counterpart of Document 00 5200 (Agreement) with [number] copies of the Project Manual (including Specifications and Drawings) and [number] sets of full-size Drawings.
5. Before you may start any Work at the Site, you must attend a preconstruction conference. The preconstruction conference may be arranged through **Titus Chen (510) 981-6410**. Questions regarding

bonds and insurance may be directed to **Titus Chen** at the same number. All other inquiries regarding the Project should be directed to **Titus Chen**.

6. Upon commencement of the Work, you and each of your Subcontractors shall certify and provide Owner copies of payroll records on forms provided by the Division of Labor Standards Enforcement, in accordance with California Labor Code §1776.

OWNER

BY: _____
(Title)

(Print Name)

ATTEST: _____
Secretary

(Print Name)

AUTHORIZED BY [CITY / COUNTY / DISTRICT] RESOLUTION:

NO: _____

ADOPTED: _____, [20__]

[Copy of Resolution Attached]

END OF DOCUMENT

DOCUMENT 00 5200**AGREEMENT**

THIS AGREEMENT, dated this [date] day of [Month], [20__], by and between [Contractor] whose place of business is located at [Contractor's Address] ("Contractor"), and City of Berkeley ("City"), acting under and by virtue of the authority vested in Owner by the laws of the State of California.

SPECIFICATION NUMBER 25-11706-C Reissue

Corporation Yard Green Room and Building H Improvements
at
1326 Allston Way

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, Contractor and City agree as follows:

ARTICLE 1 – SCOPE OF WORK OF THE CONTRACT**1.01 WORK OF THE CONTRACT**

- A. Contractor shall complete all Work specified in the Contract Documents, in accordance with the Specifications, Drawings, and all other terms and conditions of the Contract Documents (**Work**).

1.02 PRICE FOR COMPLETION OF THE WORK

- A. City shall pay Contractor the following Contract Sum \$[Contract Sum] for completion of Work in accordance with Contract Documents as follows:
1. All Work of the Contract Documents for the Corporation Yard Green Room Renovation
 2. All Work of the Contract Documents for the Corporation Yard Building H Improvements
- B. The Contract Sum includes all allowances (if any).

ARTICLE 2 – COMMENCEMENT AND COMPLETION OF WORK**2.01 COMMENCEMENT OF WORK**

- A. Contractor shall commence Work on the date established in the Notice to Proceed (**Commencement Date**).
- B. City reserves the right to modify or alter the Commencement Date.

2.02 COMPLETION OF WORK

- A. Contractor shall achieve Substantial Completion of the entire Work within **182** calendar days from the Commencement Date.
- B. Contractor shall achieve Final Completion of the entire Work **224** calendar days from the Commencement Date.

ARTICLE 3 – PROJECT REPRESENTATIVES**3.01 CITY'S PROJECT MANAGER**

- A. City has designated Titus Chen as its Project Manager to act as City's Representative in all matters relating to the Contract Documents.
- B. Project Manager shall have final authority over all matters pertaining to the Contract Documents

and shall have sole authority to modify the Contract Documents on behalf of City, to accept work, and to make decisions or actions binding on City, and shall have sole signature authority on behalf of City.

- C. City may assign all or part of the Project Manager's rights, responsibilities and duties to a Construction Manager, or other City Representative.

3.02 CONTRACTOR'S PROJECT MANAGER

- A. Contractor has designated [_____ or other] as its Project Manager to act as Contractor's Representative in all matters relating to the Contract Documents.

3.03 ARCHITECT/ENGINEER

- A. **Noll & Tam Architects** furnished the Plans and Specifications and shall have the rights assigned to Architect/Engineer in the Contract Documents.
- B. Architect/Engineer has designated **Tom Beil** as its project manager, to act as its representative for receiving and making communications authorized under the Contract Documents.

ARTICLE 4 – LIQUIDATED DAMAGES FOR DELAY IN COMPLETION OF WORK

4.01 LIQUIDATED DAMAGE AMOUNTS

- A. As liquidated damages for delay, Contractor shall pay City four thousand two hundred dollars (\$4,200.00) for each Day that expires after the time specified herein for Contractor to achieve Substantial Completion of the entire Work, until achieved.
- B. As liquidated damages for delay, Contractor shall pay City four thousand two hundred dollars (\$4,200.00) for each Day that expires after the time specified herein for Contractor to achieve Final Completion of the entire Work, until achieved.

4.02 SCOPE OF LIQUIDATED DAMAGES

- A. Measures of liquidated damages shall apply cumulatively.
- B. Limitations and stipulations regarding liquidated damages are set forth in Document 00 7200 (General Conditions).

ARTICLE 5 – CONTRACT DOCUMENTS

- 5.01 Contract Documents consist of the following documents, including all changes, Addenda, and Modifications thereto:

Document 00 5100	Notice of Award
Document 00 5200	Agreement
Document 00 5500	Notice to Proceed
Document 00 6113.13	Construction Performance Bond
Document 00 6113.16	Construction Labor and Material Payment Bond
Document 00 6536	Guaranty
Document 00 6530	Release of Claims
Document 00 6325	Substitution Request Form
Document 00 6290	Escrow Agreement for Security Deposits
Document 00 6580	City of Berkeley Contracting Policies
Document 00 7200	General Conditions
Document 00 7201	Supplementary Conditions
Document 00 7316	Supplementary Conditions – Insurance
Document 00 7317	Supplementary Conditions – City of Berkeley Contracting Policies
Document 00 7319	Supplemental Conditions – Hazardous Materials
Document 00 7380	Apprenticeship Programs

Document 00 9113

Addenda [LIST ADDENDA ISSUED]

Specifications

Divisions 1 through 22

Maps, Drawings and Sketches listed in Document 00 0115

- 5.02** There are no Contract Documents other than those listed above. The Contract Documents may only be amended, modified or supplemented as provided in Document 00 7200 (General Conditions).

ARTICLE 6 – CONTRACTOR’S REPRESENTATIONS

In order to induce City to enter into this Agreement, Contractor makes the following representations and warranties:

- 6.01** Contractor has visited the site and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions, and federal, state and local laws and regulations that in any manner may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Contractor and safety precautions and programs incident thereto.
- 6.02** Contractor has examined thoroughly and understood all reports of exploration and tests of subsurface conditions, as-built drawings, drawings or reports, available for Bidding purposes, of physical conditions, including Underground Facilities, identified in the Bid Documents, or which may appear in the Drawings, and accepts the determination set forth in these documents and Document 00 7200 General Conditions of the limited extent of the information contained in such reports and drawings upon which the Contractor may be entitled to rely. Contractor agrees that except for the information so identified, Contractor does not and shall not rely on any other information contained in such reports and drawings.
- 6.03** Contractor has conducted or obtained and has understood all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in Article 6.02 above) which pertain to the subsurface conditions, as-built conditions, Underground Facilities and all other physical conditions at or contiguous to the site or otherwise which may affect the cost, progress, performance or furnishing of Work, as Contractor considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigations, explorations, test, reports, studies or similar information or data are or will be required by Contractor for such purposes.
- 6.04** Contractor has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- 6.05** Contractor has given the Project Manager prompt written notice of all conflicts, errors, ambiguities or discrepancies that it has discovered in or among the Contract Documents and as-built and actual conditions and the written resolution thereof through Addenda issued by Project Manager is acceptable to Contractor.

ARTICLE 7 – MISCELLANEOUS

- 7.01** Terms and abbreviations used in this Agreement are defined in Document 00 7200 (General Conditions) and Section 01 4200 (References and Definitions) and will have the meaning indicated therein.

- 7.02** It is understood and agreed that in no instance are the persons signing this Agreement for or on behalf of City or acting as an employee, agent, or representative of City, liable on this Agreement or any of the Contract Documents, or upon any warranty of authority, or otherwise, and it is further understood and agreed that liability of City is limited and confined to such liability as authorized or imposed by the Contract Documents or applicable law.
- 7.03** In entering into a public works contract or a subcontract to supply goods, services or materials pursuant to a public works contract, Contractor or Subcontractor offers and agrees to assign to the awarding body all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. §15) or under the Cartwright Act (Chapter 2 (commencing with §16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time City tenders final payment to Contractor, without further acknowledgment by the parties.
- 7.04** Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are deemed included in the Contract Documents and on file at Owner's Office, and shall be made available to any interested party on request. Pursuant to California Labor Code §§ 1860 and 1861, in accordance with the provisions of Section 3700 of the Labor Code, every contractor will be required to secure the payment of compensation to his employees. Contractor represents that it is aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor shall comply with such provisions before commencing the performance of the Work of the Contract Documents.
- 7.05** No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].
- No contractor or subcontractor may be awarded a contract for public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5
- This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.
- 7.06** This Agreement and the Contract Documents shall be deemed to have been entered into in the County of Alameda, State of California, and governed in all respects by California law (excluding choice of law rules). The exclusive venue for all disputes or litigation hereunder shall be in the Superior Court for the County of Alameda.

IN WITNESS WHEREOF the parties have executed this Agreement in triplicate the day and year first above written.

CITY OF BERKELEY

[CONTRACTOR]

By: _____
City Manager

By: _____
(Signature)

(Print Name)

Its: _____
Title (If Corporation: Chairman, President
or Vice President)

Attest:
CITY OF BERKELEY

By: _____
(Signature)

City Clerk

Its: _____
Title (If Corporation: Secretary, Assistant
Secretary, Chief Financial Officer or
Assistant Treasurer)

(Print Name)

Pre-approved as to form:
CITY ATTORNEY
8/2016

END OF DOCUMENT

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DOCUMENT 00 5500

NOTICE TO PROCEED

Dated: _____, 20__

To: _____
(Contractor)

Address: _____

CONTRACT FOR: **City of Berkeley Corporation Yard Green Room and Building H Improvements AT 1326 Allston Way**

CONTRACT NO: THE ITEMS ABOVE IN RED DO NOT AUTO POPULATE FROM EXCEL

You are notified that the Contract Time under the above Contract will commence to run on _____ [20__]. On that date, you are to start performing your obligations with respect to Work at the Site under the Contract Documents. In accordance with Article 2 of Document 00 5200 (Agreement), the dates of Substantial Completion and Final Completion for the entire Work are _____, [20__] and _____, [20__], respectively.

Before you may start any Work at the Site, you must:

1. Submit certified Safety Program and related information
2. Submit copies of applicable permits
3. Submit approved fire protection plan, if applicable
4. [Other]

OWNER

By: _____

Its: _____

END OF DOCUMENT

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DOCUMENT 00 6113.13**CONSTRUCTION PERFORMANCE BOND**

KNOW ALL PERSONS BY THESE PRESENTS:

1.01 THAT WHEREAS, **City of Berkeley** ("City"), a public agency of the State of California, has awarded to **[Contractor]** as Principal, Specification Number **25-11706-C Reissue**, dated the ____ day of _____, 20__ (the "Contract"), titled Corporation Yard Green Room and Building H Improvements in the amount of **[\$[Contract Sum]**, which Contract is by this reference made a part hereof, for the work of the following Contract:

Building renovations, including roofing, flooring, finishes, restrooms, lighting, HVAC, electrical, plumbing, and ancillary work

1.02 AND WHEREAS, Principal is required to furnish a bond in connection with the Contract, guaranteeing the faithful performance thereof;

1.03 NOW, THEREFORE, we, the undersigned Principal and **(Name of Surety)** _____ as Surety are held and firmly bound unto City in the sum of 100% OF THE CONTRACT PRICE to be paid to City or its successors and assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

1.04 THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal, or its heirs, executors, administrators, successors, or assigns approved by City, shall promptly and faithfully perform the covenants, conditions, and agreements of the Contract during the original term and any extensions thereof as may be granted by City, with or without notice to Surety, and during the period of any guarantees or warranties required under the Contract, and shall also promptly and faithfully perform all the covenants, conditions, and agreements of any alteration of the Contract made as therein provided, notice of which alterations to Surety being hereby waived, on Principal's part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify, defend, protect, and hold harmless City as stipulated in the Contract, then this obligation shall become and be null and void; otherwise it shall be and remain in full force and effect.

1.05 No extension of time, change, alteration, modification, or addition to the Contract, or of the work required thereunder, or work or actions by City to mitigate the damages resulting from any breach in performance by Contractor, shall release or exonerate Surety on this bond or in any way affect the obligation of this bond; and Surety does hereby waive notice of any such extension of time, change, alteration, modification, or addition.

1.06 Whenever Principal shall be and declared by City in default under the Contract, Surety shall promptly remedy the default, or shall promptly, and in no event later than thirty (30) calendar days from notice:

- A. Undertake through its agents or independent contractors (but having qualifications and experience reasonably acceptable to City, to complete the Contract in accordance with its terms and conditions and to pay and perform all obligations of Principal under the Contract, including without limitation, all obligations with respect to warranties, guarantees, indemnities, and the payment of liquidated damages; or
- B. Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and, upon determination by City of the lowest responsible bidder, arrange for a contract between such bidder and City and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Sum, and to pay and perform all obligations of Principal under the Contract, including, without limitation, all

obligations with respect to warranties, guarantees, and the payment of liquidated damages; but, in any event, Surety's total obligations hereunder shall not exceed the amount set forth in the third paragraph hereof. The term "balance of the Contract Sum," as used in this paragraph, shall mean the total amount payable by City to the Principal under the Contract and any amendments thereto, less the amount paid by City to Principal.

- 1.07** Surety's obligations hereunder are independent of the obligations of any other surety for the performance of the Contract, and suit may be brought against Surety and such other sureties, jointly and severally, or against any one or more of them, or against less than all of them without impairing City's rights against the others.
- 1.08** Surety may not use Contractor to complete the Contract absent City's Consent. City shall have the right in its sole discretion to continue the work of the Contract, as necessary following a default and/or termination, as necessary to prevent risks of personal injury, property damage or delay to the Project.
- 1.09** No right of action shall accrue on this bond to or for the use of any person or corporation other than City or its successors or assigns.
- 1.10** Surety shall join in any proceedings brought under the Contract upon City's demand, and shall be bound by any judgment.
- 1.11** Correspondence or claims relating to this bond shall be sent to Surety at the address set forth below.

IN WITNESS WHEREOF, we have hereunto set our hands this _____ day of _____, 20____.

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title: _____

Address: _____

Company: _____ (Corp. Seal)

Signature: _____

Name and Title: _____

Address: _____

END OF DOCUMENT

DOCUMENT 00 6113.16

CONSTRUCTION LABOR AND MATERIAL PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS:

1.01 THAT WHEREAS, City of Berkeley ("City") has awarded to **[Contractor]** as Principal, Specification No. **25-11706-C Reissue** dated the _____ day of _____, 20__ (the "Contract"), titled Corporation Yard Green Room and Building H Improvements in the amount of **[\$Contract Sum]**, which Contract is by this reference made a part hereof, for the work of the following Contract:

Building renovations, including roofing, flooring, finishes, restrooms, lighting, HVAC, electrical, plumbing, and ancillary work

1.02 AND WHEREAS, Principal is required to furnish a bond in connection with the Contract to secure the payment of claims of laborers, mechanics, material suppliers, and other persons as provided by law;

1.03 NOW, THEREFORE, we, the undersigned Principal and **(Name of Surety)** _____, as Surety, are held and firmly bound unto City in the sum of 100% OF THE CONTRACT PRICE (\$ _____), for which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

1.04 THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal, or its executors, administrators, successors, or assigns approved by City, or its subcontractors shall fail to pay any of the persons named in California Civil Code §3181, or amounts due under the State of California Unemployment Insurance Code with respect to work or labor performed under the Contract, or for any amounts required to be deducted, withheld, and paid over to the State of California Employment Development Department from the wages of employees of Principal and subcontractors pursuant to Section 13020 of the State of California Unemployment Insurance Code with respect to such work and labor, that Surety will pay for the same in an amount not exceeding the sum specified in this bond, plus reasonable attorneys' fees, otherwise the above obligation shall become and be null and void.

1.05 This bond shall inure to the benefit of any of the persons named in California Civil Code §3181, as to give a right of action to such persons or their assigns in any suit brought upon this bond. The intent of this bond is to comply with the California Mechanic's Lien Law.

1.06 Surety, for value received, hereby expressly agrees that no extension of time, change, modification, alteration, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder, shall in any way affect the obligation of this bond; and it does hereby waive notice of any such extension of time, change, modification, alteration, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder.

1.07 Surety's obligations hereunder are independent of the obligations of any other surety for the payment of claims of laborers, mechanics, material suppliers, and other persons in connection with Contract; and suit may be brought against Surety and such other sureties, jointly and severally, or against any one or more of them, or against less than all of them without impairing Owner's rights against the other.

1.08 Correspondence or claims relating to this bond shall be sent to Surety at the address set forth below.

IN WITNESS WHEREOF, we have hereunto set our hands this ____ day of _____, 20____.

CONTRACTOR AS PRINCIPAL

SURETY

Company: (Corp. Seal)

Company: (Corp. Seal)

Signature

Signature

Name

Name

Title

Title

Street Address

Street Address

City, State, Zip Code

City, State, Zip Code

END OF DOCUMENT

DOCUMENT 00 6290**ESCROW AGREEMENT FOR SECURITY DEPOSIT IN LIEU OF RETENTION**

California Public Contract Code §22300

THIS ESCROW AGREEMENT ("Escrow Agreement") is made and entered into this ____ day of _____, 20 ____, by and between City of Berkeley ("City"), whose address is 2180 Milvia Street, Berkeley, California 94704, **[Contractor]** ("Contractor"), whose place of business is located at **[Contractor's Address]** and _____ (**Name**), as escrow agent **OR [] (Name of Bank)** _____, a state or federally chartered bank in the State of California, whose place of business is located at _____ ("Escrow Agent").

For the consideration hereinafter set forth, City, Contractor and Escrow Agent agree as follows:

1. Pursuant to California Public Contract Code §22300, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by City pursuant to Contract Number _____ entered into between City and Contractor for Corporation Yard Green Room and Building H Improvements located at **1326 Allston Way** in the amount of **\$(Contract Sum)** dated _____, 20 ____ (the "Contract"). Alternatively, on written request of Contractor, City shall make payments of the retention earnings directly to Escrow Agent. When Contractor deposits the securities as a substitute for Contract earnings, Escrow Agent shall notify City within ten calendar days of the deposit. The market value of the securities at the time of substitution shall be at least equal to the cash amount then required to be withheld as retention under terms of Contract between Owner and Contractor. Securities shall be held in name of _____, and shall designate Contractor as the beneficial owner.
2. City shall make progress payments to Contractor for those funds which otherwise would be withheld from progress payments pursuant to Contract provisions, provided that Escrow Agent holds securities in form and amount specified in Paragraph 1 of this Document 00 6290.
3. When City makes payment(s) of retention earned directly to Escrow Agent, Escrow Agent shall hold said payment(s) for the benefit of Contractor until the time that the escrow created under this Escrow Agreement is terminated. Contractor may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when City pays Escrow Agent directly.
4. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account, and all expenses of City. Such expenses and payment terms shall be determined by Owner, Contractor, and Escrow Agent.
5. Interest earned on securities or money market accounts held in escrow and all interest earned on that interest shall be for sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to City.
6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from City to Escrow Agent that City consents to withdrawal of amount sought to be withdrawn by Contractor.
7. City shall have the right to draw upon the securities in event of default by Contractor. Upon seven (7) calendar days written notice to Escrow Agent from City of the default, Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by City.
8. Upon receipt of written notification from City certifying that the Contract is final and complete, and that Contractor has complied with all requirements and procedures applicable to the Contract,

Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

- 9. Escrow Agent shall rely on written notifications from City and Contractor pursuant to Paragraphs 5 through 8, inclusive, of this Document 00 6290 and City and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of securities and interest as set forth.
- 10. Names of persons who are authorized to give written notice or to receive written notice on behalf of City and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

ON BEHALF OF CITY:

ON BEHALF OF CONTRACTOR:

Title

Name

Signature

Address

City/State/Zip Code

Title

Name

Signature

Address

City/State/Zip Code

ON BEHALF OF ESCROW AGENT:

Title

Name

Signature

Address

City/State/Zip Code

IN WITNESS WHEREOF, the parties have executed this Escrow Agreement by their proper officers on the date first set forth above.

CITY

CONTRACTOR

Title

Name

Signature

Title

Name

Signature

ATTEST

Signature

Print Name

City Clerk

ESCROW AGENT

Title

Print Name

Signature

Pre-approved as to form:
CITY ATTORNEY
8/2016

At the time the Escrow Account is opened, City and Contractor shall deliver to Escrow Agent a fully executed counterpart of this Document 00 6290.

END OF DOCUMENT

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DOCUMENT 00 6325

SUBSTITUTION REQUEST FORM

To: [_____, Project Manager, City of Berkeley]
 [(____) ____-____]

PROJECT:	Contractor:
City's Specification No. :	

Substitution Request By:	Firm:
--------------------------	-------

Transmittal Record	Attn:	Firm:	Date Sent:	Date Rec'd:	Date Due:
Contractor to City					
Contractor to Architect					
City / Architect to Consultant					
Architect to City Representative					
City Representative to Contractor					

We hereby submit for your consideration the following product instead of the specified item for the Project:

Section / Drawing	Article	Specified Item
Proposed Substitution:		

We have (a) attached manufacturer's literature, including complete technical data and laboratory test results, if applicable, (b) attached an explanation of why proposed substitution is a true equivalent to specified item, (c) included complete information on changes to Contract Documents that the proposed substitution will require for its proper installation, and (d) filled in the blanks below:

Contractor to complete questions that follow and certifies to the accuracy of all answers:

A.	Does the substitution affect dimensions shown on Drawings? Yes ___ / No ___. If No, please explain proposed mitigation and why substitution is equivalent to originally specified item:
B.	Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution? Yes ___ / No ___. If No, please state reasons explain why substitution is equivalent to originally specified item:
C.	What effect does the substitution have on other trades? No effect: ___ / Some effect ___. If substitution will affect other trades, please explain the effect and why substitution is equivalent to originally specified item:
D.	Will substitution cause change to Project Schedule, or to critical delivery dates? Add? Shorten? If the substitution will add to schedule dates or affect critical activities, please explain why substitution is equivalent to originally specified item:
E.	Please describe differences between proposed substitution and specified item? Please explain and identify any and all differences, and please explain why substitution is equivalent to originally specified item:
F.	What is the Cost Differential to Contractor in original specified item and proposed substitution including all mark-ups? [If substitution requested during bid period, skip this question.]
G.	Are Manufacturer's guarantees for the proposed item the same as for item specified? Yes ____; No _____. If No, please explain why substitution is equivalent to originally specified item:

H.	Contractor accepts full responsibility for delays caused by redesign of other items of the Work necessitated by substitution? Yes ___ / No ___. If No, please state reasons and explain why substitution is equivalent to originally specified item:
I.	Contractor states that the function, appearance and quality are equivalent or superior to the specified item? Yes ___ / No ___. If No, please explain why substitution is equivalent to originally specified item:

We certify that the function, appearance, and quality of the proposed substitution are equivalent or superior to those of the specified item, except as we may specifically state otherwise in this request.

Submitted by: _____ Signature: _____

Firm: _____ Date: _____

Address: _____ Phone/ Fax: _____

Remarks: _____

<p>Consultant Response:</p> <p><input type="radio"/> Accepted</p> <p><input type="radio"/> Not Accepted</p> <p><input type="radio"/> Accepted As Noted</p> <p><input type="radio"/> Received Too Late</p>
--

<p>City Representative Response:</p> <p><input type="radio"/> Accepted</p> <p><input type="radio"/> Not Accepted</p> <p><input type="radio"/> Accepted As Noted</p> <p><input type="radio"/> Received Too Late</p>

Remarks: _____

Remarks: _____

By: _____

By: _____

END OF DOCUMENT

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DOCUMENT 00 6530

AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS

[Public Contract Code § 7100]

THIS AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS (“Agreement and Release”), made and entered into this _____ day of _____, 20____, by and between City of Berkeley (“City”), and **[Contractor]**(“Contractor”), whose place of business is at **[Contractor’s Address]**.

RECITALS

- A. City and Contractor entered into Contract Number **XXXXXX** (the “Contract”) for construction of City **Corporation Yard Green Room and Building H Improvements** located at **1326 Allston Way, California**.
- B. The Work under the Contract has been completed.

AGREEMENT

NOW THEREFORE, it is mutually agreed between City and Contractor as follows:

1. Contractor will not be assessed liquidated damages except as detailed below:

Original Contract Sum	\$	
Modified Contract Sum	\$	
Payment to Date	\$	
Liquidated Damages	\$	
Payment Due Contractor	\$	
2. Subject to the provisions of this Agreement and Release, Owner will forthwith pay to Contractor the sum of [X Dollars and X Cents (\$\$[Contract Sum])] under the Contract, less any amounts withheld under the Contract or represented by any Notice to Withhold Funds on file with City as of the date of such payment.
3. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against City arising from the Contract, except for the claims described in Paragraph 4 of this Document 00 6530. It is the intention of the parties in executing this Agreement and Release that this Agreement and Release shall be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against City, and all if its agents, employees, consultants, inspectors, representatives, assignees and transferees, except for the Disputed Claims set forth in Paragraph 4 of this Document 00 6530. Nothing in this Agreement and Release shall limit or modify Contractor’s continuing obligations described in Paragraph 6 of this Document 00 6530.
4. The following claims submitted under Document 00 7200 (General Conditions), Article 12, are disputed (hereinafter, the “Disputed Claims”) and are specifically excluded from the operation of this Agreement and Release.

[Insert information in Chart below, affix attachment if necessary]

CLAIM NO.	DATE SUBMITTED	DESCRIPTION OF CLAIM	AMOUNT OF CLAIM

5. Consistent with California Public Contract Code §7100, Contractor hereby agrees that, in consideration of the payment set forth in Paragraph 2 of this Document 00 6530, Contractor hereby releases and forever discharges City, and all of its agents, employees, consultants, inspectors, assignees and transferees from any and all liability, claims, demands, actions or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract.
6. Guarantees and warranties for the Work, and any other continuing obligation of Contractor, shall remain in full force and effect as specified in the Contract Documents.
7. Contractor shall immediately defend, indemnify and hold harmless City, any of the City's Representatives, Project Manager, and all of their agents, employees, consultants, inspectors, assignees and transferees, from any and all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities that may be asserted against them by any of Contractor's suppliers and/or Subcontractors of any tier and/or any suppliers to them for any and all labor, materials, supplies and equipment used, or contemplated to be used in the performance of the Contract, except for the Disputed Claims set forth in Paragraph 4 of this Document 00 6530.
8. Contractor hereby waives the provisions of California Civil Code §1542, which provide as follows:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER, MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.
9. The provisions of this Agreement and Release are contractual in nature and not mere recitals and shall be considered independent and severable, and if any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal or other law, ruling, or regulation, then such provision, or part thereof shall remain in force and effect only to the extent permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.
10. Contractor represents and warrants that it is the true and lawful owner of all claims and other matters released pursuant to this Agreement and Release, and that it has full right, title and authority to enter into this instrument. Each party represents and warrants that it has been represented by counsel of its own choosing in connection with this Agreement and Release.
11. All rights of City shall survive completion of the Work or termination of the Contract, and execution of this Agreement and Release.

***** CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING *****

CITY

By: _____
Signature

Name: _____
Print

Its: _____
Title

ATTEST:

Title

Print

[CONTRACTOR]

By: _____
Signature

Name: _____
Print

Its: _____
Title

[CONTRACTOR]

By: _____
Signature

Name: _____
Print

Its: _____
Title

Pre-approved as to form:
CITY ATTORNEY
8/2016

END OF DOCUMENT

DOCUMENT 00 6536**GUARANTY**

TO: The City of Berkeley ("City"), for construction of Corporation Yard Green Room and Building H Improvements located at 1326 Allston Way, California.

The undersigned guarantees all construction performed on this Project and also guarantees all material and equipment incorporated therein.

Contractor hereby grants to City for a period of one year following the date of Final Acceptance of the Work completed, or such longer period specified in the Contract Documents, its unconditional warranty of the quality and adequacy of all of the Work including, without limitation, all labor, materials and equipment provided by Contractor and its Subcontractors of all tiers in connection with the Work.

Neither final payment nor use nor occupancy of the Work performed by the Contractor shall constitute an acceptance of Work not done in accordance with this Guaranty or relieve Contractor of liability in respect to any express warranties or responsibilities for faulty materials or workmanship. Contractor shall remedy any defects in the Work and pay for any damage resulting therefrom, which shall appear within one year, or longer if specified, from the date of Final Acceptance of the Work completed.

If within one year after the date of Final Acceptance of the Work completed, or such longer period of time as may be prescribed by laws or regulations, or by the terms of Contract Documents, any Work is found to be Defective, Contractor shall promptly, without cost to City and in accordance with City's written instructions, correct such Defective Work. Contractor shall remove any Defective Work rejected by City and replace it with Work that is not Defective, and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Contractor fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, City may have the Defective Work corrected or the rejected Work removed and replaced. Contractor shall pay for all claims, costs, losses and damages caused by or resulting from such removal and replacement. Where Contractor fails to correct Defective Work, or defects are discovered outside the correction period, City shall have all rights and remedies granted by law.

Inspection of the Work shall not relieve Contractor of any of its obligations under the Contract Documents. Even though equipment, materials, or Work required to be provided under the Contract Documents have been inspected, accepted, and estimated for payment, Contractor shall, at its own expense, replace or repair any such equipment, material, or Work found to be Defective or otherwise not to comply with the requirements of the Contract Documents up to the end of the guaranty period.

All abbreviations and definitions of terms used in this Agreement shall have the meanings set forth in the Contract Documents.

The foregoing Guaranty is in addition to any other warranties of Contractor contained in the Contract Documents, and not in lieu of, any and all other liability imposed on Contractor under the Contract Documents and at law with respect to Contractor's duties, obligations, and performance under the Contract Documents. In the event of any conflict or inconsistency between the terms of this Guaranty and any warranty or obligation of the Contractor under the Contract Documents or at law, such inconsistency or conflict shall be resolved in favor of the higher level of obligation of the Contractor.

Date: _____, 20____

Contractor's name

By: _____
Signature

Print Name

Title

Street Address

City, State, Zip code

END OF DOCUMENT

DOCUMENT 00 6580**CITY OF BERKELEY CONTRACTING POLICIES**

Contractor shall comply with the City of Berkeley's adopted employment policies applying to City construction projects as described in Document 00 7317. The following certifications/forms shall be submitted in accordance with Document 00 2113 Instructions to Bidders:

- Memorandum of Understanding
- Workforce Composition Form
- Agreement for Change in Subcontractors
- Nuclear Free Zone Disclosure Form
- Oppressive States Compliance Statement
- Sanctuary City Compliance Certification
- Hardwood Disclosure Form
- First Source Construction Agreement (for projects between \$100,000 and \$500,000)
- Not applicable to this project.
- Community Workforce Agreement, Agreement to be Bound (for projects over \$500,000)
- Right to Audit Form
- Certification Of Compliance With Equal Benefits Ordinance
- Taxpayer Identification Report
- Contractor's License
- City of Berkeley Business License

**CITY OF BERKELEY
MEMORANDUM OF UNDERSTANDING
(MOU)**

1. The Contractor (and all Subcontractors) agree not to discriminate pursuant to City Ordinance No. 5876.
2. The Contractor agrees that he/she is also responsible for his/her Subcontractors' compliance with City of Berkeley Ordinance No. 5876.
3. For contracts over \$100,000, the Contractor agrees to comply with Ordinance No. 5876 as applied to the First Source Program (see Section 8 of Ordinance 5876).

The Contractor agrees to submit periodic employment and wage reports to the City's Contract Compliance Officer upon reasonable request.

Contractor

City of Berkeley Contracts Compliance Officer
Or his/her designee

Date

Date

**CITY OF BERKELEY
WORKFORCE COMPOSITION FORM FOR ALL CONSTRUCTION CONTRACTS**

This form is to be completed and submitted prior to the Contract Compliance Conference. The Contractor and all Subcontractors who will do work valued at \$3,000 or more are required to submit this form. Weekly payroll reports will be compared to this listing to monitor for compliance. A payroll printout or other listing of employees providing the same information will be accepted.

Name of Contractor/Subcontractor: _____

Project: _____

Name		Race*	Sex**	Trade/Craft	Basic Hourly Rate	Hire Date	Employees to be used on this job

* A=Asian or Pacific Islander **M = Male
 AI=American Indian **F = Female
 B=Afro American
 C=Caucasian
 H=Hispanic (Mexican, Puerto Rican,
 Spanish, Cuban, Chicano, Central
 or South American)
 8/91

Signature: _____ Date: _____
 Contractor/Subcontractor

Verified By: _____ Date: _____
 City of Berkeley Contracts Compliance Officer
 or his/her designee

**CITY OF BERKELEY
AGREEMENT FOR CHANGE IN SUB-CONTRACTORS**

I agree to use the Subcontractor(s) listed in the signed contract with the City of Berkeley. If it should become necessary to change Subcontractors, I will notify the Capital Projects Manager by completing the following information:

Current Subcontractor(s)	Alternate Subcontractors	Reason for Change	Date

Signed by:

Verified by:

Prime Contractor

Subcontractor

City of Berkeley Contracts Compliance Officer
Or his/her designee

Date: _____

Date: _____

Date: _____

**CITY OF BERKELEY
NUCLEAR FREE ZONE DISCLOSURE FORM**

I (we) certify that:

1. I am (we are) fully cognizant of any and all contracts held, products made or otherwise handled by this business entity, and of any such that are anticipated to be entered into, produced or handled for the duration of its contract(s) with the City of Berkeley. (To this end, this disclosure form may be signed by more than one individual, if a description of which type of contracts each individual is cognizant is attached.)

2. I (we) understand that Section 12.90.070 of the Nuclear Free Berkeley Act (Berkeley Municipal Code Ch. 12.90; Ordinance No. 5784-N.S.) prohibits the City of Berkeley from contracting with any person or business that knowingly engages in work for nuclear weapons.

3. I (we) understand the meaning of the following terms as set forth in Berkeley Municipal Code section 12.90.130:

"Work for nuclear weapons" is any work the purpose of which is the development, testing, production, maintenance or storage of nuclear weapons or the components of nuclear weapons; or any secret or classified research or evaluation of nuclear weapons; or any operation, management or administration of such work.

"Nuclear weapon" is any device, the intended explosion of which results from the energy released by reactions involving atomic nuclei, either fission or fusion or both. This definition of nuclear weapons includes the means of transporting, guiding, propelling or triggering the weapon if and only if such means is destroyed or rendered useless in the normal propelling, triggering, or detonation of the weapon.

"Component of a nuclear weapon" is any device, radioactive or non-radioactive, the primary intended function of which is to contribute to the operation of a nuclear weapon (or be a part of a nuclear weapon).

4. Neither this business entity nor its parent nor any of its subsidiaries engages in work for nuclear weapons or anticipates entering into such work for the duration of its contract(s) with the City of Berkeley.

I (we) declare under penalty of perjury of the laws of the State of California that the foregoing is true and correct.

Signed: _____

Date: _____

Printed Name and Title(s): _____

Company: _____

CITY OF BERKELEY

Oppressive States Compliance Statement for Personal Services

The undersigned, an authorized agent of _____ (hereafter "Vendor"), has had an opportunity to review the requirements of Berkeley City Council Resolution Nos. 59,853-N.S., 60,382-N.S., and 70,606-N.S., (hereafter "Resolutions"). Vendor understands and agrees that the City may choose with whom it will maintain business relations and may refrain from contracting with those Business Entities which maintain business relationships with morally repugnant regimes. Vendor understands the meaning of the following terms used in the Resolutions:

"Business Entity" means "any individual, firm, partnership, corporation, association or any other commercial organization, including parent-entities and wholly-owned subsidiaries" (to the extent that their operations are related to the purpose of the contract with the City).

"Oppressive State" means: **Tibet Autonomous Region, the provinces of Aho, Kham, and U-Tsang; and Burma (Myanmar)**

"Personal Services" means "the performance of any work or labor and shall also include acting as an independent contractor or providing any consulting advice or assistance, or otherwise acting as an agent pursuant to a contractual relationship."

Contractor understands that it is not eligible to receive or retain a City contract if at the time the contract is executed, or at any time during the term of the contract it provides Personal Services to:

- a. The governing regime in any Oppressive State.
- b. Any business or corporation organized under the authority of the governing regime of any Oppressive State.
- c. Any person for the express purpose of assisting in business operations or trading with any public or private entity located in any Oppressive State.

Vendor further understands and agrees that Vendor's failure to comply with the Resolution shall constitute a default of the contract and the City Manager may terminate the contract and bar Vendor from bidding on future contracts with the City for five (5) years from the effective date of the contract termination.

The undersigned is familiar with, or has made a reasonable effort to become familiar with, Vendor's business structure and the geographic extent of its operations. By executing the Statement, Vendor certifies that it complies with the requirements of the Resolution and that if any time during the term of the contract it ceases to comply, Vendor will promptly notify the City Manager in writing.

Based on the foregoing, the undersigned declares under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Printed Name: _____ Title: _____

Signature: _____ Date: _____

Business Entity: _____

I am unable to execute this Statement; however, Vendor is exempt under Section VII of the Resolution. I have attached a separate statement explaining the reason(s) Vendor cannot comply and the basis for any requested exemption.

Signature: _____ Date: _____

Contract Description/Specification No.: _____

ATTACHMENT D

CITY OF BERKELEY
Sanctuary City Compliance Statement

The undersigned, an authorized agent of _____ (hereafter "Contractor"), has had an opportunity to review the requirements of Berkeley Code Chapter 13.105 (hereafter "Sanctuary City Contracting Ordinance" or "SCCO"). Contractor understands and agrees that the City may choose with whom it will maintain business relations and may refrain from contracting with any person or entity that provides Data Broker or Extreme Vetting services to the U.S. Immigration and Customs Enforcement Division of the United States Department of Homeland Security ("ICE"). Contractor understands the meaning of the following terms used in the SCCO:

- a. "Data Broker" means either of the following:
 - i. The collection of information, including personal information about consumers, from a wide variety of sources for the purposes of reselling such information to their customers, which include both private-sector business and government agencies;
 - ii. The aggregation of data that was collected for another purpose from that for which it is ultimately used.
- b. "Extreme Vetting" means data mining, threat modeling, predictive risk analysis, or other similar services." Extreme Vetting does not include:
 - i. The City's computer-network health and performance tools;
 - ii. Cybersecurity capabilities, technologies and systems used by the City of Berkeley Department of Information Technology to predict, monitor for, prevent, and protect technology infrastructure and systems owned and operated by the City of Berkeley from potential cybersecurity events and cyber-forensic based investigations and prosecutions of illegal computer based activity.

Contractor understands that it is not eligible to receive or retain a City contract if at the time the Contract is executed, or at any time during the term of the Contract, it provides Data Broker or Extreme Vetting services to ICE.

Contractor further understands and agrees that Contractor 's failure to comply with the SCCO shall constitute a material default of the Contract and the City Manager may terminate the Contract and bar Contractor from bidding on future contracts with the City for five (5) years from the effective date of the contract termination.

By executing this Statement, Contractor certifies that it complies with the requirements of the SCCO and that if any time during the term of the Contract it ceases to comply, Contractor will promptly notify the City Manager in writing. Any person or entity who knowingly or willingly supplies false information in violation of the SCCO shall be guilty of a misdemeanor and up to a \$1,000 fine.

Based on the foregoing, the undersigned declares under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed this _____ day of _____, 20__, at _____, California.

Printed Name: _____ Title: _____

Signed: _____ Date: _____

Business Entity: _____

SCCO CompStmnt (Oct2019)

CITY OF BERKELEY
HARDWOOD DISCLOSURE FORM
For use by vendors on contracts utilizing lumber

1. I understand that on December 12, 1995, the City Council directed staff not to purchase lumber from companies that purchase or sell wood or paper products that come from tropical rainforests. I understand that wood species with tropical origins include, but are not limited to: Apitong, Banak, Bocote, Bubinga, Cocobolo, Cordia, Ebony, Goncalo alves, Greenheart, Iroko, Jelutang, Koa, Luauan, Mahogany, Meranti, Padauk, Purpleheart, Ramin, Rosewood, Satinwood, Teak, Virola, Wenge, and Zebrawood.

2. I am knowledgeable about the wood and paper products purchased and sold by this company.

3. This company does not currently purchase or sell wood or paper products having their origins in tropical rainforests. In addition, this company will not, for the duration of its contract with the City of Berkeley, purchase or sell wood or paper products having their origins in tropical rainforests.

I declare under penalty of perjury of the laws of the State of California that the foregoing is true and correct.

Signed: _____

Date: _____

Printed Name & Title: _____

Company: _____

I am unable to sign this disclosure form for the following reason(s):

FIRST SOURCE CONSTRUCTION AGREEMENT**EXHIBIT "A"**

First Source Construction Agreement

I certify that:

- I. I am authorized to enter into this agreement on behalf of the company whose name appears below ("Contractor").
- II. Contractor understands and agrees to comply with the City of Berkeley First Source Construction Agreement.
- III. **I choose Method One: check here _____**
 - A. Contractor understands that selecting Method One agreement with the City of Berkeley means that Contractor agrees as follows:
 1. To utilize the First Source Program Construction Employment Program as the first place for recruitment and referral of applicants for new and replacement workers.
 2. To allow the First Source Program a minimum of seventy-two (72) hours to refer applicants to Contractors. (Contractor may apply to the City of Berkeley for a waiver of the seventy-two hour requirement for an emergency situation.)
 3. To employ qualified applicants referred by the First Source Program.
 4. To fully document the reason(s) for not hiring persons referred by the First Source Program.
 5. To provide to the First Source Program, upon request, information on the employment status of First Source Program placements, and reason for separation if employee is terminated.
 - B. Should the First Source Program be unable to provide the employees needed, Contractor or subcontractor is relieved of its obligation to achieve the goals of the First Source Program.
 1. No documentation of "good Faith Effort Steps" would be required of Contractor and subcontractors
 2. No penalty would be assessed.
 - C. Contractor must go back to the First Source Program whenever its employment needs increase, to comply with the First Source Program.
 - D. Should Contractor or a listed subcontractor fail to comply with the First Source Program, Contractor shall be liable for liquidated damages in the amount of \$1,000 or 1% of the contract amount for each day of non-compliance. In addition, Contractor or listed subcontractor may be deemed a non-responsible bidder in connection with future City of Berkeley contracts.

IV. I choose Method Two: check here _____

- A. Should the contractor choose Method Two, Contractor can use any means of hiring Berkeley residents to achieve the goal. This also can include using union hiring halls requesting in writing for Berkeley residents. A copy must be sent to the First Source Program.
- B. Should Contractor or subcontractor fail to achieve the goals at any time during the course of this project, Contractor or listed subcontractor will be required to document compliance with each of the "good Faith Effort Steps" listed in the First Source Program description document.
- C. Should Contractor or a listed subcontractor fail to comply with the First Source Program, Contractor shall be liable for liquidated damages in the amount of \$1,000 or 1% of the contract amount for each day of non-compliance. In addition, Contractor or listed subcontractor may be deemed a non-responsible bidder in connection with future City of Berkeley contracts.

Company Name

Owner/Authorized Representative Signature

Address

Printed Name of Owner / Authorized Representative

Telephone Number

AGREEMENT TO BE BOUND

The undersigned, as a Contractor or Subcontractor ("Contractor") on a City Project ("Project"), for and in consideration of the award to it of a contract to perform work on said Project, and in further consideration of the mutual promises made in the Project's Community Workforce Agreement ("Agreement"), a copy which was received and is acknowledged, hereby:

1. Accepts and agrees to be bound by the terms and conditions of the Agreement, together with any and all amendments and supplements now existing or which are later made to said Agreement.
2. Certifies that it has no commitments or agreements which would preclude its full and complete compliance with the terms and conditions of said Agreement;
3. Agrees to secure from any Contractor (as defined in said Agreement) which is or becomes a subcontractor (or any tier) to it, and from any successors, a duly executed Agreement to be Bound in form identical to this document.
4. Contractor agrees that it shall be bound by all applicable trust agreements and plans for the provision of such fringe benefits as accrue to the direct benefit of the construction persons, including Health and Welfare, Pension, Training, Vacation, and/or other direct benefits provided pursuant to the appropriate craft agreement contained in Schedule "A" of Agreement.

Date: _____

Company Name: _____

Name of Prime Contractor or Higher Level Subcontractor:

Name of Project: _____

Signature: _____

Print Name: _____

Title: _____

Mailing Address: _____

Email Address: _____

Contractor's License #: _____

Motor Carrier Permit (CA) #: _____

CITY OF BERKELEY RIGHT TO AUDIT FORM

The Contractor agrees that pursuant to Section 61 of the Berkeley City Charter, the City Auditor's office may conduct an audit of Contractor's financial, performance and compliance records maintained in connection with the operations and services performed under this contract.

In the event of such audit, Contractor agrees to provide the Auditor with reasonable access to Contractor's employees and make all such financial, performance and compliance records available to the Auditor's office. City agrees to provide Contractor an opportunity to discuss and respond to any findings before a final audit report is filed.

Contractor's signature _____ Date: _____

Print Name and Title: _____

Company: _____

To be completed by
Contractor/Vendor

**Form EBO-1
CITY OF BERKELEY**



CERTIFICATION OF COMPLIANCE WITH EQUAL BENEFITS ORDINANCE

If you are a **contractor**, return this form to the originating department/project manager. If you are a **vendor** (supplier of goods), return this form to the Purchasing Division of the Finance Dept.

SECTION 1. CONTRACTOR/VENDOR INFORMATION

Name:		Vendor No.:	
Address:	City:	State:	ZIP:
Contact Person:		Telephone:	
E-mail Address:		Fax No.:	

SECTION 2. COMPLIANCE QUESTIONS

- A. The EBO is inapplicable to this contract because the contractor/vendor has no employees.
 Yes No (If "Yes," proceed to Section 5; if "No," continue to the next question.)
- B. Does your company provide (or make available at the employees' expense) any employee benefits?
 Yes No
 If "Yes," continue to Question C.
 If "No," proceed to Section 5. (The EBO is not applicable to you.)
- C. Does your company provide (or make available at the employees' expense) any benefits to the spouse of an employee? Yes No
- D. Does your company provide (or make available at the employees' expense) any benefits to the domestic partner of an employee? Yes No
If you answered "No" to both Questions C and D, proceed to Section 5. (The EBO is not applicable to this contract.)
If you answered "Yes" to both Questions C and D, please continue to Question E.
If you answered "Yes" to Question C and "No" to Question D, please continue to Section 3.
- E. Are the benefits that are available to the spouse of an employee identical to the benefits that are available to the domestic partner of the employee? Yes No
If you answered "Yes," proceed to Section 4. (You are in compliance with the EBO.)
If you answered "No," continue to Section 3.

SECTION 3. PROVISIONAL COMPLIANCE

- A. Contractor/vendor is not in compliance with the EBO now but will comply by the following date:
 - By the first effective date after the first open enrollment process following the contract start date, not to exceed two years, if the Contractor submits evidence of taking reasonable measures to comply with the EBO; or
 - At such time that administrative steps can be taken to incorporate nondiscrimination in benefits in the Contractor's infrastructure, not to exceed three months; or
 - Upon expiration of the contractor's current collective bargaining agreement(s).
- B. If you have taken all reasonable measures to comply with the EBO but are unable to do so, do you agree to provide employees with a cash equivalent?* Yes No

* The cash equivalent is the amount of money your company pays for spousal benefits that are unavailable for domestic partners.

SECTION 4. REQUIRED DOCUMENTATION

At time of issuance of purchase order or contract award, you may be required by the City to provide documentation (copy of employee handbook, eligibility statement from your plans, insurance provider statements, etc.) to verify that you do not discriminate in the provision of benefits.

SECTION 5. CERTIFICATION

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I am authorized to bind this entity contractually. By signing this certification, I further agree to comply with all additional obligations of the Equal Benefits Ordinance that are set forth in the Berkeley Municipal Code and in the terms of the contract or purchase order with the City.

Executed this _____ day of _____, in the year _____, at _____, _____
(City) (State)

Name (please print)

Signature

Title

Federal ID or Social Security Number

FOR CITY OF BERKELEY USE ONLY	
<input type="checkbox"/> Non-Compliant (The City may not do business with this contractor/vendor)	
<input type="checkbox"/> One-Person Contractor/Vendor	<input type="checkbox"/> Full Compliance
<input type="checkbox"/> Provisional Compliance Category, Full Compliance by Date: _____	
Staff Name(<i>Sign and Print</i>): _____	Date: _____

TAXPAYER IDENTIFICATION REPORT

NAME/COMPANY'S NAME: _____

MAILING ADDRESS: _____

SOCIAL SECURITY NO.: _____

OR

EMPLOYER IDENTIFICATION NO.: _____

My Company is a Corporation []

My Company is not a Corporation []

I certify that the above information is true and correct:

(Signature)

(Title)

The Tax Equity and Fiscal Responsibility Act of 1982 (Public Law 97-248) requires the above reporting information be furnished to the City.

Persons who do not furnish their tax information numbers become subject to backup withholding by the City at a rate of 20% from each disbursement made to the recipient.

END OF DOCUMENT

DOCUMENT 007200

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GENERAL CONDITIONS

ARTICLE 1 – INTERPRETATION OF CONTRACT DOCUMENTS

1.01 Interpretation Of Documents

- A. Contract Documents are complementary; what is called for by one is as binding as if called for by all.
- B. Individual Contract Documents subdivide at first level into Articles, and then into paragraphs.

1.02 Order Of Precedence Of Documents

- A. In the case of discrepancy or ambiguity in the Contract Documents, the following order of precedence shall prevail:
 - 1. Modifications in inverse chronological order (i.e., most recent first), and in the same order as specific portions they are modifying;
 - 2. Agreement Forms (Document 00 5200), and terms and conditions referenced therein;
 - 3. Supplementary General Conditions (Document 00 7201 et seq), if included;
 - 4. General Conditions (Document 00 7200);
 - 5. Division 1 Specifications, if included;
 - 6. Drawings and Technical Specifications (Division 2 and above);
 - 7. Written numbers over figures, unless obviously incorrect;
 - 8. Figured dimensions over scaled dimensions;
 - 9. Large-scale Drawings over small-scale Drawings.
- B. Any conflict between Drawings and Technical Specifications (Division 2 and above) will be resolved in favor of the document of the latest date (i.e., the most recent document), and if the dates are the same or not determinable, then in favor of Specifications.
- C. Any conflict between a bill or list of materials shown in the Contract Documents and the actual quantities required to complete Work required by Contract Documents, will be resolved in favor of the actual quantities.
- D. All Technical Specifications included in the Project manual shall be included within the Contract Documents unless identified otherwise.

ARTICLE 2 – PRE-BID INVESTIGATIONS

2.01 Pre-Bid Investigations Required

- A. Prior to and as a condition of submitting a Bid and executing Document 00 5200 (Agreement), Contractor shall make reasonable efforts to investigate fully the Work of the Contract. Contractor shall visit the Site, examine thoroughly and understand fully the nature and extent of the Contract Documents, Work, Site, locality, actual conditions and as-built conditions.
- B. Contractor's investigation shall include, without limitation, requesting and thoroughly examining of all reports of exploration and tests of subsurface conditions, as-built drawings, drawings, product specification(s) or reports, made available by City for contracting purposes or during Contractor's pre-bid investigations, of existing above ground and (to the extent applicable) below ground conditions (together, "Existing Conditions Data"), including, as applicable, Underground Facilities, geotechnical data, as-built data, utility surveys, record documents of all types, hazardous materials surveys, or similar materials which may appear or be referenced in the Project Manual or the in the Contract Documents, and all local conditions, and federal, state and local laws and regulations that in any manner may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Contractor and safety precautions and programs incident thereto.
- C. Contractor's investigations shall consider fully the fact that Existing Conditions Data is in many cases based on information furnished to City by others (e.g., the prior owner or builders), and that due to their age or their chain of custody since preparation, may not meet current industry standards for accuracy. Contractor shall also: (i.) provide City with prompt written notice of all

conflicts, errors, ambiguities, or discrepancies of any type, that it discovered in or among the Contract Documents and the Existing Conditions Data, and (ii.) subject to City's approval, conduct any such additional or supplementary examinations, investigations, explorations, tests, studies and data compilations, concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site or otherwise, which Contractor may deem necessary in order to perform and furnish the Work in accordance with the terms and conditions of Contract Documents.

- D. During performance of the Contract, Contractor will be charged with knowledge of all information that it should have learned in performing these pre-bid investigations and other obligations, and shall not be entitled to Change Orders (time or compensation) due to any information, error, inconsistency, omission, or conditions that Contractor should have known as a part of this Work. Contractor shall be responsible for the resultant losses, including, without limitation, the cost of correcting Defective Work.

2.02 Limited Reliance Permitted On City's Existing Conditions Data

- A. Regarding aboveground and as-built conditions shown on the Contract Documents or supplied by City, such information has been compiled in good faith, however, City does not expressly or impliedly warrant or represent that such information is correctly shown or indicated, or otherwise complete for construction purposes. Contractor must independently verify such information as part of its pre-bid investigations, and where conditions are not reasonably verifiable or discrepancies are identified, bring such matters to City's attention through written question issued during the bid period. In executing Document 00 5200 (Agreement), Contractor shall rely on the results of its own independent investigation and shall not rely on City-supplied information regarding aboveground conditions and as-built conditions, and Contractor shall accept full responsibility for its verification work sufficient to complete the Work as intended.
- B. Regarding subsurface conditions other than Underground Facilities shown on the Contract Documents or otherwise supplied by City, Contractor may rely only upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated in the Contract Documents. City is not responsible for the completeness of any subsurface condition information, Contractor's conclusions or opinions drawn from any subsurface condition information, or subsurface conditions that are not specifically shown. (For example, City is not responsible for soil conditions in areas contiguous to areas where a subsurface condition is shown.)

2.03 Pre-Bid Investigation Requirements For Excavation And Utilities Relocation Projects

- A. As part of its pre-bid investigations for Projects involving excavation and/or relocation of existing utilities, Contractor shall make reasonable efforts to verify information regarding Underground Facilities, including but not limited to, requesting additional information or verification of information as necessary.
- B. Because of the nature and location of City and the Project, the existence of Underground Facilities is deemed inherent in the Work of the Contract, as is the fact that Underground Facilities are not always accurately shown or completely shown on as-built records, both as to their depth and location. Contractor shall, therefore, take care to note the existence and potential existence of Underground Facilities, in particular, above and below grade structures, drainage lines, storm drains, sewers, water, gas, electrical, chemical, hot water, and other similar items and utilities. Contractor shall carefully consider all supplied information, request additional information Contractor may deem necessary, and visually inspect the Site for above ground indications of Underground Facilities (such as, for example not by way of limitation, the existence of existing service laterals, appurtenances or other types of utilities, indicated by the presence of an underground transmission main or other visible facilities, such as buildings, new asphalt, meters and junction boxes, on or adjacent to the Site). Contractor shall also consider local underground conditions and typical practices for Underground Facilities, either through its own direct knowledge or through its subcontractors, and fully consider this knowledge in assessing the existing information and the reasonableness of its reliance.

ARTICLE 3 – SUBCONTRACTORS**3.01 Subcontractor Listing Law**

- A. Contractor shall comply with the Subcontractor Listing law, California Public Contract Code §§4101 et seq. Contractor shall not substitute any other person or firm in place of any Subcontractor listed in the Bid except as may be allowed by law.
- B. Subcontractors shall not assign or transfer their subcontracts or permit them to be performed by any other contractor without City's written approval. At City's request, Contractor shall provide City with a complete copy of all executed subcontracts or final commercial agreements with Subcontractors and/or suppliers.

3.02 Subcontracts

- A. Subcontract agreements shall preserve and protect the rights of City under the Contract Documents so that subcontracting will not prejudice such rights. To the extent of the Work to be performed by a Subcontractor, Contractor shall require the Subcontractor's written agreement (1) to be bound to the terms of Contract Documents and (2) to assume vis-à-vis Contractor all the obligations and responsibilities that Contractor assumes toward City under the Contract Documents. (These agreements include for example, and not by way of limitation, all warranties, claims procedures and rules governing submittals of all types to which Contractor is subject under the Contract Documents.)
- B. Contractor shall provide for the assignment to City of all rights any Subcontractor (of any tier) may have against any manufacturer, supplier, or distributor for breach of warranties and guarantees relating to the Work performed by the Subcontractor under the Contract Documents. Subcontracts shall provide and acknowledge City as an intended third-party beneficiary of each subcontract and supply contract (of any tier).

ARTICLE 4 – DRAWINGS AND SPECIFICATIONS**4.01 Intent Of Drawings And Specifications**

- A. Contractor shall interpret words or phrases used to describe Work (including services), materials, or equipment that have well-known technical or construction industry or trade meaning in accordance with that meaning. Drawings' intent specifically includes the intent to depict construction that complies with all applicable laws, codes and standards.
- B. As part of the "Work," Contractor shall provide all labor, materials, equipment, machinery, tools, facilities, services, employee training and testing, hoisting facilities, Shop Drawings, storage, testing, security, transportation, disposal, the securing of all necessary or required field dimensions, the cutting or patching of existing materials, notices, permits, documents, reports, agreements and any other items required or necessary to timely and fully complete Work described and the results intended by Contract Documents and, in particular, Drawings and Specifications. Divisions and Specification Sections and the identification on any Drawings shall not control Contractor in dividing Work among Subcontractors or suppliers or delineating the Work to be performed by any specific trade.
- C. Contractor shall perform reasonably implied parts of Work as "incidental work" although absent from Drawings and Specifications. Incidental work includes any work not shown on Drawings or described in Specifications that is necessary or normally or customarily required as a part of the Work shown on Drawings or described in Specifications. Incidental work includes any work necessary or required to make each installation satisfactory, legally operable, functional, and consistent with the intent of Drawings and Specifications or the requirements of Contract Documents. Contractor shall perform incidental work without extra cost to City. Incidental work shall be treated as if fully described in Specifications and shown on Drawings, and the expense of incidental work shall be included in price Bid and Contract Sum.

4.02 Checking Of Drawings And Specifications

- A. Before undertaking each part of Work, Contractor shall carefully study and compare Contract Documents and check and verify pertinent figures shown in the Contract Documents and all

applicable field measurements. Contractor shall be responsible for any errors that might have been avoided by such comparison. Figures shown on Drawings shall be followed; Contractor shall not scale measurements. Contractor shall promptly report to City, in writing, any conflict, error, ambiguity or discrepancy that Contractor may discover. Contractor shall obtain a written interpretation or clarification from City before proceeding with any Work affected thereby. Contractor shall provide City with a follow-up correspondence every ten calendar days until it receives a satisfactory interpretation or clarification.

4.03 Interpretation Of Drawings And Specifications

- A. A typical or representative detail on Drawings shall constitute the standard for workmanship and material throughout corresponding parts of Work. Where necessary, and where reasonably inferable from Drawings, Contractor shall adapt such representative detail for application to such corresponding parts of Work. The details of such adaptation shall be subject to prior approval by City. Repetitive features shown in outline on Drawings shall be in exact accordance with corresponding features completely shown.
- B. Should any discrepancy appear or any misunderstanding arise as to the import of anything contained in Drawings and Specifications, or should Contractor have any questions or requests relating to Drawings or Specifications, Contractor shall refer the matter to City, in writing, with a copy to the Architect/Engineer. City will issue with reasonable promptness written responses, clarifications or interpretations as City may determine necessary, which shall be consistent with the intent of and be reasonably inferable from Contract Documents. Such written clarifications or interpretations shall be binding upon Contractor. If Contractor believes that a written response, clarification or interpretation justifies an adjustment in the Contract Sum or Contract Time, Contractor shall give City prompt written notice. If the parties are unable to agree to the amount or extent of the adjustment, if any, then Contractor shall perform the Work in conformance with City's response, clarification, or interpretation and may make a written claim for the adjustment as provided in Article 12.
- C. The following general specifications shall apply wherever in the Specifications, or in any directions given by City in accordance with or supplementing Specifications, it is provided that Contractor shall furnish materials or manufactured articles or shall do Work for which no detailed specifications are shown. Materials or manufactured articles shall be of the best grade, in quality and workmanship, obtainable in the market from firms of established good reputation. If not ordinarily carried in stock, the materials or manufactured articles shall conform to industry standards for first class materials or articles of the kind required, with due consideration of the use to which they are to be put. Work shall conform to the usual standards or codes, such as those cited herein, for first class work of the kind required. Contractor shall specify in writing to City the materials to be used or Work to be performed under this Paragraph ten Business Days prior to furnishing such materials or performing such Work.

4.04 Use Of Drawings And Specifications.

- A. Drawings, Specifications and other Contract Documents were prepared for use for Work of Contract Documents only. No part of Contract Documents shall be used for any other construction or for any other purpose except with the written consent of City. Any unauthorized use of Contract Documents is prohibited and at the sole liability of the user.

ARTICLE 5 – COMMENCEMENT OF THE WORK

5.01 Submission Of Required Schedules

- A. Contractor shall submit to City in draft for review and discussion at the Preconstruction Conference, and in final prior to the first payment application, the following schedules:
 - 1. Schedule of Values
 - 2. Progress Schedule, and
 - 3. Schedule of Submittals.
- B. No progress payment shall be due or owing to Contractor until such schedules are submitted to and acceptable to City and/or Architect/Engineer as meeting the requirements of the Contract

Documents. In City's sole discretion, City may elect to instead withhold a portion of any progress payment for unacceptable compliance with contract requirements for such schedules.

- C. City's acceptance of Contractor's schedules will not create any duty of care or impose on City any responsibility for the sequencing, scheduling or progress of Work nor will it interfere with or relieve Contractor from Contractor's full responsibility therefore.

5.02 Commencement Date Of Contract Time

- A. The Contract Time will commence to run on the 60th Day after the issuance of the Notice of Award or, if a Notice to Proceed is given, on the date indicated in the Notice to Proceed.
- B. City may give a Notice to Proceed at any time within 60 calendar days after the Notice of Award. Contractor shall not do any Work at the Site prior to the date on which the Contract Time commences to run.

ARTICLE 6 – CONTRACTOR'S ORGANIZATION AND EQUIPMENT

6.01 Contractor's Legal Address

- A. Address and facsimile number given in Contractor's Bid are hereby designated as Contractor's legal address and facsimile number. Contractor may change its legal address and facsimile number by notice in writing, delivered to City, which in conspicuous language advises City of a change in legal address or facsimile number, and which City accepts in writing. Delivery to Contractor's legal address or depositing in any post office or post office box regularly maintained by the United States Postal Service, in a wrapper with postage affixed, directed to Contractor at legal address, or of any drawings, notice, letter or other communication, shall be deemed legal and sufficient service thereof upon Contractor. Facsimile to Contractor's designated facsimile number of any letter, memorandum, or other communication on standard or legal sized paper, with proof of facsimile transmission, shall be deemed legal and sufficient service thereof upon Contractor.

6.02 Contractor's Superintendents Or Forepersons

- A. Contractor shall at all times be represented on Site by one or more superintendents or forepersons authorized and competent to receive and carry out any instructions that City may give, and shall be liable for faithful observance of instructions delivered to Contractor or to authorized representative or representatives on Site.

6.03 Proficiency In English

- A. Supervisors, security guards, safety personnel and employees who have unescorted access to the Site shall possess proficiency in the English language in order to understand, receive and carry out oral and written communications or instructions relating to their job functions, including safety and security requirements.

6.04 Contractor's And Subcontractors' Employees

- A. Contractor shall employ, and shall permit its Subcontractors to employ, only competent and skillful personnel to do Work. If City notifies Contractor that any of its employees, or any of its Subcontractors' employees on Work is incompetent, unfaithful, disorderly or profane, or fails to observe customary standards of conduct or refuses to carry out any provision of the Contract Documents, or uses threatening or abusive language to any person on Work representing City, or violates sanitary rules, or is otherwise unsatisfactory, and if City requests that such person be discharged from Work, then Contractor or its Subcontractor shall immediately discharge such person from Work and the discharged person shall not be re-employed on the Work except with consent of City.

6.05 Contractor's Use Of The Site

- A. Contractor shall not make any arrangements with any person to permit occupancy or use of any land, structure or building within the limits of the Work, for any purpose whatsoever, either with or without compensation, in conflict with any agreement between City and any owner, former owner

or tenant of such land, structure or buildings. Contractor may not occupy City-owned property outside the limit of the Work as indicated on the Drawings unless it obtains prior approval from City.

6.06 Contractor's Site Office

- A. Unless expressly provided otherwise in the Contract Documents, Contractor shall provide a site office staffed by a resident project manager or job superintendent.

ARTICLE 7 – CITY'S ADMINISTRATION OF WORK

7.01 City's Representative(s)

- A. City's Representative(s) will have limited authority to act on behalf of City as set forth in the Contract Documents.
- B. Except as otherwise provided in these Contract Documents or subsequently identified in writing by City, City will issue all communications to Contractor through City's Representative, and Contractor shall issue all communications to City through City's Representative in a written document delivered to City.
- C. Should any direct communications between Contractor and City's consultants, architects or engineers not identified in Article 2 of Document 00 5200 (Agreement) occur during field visits or by telephone, Contractor shall immediately confirm them in a written document copied to City.

7.02 City's Observation Of The Work

- A. Work shall be performed under City's general observation and administration. Contractor shall comply with City's directions and instructions in accordance with the terms of Contract Documents, but nothing contained in these General Conditions shall be taken to relieve Contractor of any obligations or liabilities under the Contract Documents. City's failure to review or, upon review, failure to object to any aspect of Work reviewed, shall not be deemed a waiver or approval of any non-conforming aspect of Work.
- B. Subject to those rights specifically reserved in the Contract Documents, City will not supervise, or direct, or have control over, or be responsible for, Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or Contractor's failure to comply with laws and regulations applicable to the furnishing or performance of Work. City will not be responsible for Contractor's failure to perform or furnish the Work in accordance with Contract Documents.

7.03 Architect/Engineer's Observation Of Work

- A. City may engage an Architect/Engineer, an independent consultant or Project Manager (collectively for purposes of this Paragraph, "Project Manager/Architect") to assist in administering the Work. If so engaged, Project Manager/Architect will advise and consult with City, but will have authority to act on behalf of City only to extent provided in the Contract Documents or as set forth in writing by City. Project Manager/Architect will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with Work. Project Manager/Architect will not be responsible for or have control over the acts or omissions of Contractor, Subcontractors or their agents or employees, or any other persons performing Work.
- B. Project Manager/Architect may review Contractor's Submittals, such as Shop Drawings, Product Data, and Samples, but only for conformance with design concept of Work and with information given in the Contract Documents.
- C. Project Manager/Architect may visit the Site at intervals appropriate to stage of construction to become familiar generally with the progress and quality of Work and to determine in general if Work is proceeding in accordance with Contract Documents. Based on its observations, Project Manager/Architect may recommend to City that it disapproves or rejects Work that Project Manager/Architect believes to be Defective or will not produce a complete Project that conforms to Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by Contract Documents. City will also have authority

to require special inspection or testing of Work, whether or not the Work is fabricated, installed or completed.

- D. Project Manager/Architect may conduct inspections to recommend to City the dates that Contractor has achieved Substantial Completion and Final Acceptance, and will receive and forward to City for review written warranties and related documents required by Contract Documents.

7.04 Owner's And Architect/Engineer's Exercise Of Contract Responsibilities

- A. City, Project Manager, Architect/Engineer and all City's representatives, in performing their duties and responsibilities under the Contract Documents, accept no duties, responsibilities or duty of care, nor may the same be implied or inferred, towards Contractor, any Subcontractor, sub-Subcontractor or supplier, except those set forth expressly in the Contract Documents.

7.05 City's Right Of Access To The Work

- A. During performance of Work, City and its agents, consultants, and employees may at any time enter upon Work, shops or studios where any part of the Work may be in preparation, or factories where any materials for use in Work are being or are to be manufactured, and Contractor shall provide proper and safe facilities for this purpose, and shall make arrangements with manufacturers to facilitate inspection of their processes and products to such extent as City's interests may require. Other contractors performing work for City may also enter upon Work for all purposes required by their respective contracts. Subject to the rights reserved in the Contract Documents, Contractor shall have sole care, custody, and control of the Site and its Work areas.

7.06 City's Right Of Separate Construction

- A. City may perform with its own forces, construction or operations related to the Project, or the Site during Contractor's operations. City may also award separate contracts in connection with other portions of the Project or other construction or operations, on the Site or areas contiguous to the Site, under conditions similar to these Contract Documents, or may have utility owners perform other work.
- B. Contractor shall adjust its schedule and fully coordinate with and shall afford all other contractors, utility districts and City (if City is performing work with its own forces), proper and safe access to the Site, and reasonable opportunity for the installation and storage of their materials. Contractor shall ensure that the execution of its Work properly connects and coordinates with others' work, do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work, and shall cooperate with them to facilitate the progress of the Work.
- C. To the extent that any part of Contractor's Work is to interface with work performed or installed by other contractors or utility owners, Contractor shall inspect and measure the in-place work. Contractor shall promptly report to City in writing any defect in in-place work that will impede or increase the cost of Contractor's interface unless corrected.

ARTICLE 8 – CONTRACTOR'S PROSECUTION AND PROGRESS OF THE WORK

8.01 Contractor To Supervise The Work

- A. Subject to those rights specifically reserved in the Contract Documents, Contractor shall supervise, direct, have control over, and be responsible for, Contractor's means, methods, techniques, sequences or procedures of construction, safety precautions and programs incident thereto, and compliance with laws and regulations applicable to the furnishing or performance of Work.
- B. Contractor shall keep on the Site at all times during Work progress a competent resident Superintendent, who shall not be replaced without City's express written consent. The Superintendent shall be Contractor's representative at the Site and shall have complete authority to act on behalf of Contractor. All communications to and from the Superintendent shall be as binding as if given to or by Contractor.
- C. Contractor shall supervise, inspect, and direct Work competently and efficiently, devoting the

attention and applying such personal skills and expertise as may be required and necessary to perform Work in accordance with Contract Documents. Contractor shall be solely responsible for and have control and charge of construction means, methods, techniques, sequences and procedures, safety precautions and programs in connection with the Work. Contractor shall be responsible to see that the completed Work complies accurately with Contract Documents.

- D. Contractor is fully responsible for Contractor's own acts and omissions. Contractor is responsible for all acts and omissions of its Subcontractors, suppliers, and other persons and organizations performing or furnishing any of the Work, labor, materials, or equipment under a direct or indirect contract with Contractor.
- E. Contractor shall conduct monthly Contractor Safety Committee meetings, and weekly toolbox safety talks.

8.02 Contractor To Maintain Cost Data

- A. Contractor shall maintain full and correct information as to the number of workers employed in connection with each subdivision of Work, the classification and rate of pay of each worker in form of certified payrolls, the cost to Contractor of each class of materials, tools and appliances used by Contractor in Work, and the amount of each class of materials used in each subdivision of Work. Contractor shall provide City with monthly summaries of this information. If Contractor maintains or is capable of generating summaries or reports comparing actual Project costs with Bid estimates or budgets, Contractor shall provide City with a copy of such report upon City's request.
- B. Contractor shall maintain daily job reports recording all significant activity on the job, including the number of workers on Site, Work activities, problems encountered and delays. Contractor shall provide City with copies for each Day Contractor works on the Project, to be delivered to City either the same Day or the following morning before starting work at the Site. Contractor shall take pre-construction and monthly progress photographs of all areas of the Work. Contractor shall maintain copies of all correspondence with Subcontractors and records of meetings with Subcontractors.
- C. City shall have the right to audit and copy Contractor's books and records of any type, nature or description relating to the Project (including but not limited to financial records reflecting in any way costs claimed on the Project), and to inspect the Site, including Contractor's trailer, or other job Site office, and this requirement shall be contained in the subcontracts of Subcontractors working on Site. By way of example, City shall have the right to inspect and obtain copies of all Contract Documents, planning and design documents, Bid proposal and negotiation documents, cost records and job cost variance reports, design modification proposals, value engineering or other cost reduction proposals, revisions made to the original design, job progress reports, photographs, and as-built drawings maintained by Contractor. City and any other applicable governmental entity shall have the right to inspect all information and documents maintained hereunder at any time during the Project and for a period of five years following Final Completion, in accordance with the provisions of Section 8546.7 of the California Government Code. This right of inspection shall not relieve Contractor of its duties and obligations under the Contract Documents. This right of inspection shall be specifically enforceable in a court of law, either independently or in conjunction with enforcement of any other rights in the Contract Documents.

8.03 Contractor To Supply Sufficient Workers And Materials

- A. Unless otherwise required by City under the terms of Contract Documents, Contractor shall at all times keep on the Site materials and employ qualified workers sufficient to prosecute Work at a rate and in a sequence and manner necessary to complete Work within the Contract Time. This obligation shall remain in full force and effect notwithstanding disputes or claims of any type.
- B. At any time during progress of Work should Contractor directly or indirectly (through Subcontractors) refuse, neglect, or be unable to supply sufficient materials or employ qualified workers to prosecute the Work as required, then City may require Contractor to accelerate the Work and/or furnish additional qualified workers or materials as City may consider necessary, at no cost to City. If Contractor does not comply with the notice within three Business Days of date of service thereof, City shall have the right (but not a duty) to provide materials and qualified

workers to finish the Work or any affected portion of Work, as City may elect. City may, at its discretion, exclude Contractor from the Site, or portions of the Site or separate work elements during the time period that City exercises this right. City will deduct from moneys due or which may thereafter become due under the Contract Documents, the sums necessary to meet expenses thereby incurred and paid to persons supplying materials and doing Work. City will deduct from funds or appropriations set aside for purposes of Contract Documents the amount of such payments and charge them to Contractor as if paid to Contractor. Contractor shall remain liable for resulting delay, including liquidated damages and indemnification of City from claims of others.

- C. Exercise by City of the rights conferred upon City in this subparagraph is entirely discretionary on the part of City. City shall have no duty or obligation to exercise the rights referred to in this subparagraph and its failure to exercise such rights shall not be deemed an approval of existing Work progress or a waiver or limitation of City's right to exercise such rights in other concurrent or future similar circumstances. (The rights conferred upon City under this subparagraph are, like all other such rights, cumulative to City's other rights under any provision of the Contract Documents.)

8.04 Contractor To Maintain Project Record Documents

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Contract Modifications, Change Orders, Work Directives, Force Account orders, and written interpretations and clarifications in good order and annotated to show all as-built changes made during construction. These Project Record Documents, together with all approved Samples and a counterpart of all approved Shop Drawings, shall be maintained and available to City for reference. Upon completion of the Work, Contractor shall deliver to City, the Project Record Documents, Samples and Shop Drawings and as-built drawings.
- B. Throughout Contractor's performance of the Work of the Project, Contractor shall maintain construction records to include: shop drawings; product data/material data sheets; samples; submittal; purchases; materials; equipment; inspections; applicable handbooks; applicable codes and standards; maintenance and operating manuals and instructions; RFI Log; Submittal Log; other related documents and revisions which arise out of the Construction Contracts. Contractor shall maintain records of principal building layout lines, elevations for the bottom of footings, floor levels, and key site elevations (certified by a qualified surveyor or professional engineer). Contractor shall make all records available to City. At the completion of the Project, Contractor shall deliver all such records to the City to have a complete set of record as-built drawings.

8.05 Contractor To Not Disrupt City Operation

- A. Contractor shall schedule and execute all Work in a manner that does not interfere with or disrupt City operations, including but not limited to, parking, utilities (electricity, gas, water), noise, access by employees and administration, access by vendors, physicians, patients and any other person or entity using City facilities or doing business with City. Contractor shall produce and supply coordination plans and requests to City, following City procedures, for all necessary interference of construction with City, which City will reasonably cooperate with.

8.06 Contractor To Provide Temporary Facilities And Controls

- A. Unless expressly provided otherwise in the Contract Documents, Contractor shall provide all temporary utilities (including without limitation electricity, water, natural gas), lighting, heating, cooling and ventilating devices, telephone, sanitary facilities, barriers, fences and enclosures, tree and plant protection, fire protection, pollution, erosion, Storm Water Pollution Prevention controls, noise and traffic control, and any other necessary services required for construction, testing or completion of the Work.

ARTICLE 9 – WARRANTY, GUARANTY, AND INSPECTION OF WORK

9.01 Warranty And Guaranty

- A. General Representations and Warranties: Contractor represents and warrants that it is and will

be at all times fully qualified and capable of performing every Phase of the Work and to complete Work in accordance with the terms of Contract Documents. Contractor warrants that all construction services shall be performed in accordance with generally accepted professional standards of good and sound construction practices and all requirements of Contract Documents. Contractor warrants that Work, including but not limited to each item of materials and equipment incorporated therein, shall be new, of suitable grade of its respective kind for its intended use, and free from defects in design, engineering, materials, construction and workmanship. Contractor warrants that Work shall conform in all respects with all applicable requirements of federal, state and local laws, applicable construction codes and standards, licenses, and permits, Drawings and Specifications and all descriptions set forth therein, and all other requirements of Contract Documents. Contractor shall not be responsible, however, for the negligence of others in the specification of specific equipment, materials, design parameters and means or methods of construction where that is specifically shown and expressly required by Contract Documents.

- B. **Extended Guarantees:** Any guarantee exceeding one year provided by the supplier or manufacturer of any equipment or materials used in the Project shall be extended for such term. Contractor expressly agrees to act as co-guarantor of such equipment and materials and shall supply City with all warranty and guarantee documents relative to equipment and materials incorporated in the Project and guaranteed by their suppliers or manufacturers.
- C. **Environmental and Toxics Warranty:** The covenants, warranties and representations contained in this Paragraph are effective continuously during Contractor's Work on the Project and following cessation of labor for any reason including, but not limited to, Project completion. Contractor covenants, warrants and represents to City that:
 - 1. To Contractor's knowledge after due inquiry, no lead or Asbestos-containing materials were installed or discovered in the Project at any time during Contractor's construction thereof. If any lead or Asbestos-containing materials were discovered, Contractor made immediate written disclosure to City.
 - 2. To Contractor's knowledge after due inquiry, no electrical transformers, light fixtures with ballasts or other equipment containing PCBs are or were located on the Project at any time during Contractor's construction thereof.
 - 3. To Contractor's knowledge after due inquiry, no storage tanks for gasoline or any other toxic substance are or were located on the Project at any time during Contractor's construction thereof. If any such materials were discovered, Contractor made immediate written disclosure to City.
 - 4. Contractor's operations concerning the Project are and were not in violation of any applicable environmental federal, state, or local statute, law or regulation dealing with hazardous materials substances or toxic substances and no notice from any governmental body has been served upon Contractor claiming any violation of any such law, ordinance, code or regulation, or requiring or calling attention to the need for any Work, repairs, construction, alteration, or installation on or in connection with the Project in order to comply with any such laws, ordinances, codes, or regulations, with which Contractor has not complied. If there are any such notices with which Contractor has complied, Contractor shall provide City with copies thereof.

9.02 Inspection Of Work

- A. Work and materials, and manufacture and preparation of materials, from beginning of construction until Final Completion and acceptance of Work, shall be subject to inspection and rejection by City, its agents, representatives or independent contractors retained by City to perform inspection services, or governmental agencies with jurisdictional interests. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and program so that they may comply therewith as applicable. Upon request or where specified, City shall be afforded access for inspection at the source of supply, manufacture or assembly of any item of material or equipment, with reasonable accommodations supplied for making such inspections.
- B. Contractor shall furnish, in such quantities and sizes as may be required for proper examination and tests, Samples or test specimens of all materials to be used or offered for use in connection

with Work. Contractor shall prepare Samples or test specimens at its expense and furnish them to City. Contractor shall submit all Samples in ample time to enable City to make any necessary tests, examinations, or analyses before the time it is desired to incorporate the material into the Work.

- C. Contractor shall give City timely notice of readiness of Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- D. If applicable laws or regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, and furnish City with the required certificates of inspection, or approval. City will pay the cost of initial testing and Contractor shall pay all costs in connection with any follow-up or additional testing. Contractor shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for the acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.
- E. If Contractor covers any Work, or the work of others, prior to any required inspection, test or approval without written approval of City, Contractor shall uncover the Work at City's request. Contractor shall bear the expense of uncovering Work and replacing Work. In any case where Contractor covers Work contrary to City's request, Contractor shall uncover Work for City's observation or inspection at City's request. Contractor shall bear the cost of uncovering Work.
- F. Whenever required by City, Contractor shall furnish tools, labor and materials necessary to make examination of Work that may be completed or in progress, even to extent of uncovering or taking down portions of finished Work. Should Work be found unsatisfactory, cost of making examination and of reconstruction shall be borne by Contractor. If Work is found to be satisfactory, City, in manner herein prescribed for paying for alterations, Modifications, and extra Work, except as otherwise herein specified, will pay for examination.
- G. Inspection of the Work by or on behalf of City, or City's failure to do so, shall not under any circumstances be deemed a waiver or approval of any non-conforming aspect of the Work. Contractor shall have an absolute duty, in the absence of a written Change Order signed by City, to perform Work in conformance with the Contract Documents and to immediately correct Defective Work immediately upon Contractor's knowledge.
- H. Any inspection, evaluation, or test performed by or on behalf of City relating to the Work is solely for the benefit of City, and shall not be relied upon by Contractor. Contractor shall not be relieved of the obligation to perform Work in accordance with the Contract Documents, nor relieved of any guaranty, warranty, or other obligation, as a result of any inspections, evaluations, or tests performed by City, whether or not such inspections, evaluations, or tests are permitted or required under the Contract Documents. Contractor shall be solely responsible for testing and inspecting Work already performed to determine whether such Work is in proper condition to receive later Work.

9.03 Correction Of Defective Work

- A. City may direct Contractor to correct any Defective Work or remove it from the Site and replace it with Work that is not Defective and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting from the correction or removal. Contractor shall be responsible for any and all claims, costs, losses and damages caused by or resulting from such correction or removal. A Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work and the Contract Sum. If the parties are unable to agree to the amount of an appropriate decrease in the Contract Sum, City may decide the proper amount or, in its discretion may elect to leave the Contract Sum unchanged and deduct from monies due Contractor, all such claims, costs, losses and damages caused by or resulting from the correction or removal. If Contractor disagrees with City's calculations, it may make a claim as provided in Article 12 of this Document 00 7200. City's rights under this Paragraph shall be in addition to any other rights it may have under the Contract Documents or by law.

- B. If Contractor fails to supply sufficient skilled workers, suitable materials or equipment, or to furnish or perform the Work in such a way that the completed Work will conform to Contract Documents, City may order Contractor to replace any such Defective Work, or stop any portion of Work to permit City (at Contractor's expense) to replace such Defective Work. These City rights are entirely discretionary on the part of City, and shall not give rise to any duty on the part of City to exercise the rights for the benefit of Contractor or any other party.

9.04 Acceptance And Correction Of Defective Work By City

- A. City may in its sole discretion elect to accept Defective Work. Contractor shall pay all claims, costs, losses and damages attributable to City's evaluation of and determination to accept such Defective Work. If City accepts any Defective Work prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work and the Contract Sum. If the parties are unable to agree to the amount of an appropriate decrease in the Contract Sum, City may deduct from monies due Contractor, all claims, costs, losses, damages, expenses and liabilities attributable to the Defective Work. If Contractor disagrees with City's calculations, Contractor may make a claim as provided in Article 12 of this Document 00 7200. If City accepts any Defective Work after final payment, Contractor shall pay to City, an appropriate amount as determined by City.
- B. City may correct and remedy deficiency if, after five calendar days' written notice to Contractor, Contractor fails to correct Defective Work or to remove and replace rejected Work; or provide a plan for correction of Defective Work acceptable to City; or perform Work in accordance with Contract Documents. In connection with such corrective and remedial action, City may exclude Contractor from all or part of the Site; take possession of all or part of Work and suspend Contractor's Work related thereto; take possession of all or part of Contractor's tools, appliances, construction equipment and machinery at the Site; and incorporate in Work any materials and equipment stored at the Site or for which City has paid Contractor but which are stored elsewhere. Contractor shall allow City, its representatives, agents, employees, and other contractors and Project Manager/Architect's consultants' access to the Site to enable City to exercise the rights and remedies under this Paragraph. Contractor shall be responsible for all claims, costs, losses, damages, expenses and liabilities incurred or sustained by City in exercising such rights and remedies. A Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to Work and the Contract Sum. If the parties are unable to agree to the amount of an appropriate decrease in the Contract Sum, City may deduct from moneys due Contractor, all claims, costs, losses and damages caused by or resulting from the correction or removal. If Contractor disagrees with City's calculations, Contractor may make a claim as provided in Article 12.

9.05 Rights Upon Inspection, Correction Or Acceptance

- A. Contractor shall not be allowed an extension of Contract Time because of any delay in the performance of Work attributable to the exercise by City of its rights and remedies under this Article. Where City exercises its rights under this Article, it retains and may still exercise all other rights it has by law or under the Contract Documents including, but not limited to, the right to terminate Contractor's right to proceed with the Work under the Contract Documents for cause and/or make a claim or back charge where a Change Order cannot be agreed upon.
- B. Inspection by City or its authorized agents or representatives shall not relieve Contractor of its obligation to have furnished material and workmanship in accordance with Contract Documents. Payment for Work completed through periodic progress payments, final payment or otherwise shall not operate to waive City's right to require full compliance with Contract Documents and shall in no way be deemed as acceptance of any defective Work paid therefor. Contractor's obligation to complete the Work in accordance with Contract Documents shall be absolute, unless City agrees otherwise in writing.

9.06 Proof Of Compliance Of Contract Provisions

- A. In order that City may determine whether Contractor has complied or is complying with requirements of Contract Documents not readily enforceable through inspection and tests of

Work and materials, Contractor shall at any time, when requested, submit to City properly authenticated documents or other satisfactory proofs of compliance with all applicable requirements.

- B. Before commencing any portion of Work, Contractor shall inform City in writing as to time and place at which Contractor wishes to commence Work, and nature of Work to be done, in order that proper provision for inspection of Work may occur, and to assure measurements necessary for record and payment. Information shall be given to City a reasonable time in advance of time at which Contractor proposes to begin Work, so that City may complete necessary preliminary work without inconvenience or delay to Contractor.

9.07 Correction Period And Project Warranty Period:

- A. If within one year after the date of Final Acceptance, or such longer period of time as may be prescribed by laws, regulations or by the terms of Contract Documents or any extended warranty or guaranty, any Work (completed or incomplete) is found to be Defective, Contractor shall promptly without cost to City and in accordance with City's written instructions, correct such Defective Work. Contractor shall remove any Defective Work rejected by City and replace it with Work that is not Defective, and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Contractor fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, City may have the Defective Work corrected or the rejected Work removed and replaced. Contractor shall pay for all claims, costs, losses and damages caused by or resulting from such removal and replacement. Where Contractor fails to correct Defective Work, or defects are discovered outside the correction period, City shall have all rights and remedies granted by law.
- B. In special circumstances where a part of the Work is occupied or a particular item of equipment is placed in continuous service before Final Acceptance of all the Work, the correction period for that part of Work or that item may start to run from an earlier date if so provided by Change Order.
- C. Where Defective Work or rejected Work (and damage to other Work resulting therefrom) has been corrected, removed, or replaced under this provision after the commencement of the correction period, the correction period hereunder with respect to such Work shall be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

9.08 No Waiver

- A. Neither recordation of Final Acceptance nor final certificate for payment nor provision of the Contract nor partial or entire use or occupancy of premises by City shall constitute acceptance of Work not done in accordance with Contract Documents nor relieve Contractor of liability in respect to express warranties or responsibility for faulty materials or workmanship.
- B. If, after installation, operation, or use of materials or equipment to be provided under Contract proves to be unsatisfactory to City, City shall have right to operate and use materials or equipment until said materials and equipment can, without damage to City, be taken out of service for correction or replacement. Period of use of Defective materials or equipment pending correction or replacement shall in no way decrease guarantee period required for acceptable corrected or replaced items of materials or equipment.
- C. Nothing in the Contract Documents shall be construed to limit, relieve, or release Contractor's, Subcontractors', and equipment suppliers' liability to City for damages sustained as result of latent defects in materials or equipment caused by negligence of Contractor, its agents, suppliers, employees, or Subcontractors.

ARTICLE 10 – MODIFICATIONS OF CONTRACT DOCUMENTS

10.01 City's Right To Direct Changed Work.

- A. City may, without notice to the sureties and without invalidating the Contract, make changes in the Work ("Changed Work"), including without limitation: alterations, deviations, additions to, or

deletions from Contract Documents; increase or decrease the quantity of any item or portion of the Work; expand, reduce or otherwise change the Contract Time; delete any item or portion of the Work; and require extra Work. Contractor shall perform such Work under applicable provisions of the Contract Documents, unless specifically provided otherwise at the time the change is ordered. In the case of any ordered extra Work, City reserves the right to furnish all or portions of associated labor, material, and equipment, which Contractor shall accept and use without payment for costs, markup, profit, or otherwise for such City-furnished labor, materials, and equipment.

- B. If Changed Work is of such a nature as to increase or decrease the time or cost of any part of Work, price fixed in Contract shall be increased or decreased by amount as the Contractor and City may agree upon as reasonable and proper allowance for increase or decrease in cost of Work using the cost guidelines set forth in this Article, and absent such agreement, then as City may direct (with Contractor retaining its rights under Article 12 herein).

10.02 Required Documentation For Changed Work

- A. Changes affecting the Contract Time or Contract Sum of the Work shall be set forth in a written Change Order or Change Directive that shall specify:
 - 1. The Work performed in connection with the change to be made;
 - 2. The amount of the adjustment of the Contract Sum, if any, and the basis for compensation for the Work ordered; and
 - 3. The extent of the adjustment in the Contract Time, if any.
- B. A Change Order or Change Directive will become effective when signed by City, notwithstanding that Contractor has not signed it. A Change Order will become effective without Contractor's signature, provided City indicates same thereon (by indicating it as a "unilateral change order").
- C. All changes in any plans and specifications approved by any authority with jurisdiction may also require addenda or change orders approved by that authority.
- D. Where City requests, a performance bond rider covering the changed Work must be executed and delivered to City before proceeding with the changed Work or shortly in time thereafter.

10.03 Procedures And Pricing Of Changed Work

- A. Procedures for changed work and pricing of changed work, claims and all forms of extra compensation, are set forth in Section 01 2600 (Modification Procedures).

ARTICLE 11 – TIME ALLOWANCES

11.01 Time Allowances

- A. Time is of the essence. Contract Time may only be changed by Change Order, and all time limits stated in the Contract Documents are to mean that time is of the essence.

11.02 Excusable Delay And Inexcusable Delay Defined.

- A. Excusable Delay. Subject to the provisions on Notice of Delay below, Contract Time may be adjusted in an amount equal to the time lost due to:
 - 1. Changes in the Work ordered by City ("**Changes**");
 - 2. Acts or neglect by City, Architect, any City Representative, utility owners or other contractors performing other work, not permitted or provided for in the Contract Documents, provided that Contractor has performed its responsibilities under the Contract Documents (including but not limited to pre-bid investigations) ("**Acts or Neglect**"); or
 - 3. Fires, floods, epidemics, abnormal weather conditions beyond the parameters otherwise set forth in this Article, earthquakes, civil or labor disturbances, or acts of God (together, "force majeure events"), provided damages resulting therefrom are not the result of Contractor's failure to protect the Work as required by Contract Documents ("**Force Majeure**").
- B. Inexcusable Delay. Contract Time shall not be extended for any period of time where Contractor (and/or any Subcontractor) is delayed or prevented from completing any part of the Work due to a

cause that is within Contractor's risk or responsibility under the Contract Documents. Delays attributable to or within the control of a Subcontractor, or its subcontractors, or supplier, are deemed delays within the control of Contractor.

- C. Float. Float shall be treated as a Project resource. Contractor shall not be entitled to a time extension for impacts that consume float, but do not impact the critical path.

11.03 Notice Of Delay

- A. Within seven calendar days of the beginning of any delay (excepting adverse weather delays), Contractor shall notify City in writing, by submitting a notice of delay that shall describe the anticipated delays resulting from the delay event in question. If Contractor requests an extension of time, Contractor shall submit a Time Impact Evaluation (TIE) within ten calendar days of the notice of delay. City will determine all claims and adjustments in the Contract Time. No claim for an adjustment in the Contract Time will be valid and such claim will be waived if not submitted in accordance with the requirements of this subparagraph. In cases of substantial compliance with the seven-day notice requirement here (but not to exceed twenty-one calendar days from the beginning of the delay event), City may in its sole discretion recognize a claim for delay accompanied with the proper TIE, provided Contractor also shows good faith and a manifest lack of prejudice to City from the late notice.

11.04 Compensable Time Extensions

- A. Subject to other applicable provisions of the Contract Documents, Contractor may be entitled to adjustment in Contract Sum in addition to Contract Time for:
1. Excusable delay caused solely by Changes in the Work ordered by City, as provided above, and/or
 2. Excusable delay caused solely by Acts or Neglect by City or other person, as provided above.

11.05 Non-Compensable Time Extensions

- A. Subject to other applicable provisions of the Contract Documents, Contractor may be entitled to adjustment in Contract Time only, without adjustment in Contract Sum, for
1. Periods of excusable delay caused solely by weather or Force Majeure events as provided above in this Article, or
 2. Periods of concurrent delay, where delay results from two or more causes, one of which is compensable (resulting from Changes or Acts or Neglect as set forth above in this Article), and the other of which is non-compensable or unexcusable, such as: acts or neglect of Contractor, Subcontractors or others for whom Contractor is responsible; other acts, omissions and conditions which would not entitle Contractor to adjustment in Contract Time; adverse weather; and/or actions of Force Majeure as provided above in this Article.

11.06 Adverse Weather

- A. Adverse weather delays may be allowed only if the number of workdays of adverse weather exceeds the parameters listed or referenced immediately below in this subparagraph and Contractor proves that adverse weather actually caused delays to work on the critical path. Contractor shall give written notice of intent to claim an adverse weather day within one Day of the adverse weather day occurring.
- B. Claims for extension of time for rain delay will not be granted unless the number of calendar days work is prevented by rain exceeds 110% of the average number of rain days expected for the period of the Contract Time, based on the records of the National Oceanic & Atmospheric Administration (NOAA) weather station closest to the Project Site, as measured and reported by NOAA. (For example, for California, Oregon and Washington, these figures are contained in the ">=0.10 inch" column at the applicable weather station's "General Climate Summary Table" for "Precipitation" at <http://www.wrcc.dri.edu/Climsum.html>), pro-rated in the individual month Contractor starts and finishes Work. Delays due to adverse weather conditions will not be allowed for weather conditions that fall within these parameters.

- C. In order to qualify as an adverse weather delay with respect to the foregoing parameters, (i.) daily rainfall must exceed .1 inch, and/or (ii.) daily snowfall must exceed 1.0 inch or more, at the NOAA station located closest to the Project site, as measured and reported by NOAA. Notwithstanding these allowances, Contractor shall at all times employ all available mitigation measures to enable Work to continue, Contractor shall take reasonable steps to mitigate potential weather delays, such as dewatering the Site, lime treatment, and covering Work and material that could be affected adversely by weather. Failure to do so shall be cause for City to not grant a time extension due to adverse weather, where Contractor could have avoided or mitigated the potential delay by exercising reasonable care.
- D. Contractor shall include the foregoing precipitation parameters as a monthly activity in its progress schedule. As Work on the critical path is affected by precipitation, Contractor shall notify City and request that the days be moved to the affected activities. Any adverse weather days remaining shall be considered Project float available to either City or Contractor.
- E. Adverse weather delay for precipitation shall be recognized for the actual period of time Contractor proves it was delayed by precipitation exceeding the specified parameters. For example, and not by way of limitation, if precipitation exceeding the specified parameters does not in fact delay Contractor's progress on the critical path, then no time extension shall be recognized; and conversely, if Contractor proves to City's satisfaction that precipitation exceeding the specified parameters causes delay to Contractor for a period longer than the number of precipitation days incurred (e.g., if it rains or snows during grading work), then Contractor shall be entitled to a time extension equal to the actual period of such delay.
- F. During unfavorable weather, wet ground, or other unsuitable construction conditions, Contractor shall employ best practices to protect the Work, manage the construction site and rainwater during inclement weather. Persons performing the Work shall examine surfaces to receive their Work and shall report in writing to Contractor, with copy to City representative and the Architect conditions detrimental to the Work. Failure to examine and report discrepancies makes the Contractor responsible, at no increase in Contract Sum, for corrections City may require. Commencement of Work constitutes acceptance of surface.

11.07 Liquidated Damages

- A. Time is of the essence. Execution of Contract Documents by Contractor shall constitute its acknowledgement that City will actually sustain damages in the form of Contract administration expenses (such as Project management and consultant expenses) in the amount fixed in the Contract Documents for each and every Day during which completion of Work required is delayed beyond expiration of time fixed for completion plus extensions of time allowed pursuant to provisions hereof.
- B. Contractor and City agree that because of the nature of the Project, it would be impractical or extremely difficult to fix the amount of such actual damages incurred by City because of a delay in completion of all or any part of the Work. Contractor and City agree that specified measures of liquidated damages shall be presumed to be the amount of such damages actually sustained by City, and that because of the nature of the Project, it would be impracticable or extremely difficult to fix the actual damages.
- C. Liquidated damages for delay shall cover administrative, overhead, interest on bonds, and general loss of public use damages suffered by City as a result of delay. Liquidated damages shall not cover the cost of completion of the Work, damages resulting from Defective Work, lost revenues or costs of substitute facilities, or damages suffered by others who then seek to recover their damages from City (for example, delay claims of other contractors, subcontractors, tenants, or other third-parties), and defense costs thereof. City may deduct from any money due or to become due to Contractor subsequent to time for completion of entire Work and extensions of time allowed pursuant to provisions hereof, a sum representing then-accrued liquidated damages.

ARTICLE 12 – CLAIMS BY CONTRACTOR

12.01 Obligation to File Claims for Disputed Work

- A. Should it appear to Contractor that the Work to be performed or any of the matters relative to the

Contract Documents are not satisfactorily detailed or explained therein, or should any questions arise as to the meaning or intent of the Contract Documents, or should any dispute arise regarding the true value of any work performed, work omitted, extra work that the Contractor may be required to perform, time extensions, payment to the Contractor during performance of this Contract, performance of the Contract, and/or compliance with Contract procedures, or should Contractor otherwise seek extra time or compensation FOR ANY REASON WHATSOEVER, then Contractor shall first follow procedures set forth in the Contract (including but not limited to other Articles of this Document 00 7200 and Section 01 2600.) If a dispute remains, then Contractor shall give written notice to City that expressly invokes this Article 12. City shall decide the issue in writing within 15 calendar days; and City's written decision shall be final and conclusive. If Contractor disagrees with City's decision, or if Contractor contends that City failed to provide a decision timely, then Contractor's SOLE AND EXCLUSIVE REMEDY is to promptly file a written claim setting forth Contractor's position as required herein.

12.02 Form And Contents Of Claim

- A. Contractor's written claim must identify itself as a "Claim" under this Article 12 and must include the following: (1) a narrative of pertinent events; (2) citation to contract provisions; (3) theory of entitlement; (4) complete pricing of all cost impacts; (5) a time impact analysis of all time delays that shows actual time impact on the critical path; (6) documentation supporting items 1 through 5; a verification under penalty of perjury of the claim's accuracy. The Claim shall be submitted to City within thirty (30) calendar days of receiving City's written decision, or the date Contractor contends such decision was due, and shall be priced like a change order according to Section 01 2600, and must be updated monthly as to cost and entitlement if a continuing claim. Routine contract materials, for example, correspondence, RFI, Change Order requests, or payment requests shall not constitute a claim. Contractor shall bear all costs incurred in the preparation and submission of a claim.

12.03 Administration During/After Claim Submission

- A. City may render a final determination based on the Claim or may in its discretion conduct an administrative hearing on Contractor's claim, in which case Contractor shall appear, participate, answer questions and inquiries, and present any further evidence or analysis requested by City prior to rendering a final determination. Should City take no action on the Claim within 45 calendar days of submission, it shall be deemed denied.
- B. Notwithstanding and pending the resolution of any claim or dispute, Contractor shall diligently prosecute the disputed work to final completion in accordance with City's determination.
- C. After their submission, claims less than \$375,000 shall also be subject to the Local Agency Disputes Act.

12.04 Compliance

- A. The provisions of this Article 12 constitute a non-judicial claim settlement procedure that, pursuant to Section 930.2 of the California Government Code, shall constitute a condition precedent to submission of a valid Government Code Claim under the California Government Code. Contractor shall bear all costs incurred in the preparation, submission and administration of a claim. Any claims presented in accordance with the Government Code must affirmatively indicate Contractor's prior compliance with the claims procedure herein and the previous dispositions under Paragraph 12.3 above of the claims asserted. Pursuant to Government Code Section 930.2, the one-year period in Government Code section 911.2 shall be reduced to 150 calendar days from either accrual of the cause of action, substantial completion or termination of the contract, whichever occurs first; in all other respects, the Government Code shall apply unchanged.
- B. Failure to submit and administer claims as required in Article 12 shall waive Contractor's right to claim on any specific issues not included in a timely submitted claim. Claim(s) or issue(s) not raised in a timely protest and timely claim submitted under this Article 12 may not be asserted in any subsequent litigation, Government Code Claim, or legal action.
- C. City shall not be deemed to waive any provision under this Article 12, if at City's sole discretion, a

claim is administered in a manner not in accord with this Article 12. Waivers or modifications of this Article 12 may only be made a signed change order approved as to form by legal counsel for both City and Contractor; oral or implied modifications shall be ineffective.

ARTICLE 13 – UNDERGROUND CONDITIONS

13.01 Contractor To Locate Underground Facilities.

- A. During construction, Contractor shall comply with Government Code Sections 4216 to 4216.9, and in particular Section 4216.2 which provides, in part: “Except in an emergency, every person planning to conduct any excavation shall contact the appropriate regional notification center at least two working days, but no more than 14 calendar days, prior to commencing that excavation, if the excavation will be conducted in an area which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the excavator, and, if practical, the excavator shall delineate with white paint or other suitable markings the area to be excavated. The regional notification center shall provide an inquiry identification number to the person who contacts the center and shall notify any member, if known, who has a subsurface installation in the area of the proposed excavation.”
- B. Contractor shall contact USA, and schedule the Work to allow ample time for the center to notify its members and, if necessary, for any member to field locate and mark its facilities. Contractor is charged with knowledge of all subsurface conditions reflected in USA records. Prior to commencing excavation or trenching work, Contractor shall provide City with copies of all USA records secured by Contractor. Contractor shall advise City of any conflict between information provided in Document 00 3132 (Geotechnical Data and Existing Conditions), the Drawings and that provided by USA records. Contractor’s excavation shall be subject to and comply with the Contract Documents.
- C. Contractor shall also investigate the existence of existing service laterals, appurtenances or other types of utilities, indicated by the presence of an underground transmission main or other visible facilities, such as buildings, new asphalt, meters and junction boxes, on or adjacent to the Site, even if not shown or indicated in Document 00 3132 (Geotechnical Data and Existing Conditions), the Drawings or that provided by USA records. Contractor shall immediately secure all such available information and notify City and the utility owner, in writing, of its discovery.

13.02 Contractor To Protect Underground Facilities.

- A. At all times during construction, all operating Underground Facilities shall remain in operation, unless the Contract Documents expressly indicate otherwise. Contractor shall maintain such Underground Facilities in service where appropriate; shall repair any damage to them caused by the Work; and shall incorporate them into the Work, including reasonable adjustments to the design location (including minor relocations) of the existing or new installations. Contractor shall take immediate action to restore any in service installations damaged by Contractor’s operations.
- B. Prior to performing Work at the Site, Contractor shall lay out the locations of Underground Facilities that are to remain in service and other significant known underground installations indicated by the Underground Facilities Data. Contractor shall further locate, by carefully excavating with small equipment, potholing and principally by hand, all such utilities or installations that are to remain and that are subject to damage. If additional utilities whose locations are unknown are discovered, Contractor shall immediately report to City for disposition of the same. Additional compensation or extension of time on account of utilities not shown or otherwise brought to Contractor’s attention, including reasonable action taken to protect or repair damage, shall be determined as provided in this Document 00 7200.
- C. If during construction, an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated in the materials supplied by City for bidding or in information on file at USA or otherwise reasonably available to Contractor, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby (and in no event later than seven calendar days), and prior to performing any Work in connection therewith (except in an emergency), identify the owner of such Underground Facility and give written notice to that owner and to City. During such time, Contractor shall be responsible for the

safety and protection of such Underground Facility.

- D. The cost of all of the following will be included in the Contract Sum and Contractor shall have full responsibility for (a) reviewing and checking all available information and data including, but not limited to, information made available for bidding and information on file at USA; (b) locating all Underground Facilities shown or indicated in the Contract Documents, available information, or indicated by visual observation including, but not limited to, and by way of example only, engaging qualified locating services and all necessary backhoeing and potholing; (c) coordination of the Work with the owners of such Underground Facilities during construction; and (d) the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.
- E. Consistent with California Government Code §4215, as between City and Contractor, City will be responsible for the timely removal, relocation, or protection of existing main or trunk line utility facilities located on the Site only if such utilities are not identified in the Contract Documents or information made available for bidding. City will compensate for the cost of locating and repairing damage not due to Contractor's failure to exercise reasonable care, removing and relocating such main or trunk line utility facilities not indicated in the Contract Documents or information made available for bidding with reasonable accuracy, and equipment on the Project necessarily idled during such Work. Contractor shall not be assessed liquidated damages for delay in completion of the Project, when such delay was caused by the failure of City or the utility to provide for removal or relocation of such utility facilities.

13.03 Concealed Or Unknown Conditions

- A. If either of the following conditions is encountered at Site when digging trenches or other excavations that extend deeper than four feet below the surface, Contractor shall give a written Notice of Differing Site Conditions to City promptly before conditions are disturbed, except in an emergency as set forth in this Document 00 7200, and in no event later than seven calendar days after first observance of:
 - 1. Subsurface or Latent physical conditions which differ materially from those indicated in the Contract Documents; or
 - 2. Unknown physical conditions of an unusual nature or which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.
- B. In response to Contractor's Notice of Differing Site Conditions under this Paragraph, City will investigate the identified conditions, and if they differ materially and cause increase or decrease in Contractor's cost of, or time required for, performance of any part of the Work, City will negotiate the appropriate change order following the procedures set forth in the Contract Documents. If City determines that physical conditions at the Site are not Latent or are not materially different from those indicated in Contract Documents or that no change in terms of the Contract Documents is justified, City will so notify Contractor in writing, stating reasons (with Contractor retaining its rights under Article 12 of this Document 00 7200.)
- C. Contractor shall not be entitled to any adjustment in the Contract Sum or Contract Time regarding claimed Latent or materially different Site conditions (whether above or below grade) if Contractor knew or should have known of the existence of such conditions at the time Contractor submitted its Bid, failed to give proper notice, or relied upon information, conclusions, opinions or deductions of the kind that the Contract Documents preclude reliance upon.
- D. Regarding Underground Facilities, Contractor shall be allowed an increase in the Contract Sum or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that is owned and was built by City only where the Underground Facility:
 - 1. Was not shown or indicated in the Contract Documents or in the information supplied for bidding purposes or in information on file at USA; and
 - 2. Contractor did not know of it; and
 - 3. Contractor could not reasonably have been expected to be aware of it or to have anticipated it from the information available. (For example, if surface conditions such as

pavement repairs, valve covers, or other markings, indicate the presence of an Underground Facility, then an increase in the Contract Sum or an extension of the Contract Time will not be due, even if the Underground Facility was not indicated in the Contract Documents, in the information supplied to Contractor for bidding purposes, in information on file at USA, or otherwise reasonably available to Contractor.)

- E. Contractor shall bear the risk that Underground Facilities not owned or built by City may differ in nature or locations shown in information made available by City for bidding purposes, in information on file at USA, or otherwise reasonably available to Contractor. Underground Facilities are inherent in construction involving digging of trenches or other excavations on City's Project, and Contractor is to apply its skill and industry to verify the information available.
- F. Contractor's compensation for claimed Latent or materially different Site conditions shall be limited to the actual, reasonable, incremental increase in cost of that portion of the Work, resulting from the claimed Latent or materially different Site conditions. Such calculation shall take into account the estimated value of that portion of the Work and the actual value of that portion of the Work, using for guidance Contractor's or its subcontractor's bid amount and actual amounts incurred for that portion of the Work and the reasonable expectation (if any) of differing or difficult site conditions in the Work area based on the available records and locale of the Work. For example, if Contractor excavates in an area unexpected, then such costs would be recoverable entirely; while if Contractor extends an existing excavation, then such costs would be recoverable if the resulting excavation costs in that work area exceeded the reasonable expectations therefore.

13.04 Notice Of Hazardous Waste Or Materials Conditions

- A. Contractor shall give a written Notice of Hazardous Materials Condition to City promptly, before any of the following conditions are disturbed (except in an emergency as set forth in this Document 00 7200), and in no event later than 24 hours after first observance of any:
 - 1. Material that Contractor believes may be hazardous waste or hazardous material, as defined in Section 25117 of the Health and Safety Code (including, without limitation, Asbestos, lead, PCBs, petroleum and related hydrocarbons, and radioactive material) that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law ("hazardous material"); or
 - 2. Other material that may present an imminent substantial danger to persons or property exposed thereto in connection with Work at the Site ("other materials").
- B. Except as otherwise provided in the Contract Documents or as provided by applicable law, Contractor shall not be required to give any notice for the disturbance or observation of any such hazardous materials or other materials where such matter is disturbed or observed as part of the scope of Work under the Contract Documents (such as hazardous waste or hazardous material investigation, remediation or disposal activities which are identified as the subject of Work under the Contract Documents), where Contractor complies with all requirements in the Contract Documents and applicable law respecting such materials.
- C. Contractor's Notice of Hazardous Materials Condition shall indicate whether the hazardous materials or other materials were shown or indicated in the Contract Documents to be within the scope of Work, and whether the hazardous materials or other materials were brought to the Site by Contractor, its Subcontractors, suppliers, or anyone else for whom Contractor is responsible.
- D. Contractor shall not be entitled to any adjustment in the Contract Sum or Contract Time regarding claimed hazardous waste or materials if:
 - 1. Contractor knew of the existence of such hazardous materials or other materials at the time Contractor submitted its Bid; or
 - 2. Contractor should have known of the existence of such hazardous material or other materials as a result of its having the responsibility to obtain additional or supplementary examinations, investigation, explorations, tests, studies, and data concerning the conditions at or contiguous to the Site prior to submitting its Bid; or
 - 1. Contractor failed to give the written notice within the required timeframe set forth below.
- E. If City determines that conditions involve hazardous materials or other materials and that a

change in Contract Document terms is justified, City will issue either a Request for Proposal or Construction Change Directive under the procedures described in the Contract Documents. If City determines that conditions do not involve hazardous materials or other materials or that no change in Contract Document terms is justified, City will notify Contractor in writing, stating the reasons for its determination.

- F. In addition to the parties' other rights under this Document 00 7200, if Contractor does not agree to resume Work based on a reasonable belief that it is unsafe, or does not agree to resume Work under special conditions, City may order the disputed portion of Work deleted from the Work, or performed by others, or City may invoke its right to terminate Contractor's right to proceed under the Contract Documents in whole or in part, for convenience or for cause as the facts may warrant.
- G. If Contractor does not agree with any City determination of any adjustment in the Contract Sum or Contract Time under this Article, Contractor may make a claim as provided in Article 12 of this Document 00 7200.

ARTICLE 14 – LEGAL AND MISCELLANEOUS

14.01 Laws And Regulations

- A. Contractor shall keep fully informed of and shall comply with all laws, ordinances, regulations and orders of any properly constituted authority affecting the Contract Documents, Work and persons connected with Work, and shall protect and indemnify City and its officers, employees, consultants and agents against any claim or liability, including attorney's fees, arising from or based on violation of law, ordinance, regulation or order, whether by Contractor or by Subcontractors, employees or agents. Authorized persons may at any time enter upon any part of Work to ascertain compliance of all applicable laws, ordinances, regulations and orders.

14.02 Permits And Taxes

- A. Contractor shall procure all permits and licenses applicable to the Work (including environmental matters to the extent applicable); pay all charges and fees, including fees for street opening permits; comply with, implement and acknowledge effectiveness of all permits; initiate and cooperate in securing all required notifications or approvals therefore; and give all notices necessary and incident to due and lawful prosecution of Work, unless otherwise provided herein. City will pay applicable building permits, sanitation and water fees for the completed construction, except as otherwise provided in the Contract Documents. Contractor shall pay all sales and/or use taxes levied on materials, supplies, or equipment purchased and used on or incorporated into Work, and all other taxes properly assessed against equipment or other property used in connection with Work, without any increase in the Contract Sum. Contractor shall make necessary arrangements with proper authorities having jurisdiction over roads, streets, pipelines, navigable waterways, railroads, and other works in advance of operations, even where City may have already obtained permits for the Work.

14.03 Communications And Information Distribution

- A. All communications recognized under the Contract Documents shall be in writing, in the form of a serialized document, by type of communication. For example, RFI's shall be serialized beginning with RFI No. 1; payment applications shall be serialized beginning with Payment Application No. 1, submittals shall be serialized per specification section and transmitted with transmittal sheets beginning with Transmittal No. 1; and correspondence shall be serialized beginning with letter No. 1. Contractor may propose other record management and identification systems or protocols, intended to facilitate orderly transmittal of project information, storage and retrieval of such information, which City will review consistent with these stated objectives, and accept or reject in its sole discretion.
- B. Documents Requiring Signatures. All documents requiring signatures for approval prior to implementing action, as stipulated in other portions of Contract Documents, shall require a manually signed, serialized letter delivered to the other party at its address for notice otherwise specified in the Contract Documents, either personally or by mail.

- C. Electronic data transfer of such correspondence will serve to expedite preliminary concurrence of information, only. Receipt of "hard copy" signature on forms is required prior to implementing action or work as the conditions may require. For example, change orders and authorizations for extra cost, require signatures. A party may acknowledge receipt of PDF copies of required correspondence by e-mail, but in the absence of such acknowledgment, mail or personal delivery is required.
- D. All emails shall be copied to City's and Contractor's Project Representative. City reserves the right to preclude e-mail communication, in whole or in part, as Project needs may require. Communication between City and Contractor shall not be via Twitter, Facebook, or other types of instant text message systems. Any such communications shall be inadmissible for any purpose related to this Contract.

14.04 Suspension Of Work

- A. City may, without cause, order Contractor in writing to suspend, delay or interrupt Work in whole or in part for such period of time as City may determine. An adjustment shall be made for increases in cost of performance of Work of the Contract Documents caused by any such suspension, delay or interruption, calculated using the measures set forth in Section 01 2600 (Modification Procedures). No adjustment shall be made to extent that performance is, was or would have been so suspended, delayed or interrupted by another cause for which Contractor is responsible.

14.05 Termination Of Contract For Cause

- A. The Contractor shall be in default of the Contract Documents and City may terminate the Contractor's right to proceed under the Contract Documents, for cause, in whole or in part, should the Contractor commit a material breach of the Contract Documents and not cure such breach within ten (10) calendar days of the date of notice from City to the Contractor demanding such cure; or, if such breach is curable but not curable within such ten (10) day period, within such period of time as is reasonably necessary to accomplish such cure. (In order for the Contractor to avail itself of a time period in excess of 10 calendar days, the Contractor must provide City within the ten (10) day period with a written plan acceptable to City that demonstrates actual resources, personnel and a schedule to promptly to cure said breach, and then diligently commence and continue such cure according to the written plan).
- B. In the event of termination by City for cause as provided herein, the Contractor shall deliver to City possession of the Work in its then condition, including but not limited to, all designs, engineering, Project records, cost data of all types, plans and specifications and contracts with vendors and subcontractors, all other documentation associated with the Project, and all construction supplies and aids dedicated solely to performing the Work which, in the normal course of construction, would be consumed or only have salvage value at the end of the construction period. The Contractor shall remain fully liable for the failure of any Work completed and materials and equipment provided through the date of such termination to comply with the provisions of the Contract Documents. The provisions of this Section shall not be interpreted to diminish any right which City may have to claim and recover damages for any breach of the Contract Documents or otherwise, but rather, the Contractor shall compensate City for all loss, cost, damage, expense, and/or liability suffered by City as a result of such termination and/or failure to comply with the Contract Documents.
- C. In the event a termination for cause is later determined to have been made wrongfully or without cause, then the termination shall be treated as a termination for convenience, and the Contractor shall have no greater rights than it would have had following a termination for convenience. Any Contractor claim arising out of a termination for cause shall be made in accord with Article 12 herein. No other loss, cost, damage, expense or liability may be claimed, requested or recovered by the Contractor.

14.06 Termination Of Contract For Convenience

- A. City may terminate performance of the Work under the Contract Documents in accordance with this clause in whole, or from time to time in part, whenever City shall determine that termination is

in City's best interest. Termination shall be effected by City delivering to the Contractor notice of termination specifying the extent to which performance of the Work under the Contract Documents is terminated, and the effective date of the termination.

- B. Contractor shall comply strictly with City's direction regarding the effective date of the termination, the extent of the termination, and shall stop work on the date and to the extent specified.
- C. Contractor shall be entitled to a total payment on account of the Contract work so terminated measured by (i.) the actual cost to Contractor of Work actually performed, up to the date of the termination, with profit and overhead limited to twelve percent (12%) of actual cost of work performed, up to but not exceeding the actual contract value of the work completed as measured by the Schedule of Values and Progress Schedule, (ii.) offset by payments made and other contract credits. In connection with any such calculation, however, City shall retain all rights under the Contract Documents, including but not limited to claims, indemnities, or setoffs.
- D. Under no circumstances may Contractor recover legal costs of any nature, nor may Contractor recover costs incurred after the date of the termination.

14.07 Contingent Assignment Of Subcontracts

- A. Contractor hereby assigns to City each Subcontract for a portion of the Work, provided that:
 - 1. The assignment is effective only after City's termination of Contractor's right to proceed under the Contract Documents (or portion thereof relating to that Subcontract) as set forth herein.
 - 2. The assignment is effective only for the Subcontracts which City expressly accepts by notifying the Subcontractor in writing;
 - 3. The assignment is subject to the prior rights, if any, of the Surety, obligated by Document 00 6113.13 (Construction Performance Bond) provided under the Contract Documents, where the Surety exercises its rights to complete the Contract;
 - 4. After the effectiveness of an assignment, Contractor shall, at its sole cost and expense (except as otherwise provided in this Document 00 7200), sign all instruments and take all actions reasonably requested by City to evidence and confirm the effectiveness of the assignment in City; and
 - 5. Nothing in this Paragraph shall modify or limit any of Contractor's obligations to City arising from acts or omissions occurring before the effectiveness of any Subcontract assignment, including but not limited to all defense, indemnity and hold-harmless obligations arising from or related to the assigned Subcontract.

14.08 Remedies And Contract Integration

- A. Subject to Contract Documents provisions regarding Contractor claims, claim review, and claim resolution, and subject to the limitations therein, the exclusive jurisdiction and venue for resolving all claims, counter claims, disputes and other matters in question between City and Contractor arising out of or relating to Contract Documents, any breach thereof or the Project shall be the applicable court of competent jurisdiction located in the State and County where the Project is located. All City remedies provided in the Contract Documents shall be taken and construed as cumulative and not exclusive; that is, in addition to each and every other remedy herein provided; and in all instances City shall have any and all other equitable and legal rights and remedies which it would have according to law.
- B. The Contract Documents, any Contract Modifications and Change Orders, shall represent the entire and integrated agreement between City and Contractor regarding the subject matters hereof and thereof and shall constitute the exclusive statement of the terms of the parties' agreement. The Contract Documents, and any Contract Modifications and Change Orders, shall supersede any and all prior negotiations, representations or agreements, written or oral, express or implied, that relate in any way to the subject matter of the Contract Documents or written Modifications. City and Contractor represent and agree that, except as otherwise expressly provided in the Contract Documents, they are entering into the Contract Documents and any subsequent written Modification in sole reliance upon the information set forth or referenced in the Contract Documents or Contract Modifications; the parties are not and will not rely on any other

information, which shall be inadmissible in any proceeding to enforce these documents.

- C. Either party's waiver of any breach or failure to enforce any of the terms, covenants, conditions or other provisions of the Contract Documents at any time shall not in any way affect, limit, modify or waive that party's right thereafter to enforce or compel strict compliance with every term, covenant, condition or other provision hereof, any course of dealing or custom of the trade or oral representations notwithstanding.
- D. Neither acceptance of the whole or any part of Work by City nor any verbal statements on behalf of City or its authorized agents or representatives shall operate as a waiver or modification of any provision of the Contract Documents, or of any power reserved to City herein nor any right to damages provided in the Contract Documents.

14.09 Interpretation.

- A. Should any part, term or provision of this Agreement or any of the Contract Documents, or any document required herein or therein to be executed or delivered, be declared invalid, void or unenforceable, all remaining parts, terms and provisions shall remain in full force and effect and shall in no way be invalidated, impaired or affected thereby. If the provisions of any law causing such invalidity, illegality or unenforceability may be waived, they are hereby waived to the end that this Agreement and the Contract Documents may be deemed valid and binding agreements, enforceable in accordance with their terms to the greatest extent permitted by applicable law. In the event any provision not otherwise included in the Contract Documents is required to be included by any applicable law, that provision is deemed included herein by this reference (or, if such provision is required to be included in any particular portion of the Contract Documents, that provision is deemed included in that portion).
- B. Contract Documents shall not be construed to create a contractual relationship of any kind between (1) Project Manager or any City's representative and Contractor; (2) City and/or its Representatives and a Subcontractor, sub-Subcontractor, or supplier of any Project labor, materials, or equipment; or (3) between any persons or entities other than City and Contractor.

14.10 Patents

- A. Fees or claims for any patented invention, article or arrangement that may be used upon or in any manner connected with performance of the Work or any part thereof shall be included in the Bid price for doing the Work. Contractor shall defend, indemnify and hold harmless City and each of its officers, employees, consultants and agents, including, but not limited to, the Board and each City's Representative, from all damages, claims for damages, costs or expenses in law or equity, including attorney's fees, arising from or relating to any claim that any article supplied or to be supplied under the Contract Documents infringes on the patent rights, copyright, trade name, trademark, service mark, trade secret or other intellectual property right of any person or persons or that the person or entity supplying the article does not have a lawful right to sell the same. Such costs or expenses for which Contractor agrees to indemnify and hold harmless the above indemnities include but are not limited to any and all license fees, whether such fees are agreed by any indemnitee or ordered by a court or administrative body of any competent jurisdiction.

14.11 Substitution For Patented And Specified Articles

- A. Except as noted specifically in the instructions to Bidders or in Contract Documents, whenever in Specifications, material or process is designated by patent or proprietary name or by name of manufacturer, such designation shall be deemed to be used for purpose of facilitating description of material and process desired, and shall be deemed to be followed by the words "or Approved Equal" and Contractor may offer any substitute material or process that Contractor considers "equal" in every respect to that so designated and if material or process offered by Contractor is, in opinion of City, Equal in every respect to that so designated, its use will be approved. However, Contractor may utilize this right only by timely submitting Document 00 6325 (Substitution Request Form) as provided in Document 00 2113 (Instructions to Bidders). A substitution will be approved only if it is a true "or equal" item in every aspect of its design and quality, including but not limited to its dimensions, weights, service requirements, durability, functioning, impact on contiguous construction elements, overall schedule and design.

14.12 Interest Of Public Officers

- A. No representative, officer, or employee of City no member of the governing body of the locality in which the Project is situated, no member of the locality in which City was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the Project, during the tenure of the official or for one year thereafter, shall, as principal, agent, attorney or otherwise, be directly or indirectly interested, in the Contract Documents or the proceeds thereof.

14.13 Limit Of Liability

- A. CITY, AND EACH OF ITS OFFICERS, BOARD MEMBERS, EMPLOYEES, CONSULTANTS AND AGENTS INCLUDING, BUT NOT LIMITED TO, PROJECT MANAGER AND EACH OTHER CITY REPRESENTATIVE, SHALL HAVE NO LIABILITY TO CONTRACTOR FOR SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, EXCEPT TO THE LIMITED EXTENT THAT THESE CONTRACT DOCUMENTS OR APPLICABLE PUBLIC CONTRACTING STATUTES MAY SPECIFY THEIR RECOVERY.

ARTICLE 15 – WORKING CONDITIONS AND PREVAILING WAGES**15.01 Use Of Site/Sanitary Rules**

- A. All portions of the Work shall be maintained at all times in neat, clean and sanitary condition. Contractor shall furnish toilets for use of Contractor's and Subcontractors' employees on the Site where needed, and their use shall be strictly enforced. All toilets shall be properly secluded from public observation, and shall be located, constructed and maintained subject to City's approval.
- B. Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Site and land areas identified in and permitted by Contract Documents and other land and areas permitted by applicable laws and regulations, rights of way, permits and easements or as designated by City, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, any improvement located thereon, or to City or occupant thereof resulting from the performance of Work.
- C. During the progress of the Work, Contractor shall keep the Site and the Project free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, Contractor shall clean the site, remove all waste materials, rubbish and debris from and about the Site as well as all tools, appliances, construction equipment and machinery and surplus materials. Contractor shall leave the premises clean and ready for occupancy by City at Substantial Completion of Work. Contractor shall restore to original condition all property not designated for alteration by Contract Documents.
- D. Contractor shall not load nor permit any part of any structure or pavement to be loaded in any manner that will endanger the structure or pavement, nor shall Contractor subject any part of Work or adjacent property to stresses or pressures that will endanger it. Contractor shall conduct all necessary existing conditions investigation regarding structural, mechanical, electrical or any other system existing, shall perform Work consistent with such existing conditions, and shall have full responsibility for insufficiencies or damage resulting from insufficiencies of existing systems, equipment or structures to accommodate performing the Work.

15.02 Protection Of Work, Persons, And Property

- A. Contractor shall be responsible for initiating, maintaining and supervising all safety and site security precautions and programs in connection with Work, and shall develop and implement a site security and safety plan throughout construction. Contractor shall comply with all safety requirements specified in any safety program established by City, or required by state, federal or local laws and ordinances. Contractor shall be responsible for all theft or damage to Work, property or structures, and all injuries to persons, either on the Site or constituting the Work (e.g., materials in transit), arising from the performance of Work of the Contract Documents from a cause.

- B. Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property.
- C. Contractor shall remedy all damage, injury or loss to any property referred to above in this Article, caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, supplier, or any other person or organization directly or indirectly employed by any of them to perform or furnish any Work or anyone for whose acts any of them may be liable. Contractor's duties and responsibility for safety and for protection of Work shall continue until such time as all the Work is completed and Final Acceptance of the Work. City and its agents do not assume any responsibility for collecting any indemnity from any person or persons causing damage to Contractor's Work.
- D. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.
- E. City may, at its option, retain such moneys due under the Contract Documents as City deems necessary until any and all suits or claims against Contractor for injury to persons or property shall be settled and City receives satisfactory evidence to that effect.
- F. Work within the right-of-way lines of the city and/or City and/or State shall be done in accordance with the standards and specifications of the controlling agency. Permit for such work shall be obtained and paid for by the Contractor before executing the work within such right-of-ways.

15.03 Responsibility For Safety And Health

- A. Contractor shall ensure that its and each tier of Subcontractors' employees, agents and invitees comply with applicable health and safety laws while at the Site. These laws include the Occupational Safety and Health Act of 1970 and rules and regulations issued pursuant thereto, and City's safety regulations as amended from time to time. Contractor shall comply with all City directions regarding protective clothing and gear.
- B. Contractor shall be fully responsible for the safety of its and its Subcontractors' employees, agents and invitees on the Site. Contractor shall notify City, in writing, of the existence of hazardous conditions, property or equipment at the Site that are not under Contractor's control. Contractor shall be responsible for taking all the necessary precautions against injury to persons or damage to the property of Contractor, Subcontractors or persons from recognized hazards until the responsible party corrects the hazard.
- C. Contractor shall confine all persons acting on its or its Subcontractors' behalf to that portion of the Site where Work under the Contract Documents is to be performed, City-designated routes for ingress and egress thereto, and any other City-designated area. Except those routes for ingress and egress over which Contractor has no right of control, within such areas, Contractor shall provide safe means of access to all places at which persons may at any time have occasion to be present.

15.04 Emergencies

- A. In emergencies affecting the safety or protection of persons or Work or property at the Site or adjacent thereto, Contractor, without special instruction or authorization from City, is obligated to act to prevent threat and damage, injury or loss, until directed otherwise by City. Contractor shall give City prompt written notice if Contractor believes that any significant changes in Work or variations from Contract Documents have been caused thereby. If City determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Change Order or Construction Change Directive will be issued to document the consequences of such action.

15.05 Use Of Roadways And Walkways

- A. Contractor shall not unnecessarily interfere with use of any roadway, walkway or other facility for

vehicular or pedestrian traffic. Before beginning any interference and only with City's prior concurrence, Contractor may provide detour or temporary bridge for traffic to pass around or over the interference, which Contractor shall maintain in satisfactory condition as long as interference continues. Unless otherwise provided in the Contract Documents, Contractor shall bear the cost of these temporary facilities.

15.06 Nondiscrimination

- A. No person or entity shall discriminate in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sexual preference, or gender of such persons, except as provided in Section 12940 of the California Government Code. Every contractor for public works violating the provisions of Section 1735 of the California Labor Code is subject to all the penalties imposed for a violation of Chapter 1, Part 7, Division 2 of the California Labor Code.

15.07 Prevailing Wages And Working Hours

- A. Contractor shall pay to persons performing labor in and about Work provided for in the Contract Documents an amount equal to or more than the general prevailing rate of per diem wages for (1) work of a similar character in the locality in which the Work is performed and (2) legal holiday and overtime work in said locality. The per diem wages shall be an amount equal to or more than the stipulated rates contained in a schedule that has been ascertained and determined by the Director of the State Department of Industrial Relations and City to be the general prevailing rate of per diem wages for each craft or type of workman or mechanic needed to execute this Contract. Contractor shall also cause a copy of this determination of the prevailing rate of per diem wages to be posted at each Site.
- B. Contractor shall forfeit, as a penalty to City, Fifty Dollars (\$50.00) for each laborer, workman, or mechanic employed in performing labor in and about the Work provided for in the Contract Documents for each Day, or portion thereof, that such laborer, workman or mechanic is paid less than the said stipulated rates for any Work done under the Contract Documents by him or her or by any Subcontractor under him or her, in violation of Articles 1 and 2 of Chapter 1 of Part 7 of Division II of the California Labor Code. The sums and amounts which shall be forfeited pursuant to this Paragraph and the terms of the California Labor Code shall be withheld and retained from payments due to Contractor under the Contract Documents, pursuant to this Document 00 7200 and the California Labor Code, but no sum shall be so withheld, retained or forfeited except from the final payment without a full investigation by either the State Department of Industrial Relations or by City. The Labor Commissioner pursuant to California Labor Code §1775 shall determine the final amount of forfeiture.
- C. Contractor shall insert in every subcontract or other arrangement which Contractor may make for performance of Work or labor on Work provided for in the Contract, provision that Subcontractor shall pay persons performing labor or rendering service under subcontract or other arrangement not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the Work is performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed in the California Labor Code.
- D. Contractor stipulates that it shall comply with all applicable wage and hour laws, including without limitation, California Labor Code §§ 1776 and 1810-1815. Failure to so comply shall constitute a default under this Contract.
- E. Contractor and its Subcontractors shall be responsible for compliance with Labor Code §§ 1810-1815.
 - 1. Eight hours of labor performed in execution of the Contract constitutes a legal day's work. The time of service of any workman employed on the Project is limited and restricted to 8 hours during any one calendar day, and 40 hours during any one calendar week.
 - 2. Contractor and its Subcontractors shall keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by him or her in connection with the Project. The record shall be kept open at all reasonable hours to the inspection City and to the Division of Labor Standards Enforcement.

3. Contractor or its Subcontractors shall, as a penalty to City, forfeit twenty-five dollars (\$25) for each worker employed in the execution of the Contract Documents by the respective Contractor or Subcontractor for each calendar day during which the worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of Labor Code §§ 1810-1815.
 4. Work performed on the Project by employees of Contractor or its Subcontractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon compensation for all hours worked in excess of 8 hours per day at not less than 1 1/2 times the basic rate of pay.
- F. Contractor and its Subcontractors shall be responsible for compliance with Labor Code Section 1776.
1. Contractor and Subcontractors must keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the Work of the Contract Documents. Each payroll record shall contain or be verified by a written declaration as required by Labor Code Section 1776.
 2. The payroll records enumerated above must be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor as required by Labor Code Section 1776.
 - a. Contractor shall inform City of the location of records enumerated above, including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.
 - b. Contractor or Subcontractor has 10 calendar days in which to comply subsequent to receipt of a written notice requesting the records enumerated above. In the event that the Contractor or Subcontractor fails to comply with the ten-day period, he or she shall, as a penalty to City on whose behalf the contract is made or awarded, forfeit \$25.00 for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. Contractor is not subject to a penalty assessment pursuant to this Paragraph due to the failure of a Subcontractor to comply with this Paragraph.
 3. Contractor shall also deliver certified payrolls to City with each Application for Payment as set forth above in this Document 00 7200 (General Conditions).

15.08 Environmental Controls

- A. Contractor shall comply with all rules, regulations, ordinances, and statutes that apply to any Work performed under the Contract Documents including, without limitation, any toxic, water, stormwater management and soil pollution controls and air pollution controls specified in California Government Code §11017. Contractor shall be responsible for insuring that Contractor's Employees, Subcontractors, and the public are protected from exposure to airborne hazards or contaminated water, soil, or other toxic materials used during or generated by activities on the Site or associated with the Project.

15.09 Shoring Safety Plan

- A. Any conflict between this Paragraph and Division 2 of the Specifications shall be resolved in favor of the most stringent requirement.
- B. At least five calendar days in advance of any excavation five feet or more in depth, Contractor shall submit to City a detailed plan showing the shoring, bracing and sloping design (including calculations) and other provisions to be made for worker protection from the hazard of caving ground during the excavation, as required by California Labor Code §6705. A civil or structural engineer registered in California shall prepare and sign any plan that varies from the shoring system standards established by the State Construction Safety Orders.

- C. During the course of Work, Contractor shall be responsible for determining where sloping, shoring, and/or bracing is necessary and the adequacy of the design, installation, and maintenance of all shoring and bracing for all excavation, including any excavation less than five feet in depth. Contractor will be solely responsible for any damage or injuries that may result from excavating or trenching. City's acceptance of any drawings showing the shoring or bracing design or Work schedule shall not relieve Contractor of its responsibilities under this Paragraph.
- D. Appoint a qualified supervisory employee who shall be responsible to determine the sloping or shoring system to be used depending on local soil type, water table, stratification, depth, etc.

ARTICLE 16 – CONTRACTING POLICIES

16.01 First Source Hiring Requirement

- A. Contractor, and any subcontractors, shall utilize the City's First Source Construction Program under the terms set forth in the First Source specifications. (Appendix 00812-C)
 - 1. Under the First Source program, Contractor must employ, to the extent possible, a work force where no less than twenty-five percent of the work hours are performed by Berkeley residents, and fifty percent of all new hires are Berkeley residents, on a craft-by-craft basis.
 - 2. To achieve the goals, Contractors may either:
 - a. Utilize the City's First Source referral service, or
 - b. Demonstrate a good faith effort to achieve the goals

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DOCUMENT 00 7201

SUPPLEMENTAL GENERAL CONDITIONS

[OPTIONAL]

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DOCUMENT 00 7316**SUPPLEMENTARY CONDITIONS – INSURANCE AND INDEMNIFICATION****ARTICLE 1 – INSURANCE**

1.01 At or before the date specified in Document 00 2113 (Instructions to Bidders), Contractor shall furnish to City of Berkeley (“City”) satisfactory proof that Contractor has taken out for the entire period covered by the Contract the following classes of insurance in the form and with limits and deductibles specified below, unless otherwise specified in Contract Documents:

- A. Comprehensive General Liability Insurance covering claims for personal injury, bodily injury and property damage arising out of the Work and in a form providing coverage not less than that of a Standard Commercial General Liability Insurance policy (“Occurrence Form”). Such insurance shall provide for all operations and include independent contractors, products liability, completed operations for one year after Final Completion and acceptance of the final payment for the Work, contractual liability, and coverage for explosion, collapse, and underground hazards. The limits of such insurance shall not be coverage of less than **[\$2,000,000]** each occurrence, **[\$2,000,000]** general aggregate limit, and **[\$2,000,000]** aggregate for products and completed operations, with defense costs payable in addition to policy limits. The policies shall be endorsed to provide Broad Form Property Damage Coverage.
- B. Comprehensive Automobile Liability Insurance covering all owned, non-owned, and hired vehicles. Such insurance shall provide coverage not less than the standard Comprehensive Automobile Liability policy with limits not less than **[\$2,000,000]** each occurrence Bodily Injury, and **[\$2,000,000]** each occurrence Property Damage.
- C. All-Risk Course of Construction Insurance including damage to property owned by City, Contractor or third parties caused by fire. Insurance shall be in the amount of 100 percent of the completed value of the Work to be performed under this Contract. Deductible shall not exceed **[\$25,000]**. Each loss shall be borne by Contractor.
- D. Workers’ Compensation Insurance for all persons whom the Contractor may employ in carrying out Work contemplated under Contract Documents, in accordance with the Act of Legislature of State of California, known as “Workers’ Compensation Insurance and Safety Act,” approved May 26, 1913, and all acts amendatory or supplemental thereto, in the statutory amount. Workers’ Compensation Insurance is **[\$1,000,000]** each accident, with defense cost payable in addition to policy limits.
- E. Environmental Impairment Liability Insurance covering bodily injury and property damage utilizing an occurrence policy form, in an amount no less than **[\$1,000,000]** combined single limit for each occurrence, subject to a **[\$1,000,000]** aggregate applicable to each job, with defense costs payable in addition to policy limits. The minimum deductible or self-insured retention permissible is **[\$25,000]** each occurrence.

1.02 All policies of insurance shall be placed with insurers acceptable to City. The insurance underwriter(s) for all insurance policies except Workers’ Compensation shall have an A. M. Best Company rating of A-, VIII or better, unless otherwise specified in Contract Documents. Required minimum amounts of insurance may be increased should conditions of Work, in opinion of City, warrant such increase. Contractor shall increase required insurance amounts upon direction by City.

1.03 Required Endorsements: The policies required under Document 00 7200 (General Conditions) and this Document 00 7316 shall be endorsed as follows:

- A. City of Berkeley, its officers, agents, volunteers, consultants, and employees shall be named as additional insureds, but only with respect to liability arising out of the activities of the named insured, and there shall be a waiver of subrogation as to each named and additional insured.
- B. Each such policy shall apply separately to each insured against whom claim is made or suit is

- brought, except with respect to the limit of the insurance company's liability required hereunder. Should any of the policies identified herein contain a "cross-suits" exclusion, such exclusion must not apply to any additional insureds.
- C. Written notice of cancellation or of any limits reduction change in said policy shall be mailed to the City thirty (30) calendar days in advance of the effective date thereof, and ten (10) calendar days written notice to the same in advance of payment of any insurance claims under such policies to any person, firm or entity.
 - D. Insurance shall be primary insurance and no other insurance or self-insured retention carried or held by any named or additional insureds shall be called upon to contribute to a loss covered by insurance for the named insured.
- 1.04** Written notice of cancellation, non-renewal, or reduction in coverage of any policy shall be mailed to City (Attention: Project Manager and the Construction Manager) at the address listed in Document 00 5200 (Agreement), 30 calendar days in advance of the effective date of the cancellation, non-renewal, or reduction in coverage. Written notice of cancellation for non-payment shall be mailed within 10 calendar days of cancellation.
- 1.05** Certificates of insurance and endorsements shall have clearly typed thereon City Specification Number, and Title of Project of Contract Documents. Contractor shall maintain insurance in full force and effect during entire period of performance of Contract Documents.
- 1.06** Contractor shall keep insurance in force during warranty and guarantee periods, except that Contractor may discontinue All-Risk Course of Construction Insurance after Final Payment. At time of making application for extension of time, and during all periods exceeding the Contract Time resulting from any cause, Contractor shall submit evidence that insurance policies will be in effect during requested additional period of time. Upon City's request, Contractor shall submit to City, within 30 calendar days, copies of the actual insurance policies or renewals or replacements.
- 1.07** Contractor shall pay all insurance premiums, including any charges for required waivers of subrogation or the endorsement of additional insureds. If Contractor fails to maintain insurance, City may take out comparable insurance, and deduct and retain amount of premium from any sums due Contractor under Contract Documents.
- 1.08** If injury occurs to any employee of Contractor, Subcontractor or sub-subcontractor for which the employee, or the employee's dependents in the event of employee's death, is entitled to compensation from City under provisions of the Workers' Compensation Insurance and Safety Act, as amended, or for which compensation is claimed from City, City may retain out of sums due Contractor under Contract Documents, amount sufficient to cover such compensation, as fixed by the Act, as amended, until such compensation is paid, or until it is determined that no compensation is due. If City is compelled to pay compensation, City may, in its discretion, either deduct and retain from the Contract Sum the amount so paid, or require Contractor to reimburse City.
- 1.09** Nothing herein shall be construed as limiting in any way the extent to which Contractor or any Subcontractor may be held responsible for payment of damages resulting from their operations.
- 1.10** All Subcontractors shall maintain the same insurance required to be maintained by Contractor with respect to their portions of the Work unless otherwise indicated in Contract Documents, and Contractor shall cause the Subcontractors to furnish proof thereof to City within ten calendar days of City's request.
- 1.11** The following provisions apply to any licensed professional engaged by Contractor to perform portions of the Work ("Professional").
- A. Each Professional shall maintain the following insurance, unless otherwise specified in Contract Documents:
 - B. Professional Liability Insurance, insuring against professional errors and omissions arising from Professional's Work on the Project, in an amount not less than **[\$2,000,000]** combined single limit for each occurrence. If Professional cannot provide an occurrence policy, Professional shall

provide insurance covering claims made as a result of performance of Work on this Project and shall maintain such insurance in effect for not less than two years following Final Completion of the Project.

- C. Professional shall satisfy all other provisions of this Document 00 7316 relating to that insurance, including without limitation providing required insurance certificates (containing the required endorsements) before commencing its Work on the Project.

ARTICLE 2 – RESPONSIBILITY OF CONTRACTOR AND INDEMNIFICATION

- 2.01** City and each of its officers, employees, consultants and agents including, but not limited to, the Board, Project Manager and Construction Manager and each City's Representative, shall not be liable or accountable in any manner for loss or damage that may happen to any part of the Work; loss or damage to materials or other things used or employed in performing the Work; injury, sickness, disease, or death of any person; or damage to property resulting from any cause whatsoever except their sole negligence, willful misconduct or active negligence, attributable to performance or character of the Work, and Contractor releases all of the foregoing persons and entities from any and all such claims.
- 2.02** To the furthest extent permitted by law (including without limitation California Civil Code §2782), Contractor shall assume defense of, and indemnify and hold harmless, City and each of its officers, employees, consultants and agents, including but not limited to the Board, Project Manager and Construction Manager and each City's Representative, from claims, suits, actions, losses and liability of every kind, nature and description, including but not limited to claims and fines of regulatory agencies and attorney's fees and consultant's fees, directly or indirectly arising out of, connected with or resulting from performance of the Work, failure to perform the Work, or condition of the Work which is caused in whole or part by any act or omission of Contractor, Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, resulting from any cause whatsoever except their sole negligence, willful misconduct or active negligence.
- 2.03** With respect to third-party claims against Contractor, Contractor waives any and all rights to any type of express or implied indemnity against City and each of its officers, employees, consultants and agents including, but not limited to City, the Board, Project Manager and Construction Manager and each City's Representative. City shall provide timely notice to Contractor of any third-party claim relating to the Contract Documents, in accordance with Section 9201 of the California Public Contract Code.
- 2.04** Approval or purchase of any insurance contracts or policies shall in no way relieve from liability nor limit the liability of Contractor, its Subcontractors of any tier, or the officers or agents of any of them.
- 2.05** To the furthest extent permitted by law (including, without limitation, Civil Code §2782), the indemnities, releases of liability and limitations of liability, claims procedures, and limitations of remedy expressed throughout Contract Documents shall apply even in the event of breach of Contract, negligence (active or passive), fault or strict liability of the party(ies) indemnified, released, or limited in liability, and shall survive the termination, rescission, breach, abandonment, or completion of the Work or the terms of the Contract Documents. If Contractor fails to perform any of these defense or indemnity obligations, City may in its discretion back charge Contractor for City's costs and damages resulting therefrom and withhold such sums from progress payments or other Contract moneys which may become due.
- 2.06** The indemnities in the Contract Documents shall not apply to any indemnified party to the extent of its sole negligence or willful misconduct; nor shall they apply to City or other indemnified party to the extent of its active negligence.

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DOCUMENT 00 7317**SUPPLEMENTARY CONDITIONS – CITY OF BERKELEY CONTRACTING POLICIES****ARTICLE 1 – GENERAL****1.01 DESCRIPTION**

A. This document includes requirements which supplement the sections of the General Conditions.

1.02 PROHIBITED DISCRIMINATION. The following paragraphs shall be added to the General Conditions as a new Article 16.A, and, with the additions set forth in paragraphs 1.03 through 1.08, below, shall constitute a new Section 16 of Document 00 7200, General Conditions, entitled “16: City of Berkeley Contracting Policies”.

“16. A **PROHIBITED DISCRIMINATION:** During prosecution of the Work to be done under the Contract, Contractor shall comply with the provisions of Berkeley Municipal Code (“B.M.C.”) Chapter 13.26, including, but not limited to, the following:

1. Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, ancestry, national origin, age (over 40), sex, pregnancy, marital status, disability, sexual orientation or AIDS.
2. Contractor shall permit the City access to records of employment, employment advertisements, application forms, EEO-1 forms, affirmative action plans and any other documents which, in the opinion of the City, are necessary to monitor compliance with this non-discrimination provision. In addition, Contractor shall submit forms supplied by the City to monitor this non-discrimination provision.”

1.03 CONFLICTS OF INTEREST PROHIBITED. The following paragraphs shall be added to Document 00 7200, General Conditions, as a new Section:

“16. B **CONFLICTS OF INTEREST PROHIBITED:**

1. In accordance with Government Code section 1090, Berkeley City Charter section 36 and B.M.C. Chapter 3.64, neither Contractor nor any employee, officer, director, partner or member of Contractor or immediate family member of any of the preceding, shall have served as an elected officer, an employee, or a City board, committee or commission member, who has directly or indirectly influenced the making of the Agreement.
2. In accordance with Government Code section 1090 and the Political Reform Act, Government Code section 87100 *et seq.*, no person who is a director, officer, partner, trustee, employee or consultant of the Contractor, or immediate family member of any of the preceding, shall make or participate in a decision made by the City or a City board, commission or committee, if it is reasonably foreseeable that the decision will have a material effect on any source of income, investment or interest in real property of that person or Contractor.
 - a. Interpretation of this section shall be governed by the definitions and provisions used in the Political Reform Act, Government Code section 87100 *et seq.*, its implementing regulations, manuals and codes, Government Code section 1090, Berkeley City Charter section 36 and B.M.C. Chapter 3.64.”

- 1.04** NUCLEAR FREE BERKELEY ORDINANCE. The following paragraphs shall be added to Document 00 7200, General Conditions, as a new Section:

“16. C NUCLEAR FREE BERKELEY ORDINANCE:

1. Contractor agrees to comply with B.M.C. Chapter 12.90, the Nuclear Free Berkeley Act, as amended from time to time.”

- 1.05** CONTRACTUAL RELATIONS WITH PROHIBITED ENTITIES. The following paragraphs shall be added to Document 00 7200, General Conditions, as a new Section:

“16. D CONTRACTUAL RELATIONS WITH PROHIBITED ENTITIES

1. OPPRESSIVE STATES

- a. In accordance with Resolution No. 59,853-N.S. (Appendix 00812-A), Contractor certifies that it has no contractual relations with, and agrees during the term of this agreement to forego contractual relations to provide personal services to, the following entities:
 1. The governing regime in any Oppressive State.
 2. Any business or corporation organized under the authority of the governing regime of any Oppressive State.
 3. Any individual, firm, partnership, corporation, association, or any other commercial organization, and including parent-entities and wholly-owned subsidiaries (to the extent that their operations are related to the purpose of its contract with the City), for the express purpose of assisting in business operations or trading with any public or private entity located in any Oppressive State.
- b. Appendix A to Resolution No. 59,853-N.S., and Resolution No. 60,382-N.S. and 70,606-N.S. designates the following as Oppressive States for the purposes of this Contract:
 1. Tibet Autonomous Region and the provinces of Adu, Kham, and U-Tsang; and Burma (Myanmar)
- c. Contractor’s failure to comply with this section shall constitute a default of this Contract and City may terminate the Contractor’s right to proceed with the Work pursuant to Document 00 7200, General Conditions, Article 14.05.
 1. In the event that the City terminates Contractor due to a default under this provision, City may deem Contractor a non-responsible bidder for five (5) years from the date this Contract is terminated.”

- 1.06** REQUIRED AND PROHIBITED WORK MATERIALS. The following paragraphs are added to Document 00 7200, General Conditions, as a new Section:

“16. E REQUIRED AND PROHIBITED WORK MATERIALS

1. RECYCLED PAPER

- a. If Contractor is required by this Agreement to prepare a written report or study, Contractor shall use recycled paper for said report or study when such paper is available at a cost of not more than ten percent more than the cost of virgin paper, and when such paper is available at the time it is needed. For the purposes of this Agreement, recycled paper is paper that contains at least 50% recycled product. If recycled paper is not available, Contractor shall use white paper. Written reports or studies prepared under this Agreement shall be printed on both sides of the page whenever practical.

TROPICAL HARDWOODS

- a. Contractor shall comply with the terms of Resolution No. 58,291-N.S. (Appendix 00812-B) prohibiting the use of any tropical hardwood or wood product, including, but not limited to, those enumerated in Resolution No. 58,291-N.S. Contractor must submit, with its bid, a statement Tropical Hardwood Disclosure form.
- b. Except as expressly permitted by the application of Sections 3.B and 4.B. of Resolution No. 58,291-N.S., Contractor shall not provide any items to the City in performance of this contract which are tropical hardwoods or tropical wood products.
- c. Contractor's failure to comply with this section shall constitute a default of this Agreement and Contractor agrees that City may take any of the following actions:
 1. terminate the Contractor's right to proceed with the Work pursuant to Document 00 7200, General Conditions, Article 14.05;
 2. withhold funds due the Contractor under any contract with the City;
 3. order revision of the Contract Documents based upon a material breach of Contract Documents provisions or pertaining to representations made in bidding, execution or performance of the Contract Documents;
 4. disqualify the Contractor from eligibility for providing commodities or services to the City for a period not to exceed five (5) years, with a right to review and reconsideration by the City after two (2) years upon a showing of corrective action, indicating violations are not likely to recur.
- d. Notwithstanding Article 4 of the Agreement, Contractor acknowledges and agrees that its failure to comply with this requirement justifies the imposition of liquidated damages in an amount equal to Contractor's net profit, or five percent (5%) of the total contract amount, whichever is greater.
 1. Liquidated damages under this provision shall be payable to the City upon demand and may be set off against any monies due to the Contractor from any contract with the City.

3. VIRGIN REDWOOD

- a. Contractor agrees to comply with the City Council's October 29, 1996, directive not to purchase virgin redwood for the prosecution of the work to be done under this Contract and in its place purchase and use:
 1. Redwood that has been previously used or;
 2. Certified, sustainable-harvested redwood as the preferred alternative to virgin

and non-certified redwood, and not pressure-treated lumber of other species as an alternative to redwood.”

4. TREATED WOOD

- a. Contractor shall comply with the terms of Resolution No. 61,724-N.S. (Appendix 00812-E) prohibiting the use of Pentachlorophenol, arsenic and creosote treated wood. No such wood shall be used by the contractor in this or any other City project without the express written consent of the City Council.

1.07 FIRST SOURCE HIRING REQUIREMENT. The following paragraphs shall be added to Document 00 7200, General Conditions, as a new Section if the contract exceeds \$100,000 but is less than \$500,000:

“16. F FIRST SOURCE HIRING REQUIREMENT

1. Contractor, and any subcontractors, shall utilize the City's First Source Construction Program under the terms set forth in the First Source specifications. (Appendix 00812-C).
 - a. Under the First Source program, Contractor must employ, to the extent possible, a work force where no less than twenty-five percent of the work hours are performed by Berkeley residents, and fifty percent of all new hires are Berkeley residents, on a craft-by-craft basis.
 - b. To achieve the goals, Contractor may either:
 1. Utilize the City's First Source referral service, or
 2. Demonstrate a good faith effort to achieve the goals.”

OR

1.07 COMMUNITY WORKFORCE AGREEMENT. The following paragraph shall be added to Document 00700 (General Conditions) as a new Section if the contract exceeds \$500,000.

“16.F COMMUNITY WORKFORCE AGREEMENT

1. Contractor and any subcontractor at any tier shall comply with the City's Community Workforce Agreement set forth in the Appendix 00812 C.
 - a. Under the Community Workforce Agreement, Contractor must sign and comply with the Agreement to be Bound prior to execution of the Contract.
 - b. Subcontractors at any tier must also sign and comply with an Agreement to be Bound prior to execution of their respective subcontracts.
 - c. The signing of an Agreement to be Bound is a condition precedent to entering into any contract for this project.”

1.08 EQUAL BENEFITS ORDINANCE. The following paragraph shall be added to Document 00700 (General Conditions) as a new Section:

“16.G EQUAL BENEFITS ORDINANCE:

1. Contractor hereby agrees to comply with the provisions of the Berkeley Equal Benefits Ordinance, B.M.C. Chapter 13.29 (Appendix 00812-D). If Contractor is currently subject to the Berkeley Equal Benefits Ordinance, as indicated by the Equal Benefits Certification form, as contained in Document 00680, Contractor will be required to provide all eligible employees with City mandated equal benefits, as defined in B.M.C. Chapter 13.29, during the term of this contract, as well as comply with the terms enumerated herein.
2. If Contractor is currently or becomes subject to the Berkeley Equal Benefits Ordinance, Contractor agrees to provide the City with all records the City deems necessary to determine compliance with this provision. These records are expressly subject to the auditing terms described in Document 00 7200, General Conditions, Article 8.02.
3. If Contractor fails to comply with the requirements of this Article, City shall have the rights and remedies described in this Section, in addition to any rights and remedies provided by law or equity.
 3. Contractor's failure to comply with this Article shall constitute a material breach of the Contract, upon which City may terminate the Contractor's right to proceed with the Work pursuant to Document 00 7200, General Conditions, Article 14.05. In the event the City terminates the Contractor's right to proceed with the Work due to a default by Contractor under this Article, the City may deem Contractor a non-responsible bidder for not more than five (5) years from the date this Contract is terminated. In addition, at City's sole discretion, Contractor may be responsible for liquidated damages in the amount of \$50.00 per employee per day for each and every instance of violation of this Section. It is mutually understood and agreed that Contractor's failure to provide its employees with equal benefits will result in damages being sustained by City; that the nature and amount of these damages will be extremely difficult and impractical to fix; that the liquidated damages set forth herein is the nearest and most exact measure of damages for such breach that can be fixed at this time; and that the liquidated damage amount is not intended as a penalty or forfeiture for Contractor's breach. City may deduct any assessed liquidated damages from any payments otherwise due Contractor.

1.09 SANCTUARY CITY CONTRACTING: The following paragraph shall be added to Document 00700 (General Conditions) as a new Section:

"16. H SANCTUARY CITY ORDINANCE:

1. Contractor hereby agrees to comply with the provisions of the Sanctuary City Contracting Ordinance, B.M.C. Chapter 13.105. In accordance with this Chapter, Contractor agrees not to provide the U.S. Immigration and Customs Enforcement Division of the United States Department of Homeland Security with any Data Broker or Extreme Vetting Services as defined herein:
 - a. "Data Broker" means either of the following:
 - ii. The collection of information, including personal information about consumers, from a wide variety of sources for the purposes of reselling such information to their customers, which include both private-sector business and government agencies;

- iii. The aggregation of data that was collected for another purpose from that for which it is ultimately used.
- b. “Extreme Vetting” means data mining, threat modeling, predictive risk analysis, or other similar services. Extreme Vetting does not include:
 - i. The City’s computer-network health and performance tools;
 - ii. Cybersecurity capabilities, technologies and systems used by the City of Berkeley Department of Information Technology to predict, monitor for, prevent, and protect technology infrastructure and systems owned and operated by the City of Berkeley from potential cybersecurity events and cyber-forensic based investigations and prosecutions of illegal computer based activity.”

SCHEDULE OF APPENDENCES
TO
MODIFICATIONS TO GENERAL CONDITIONS

Schedule of Exhibits: (the following Exhibits are on file at the Berkeley City Clerk's office and will be made available on request to any interested party)

- A. City Council Resolution No. 59,853-N.S. (Re: Oppressive States).
- B. City Council Resolution No. 58,291-N.S. (Re: Tropical Hardwoods).
- C. City Council Resolution No. 61,724-N.S. (Re: Treated Wood).
- D. Berkeley Municipal Code, Chapter 13.29, Equal Benefits Ordinance
- E. Specifications for City's First Source Construction Program, for contracts between \$100,000 and \$500,000. – Not Applicable to this Project
- E. Community Workforce Agreement and Agreement to be Bound for contract exceeding \$500,000.
- F. Sanctuary City Contracting Ordinance, B.M.C. Chapter 13.105.

END OF DOCUMENT

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DOCUMENT 00 7319**SUPPLEMENTARY CONDITIONS – HEALTH AND SAFETY REQUIREMENTS;
HAZARDOUS MATERIALS****ARTICLE 1 – GENERAL****1.01 Summary**

- A. This document includes requirements as they apply to location, removal, remediation and disposal of hazardous materials and hazardous waste.

1.02 HAZARDOUS MATERIALS SURVEY

- A. Reference Section 01 1100, Part 1.15 for a list of available documents, including any Hazardous Materials Surveys, if available.
- B. Data regarding the locations of hazardous materials was obtained only for use of City and its consultants, contractors, and tenants for planning and design and are not part of Contract Documents.
- C. Bidders may rely on this data and information for general accuracy regarding the locations of potentially hazardous materials subject of the Work. City does not warrant and makes no representation regarding the completeness or thoroughness of any data or information regarding existing conditions or hazardous materials, including, but not limited to, quantities, characteristics, volumes, or associated structural features. Bidder represents and agrees that in submitting a Bid it is not relying on any such data, information or deductions.
- D. Before submitting a Bid, each Bidder shall be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site or otherwise, which may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of Contract Documents.
- E. Bidders shall advise City in writing during the Bid period of any questions, suppositions, inferences or deductions Bidders may have for City's review and response. City has provided time in the period prior to bidding for Bidder to perform these investigations.
- F. During the Pre-Bid Site Visit(s), City will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a Bid. Bidders must fill all holes and clean up and restore the Site to its former conditions upon completion of such explorations, investigations, tests, and studies. Such investigations may be performed only under the provisions of Document 00 2113 (Instructions to Bidders) and Document 00 7200 (General Conditions) including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such investigation work. Each Bidder shall supply all equipment required to perform any investigations as each Bidder deems necessary. City has the right to limit the number of pieces of machinery operating at one time due to safety concerns.

1.03 Precedence of Documents

- A. Should any provision or requirement of any Contract Document conflict with another provision or requirement in the Contract Documents on subject matters of hazardous waste abatement, clean up, disposal, or required safety standards or methods, then the most stringent provision or requirement shall control.

1.04 Means and Methods of Construction

- A. Nothing contained in these Contract Documents or inferable therefrom shall be deemed or

construed (1) to make Contractor the agent, servant or employee of City, or (2) to create any partnership, joint venture or other association between City and Contractor.

1.05 Control of the Work

- A. City shall exercise administration of the Contract. The City may employ a consultant to assist. City reserves the right to assign or delegate to this consultant, or any other consultant ("Consultant") any or all of the responsibilities of the Architect/Engineer under the Contract Documents, or alternatively, to act as City's representative.
- B. Contractor shall cooperate with Consultant as directed by City. Consultant's duties may include observing the Contractor's health and safety program and practices, observing the abatement construction activities, observing the contractor's abatement work practices for compliance with the Contract Documents, observing the extent of material removed from each job site, reviewing payment requests, reviewing reports required by governmental or quasi-governmental agencies or the Contract Documents, and providing clearance tests after abatement is completed. No action, omission to act, approval, or failure to advise Contractor as to any matter by Consultant shall in any way relieve the Contractor from its responsibility for the performance of the Work in strict accordance with the Contract Documents and applicable Law.

1.06 Warranty, Guarantee and Inspection of Work.

- A. Contractor represents and warrants that it, its employees and its subcontractors and their employees, shall at all times have the required levels of familiarity with the Site and the Work, training and ability to comply fully with all applicable Law and contract requirements for safe and expeditious performance of the Work, including whatever training is or may be required regarding the activities to be performed (including, but not limited to, all training required to adequately address the actual or potential dangers of contract performance).
- B. Contractor represents and warrants that it, its employees and its subcontractors and their employees, shall at all times have and maintain in good standing any and all certifications and licenses required by applicable federal, state and other governmental and quasi-governmental requirements applicable to the Work.
- C. Contractor represents and warrants that it has studied carefully all requirements of the specifications regarding procedures for demolition, hazardous waste abatement, or safety practices, specified in this contract, and prior submitting its bid, has either (a) verified to its satisfaction that the specified procedures are adequate and sufficient to achieve the results intended by the Contract Documents, or (b) by way of approved "or equal" request or request for clarification and written Addenda, secured changes to the specified procedures sufficient to achieve the results intended by the Contract Documents. Contractor accepts the risk that any specified procedure will result in a completed project in full compliance with the contract requirements.
- D. City reserves the right, in its sole discretion, to conduct air monitoring, earth monitoring, work monitoring, and any other tests (in addition to testing required under the agreement or applicable law), to monitor contract requirements of safe and statutory compliant work methods and (where applicable) safe re-entry level air standards under State and Federal law upon completion of the job, and compliance of the work with periodic and final inspection of public and quasi-public entities having jurisdiction.
- E. Contractor acknowledges that City also has the right to perform, or cause to be performed, various activities and tests including, but not limited to, pre-abatement, during abatement and post-abatement air monitoring, provided that City shall have no obligation to perform said activities and tests, and that a portion of said activities and tests may take place prior to the completion of the Work by Contractor. In the event City elects to perform these activities and tests, Contractor shall afford City ample access to the Site and all areas of the Work as may be necessary for the performance of these activities and tests. Contractor will include the potential impact of these activities for tests by City in the Contract Sum and the Scheduled Completion Date. Contractor shall not be entitled to increases in the contract sum or any damages for delay in the event City elects to perform these activities and tests, provided any delays resulting therefrom are reasonable under the circumstances involved. Notwithstanding City's rights

granted by this paragraph, Contractor shall retain its own industrial hygiene consultant and shall have primary responsibility for collecting samples and perform all applicable, relevant or appropriate activities and tests including, but not limited to, pre-abatement, during abatement and post-abatement air monitoring, required or suggested by the Contract Documents, the Law, or both, and City reserves the right to request documentation of all such activities and tests performed by Contractor relating to the Work.

1.07 RECORDS

- A. Contractor shall obtain and maintain and shall furnish to City on completion of the Work, or at any other time requested by City, all necessary permits, licenses, approvals, authorizations, notifications, training certificates, respirator certificates, reports, correspondence, test results, air monitoring certificates, forms, medical records, medical certificates, notes and photographs of work conditions, approved shipping and disposal facility receipts, manifests, and all other documentation required by the Contract Documents or applicable Law, or both.
- B. Contractor shall provide City with copies of each such document as it is generated and shall, as a condition to final payment, provide City with a complete set of such documents (bound, organized and indexed) at the conclusion of the Work. Contractor shall keep and maintain in retrievable files true and correct copies of all such documents for a period of not less than thirty (30) years after final completion of the Work. City shall have the right to inspect or photocopy these records and, if Contractor should cease business operations, then it shall furnish these records to City.

1.08 Compliance with laws

- A. Contractor represents that it is familiar with shall comply with all laws applicable to the Work or completed Work including, but not limited to, all federal, state and local laws, statutes standards, rules, regulations and ordinances applicable to the Work (collectively, the "Law") relating to:
 - 1. the protection of the public health, welfare and environment;
 - 2. storage, handling or use of asbestos, PCB, lead, petroleum based products or other hazardous materials;
 - 3. the generation, processing, treatment, storage, transport, disposal, destruction or other management of asbestos, PCB, lead, petroleum or hazardous waste materials or other waste materials of any kind; or,
 - 4. the protection of environmentally sensitive areas such as wetlands.
- B. Contractor has the sole responsibility for determining current waste storage, handling, transportation and disposal regulations for the jobsite and for each waste disposal facility. Contractor must comply fully at its sole cost and expense with these regulations and any applicable Law. City, may, but is not obligated to, require submittals with this information for it to review consistent with the Contract Documents.
- C. Contractor shall develop and implement a system acceptable to City to track hazardous waste from the site to disposals, including appropriate "Hazardous Waste Manifests" on the EPA form, so that City may track the volume of waste it put in each landfill and receive from each landfill a certificate of receipt.
- D. Contractor shall provide City with the name and address of each waste disposal facility prior to any disposal, and City shall have the express right to reject any proposed disposal facility. Contractor shall not use any disposal facility to which City has objected. Contractor shall document actual disposal or destruction of waste at a designated facility by completing a disposal certificate or certificate of destruction forwarding the original to the general contractor.

1.09 Permits

- A. Before performing any of the Work, and at such other times as may be required by applicable Law, Contractor shall deliver all requisite notices and obtain the approval of all governmental and quasi-governmental authorities having jurisdiction over the Work. Contractor shall submit evidence satisfactory to City that it and any disposal facility (1) have obtained all required permits, approvals and the like in a timely manner both prior to commencement of the Work and thereafter as and when required by applicable Law, and (2) are in compliance with all such permits,

approvals and the like. For example, before commencing any work in connection with the Work involving asbestos-containing materials or PCB subject to regulation, Contractor agrees to provide the required notice of intent to renovate or demolish to the appropriate state or federal agency having jurisdiction, by certified mail, return receipt requested, or by some other method of transmittal for which a return receipt is obtained, and to send a copy of that notice to City. Contractor shall not conduct any Work involving asbestos-containing materials or PCB unless Contractor has first confirmed that the appropriate agency having jurisdiction is in receipt of the required notification. All permits, licenses, bonds required by governmental or quasi-governmental authorities, fees, deposits, tap fees, offsite easements and asbestos and PCB disposal facilities necessary for the prosecution of the Work shall be procured and paid for by Contractor. Contractor shall give all notices and comply with the Law bearing on the conduct of the Work as drawn and specified. If Contractor observes or reasonably should have observed that Plans and Specifications and other Contract Documents are at variance therewith, it shall be responsible for promptly notifying City in writing of such fact. If Contractor performs any Work contrary to the Law without such notice to City, it shall bear all costs arising therefrom.

- B. In the case of any permits or notices held in City's name or of necessity to be made in City's name, City shall cooperate with Contractor in securing the permit or giving the notice, but the Contractor shall prepare for City's review and execution upon approval, all necessary applications, notices and other materials.

1.10 Indemnification and Termination

- A. To the extent permitted by law, the indemnities and limitations of liability expressed throughout the Contract Documents apply with equal force and effect to any claims or liabilities imposed or existing by virtue of the removal, abatement and disposal of hazardous waste. This includes liabilities connected to the selection and use of a waste disposal facility, personal injury, property damage, loss of use of property, damage to the environment or natural resources, or "disposal" and "release" of materials associated with the Work (as defined in 42 U.S.C. 9601 et seq).
- B. Notwithstanding anything in Document 00 7200 to the contrary, City shall have an absolute right to terminate the Contractor's right to proceed with the Work for cause immediately, without ten calendar days notice and without an opportunity to cure, should Contractor knowingly or recklessly commit a material breach of the terms of the Contract Documents or the Law, on any matter involving the exposure of persons or property to hazardous waste. However, if the breach of contract exposing persons or property to hazardous waste is due solely to an ordinary, unintentional and non-reckless failure to exercise reasonable care, then the procedures in Document 00 7200, Article 14.05, shall apply without modification.

1.11 Protection of Work, Persons and Property

- A. Contractor shall perform safe, expeditious and orderly work in accordance with the best practices and the highest standards in the hazardous waste abatement, removal and disposal industry, the Law (as herein defined), and the Contract Documents, including, but not limited to, all responsibilities relating to the preparation and return of waste shipment records, all requirements of the Law, delivering of all requisite notices, and obtaining all necessary governmental and quasi-governmental approvals.

END OF DOCUMENT

DOCUMENT 00 7380**APPRENTICESHIP PROGRAM****ARTICLE 1 – COMPLIANCE REQUIRED**

- 1.01** Contractor and Subcontractors shall comply with the requirements of California Labor Code §§1776, 1777.5, and 1777.6 concerning the employment of apprentices by Contractor or Subcontractors. Willful failure to comply may result in penalties, including loss of the right to Bid on or receive public works contracts.

ARTICLE 2 – CERTIFICATION OF APPROVAL

- 2.01** California Labor Code §1777.5, as amended, requires a Contractor or Subcontractor employing tradespersons in any apprenticeable occupation to apply to the joint apprenticeship committee nearest the site of a public works project and which administers the apprenticeship program in that trade for a certification of approval. The certificate shall also fix the ratio of apprentices to journeypersons that will be used in performance of the Contract. The ratio of work performed by apprentices to journeypersons in such cases shall not be less than one *hour* of apprentices work for every five *hours* of labor performed by journeypersons (the minimum ratio for the land surveyor classification shall not be less than one apprentice for each five journeypersons), except:
- A. When unemployment for the previous three month period in the area exceeds an average of 15 percent;
 - B. When the number of apprentices in training in the area exceeds a ratio of one to five;
 - C. When a trade can show that it is replacing at least 1/30 of its membership through apprenticeship training on an annual basis state-wide or locally; or
 - D. Assignment of an apprentice to any work performed under a public works contract would create a condition which would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyperson.

ARTICLE 3 – FUND CONTRIBUTIONS

- 3.01** Contractor is required to make contributions to funds established for administration of apprenticeship programs if Contractor employs registered apprentices or journeypersons in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions.

ARTICLE 4 – APPRENTICESHIP STANDARDS

- 4.01** Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of the California Department of Industrial Relations, or from the Division of Apprenticeship Standards and its branch offices.

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DOCUMENT 00 9113

ADDENDA

SPECIFICATION NO. 25-11706-C Reissue

CITY OF BERKELEY

CORPORATION YARD GREEN ROOM AND BUILDING H IMPROVEMENTS

1326 ALLSTON WAY

[DOCUMENT TO BE COMPLETED AS ADDENDA DURING BID PERIOD]

[If a conformed copy is created, delete bracketed line above and replace with the following:]

The following Addenda were issued, modifying the Project Manual:

Addendum No. 1, issued on **[date]**

Addendum No. 2, issued on **[date]**

[continue as appropriate]

(Addenda have been incorporated into the conformed Project Manual.)

END OF DOCUMENT

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 1100

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes Summary of Work and Work Restrictions including:

1. Work Covered By Contract Documents
2. Bid Item, Allowances and Alternates
3. Contract Document Organization
4. Maintenance
5. Work Under Other Contracts
6. Future Work
7. Work Sequence
8. Work Days and Hours
9. Shutdown for Discovery of Cultural Resources
10. Cooperation of Contractor and Coordination with Other Work
11. Partial Occupancy/Utilization Requirements
12. Contractor Use of Site
13. Air Quality Standards
14. Construction Staking, Monument Protection and Replacement
15. Geotechnical Data and Existing Conditions
16. Protection of Existing Structures and Underground Facilities
17. Permits
18. Actual Damages for Permit Violations
19. Reference Standards
20. Products Ordered in Advance
21. City-Furnished Products

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work comprises of the construction of City's **Corporation Yard Green Room and Building H Improvements** located at **1326 Allston Way**. The Work includes, without limitation, **building renovations, including roofing, structural modifications, flooring, finishes, restrooms, lighting, HVAC, electrical, plumbing, and ancillary work**. Contract Documents fully describe the Work.
- B. The Work of this Contract comprises construction of all the Work indicated, described in the Specifications, or otherwise required by the Contract Documents. Unless provided otherwise in the Contract Documents, all risk of loss to Work covered by Contract Documents shall rest with Contractor until Final Acceptance of the Work. Cost of maintenance of systems and equipment prior to Final Acceptance will be considered as included in prices Bid and no direct or additional payment will be made therefore.
- C. For all Bid items, furnish and install all Work, including connections to existing systems, indicated and described in Specifications and all other Contract Documents. Work and requirements applicable to each individual Bid item, or unit of Work, shall be deemed incorporated into the description of each Bid item (whether Lump Sum or Unit Price). Any Bid item may be deleted from the Work and Contract Sum, in total or in part, prior to or after award of Contract without compensation in any form or adjustment of other Bid items or prices therefore.
- D. Allowance Work shall be done as Change Orders and as specified in Section 01 2600

(Modification Procedures). Identify Allowance Items (See Document 00 4113 [Bid Form]) work on the Progress Schedules and on Applications for Payment. The Amount given on Document 00 4113 (Bid Form) under each Allowance Item is the sum of money set aside for each Allowance Item. These amounts shall be included in the Contract Sum on the Bid Form. If the cost of Work done under any Allowance Item is less than the amount given on the Bid Form under that Allowance Item, the Contract Sum shall be reduced by the difference between the amount given in the Bid Form and the cost of Work actually done.

1.03 BID ITEMS, ALLOWANCES AND ALTERNATES

A. Descriptions of Lump Sum Items (listed by Bid item numbers):

Bid Item 1: All work of the Contract Documents for the Corporation Yard Green Room, other than work separately provided for under other bid items, i.e. excluding Bid Items 2-4.

B. Descriptions of Unit Price Items and Basis of Measurement for Payment (listed by Bid item numbers): (N/A)

C. Allowances: (N/A)

D. Bid Alternates: Bid Alternates are to be priced for City consideration. These items will not be used to determine lowest bid on bid opening day. However, one or more may be added to the project at the sole discretion of the City.

Bid Item 2: Additive Alternate #1: All work of the Contract Documents for Corporation Yard Building H.

Bid Item 3: Additive Alternate #2: Rooftop equipment screen for Green Room, see Plan 1/A2.33, Exterior Elevations 1/A3.11, 4/A3.11, Sections 1/A3.31, 2/A3.31 and associated Detail 7/A6.41.
See Structural Plan 1/S2.11 and associated Details 2, 3, and 5/S2.11 and 3/S3.10.

Bid Item 4: Additive Alternate #3: Steel bracket supported canopy for Green Room. See Plans 1/A2.33, 1/A2.41, and associated Details 2, 3/A2.41, and 1, 3, 4/A6.11 and 1/A6.13.
See Structural Plan 1/S2.11 and associated Detail 4/S3.10.

1.04 CONTRACT DOCUMENT ORGANIZATION

- A. The Drawings illustrate locations, arrangements, dimensions, and details to determine the general character of the Work. Parts not detailed shall be subject to the Architect's approval. Where reasonably inferable that a Drawing illustrates only part of a given work on a number of items, the remainder shall be deemed repetitious and so construed. Drawings of greater scale take precedence over Drawings of lesser scale. Do not scale documents.
- B. Drawings indicate general arrangement and location of such items as piping, conduit, apparatus, and equipment. Drawings and Specifications are for guidance of the Contractor and exact locations, distances, and levels will be governed by building site and actual building conditions. The Contractor shall make minor changes, as directed, to arrangements or locations shown in order to meet Structural or Architectural conditions.
- C. Specifications describe performances and qualities required of materials and of methods. Items listed under each Section of the Specifications are not necessarily all inclusive. The Contractor shall be responsible for the complete work.
- D. For convenience, Specifications are separated into topical divisions of work, each of which is further related to topical divisions under which it occurs. Such separation shall not be construed as an attempt by the Architect to establish limits of any agreements between the Contractor and his/her subcontractors.

- E. Portions of these Specifications are of abbreviated, simplified type and may include incomplete sentences.
1. Omissions of words or phrases such as “the Contractor shall”, “in conformity with”, “shall be”, “as noted on the Drawings”, “in accordance with the details”, “a”, “the”, “all”, “any”, and “each” are intentional. Omitted words or phrases shall be supplied by inference.
 2. Terms such as “approved”, “or approved equal”, “as directed”, “as required”, “as provided”, “acceptable”, and “satisfactory” mean by or to the Architect or the City.
 3. Furnish: The term furnish means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
 4. Install: The term install describes operations at the Project Site, including the actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar ions.
 5. Provide: The term provide means to furnish and install, complete and ready for the intended use.
- F. Reference Standards
1. For products specified by association or trade standards, comply with requirements of the standard except where more rigid requirements are specified or are required by applicable codes.
 2. The date of the standard is that in effect as of bid date except where specific date is specified

1.05 MAINTENANCE

- A. Cost of maintenance of systems and equipment prior to Final Acceptance will be considered as included in prices bid and no direct or additional payment will be made therefor.

1.06 WORK UNDER OTHER CONTRACTS

- A. None expected

1.07 FUTURE WORK

- A. None expected

1.08 WORK SEQUENCE

- A. Construct Work in stages and at times to accommodate City operation requirements during the construction period; coordinate construction schedule and operations with City.
- B. **Special operational constraints include the following:**
1. None expected

1.09 WORK DAYS AND HOURS

- A. Work Days and hours: Monday-Friday inclusive, **[7:00 a.m.-5:00 p.m.]** local time.
- B. Work at the Site on weekends or holidays is not permitted, unless Contractor requests otherwise from City in writing at least 48 hours in advance and City approves in its sole discretion.

1.10 SHUTDOWN FOR DISCOVERY OF CULTURAL RESOURCES

- A. If discovery is made of items of historical archaeological or paleontological interest, immediately cease all Work in the area of discovery. Archaeological indicators may include, but are not limited to, dwelling sites, locally darkened soils, stone implements or other artifacts, fragments of glass or ceramics, animal bones, human bones, and fossils. After cessation of excavation, immediately contact City. Do not resume Work until authorization is received from City. When resumed, excavation or other activities shall be as directed by City.

1.11 COOPERATION OF CONTRACTOR AND COORDINATION WITH OTHER WORK

- A. Coordinate with City and any City forces, or other contractors and forces, as required by Document 00 7200 (General Conditions).

1.12 PARTIAL OCCUPANCY/UTILIZATION REQUIREMENTS

- A. Allow City to take possession of and use any completed or partially completed portion of the Work during the progress of the Work as soon as is possible without interference to the Work.
- B. Possession, use of Work, and placement and installation of equipment by City shall not in any way evidence the completion of the Work or any part of it.
- C. Contractor shall not be held responsible for damage to the occupied part of the Work resulting from City occupancy.
- D. Make available, in areas occupied, on a 24 hour per day and 7 day per week basis if required, any utility services, heating, and cooling in condition to be put in operation at the time of occupancy.
 - 1. Responsibility for operation and maintenance of said equipment shall remain with Contractor.
 - 2. Make, and City shall certify, an itemized list of each piece of equipment so operated with the date operation commences.
 - 3. Itemized list noted above shall be basis for commencement of warranty period for equipment.
 - 4. City shall pay for utility cost arising out of occupancy by City during construction.
- E. Use and occupancy by City prior to acceptance of Work does not relieve Contractor of its responsibility to maintain insurance and bonds required under the Contract until entire Work is completed and accepted by City.
- F. Prior to date of Final Acceptance of the Work by City, all necessary repairs or renewals in Work or part thereof so used, not due to ordinary wear and tear, but due to Defective materials or workmanship or to operations of Contractor, shall be made at expense of Contractor, as required in Document 00 7200 (General Conditions).
- G. Use by City of Work or part thereof as contemplated by this Section 01 1100 shall in no case be construed as constituting acceptance of Work or any part thereof. Such use shall neither relieve Contractor of any responsibilities under Contract, nor act as waiver by City of any of the conditions thereof.
- H. City may specify in the Contract Documents that portions of the Work, including electrical and mechanical systems or separate structures, shall be substantially completed on dates described in this Section 01 1100, if any, prior to Substantial Completion of all of the Work. Notify City in writing when Contractor considers any such part of the Work ready for its intended use and Substantially Complete and request City to issue a Certificate of Substantial Completion for that part of the Work.

1.13 CONTRACTOR USE OF SITE

- A. Access is available to the Site from **Alston Way and/or Bancroft Way** along the route indicated.
- B. Contractor shall contact City at least 2 Business Days prior to entering the building and performing Work to allow City to arrange access into the building. Access Request forms shall be submitted 48 hours in advance of anticipated on-site Work to gain permission to enter Site and to allow notification to occupants.
- C. Confine operations at Site to areas permitted by Contract Documents, permits, ordinances, and laws. Do not unreasonably encumber Site with materials or equipment.
- D. Assume full responsibility for protection and safekeeping of products stored on premises. Move any stored products that interfere with operations of City or other contractor.
- E. Coordinate parking, storage, staging, and Work areas with City. City will review and approve the proposed storage area for Contractor's equipment and materials. Do not store construction

materials in the dripline of any tree.

- F. Prior to commencement of Work or excavation, Contractor and City shall jointly survey the area adjacent to the Project area making permanent note and record of such existing damage such as cracks, sags or other similar damage. This record shall serve as a basis for determination of subsequent damage to structures, conditions or other existing improvements due to Contractor's operations. All parties making the survey shall sign the official record of existing damage. Cracks, sags or damage of any nature to the adjacent Project area, not noted in the original survey but subsequently noted, shall be reported immediately to City.
- G. The Contractor shall follow all city ordinances in force during the duration of this Contract.
- H. It is essential that the Contractor perform the Work with as little interference and disturbance as possible to the surrounding neighborhood.
- I. When suspect materials, outside the scope of Work, are encountered during the Work or restoration process, the Contractor shall immediately contact the Project Manager for evaluation and approval of the methods for dealing with the material.

1.14 AIR QUALITY STANDARDS

- A. Ensure that idling time for all heavy equipment is minimized to reduce on-Site emissions.
- B. Maintain equipment in good mechanical condition.
- C. Cover trucks hauling dirt.
- D. Limit dust emissions during periods of high winds (greater than 15 miles per hour).
- E. Replace ground cover in disturbed areas as soon as possible.
- F. Enclose, cover, water, or apply soil binders to exposed stockpiles.
- G. Remove earth tracked onto neighboring paved roads at least once daily.
- H. Limit equipment speed to 10 miles per hour in unpaved areas.

1.15 CONSTRUCTION STAKING, MONUMENT PROTECTION AND REPLACEMENT

- A. Notify City at least three (3) Business Days prior to the need for initial staking. City will provide engineering surveys, City benchmarks, corner records, reference points, and/or monument cards that in City's judgment are necessary to establish site elevations for the Contractor to establish construction stakes in order to enable Contractor to proceed with the Work.
- B. If Contractor finds any additional information is necessary, notify City in writing 2 Business Days in advance. City shall have no liability for any inadequacy unless Contractor notifies City and City fails to cure within 3 Business Days of such notice.
- C. Contractor shall be responsible for laying out the Work and provide all construction staking. Contractor shall replace or repair construction stakes at own expense.
- D. Contractor shall perform brush clearing and traffic control, as necessary, in City's sole judgment.
- E. The Contractor shall protect and preserve all existing survey monuments, benchmarks, reference points, property monuments and stakes.
- F. Whenever Contractor knows or reasonably should know that any Work activity is likely to damage or destroy any survey monuments, benchmarks, reference points, property monuments, or construction stakes, or require relocation because of necessary changes in grades or locations, provide at least 3 Business Days advance notice to City. Survey monuments, benchmarks, reference points and property monuments shall not be disturbed until authorized by the City.
- G. Whenever the Contractor disturbs or removes any survey monuments, benchmarks, reference points, or property monuments, the Contractor shall replace the monument in accordance with City Standard Plan 8090 or City Standard Plan 8091, as applicable. Standard Plans are available upon request. Monument casings (boxes and lids) shall be provided by the Contractor, and dome

brass markers shall be supplied by the City.

- H. In the event that any non-referenced monuments become in danger of being disturbed due to construction, the Contractor shall cease the threatening activity and notify the City immediately. Response to endangered monuments is a priority call, and each monument shall be referenced in accordance with the City of Berkeley Monument Reference Guidelines, available upon request. In no case may an unreferenced monument be damaged during construction.
- I. Should any monument not designated for replacement sustain damage during construction, the Contractor shall bear the expense for rebuilding it as well as for the survey work the City survey crew or its survey consultant must perform in the process. In any instance where the City deems a damaged monument to be irreplaceable, the contractor shall be fined \$20,000 per monument.
- J. Monument replacement must be done in a neat, workman-like manner. Pavement cuts shall be accurate, with vertical cuts to exact dimensions as shown on the Standard Plans. Monument boxes and lids shall be placed at the proper finished grade and as detailed by Standard Plan 8090 or Standard Plan 8091. Existing monument lids shall be salvaged by the Contractor and delivered to the City.
- K. Each replacement monument shall be constructed such that the center of the dome brass marker is set within 0.04 foot of the referenced position. The new dome brass marker shall not receive final punching prior to seven (7) calendar days after completion of the monument construction.
- L. In any event, notify City whenever any survey monuments, benchmarks, reference points, or property monuments are lost or destroyed or require relocation because of necessary changes in grades or locations.
- M. If the City has elected to reference known monuments around or within the project site, a copy of the corner records for the referenced monuments shall be provided to the Contractor prior to the start of construction. For each monument that has been disturbed or removed, the replacement monument location(s) will be established by the City's survey crew or its survey consultant after final pavement is completed and upon request by the Contractor.
- N. All City of Berkeley Monuments located within the project area must be referenced, prior to work commencing, by a licensed land surveyor as required by Section 8771 of the Business and Professions Code. Corner Records of this work must be submitted for filing to both the County Surveyor of Alameda County, and the City of Berkeley, Public Works Department, Engineering Division, Survey Section.
- O. Illegible survey requests or requests without proper notification (at least 3 Business Days in advance), may result in delayed response. No extension of Contract Time will be allowed due to such delays.

1.16 GEOTECHNICAL DATA AND EXISTING CONDITIONS

- A. Available Documentation: In accordance with, and subject to, the provisions of Document 00 3132 (Geotechnical Data and Existing Conditions), the following documentation is available for review. This information is not part of the Contract Documents.
 - 1. **Asbestos, Lead, and Other Hazardous Materials Investigation Report**
Corporation Yard Assembly Building (Green Room)
Prepared by Acumen Industrial Hygiene Inc
February 2021
 - 2. **Follow-up Asbestos Roof Inspection Report**
Corporation Yard Assembly Building (Green Room)
Prepared by Acumen Industrial Hygiene Inc
February 2025
 - 3. **Assembly Building Remodel Record Drawing**
Corporation Yard Assembly Building (Green Room)
Prepared by Metamorphosis Architecture and Construction

December 1985

Record drawings provided for reference only – City makes no guarantee of the accuracy.

4. **City of Berkeley Corporation Yard Assembly Building Renovation Record Drawing**

Corporation Yard Assembly Building (Green Room)

Prepared by City of Berkeley Public Works

December 1993

Record drawings provided for reference only – City makes no guarantee of the accuracy.

1.17 PROTECTION OF EXISTING STRUCTURES AND UNDERGROUND FACILITIES

- A. The Drawings may indicate existing above- and below-grade structures, drainage lines, storm drains, sewers, water lines, gas lines, electrical lines, hot water lines, and other similar items and Underground Facilities that are known to City. At least (2) two Business Days, or as otherwise noted, prior to commencement of excavation, notify the owners of the following Underground Facilities:
1. **Water lines:** EBMUD
 2. **Sewer lines:** Berkeley Public Works Department
 3. **Telephone Conduit:** AT&T
 4. **Cable:** Comcast
 5. **Electrical Lines:** PG&E
- B. Where overhead service to a structure, known to receive service, does not exist, then underground service shall be assumed to exist.
- C. Attention is also directed to the existence of overhead power and telephone lines.
- D. Perform pot-holing by hand within 24 inches (in any direction) of the Underground Facilities. This may be done on an area-by-area basis, but shall be accomplished at least 7 calendar days in advance of the date of construction within such area.
- E. Telemetry antennas: Ensure that the telemetry and voice communication antennas located on the Green Room roof remain operational. City's telemetry system is critical to the function and operation of Owner's water supply and distribution system. Coordinate relocation of equipment related to the telemetry and voice communication systems with Owner. Notify Owner 3 calendar days prior to conducting any Work in the vicinity of the telemetry antenna.
- F. No attempt has been made to locate utilities on private property such as sprinkler irrigation systems or electrical conduits on the project site or adjacent property. Contractor is responsible for contacting all property owners as necessary, and locating and marking utilities in the vicinity of the work prior to construction.
- G. In addition to reporting, if a utility is damaged, Contractor must take appropriate action as provided in Document 00 7200 (General Conditions).
- H. Additional compensation or extension of time on account of utilities not indicated or otherwise brought to Contractor's attention including reasonable action taken to protect or repair damage shall be determined as provided in Document 00 7200 (General Conditions).

1.18 PERMITS

- A. Permits, agreements, or written authorizations that are known by City to apply to this Project are listed below:
1. Storm Water Pollution Prevention
 2. Cal/OSHA Permit. Obtain, as applicable, permit(s) as required by Cal/OSHA for the following:
 - a. Construction of trenches or excavations that are five feet or more in depth and into which a person is required to descend.

- b. Construction or demolition of any building, structure, or scaffolding for falsework more than three stories high, or the equivalent height (36 feet).
 - c. Erection or dismantling of vertical shoring systems more than three stories high, or the equivalent height (36 feet).
3. The local Cal/OSHA district office is located at:
- CAL/OSHA Headquarters
1515 Clay Street, Suite 1901
Oakland, CA 94612
(510) 286-7037
- B. All other permits that may be required, such as electrical, mechanical, fire prevention, irrigation, grading, slope protection, tree cutting, etc., have not been applied for and shall be obtained by Contractor. Applicable permit fees will be reimbursed to the extent specified in Document 00 7200 (General Conditions).

1.19 ACTUAL DAMAGES FOR PERMIT VIOLATIONS

- A. In addition to damages which are impracticable or extremely difficult to determine, for which liquidated damages will be assessed as described in Document 00 5200 (Agreement) and Document 00 7200 (General Conditions), City may incur actual damages, including fines imposed by any regulatory agency, resulting from use in violation of legal or regulatory requirements where the violations result from Contractor's activities. Continuous operation in compliance with legal or regulatory requirements is essential to avoid discharges that would violate applicable regulations. Violations or threatened violations may subject City to fines per Day or occurrence and/or other costs or civil liabilities.
- B. Contractor shall be liable for and shall pay City the amount of any actual losses in addition to liquidated damages or other remedies provided by the Contract Documents.
- C. The amount of liquidated damages provided in Document 00 5200 (Agreement) and Document 00 7200 (General Conditions) is not intended to include, nor does the amount include, any damages incurred by City for reasons other than those listed in that paragraph. Any money due or to become due to Contractor may be retained by City to cover both the liquidated and the actual damages described above and, should such money not be sufficient to cover such damages, City shall have the right to recover the balance from Contractor or its sureties.

PART 2 - PRODUCTS

2.01 REFERENCE STANDARDS

- A. For products specified by association or trade standards, comply with requirements of standard, except where more rigid requirements are specified or are required by applicable codes.

2.02 PRODUCTS ORDERED IN ADVANCE

- A. As provided in Document 00 7200 (General Conditions) and Section 01 2000 (Measurement and Payment), and subject to all other provisions of the Contract Documents, City will pay for the following materials and equipment prior to incorporation into the Work:

1. **None**

2.03 CITY-FURNISHED PRODUCTS

- A. City-Furnished Products:

1. **None**

- B. City's Responsibilities:

1. Arrange for and deliver City-reviewed Shop Drawings, Product Data, and Samples, to Contractor.

2. Arrange and pay for delivery to Site.
3. On delivery, inspect products jointly with Contractor.
4. Submit claims for transportation damage and replace damaged, Defective, or deficient items.
5. Arrange for manufacturers' warranties, inspections, and service.

C. Contractor's Responsibilities:

1. Review City-reviewed Shop Drawings, Product Data, and Samples.
2. Receive and unload products at Site; inspect for completeness or damage jointly with City.
3. Handle, store, install, and finish products.
4. Repair or replace items damaged after receipt.
5. Install into Project per Contract Documents.

PART 3 - EXECUTION – NOT USED

**[OPTION IF THERE ARE PERMITS: Permit copies follow this page numbered consecutively as
01 1100]**

END OF SECTION

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 2000

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes description of requirements and procedures for determining amount of Work performed and for obtaining payment for Work performed.

1.02 REFERENCES

- A. California Public Contract Code
- B. Code of Civil Procedures
- C. Government Code

1.03 COMPOSITION AND SCOPE OF CONTRACT SUM

A. Scope of Contract Sum

1. The Contract Sum for performance of the Work under Contract Documents, or under any Bid item, allowance, or Alternate, shall include full compensation for all Work required under the Contract Documents, including without limitation, all labor, materials, taxes, transport, handling, storage, supervision, administration, and all other items necessary for the satisfactory completion of the Work, whether or not expressly specified or indicated, incidental work and unexpected expenses, and all terms, conditions, requirements and limitations set forth in the Contract Documents.
2. Contract Sum may be expressed as lump sum, unit price, GMP, allowance, or combination thereof.

B. Unit Price items

1. Quantity of Work to be paid for under any item for which a unit price is fixed in Contract Documents shall be determined by City based on, so far as practicable, actual number of units satisfactorily completed, as determined by City and certified by Contractor, within prescribed or ordered limits, and no payment will be made for Work unsatisfactorily performed or done outside of limits.
2. Unit Prices shall apply to Work covered by unit prices so long as actual quantities performed on the Project are not less than 75 percent or greater than 125 percent of the estimated quantities bid or otherwise stated in the Contract Documents. If actual quantities exceed these parameters, then the unit price shall be adjusted by an amount to reflect the Contractor's incremental cost differential resulting from increased or decreased economies of scale.

C. Lump Sum Items

1. When estimated quantity for specific portion of Work is not indicated and/or Work is designated as lump sum, payment will be on a lump sum basis for Work satisfactorily completed in accordance with Contract Documents.
2. Payment for lump sum Work, or items of Work subject to a lump sum (e.g. without limitation, change order work), shall be made on the basis of satisfactory completion of such Work or work item, earned in progressive stages in accordance with the Contract Documents, up to but not exceeding the Contractor's percentage completion of the Work or item.
3. Lump sum items shall be paid based upon the approved Schedule of Values, which shall be

used to measure progressive payments based upon satisfactory progress towards completion of the item.

D. Allowance Items

1. Allowances: Allowance Work will be authorized by City in writing, following change order procedures to determine cost, supporting documentation and authorization to proceed. Unused allowance amounts at Contract completion shall reduce the Contract price accordingly.

1.04 PAYMENT PROCEDURES

A. Schedule of Values:

1. Within ten calendar days from issuance of Notice of Award and prior to the Contractor's first Application for Payment, Contractor shall submit a detailed breakdown of its Bid by scheduled Work items and/or activities, including coordination responsibilities and Project Record Documents responsibilities. Where more than one Subcontractor comprises the work of a Work item or activity, the Schedule of Values shall show a separate line item for each subcontract. Contractor shall furnish such breakdown of the total Contract Sum by assigning dollar values (cost estimates) to each applicable Progress Schedule network activity, which cumulative sum equals the total Contract Sum. This breakdown shall be referred to as the Schedule of Values.
2. Contractor's overhead, profit, insurance, cost of bonds (except to the extent expressly identified in a Bid item) and/or other financing, as well as "general conditions costs," (e.g., Site cleanup and maintenance, temporary roads and access, off-Site access roads, temporary power and lighting, security, and the like), shall be prorated through all activities so that the sum of all the Schedule of Values line items equals Contractor's total Contract Sum, less any allowances designated by City. Scheduling, record documents and quality assurance control shall be separate line items.
3. City will review the breakdown in conjunction with the Progress Schedule to ensure that the dollar amounts of this Schedule of Values are, in fact, reasonable cost allocations for the Work items listed. Upon favorable review by City, City will accept this Schedule of Values for use. City shall be the sole judge of fair market cost allocations.
4. City will reject any attempt to increase the cost of early activities, i.e., "front loading," resulting in a complete reallocation of moneys until such "front loading" is corrected. Repeated attempts at "front loading" may result in suspension or termination of the Work for default, or refusal to process progress payments until such time as the Schedule of Values is acceptable to City.

B. Contractor's Requests for Progress Payments

1. If requested by Contractor, progress payments will be made monthly, under the following conditions:
2. On or before the 25th Day of each month, Contractor shall submit to City five copies of an Application for Payment for the cost of the Work put in place during the period from the last Day of the previous month to the end of the current month, along with one copy of an updated Progress Schedule. Such Applications for Payment shall be for the expected total value of activities completed or partially completed, based upon Schedule of Values prices (or Bid item prices if unit price) of all labor and materials incorporated in the Work up until midnight of the last Day of that one month period, less the aggregate of previous payments. Accumulated retainage shall be shown as separate item in payment summary. City and Contractor will reconcile any differences in the field, based on the reconciled monthly report sheets. If Contractor is late submitting its Application for Payment, that Application may be processed at any time during the succeeding one-month period, resulting in processing of Contractor's Application for Payment being delayed for more than a Day for Day basis.
3. Except as otherwise provided in a labor compliance program applicable to the Work (if any) or as otherwise required by City, concurrently with each Application for Payment, Contractor shall submit to the City the Contractor's and its Subcontractors' certified payroll records required to be maintained pursuant to Labor Code Section 1776 for all labor performed during pay periods

ending during the period covered by the Application for Payment.

4. No progress payment will be processed prior to City receiving all requested, acceptable schedule update information and certified payrolls, and in City's sole and absolute discretion, City may deny the entire Application for Payment for noncompliance.
5. Each Application for Payment shall list each Change Order and Construction Change Directive ("CCD") executed prior to date of submission, including the Change Order/CCD Number, and a description of the Work activities, consistent with the descriptions of original Work activities. Contractor shall submit a monthly Change Order/CCD status log to City.
6. If City requires substantiating data, Contractor shall submit information requested by City, with cover letter identifying Project, Application for Payment number and date, and detailed list of enclosures. Contractor shall submit one copy of substantiating data and cover letter for each copy of Application for Payment submitted.
7. If Contractor fails or refuses to participate in monthly Work reconciliations or other construction progress evaluation with City, Contractor shall not receive current payment until Contractor has participated fully in providing construction progress information and schedule update information to City.

C. City's Review of Progress Payment Applications

1. City will review Contractor's Application for Payment following receipt and during the Progress Schedule and Billing Meeting. If adjustments need to be made to percent of completion of each activity, City will make appropriate notations and return to Contractor. Contractor shall revise and resubmit. All parties shall update percentage of completion values in the same manner, i.e., express value of an accumulated percentage of completion to date.
2. If City determines that portions of the Application for Payment are not proper or not due under the Contract Documents, then City may approve the other portions of the Application for Payment, and in the case of disputed items or Defective Work not remedied, may withhold up to 150 percent of the disputed amount from the progress payment.
3. Pursuant to California Public Contract Code §20104.50, if City fails to make any progress payment within 30 calendar days after receipt of an undisputed and properly submitted Application for Payment from Contractor, City shall pay interest to the Contractor equivalent to the legal rates set forth in subdivision (a) of Section 685.010 of the California Code of Civil Procedure. The 30-Day period shall be reduced by the number of calendar days by which City exceeds the seven-Day return requirement set forth herein.
4. As soon as practicable after approval of each Application for Payment for progress payments, City will pay to Contractor in manner provided by law, an amount equal to 95 percent of the amounts otherwise due as provided in the Contract Documents, or a lesser amount if so provided in Contract Documents and by law, provided that payments may at any time be withheld if, in judgment of City, Work is not proceeding in accordance with Contract, or Contractor is not complying with requirements of Contract, or to comply with stop notices or to offset liquidated damages accruing or expected. In City's sole discretion, if Contractor has failed to comply with either its Progress Schedule update or project record documents requirements, City may retain an additional 5% of any earned amounts until such requirements are satisfied.
5. Before any progress payment or final payment is due or made, Contractor shall submit satisfactory evidence that Contractor is not delinquent in payments to employees, Subcontractors, suppliers, or creditors for labor and materials incorporated into Work. This specifically includes, without limitation, conditional lien release forms for the current progress payment and unconditional release forms for past progress payments. This also includes copies of certified payroll from contractor and subcontractors for the current payment period.

D. Payment for Material and Equipment Not Yet Incorporated Into the Work

1. No payment shall be made for materials or equipment not yet incorporated into the Work,

except as specified elsewhere in the Contract Documents or as may be agreed to by City in its sole discretion. Where Contractor requests payment on the basis of materials and equipment not incorporated in the Work, Contractor must satisfy the following conditions:

2. The materials and/or equipment shall be delivered and suitably stored at the Site or at another local location agreed to in writing, for example, a mutually acceptable bonded and insured warehouse.
3. Full title to the materials and/or equipment shall vest in City at the time of delivery to the Site, warehouse or other storage location. Obtain a negotiable warehouse receipt, endorsed over to City for materials and/or equipment stored in an off-site warehouse. No payment will be made until such endorsed receipts are delivered to City.
4. Stockpiled materials and/or equipment shall be available for City inspection, but City shall have no obligation to inspect them and its inspection or failure to inspect shall not relieve Contractor of any obligations under the Contract Documents. Materials and/or equipment shall be segregated and labeled or tagged to identify these specific Contract Documents.
5. After delivery of materials and/or equipment, if any inherent or acquired defects are discovered, defective materials and/or equipment shall be removed and replaced with suitable materials and/or equipment at Contractor's expense.
6. At Contractor's expense, insure the materials and/or equipment against theft, fire, flood, vandalism, and malicious mischief, as well as any other coverages required under the Contract Documents.
7. Contractor's Application for Payment shall be accompanied by a bill of sale, invoice or other documentation warranting that City has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect City interest therein, all of which must be satisfactory to City. This documentation shall include, but not be limited to, conditional releases of mechanics' liens and stop notices from all those providing materials and equipment as to which the Application for Payment relates, as well as unconditional releases of the same from the same as to the previous Application for Payment for which they have not already been provided. Amounts previously paid for materials and equipment prior to incorporation into the Work shall be deducted from amounts otherwise due Contractor as they are incorporated.

1.05 FINAL PAYMENT

A. Final Payment

1. As soon as practicable after all required Work is completed in accordance with Contract Documents, including punchlist, testing, record documents and Contractor maintenance after Final Acceptance, Contractor shall submit its Application for Final Payment.
2. Provided Contractor has met all conditions required for Final payment, City will pay to Contractor, in manner provided by law, unpaid balance of Contract Sum of Work (including, without limitation, retentions), or whole Contract Sum of Work if no progress payment has been made, determined in accordance with terms of Contract Documents, less sums as may be lawfully retained under any provisions of Contract Documents or by law.

B. Final Accounting

1. Prior progress payments and change orders shall be subject to audit and correction in the final payment.
2. Contractor and each assignee under an assignment in effect at time of final payment shall execute and deliver at time of final payment, and as a condition precedent to final payment, Document 00 6530 (Agreement and Release of Claims).

1.06 SUBSTITUTION OF SECURITIES

- ##### **A. Public Contract Code Section 22300.** In accordance with the provisions of Public Contract

Code Section 22300, substitution of securities for any moneys withheld under Contract Documents to ensure performance is permitted under following conditions:

1. At request and expense of Contractor, securities listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by Contractor and City which are equivalent to the amount withheld under retention provisions of Contract shall be deposited with Controller or with a state or federally chartered bank in California, as the escrow agent, who shall then pay such moneys to Contractor. Upon satisfactory completion of Contract, securities shall be returned to Contractor.
2. Alternatively, Contractor may request and City shall make payment of retentions earned directly to the escrow agent at the expense of Contractor. At the expense of Contractor, Contractor may direct the investment of the payments into securities and receive the interest earned on the investments upon the same terms provided for securities deposited by Contractor. Upon satisfactory completion of the work of the Contract Documents, Contractor shall receive from escrow agent all securities, interest, and payments received by the escrow agent from City. Contractor shall then pay to each Subcontractor, not later than 10 calendar days after receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each Subcontractor, on the amount of retention withheld to insure the performance of Contractor.
3. Contractor shall be beneficial owner of securities substituted for moneys withheld and shall receive any interest thereon.
4. Contractor may enter into an escrow agreement, form included in Contract Documents, as authorized under Public Contract Code Section 22300, specifying amount of securities to be deposited, terms and conditions of conversion to cash in case of default of Contractor, and termination of escrow upon completion of Contract Documents.
5. Public Contract Code Section 22300, in effect on Bid Day, is hereby incorporated in full by this reference and shall supersede anything inconsistent therewith.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 2600

MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes requirements that supplement the paragraphs of Document 00 7200 (General Conditions).
- B. Description of procedures for modifying the Contract Documents and determining costs for changes in contract amounts.

1.02 PROCEDURES FOR CONTRACTOR INITIATED CHANGE ORDER

- A. Contractor-Initiated Change Proposal Request (CPR) and Procedures:
 - 1. Contractor may initiate changes by submitting a Change Proposal Request ("CPR").
 - 2. Whenever Contractor elects or is entitled to submit a CPR, Contractor shall prepare and submit to City for consideration a CPR using the form included in this Project Manual. All CPRs must contain a complete breakdown of costs of credits, deducts and extras; itemizing materials, labor, taxes, Markup and any requested changes to Contract Time. All Subcontractor Work shall be so indicated. Individual entries on the CPR form shall include applicable Schedule of Values code, with all amounts determined as provided herein. After receipt of a CPR with a detailed breakdown, City will act promptly thereon.
 - 3. If City accepts a CPR, City will prepare a Change Order for City and Contractor signatures.
 - 4. If CPR is not acceptable to City because it does not agree with Contractor's proposed cost and/or time, City will provide comments thereto. Contractor will then, within seven (7) calendar days (except as otherwise provided herein), submit a revised CPR.
 - 5. When necessity to proceed with a change does not allow City sufficient time to conduct a proper check of a CPR (or revised CPR), City may issue a Change Directive (CD) as provided below.
- B. Contractor-Initiated Request for Information (RFI) Procedures, Requirements and Limitations:
 - 1. Contractor may submit RFI's for clarifications in City-prepared Contract Documents, which may result in the Contractor submitting a CPR.
 - 2. Whenever Contractor requires information regarding the Project or City-prepared Contract Documents, or receives a request for such information from a Subcontractor, Contractor may prepare and deliver an RFI to City. Contractor shall use RFI format provided on approval by City. Contractor shall not issue an RFI to City solely to clarify Contractor-prepared Construction Documents. Contractor must submit time critical RFIs at least 30 calendar days before scheduled start date of the affected Work activity. Contractor shall reference each RFI to an activity of Progress Schedule and shall note time criticality of the RFI, indicating time within which a response is required. Contractor's failure to reference RFI to an activity on the Progress Schedule and note time criticality on the RFI shall constitute Contractor's waiver of any claim for time delay or interruption to the Work resulting from any delay in responding to the RFI.
 - 3. Contractor shall be responsible for its costs to implement and administer RFIs throughout the Contract duration. Regardless of the number of RFIs submitted, Contractor shall not be entitled to additional compensation for the effort required to submit the RFIs. Contractor shall be

responsible for City's administrative costs for answering RFIs where the answer could reasonably be found by reviewing the Contract Documents, as determined by City; at City discretion, such costs may be deducted from progress payments or final payment.

4. City will respond within ten (10) calendar days from receipt of RFI with a written response to Contractor. Contractor shall distribute response to all appropriate Subcontractors.
5. If Contractor is satisfied with the response and does not request a change in Contract Sum or Contract Time, then the response shall be executed without a change.
6. If Contractor believes the response is incomplete, Contractor shall issue another RFI (with the same RFI number with the letter "A" indicating it is a follow-up RFI) to City clarifying original RFI. Additionally, City may return RFI requesting additional information should original RFI be inadequate in describing condition.

C. Time Requirements:

1. If Contractor believes that a City response to an RFI, submittal or other City direction, results in change in Contract Sum or Contract Time, Contractor shall notify City with the issuance of a preliminary CPR within ten calendar days after receiving City's response or direction, and in no event after starting the disputed work or later than the time allowed under Article 12 of Document 00 7200 (General Conditions). If Contractor also requests a time extension, or has issued a notice of delay or otherwise requests a time extension with a CPR, then Contractor shall submit a Time Impact Evaluation (TIE) required herein concurrently with the CPR and in no event later than ten calendar days after providing the notice of delay.
2. If Contractor requires more time to accurately identify the required changes to the Contract Sum or Contract Time, Contractor may submit an updated and final CPR and TIE within 14 calendar days of submitting the preliminary CPR.
3. If City agrees with Contractor's CPR and/or TIE, then City will prepare a Change Order for City and Contractor signatures. If City disagrees with Contractor, then Contractor may give notice of potential claim as provided in Article 12 of Document 00 7200 (General Conditions), and proceed thereunder.
4. Contractor must submit CPRs, notices of potential claim or Claims within the required time periods. Any failure to do so waives Contractor's right to submit a CPR or file a Claim.

D. Cost Estimate Information:

1. Contractor and subcontractors shall, upon City's request, permit inspection of the original unaltered cost estimates, subcontract agreements, purchase orders relating to the change, and documents substantiating all costs associated with its CPR or Claims arising from changes in the Work.

1.03 PROCEDURES FOR CITY INITIATED CHANGE ORDERS

A. City Initiated Change Directives (CD):

1. City may, by Change Directive ("CD") or initially by Instruction Bulletin or by following the procedures for disputed work herein, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with or without adjustment to Contract Sum or Contract Time.
2. If at any time City believes in good faith that a timely Change Order will not be agreed upon using the foregoing procedures, or at any other time, City may issue a CD with its recommended cost and/or time adjustment (if any). Upon receipt of CD, Contractor shall promptly proceed with the change of Work involved and respond to City within ten (10) calendar days.
3. Contractor's response must be any one of following:
 - a. Return CD signed, thereby accepting City response, including adjustment to time and cost (if any).

- b. Submit a (revised if applicable) Cost Proposal with supporting documentation (if applicable, reference original Cost Proposal number followed by letter A, B, etc. for each revision), if City so requests.
 - c. Give notice of intent to submit a claim as described in Article 12 of Document 00 7200 (General Conditions), and submit its claim as provided therein.
4. If CPR or the CD provides for an adjustment to any Contract Sum, the adjustment shall be based on one of the following methods:
 - a. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.
 - b. Contractor to proceed on cost reimbursable (force account) basis while negotiating towards a firm price.
 - c. Cost to be determined in a manner agreed.
 5. Change Directive signed by Contractor indicates the agreement of Contractor therewith, including adjustment in Contract Sum or the method for determining them. Such agreement shall be effective immediately and shall be finalized as a Change Order. Where City authorizes CD work on a time and materials basis up to a maximum amount, then Contractor shall promptly advise City upon reaching 75% of such maximum amount, otherwise Contractor shall accept fully the risk of completing the CD work without exceeding such maximum amount.
 6. If Contractor does not respond promptly or disagrees with the method for adjustment (or non-adjustment) in the Contract Sum, the method and the adjustment shall be determined by City on the basis of the Contract Documents and the reasonable expenditures and savings of those performing the Work attributable to the change. If the parties still do not agree on the proper adjustment due to a Change Directive, Contractor may file a Claim per Article 12 of Document 00 7200 (General Conditions) and/or City may direct the changed work through a unilateral change order. Contractor shall keep and present an itemized accounting in a manner consistent with the SOV, together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this paragraph shall be limited to those provided herein.
 7. Pending final determination of cost to City, Contractor may include amounts not in dispute in its Applications for Payment. The amount of credit to be allowed by Contractor to City for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by City. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for Markup shall be figured on the basis of net increase, if any, with respect to that change.
- B. City Initiated Change Order (CO) or Request for Proposal (RFP):
1. City may initiate changes in the Work or Contract Time by issuing a Request for Proposal ("RFP") or Change Order ("CO") to Contractor.
 2. City may issue an RFP to Contractor. Any RFP will detail all proposed changes in the Work and request a quotation of changes in Contract Sum and Contract Time from Contractor.
 3. In response to an RFP, Contractor shall furnish a Change Proposal Request (CPR) within twenty-one (21) Business Days of City's RFP. Upon approval of CPR, City may issue a Change Directive directing Contractor to proceed with extra Work.
 4. If the parties agree on price and time for the work, the City will issue a Contact Change Order. If the parties do not agree on the price or time for a CPR, City may either issue a CD or decide the issue per Article 12 of Document 00 7200 (General Conditions). Contractor shall perform the changed Work notwithstanding any claims or disagreements of any nature.

1.04 PROCEDURES THAT APPLY TO CONTRACTOR- AND CITY-INITIATED CHANGE ORDERS

- A. Adjustment of Schedules to Reflect Change Orders or CDs:
1. Contractor shall revise Schedule of Values and Application for Payment forms to record each

authorized Change Order or CD as a separate line item and adjust the Contract Sum as shown thereon prior to the next monthly pay period.

2. Contractor shall revise the Progress Schedules prior to the next monthly pay period, to reflect CO or CD.
 3. Contractor shall enter changes in Project Record Documents prior to the next monthly pay period.
- B. Required Documentation for Adjustments to Contract Amounts:
1. For all changes and cost adjustments requested, Contractor shall provide documentation of change in Contract Amounts asserted, with sufficient data to allow evaluation of the proposal.
 2. In all requests for compensation, cost proposals, estimates, claims and any other calculation of costs made under the Contract Documents, Contractor shall breakout and quantify costs of labor, equipment and materials identified herein, for Contractor and subcontractors of any tier.
 3. Contractor shall, on request, provide additional data to support computations for:
 - a. Quantities of products, materials, labor and equipment.
 - b. Taxes, insurance, and bonds.
 - c. Justification for any change in Contract Time and new Progress Schedule showing revision due, if any.
 - d. Credit for deletions from Contract, similarly documented.
 4. Contractor shall support each claim or computation for additional cost, with additional information including:
 - a. Origin and date of claim or request for additional compensation.
 - b. Dates and times Work was performed and by whom.
 - c. Time records and wage rates paid.
 - d. Invoices and receipts for products, materials, equipment and subcontracts, similarly documented.
 - e. Credit for deletions from Contract, similarly documented.
- C. Responses and Disputes:
1. For all responses for which the Contract Documents do not provide a specific time period, recipients shall respond within a reasonable time.
 2. For all disputes arising from the procedures herein, Contractor shall follow Article 12 of Document 00 7200 (General Conditions).

1.05 COST DETERMINATION FOR CHANGES IN CONTRACT AMOUNTS

A. Calculation of Total Cost of Extra Work:

1. Total cost of changed Work, extra Work or of Work omitted shall be the sum of three components defined immediately below as: Component 1 (Direct Cost(s)); Component 2 (Markup); and, Component 3 (bonds, insurance, taxes)
2. Component 1: Direct Cost(s) of labor, equipment and materials, is calculated based upon actually incurred (or omitted) labor costs, material costs and equipment rental costs, as defined herein;
3. Component 2: Markup on such actually incurred Direct Costs, is applied in the percentages identified below; and
4. Component 3: Actual additional costs for any additionally required insurance, bonds, and/or taxes, defined herein, is calculated without Markup.

1.06 MEASUREMENT OF DIRECT COST OF CONSTRUCTION (COST COMPONENT NO. 1)

A. Composition of Component 1 (Direct Cost of Construction):

1. Component 1 has four subcomponents, also referred to as "LEMS":
 - a. Labor (Component 1A)
 - b. Equipment (Component 1B)
 - c. Materials (Component 1C)
 - d. Subcontractors (Component 1D)
- B. Measurement of Cost of Labor (Component 1A):
 1. Cost of Labor shall be calculated as: Cost of labor for workers (including forepersons when authorized by City) used in actual and direct performance of the subject work, whether employer is Contractor, Subcontractor or other forces, in the sum of the following:
 - a. Actual Wages: Actual wages paid shall include any employer payments to or on behalf of workers for health and welfare, pension, vacation, and similar purposes.
 - b. Labor surcharge: Payments imposed by local, county, state, and federal laws and ordinances, and other payments made to, or on behalf of, workers, other than actual wages as defined, such as worker's compensation insurance. Such labor surcharge shall not exceed generally accepted standards in the State for labor rates in effect on date upon which extra Work is accomplished.
 - c. Cost of labor shall include no other costs, fees or charges.
 2. Labor cost for operators of equipment owned and operated by Contractor or any Subcontractor, shall be no more than rates of such labor established by collective bargaining agreements for type of worker and location of Work, whether or not owner-operator (i.e., Contractor or Subcontractor) is actually covered by such an agreement.
 3. Cost of labor shall be recorded and documented in certified payroll records, maintained in the form customary and/or required in the State, delivered to City weekly.
- C. Measurement of Cost of Equipment (Component 1B):
 1. Measurement of Component 1B (Cost of Equipment). Cost of Equipment shall be calculated as: Cost of Equipment used in actual and direct performance of the subject work, whether by Contractor, Subcontractor or other forces. Cost of Equipment shall be calculated as herein described.
 2. For rented equipment, cost will be based on actual rental invoices, appropriate for the use and duration of the work. Equipment used on extra Work shall be of proper size and type. If, however, equipment of unwarranted size or type and cost is used, cost of use of equipment shall be calculated at rental rate for equipment of proper size and type, as determined by City.
 3. Equipment rental cost for Contractor or Subcontractor-owned equipment, shall be determined by reference to, and not in excess of, the generally accepted standards in the State for equipment rental rates in effect on date upon which extra Work is accomplished. If there is no applicable rate for an item of equipment, then payment shall be made for Contractor- or Subcontractor-owned equipment at rental rate listed in the most recent edition of the CalTrans Standard Schedules and Specifications, and absent a rental rate therein, then the Association of Equipment Distributors (AED) book.
 4. In all cases, rental rates paid shall be deemed to cover cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.
 5. Unless otherwise specified, manufacturer's ratings, and manufacturer-approved modifications, shall be used to classify equipment for determination of applicable rental rates. Individual pieces of equipment or tools not listed in said publication and having a replacement value of \$100 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore as payment is included in payment for labor. Rental time will not be allowed while equipment is inoperative due to breakdowns.
 6. For equipment on Site, rental time to be paid for equipment shall be time equipment is in

operation on extra Work being performed or on standby as approved by City. The following shall be used in computing rental time of equipment:

- a. When hourly rates are listed, less than 30 minutes of operation shall be considered to be $\frac{1}{2}$ hour of operation.
 - b. When daily rates are listed, less than four hours of operation shall be considered to be $\frac{1}{2}$ Day of operation.
 - c. Rates shall correspond to actual rates paid by Contractor, i.e., if Contractor pays lower weekly or monthly rates, then same shall be charged to City.
7. For equipment that must be brought to Site to be used exclusively on extra Work, cost of transporting equipment to Site and its return to its original location shall be determined as follows:
- a. City will pay for costs of loading and unloading equipment.
 - b. Cost of transporting equipment in low bed trailers shall not exceed hourly rates charged by established haulers.
 - c. Cost of transporting equipment shall not exceed applicable minimum established rates of California Public Utilities Commission or appropriate State Dept. of Transportation.
 - d. City will not make any payment for transporting and loading and unloading equipment if equipment is used on Work in any other way than upon extra Work.
 - e. Rental period may begin at time equipment is unloaded at Site of extra Work and terminate at end of the performance of the extra Work or Day on which City directs Contractor to discontinue use of equipment, whichever first occurs. Excluding Saturdays, Sundays, and City legal holidays, unless equipment is used to perform extra Work on such Days, rental time to be paid per Day shall be four hours for zero hours of operation, six hours for four hours of operation and eight hours for eight hours of operation, time being prorated between these parameters. Hours to be paid for equipment that is operated less than eight hours due to breakdowns, shall not exceed eight less number of hours equipment is inoperative due to breakdowns.
8. Employee vehicles are not part of Component 1A, rather, are included within Component 2 (Markup).
9. Equipment costs shall include no other costs, fees or charges.
- D. Measurement of Cost of Material (Component 1C):
1. Cost of Material shall be calculated as herein described. Cost of such materials will be cost to purchaser (Contractor, Subcontractor or other forces) from supplier thereof, except as the following are applicable:
 2. If cash or trade discount by actual supplier is offered or available to purchaser, it shall be credited to City notwithstanding fact that such discount may not have been taken.
 3. For materials salvaged upon completion of Work, salvage value of materials shall be deducted from cost, less discounts, of materials.
 4. If cost of a material is, in opinion of City, excessive, then cost of material shall be deemed to be lowest current wholesale price at which material is available in quantities concerned delivered to Site, less any discounts as provided in this Paragraph.
 5. Material costs shall include no other costs, fees or charges.
- E. Measurement of Cost of Subcontractors (Component 1D):
1. Where reimbursed or calculated per the terms of the Contract Documents, change order or Change Directive, cost of Subcontractors shall be calculated as amounts earned by Subcontractors procured in compliance with the Contract Documents and approved by the City, provided such subcontractor earned amounts meet the following requirements:
 - a. Such amounts are earned under the terms of the Subcontracts and the Work complies with the terms of the Contract Documents;

- b. Such amounts are properly requested, documented and permitted under the terms of the subcontract(s) and the Contract Documents.
- c. Total cost to City of Direct Costs of Construction (labor, equipment, materials), Markup, and costs of bonds, insurance and taxes, conform to contract limitations (i.e., totals paid by City do not exceed the 20% Markup limitation.).

1.07 MEASUREMENT AND PAYMENT OF MARK UP (COST COMPONENT 2)

A. Markup Percentages for Changed Work (Component 2):

1. Markup on Direct Cost of labor and materials for extra Work shall be 15%. Markup on Direct Cost of equipment for extra Work shall be 15%.
2. When extra Work is performed by Subcontractors, regardless of the number of tiers, total Markup on "Component 1" Direct Costs shall not exceed 20%. Contractor and its Subcontractors shall divide the 20% as they may agree.
3. Under no circumstances shall the total Markup on any extra Work exceed twenty (20) percent, stated as a percent of the Direct Cost of labor, equipment and materials. This limitation shall apply regardless of the actual number of subcontract tiers.
4. On proposals covering both increases and decreases in Contract Sum, Markup shall be allowed on the net increase only as determined above. When the net difference is a deletion, no percentage for Markup shall be allowed, but rather an appropriate percentage deduction shall be issued in the amount of the net difference.

B. Measurement and Payment of Mark Up (Component 2):

1. Mark Up (Component 2) provides complete compensation to Contractor for:
 - a. All Contractor profit;
 - b. All Contractor home-office overhead;
 - c. All Contractor assumption of risk assigned to Contractor under the Contract Documents;
 - d. Subject to the qualifications below regarding self-performed work, all General Conditions and General Requirements.
2. Profit. Compensation for profit included within Component 2 (Mark Up), includes without limitation: Fees of all types, nature and description; and Profit and margins of all types, nature and description.
3. Home Office Expenses. Compensation for home office expenses included within Component 2 (Mark Up), includes without limitation: Salaries and other compensation of any type of Contractor's personnel (management, administrative and clerical), and all direct and indirect operating, travel, payroll, safety, storage, quality control, maintenance and overhead costs of any nature whatsoever, incurred by Contractor at any location other than the Project specific site office, including without limitation, Contractor's principal or branch offices; insurance premiums other than those for Project specific insurance directed by the City in a change order; all hardware, software, supplies and support personnel necessary or convenient for Contractor's capture, documentation and maintenance of its costs and cost accounting data and cost accounting and control systems and work progress reporting.
4. Assumption of Risk. Compensation for Contractor's assumption of risk under the Contract Documents, included within Component 2 (Mark Up), includes without limitation loss, cost, damage, expense or liability resulting directly or indirectly from any of the following causes ("unallowable costs"), for Contractor and subcontractors of any tier: noncompliance with the Contract Documents, fault or negligence, defective or non-conforming Work, by Contractor or any Subcontractor or Vendor of any tier or anyone directly or indirectly employed by any of them, or for whose acts or omissions any of them are responsible or liable at law or under the Contract Documents; cost overruns of any type; costs in excess of any lump sum, not to exceed amount or GMP; costs resulting from bid or "buy out" errors, unallocated scope, or incomplete transfer of scope or contract terms to subcontractors; any costs incurred by Contractor relating to a Change in the Work without a Change Order or Change Directive in accordance with the

Contract Documents; costs for work or materials for which no price is fixed in the Contract Documents, unless it is expressly specified that such work or material is to be paid for as extra work.

5. General Conditions and Division 1 General Requirements. Compensation for Contractor's General Conditions and General Requirements Costs included within Component 2 (Mark Up), includes compensation to Contractor for: Contractor's direct costs, without overhead or profit, for salaries and related forms of compensation and employer's costs for labor and personnel costs, of Contractor's employees and subconsultant's employees (if any), while and only to the extent they are performing Work at the Project Site. Personnel and Work compensated by this Component include without limitation: All required Project management responsibilities; all on-site services; monthly reporting and scheduling; routine field inspection of Work; general superintendence; general administration and preparation of cost proposals, schedule analysis, change orders and other supporting documentation as necessary; salaries of project superintendent, project engineers, project managers, safety manager, other manager, timekeeper, and secretaries; all cost estimates and updates thereto; development, validation and updates to the project schedule; surveying; estimating. Compensation for Contractor's General Requirements Costs included within Component 2 (Mark Up), compensates Contractor for its "General Requirements" Costs, including without limitation: all scheduling hardware, software, licenses, equipment, materials and supplies; purchase, lease or rental, build out, procurement, supporting equipment and maintenance of temporary on-Site facilities, Project field and office trailers and other temporary facilities, office equipment and supporting utilities; platforms, fencing, cleanup and jobsite security; temporary roads, parking areas, temporary security or safety fencing and barricades, etc.; all Contractor's motor vehicles used by any Contractor's personnel, and all costs thereof; all health and safety requirements, required by law or City procedures; all surveying; all protection of Work; handling and disposal fees; final cleanup; repair or maintenance; other incidental Work; all items, activities and function similar to any of those described above; all travel, entertainment, lodging, board and the like.
6. Personnel compensated by the Markup Component do not include workers of foreman level or below in the case of self-performed work; rather, such personnel shall be treated as a Direct Cost of Construction. Costs compensated by the Markup component do not include temporary measures specifically required by the changed work, not otherwise required or ongoing in the prosecution of the Work, that commence specifically to support the changed work and conclude with the completion of the changed work. Such costs shall be treated as Direct Costs of Construction. Examples of General Requirements costs that this component may not cover are the following: temporary barricades or fencing of specific areas required specifically for the changed work; cranes required specifically for the changed work; extra security required specifically for the changed work.

1.08 MEASUREMENT AND PAYMENT OF BONDS INSURANCE TAXES (COMPONENT 3)

- A. Measurement of Bonds, Insurance, Taxes (Component 3):
 1. Component 3 (Bonds, Insurance, Taxes) consists of the cost of bonds, insurance and taxes, also referred to as "**BIT**". All State sales and use taxes, applicable County and applicable City sales taxes, shall be included. Federal and Excise tax shall not be included.
 2. There is no mark up on BIT.

1.09 EFFECT OF PAYMENT

- A. Change Order Compensation is All Inclusive.
 1. Except as provided expressly below regarding changes that extend the Contract Time, payment of calculated cost of extra work constitutes full and complete compensation for costs or expense arising from the extra Work, and is intended to be all inclusive.
 2. Payment for Direct Cost of Construction (Component 1 or LEMS) is intended to be all-inclusive. Any costs or risks not delineated within cost of labor, equipment or materials herein, shall be deemed to be within the costs and risks encompassed by the applicable Markups and

unallowable in any separate amount.

3. Payment of Markup (Component 2) is intended to be all-inclusive. Contractor waives claims for any further or different payment of cost and risk items delineated herein, other than the allowable percentage markup on costs set forth in the Contract Documents; such separate, further or different cost or risk items shall be unallowable, waived and liquidated within the allowable percentage markup.
 4. Contractor shall recover no other costs or markups on extra work of any type, nature or description.
- B. Exception for Changes Extending the Contract Time.
1. Where a change in the Work extends the Contract Time, Contractor may request and recover additional, actual direct costs, provided Contractor can demonstrate such additional costs are (i.) actually incurred performing the Work, (ii.) not compensated by the Markup allowed, and (iii) directly result from the extended Contract Time. Contractor shall make such request and provide such documentation following all required procedures, documentation and time requirements in the Contract Documents, and subject to all contract limitations of liability. Contractor may not seek or recover such costs using formulas (e.g., Eichleay).
- C. Limits of Liability / Accord and Satisfaction.
1. The foregoing limits of compensation apply in all cases of claims for changed Work, whether calculating Change Proposal Requests, Change Orders or CDs, or calculating claims and/or damages of all types, and applies even in the event of fault, negligence, strict liability, or tort claims of all kinds, including strict liability or negligence. Contractor may recover no other costs arising out of or connected with the performance of extra Work, of any nature.
 2. Under no circumstances may Contractor claim or recover special, incidental or consequential damages against City, its representatives or agents, whether arising from breach of contract, negligence, strict liability or other tort or legal theory, unless specifically and expressly authorized in the Contract Documents.
 3. No change in Work shall be considered a waiver of any other condition of Contract Documents. No claim shall be made for anticipated profit, for loss of profit, for damages, or for extra payment whatever, except as expressly provided for in Contract Documents.
 4. Accord and Satisfaction: Every Change Order and accepted CD shall constitute a full accord and satisfaction, and release, of all Contractor (and if applicable, Subcontractor) claims for additional time, money or other relief arising from or relating to the subject matter of the change including, without limitation, impacts of all types, cumulative impacts, inefficiency, overtime, delay and any other type of claim. Contractor may elect to reserve its rights to disputed claims arising from or relating to the changed Work at the time it signs a Change Order or approves a CD, but must do so expressly in a writing delivered concurrently with the executed Change Order or approved CD, and must also submit a Claim for the reserved disputed items pursuant to Article 12 of Document 00 7200 (General Conditions) no later than thirty (30) calendar days after Contractor's first written notice of its intent to reserve rights. Execution of any Change Order or CD shall constitute Contractor's representation of its agreement with this provision.

1.10 MISCELLANEOUS REQUIREMENTS

A. City-Furnished Materials.

1. City reserves right to furnish materials as it deems advisable, and Contractor shall have no claims for costs and Markup on such materials.

B. Records And Certification.

1. All charges shall be recorded daily and summarized in Change Proposal Request form attached hereto. Contractor or authorized representative shall complete and sign form each day. Contractor shall also provide with the form: the names and classifications of workers and hours worked by each; an itemization of all materials used; and a list by size type and identification

number of equipment and hours operated.

2. City shall have the right to audit all records in possession of Contractor relating to activities covered by Contractor's claims for modification of Contract, including CD Work. This right shall be specifically enforceable, and any failure of Contractor to voluntarily comply shall be deemed an irrevocable waiver and release of all claims then pending that were or could have been subject to Article 12 of Document 00 7200 (General Conditions).

C.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

[COST PROPOSAL FORM FOLLOWS ON NEXT PAGE]

COST PROPOSAL (CP)

Owner **Corporation Yard Green Room and Building H Improvements** CP Number: _____

Contract Number _____

Date: _____

In Response To _____

RFP #, etc.

To: City of Berkeley
 Attention: **Titus Chen**
1947 Center Street, 5th Floor
Berkeley, CA 94704
 Phone: (510) 981-6400
 Fax: (510) 981-6390

From: [Insert Contractor's Name/Address] _____

This Cost Proposal is in response to the above-referenced _____ [insert RFP, etc. as applicable].

Brief description of change(s): _____

ITEM DESCRIPTION	PRIME CONTRACTOR	SUB 1	SUB 2	SUB 3	SUB 4	TOTAL
MATERIAL						
LABOR						
EQUIPMENT						
Other (Specify) Extended Overhead						
TOTAL COST						
Subcontractor's Overhead & Profit 15 percent						
Contractor's Overhead & Profit 15 percent						
Overhead & Profit to Contractor for Subcontractor's Work 5 percent						
(percent of Total Cost above not including any Overhead & Profit – may not exceed 20%)						
GRAND TOTAL						
REQUESTED CHANGE IN CONTRACT TIME (CALENDAR DAYS)						
(Time Impact Evaluation Enclosed)						

By Contractor: _____

Signature: _____

Date: _____

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DIVISION 1 GENERAL REQUIREMENTS**SECTION 01 3119****PROJECT MEETINGS****PART 1 - GENERAL****1.01 SUMMARY****A. Summary**

1. Section includes description of required project meetings.

1.02 PRECONSTRUCTION CONFERENCE

- A. Preconstruction Conference. City will call for and administer Preconstruction Conference at time and place to be announced (usually the week prior to start of Work at the Site). Contractor, all major Subcontractors, and major suppliers shall attend Preconstruction Conference. Agenda may include, but not be limited to, the following items:

1. Schedules
2. Personnel and vehicle permit procedures
3. Use of premises
4. Location of the Contractor's on-Site facilities & Temporary Utilities
5. Security
6. Housekeeping
7. Submittal and RFI procedures
8. Inspection and testing procedures, on-Site and off-Site
9. Utility shutdown procedures
10. Control and reference point survey procedures
11. Injury and Illness Prevention Program
12. Contractor's Initial Progress Schedule
13. Contractor's Schedule of Values
14. Contractor's Schedule of Submittals
15. Jurisdictional agency requirements
16. Project Communication Procedures
17. Modification Procedures
18. Site Access by City and Consultants
19. As-Built/Record Documents
20. Permits & Fees
21. Coordination: (Work Performed for City under separate contract). (As Appropriate)
22. City will distribute copies of minutes to attendees. Attendees shall have 7 calendar days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of Preconstruction Conference.

1.03 WEEKLY PROJECT MEETINGS

- A. City will schedule and administer weekly progress meetings throughout duration of Work. Progress meetings will be held weekly unless otherwise directed by City. Meetings shall be held at City's Offices unless otherwise specified in Contract Documents.
1. City's Representative will prepare agenda and distribute it 4 calendar days in advance of meeting to Contractor.
 2. Participants with agenda items shall present them.
 3. The Architect/Engineer and other responsible entities shall attend meetings unless otherwise

specified in Contract Documents or provided by City.

4. City shall record and distribute the meeting minutes. Minutes shall be distributed by the City to the Contractor within 3 business days after the meeting. Contractor shall distribute the minutes to those affected by decisions made at meeting. Attendees shall have five business days to submit comments or additions to the minutes. Minutes shall constitute final memorialization of results of meeting.
5. Progress meetings shall be attended by Contractor's job superintendent, major Subcontractors and suppliers, City, and others as appropriate to agenda topics for each meeting.
6. Agenda may contain the following items, as appropriate:
 - a. Review, revise as necessary, and approve previous meeting minutes
 - b. Review of Work progress since last meeting
 - c. Status of Construction Work Schedule, delivery schedules, adjustments
 - d. Submittal, RFI, and Change Order status
 - e. Review of the Contractor's safety program activities and results, including report on all serious injury and/or damage accidents
 - f. Other items affecting progress of Work

1.04 PROGRESS SCHEDULE AND BILLING MEETINGS

- A. A meeting will be held on approximately the 20th of each month to review the schedule update submittal and progress payment application.
- B. At this meeting, at a minimum, the following items will be reviewed:
 1. Percent complete of each activity;
 2. Time impact evaluations for Change Orders and Time Extension Request;
 3. Actual and anticipated activity sequence changes;
 4. Actual and anticipated duration changes; and
 5. Actual and anticipated Contractor delays.
 6. Waste Management Tracking/Tags
 7. As-Built/Record Documents
- C. These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, Contractor's General Superintendent and Scheduler shall attend these meetings.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

DIVISION 1 GENERAL REQUIREMENTS**SECTION 01 3230****PROGRESS SCHEDULES AND SUBMITTALS****PART 1 - GENERAL****1.01 SUMMARY**

- A. Section includes description of requirements and procedures for submitting progress schedules and submittals.

1.02 CONTRACTOR TO SUBMIT PROGRESS SCHEDULES

- A. Contractor shall submit original (baseline) progress schedule two weeks prior to the first Application for Payment.
- B. Baseline Progress Schedule shall show Contractor's construction and procurement activities, including but not limited to, equipment procurement and delivery (Contractor and City supplied), activities with Subcontractors and suppliers, major submittal reviews, commissioning of systems, use of major equipment on site, and necessary interface with City and third parties required to complete the Work in a timely manner and in accordance with Contract Time.

1.03 SCHEDULE REQUIREMENTS.

- A. Unless City agrees in writing otherwise, progress schedule shall be on Microsoft Project, Primavera P6, Suretrack, or equivalent software, as City may specify, which Contractor shall prepare and supply to City, with all datapoint entries completed for start dates, necessary work activities, durations (not longer than 21 calendar days) and logic ties.
- B. Contractor's progress schedule may be in the form of a CPM (arrow) diagram or, if City agrees in writing, a bar chart or a Gantt chart. The hard copies of the schedule supplied to City shall indicate the critical path of the Work (in red) and shall show a logical progression of the Work through completion within Contract Time.
- C. Unless City agrees in writing otherwise, progress schedule shall also show early and late start and finish dates and total available float (float to the successor activity's late start date) for each activity. City has no obligation to accept an early completion schedule.

1.04 MONTHLY UPDATES

- A. Contractor's progress schedule shall be updated monthly to reflect actual progress. The schedule shall be subject to City's review and acceptance for use in monitoring Contractor's Work and evaluating Applications for Payment.
- B. Contractor shall supply City with an electronic copy of the updated progress schedule with each monthly payment application. Contractor shall provide City with **three-week** look ahead schedules weekly, showing in detail and activities and resources scheduled for the immediate two week period.

1.05 RECOVERY SCHEDULE

- A. City may request a recovery schedule should Contractor fall 21 or more calendar days behind any schedule Milestone, which schedule shall show Contractor's plan and resources committed to retain Contract completion dates.
- B. The recovery schedule shall show the intended critical path. If City requests, Contractor shall also:
 - 1. Secure and demonstrate appropriate Subcontractor and supplier consent to the recovery

Schedule.

2. Submit a narrative explaining trade flow and construction flow changes and man-hour loading assumptions for major Work activities and/or Subcontractors.

1.06 TIME IMPACT EVALUATION (“TIE”) FOR CHANGE ORDERS, TIME EXTENSIONS AND DELAYS:

- A. When Contractor requests a time extension for any reason, Contractor shall submit a TIE that includes both a written narrative and a schedule diagram depicting how the changed Work or other impact affects other schedule activities. The schedule diagram shall show how Contractor proposes to incorporate the changed Work or other impact in the schedule and how it impacts the current Schedule update critical path or otherwise. Contractor is also responsible for requesting time extensions based on the TIE’s impact on the critical path. The diagram shall be tied to the main sequence of scheduled activities to enable City to evaluate the impact of changed Work to the scheduled critical path.

- B. Contractor is responsible for all costs associated with the preparation of TIE’s, and the process of incorporating TIE’s into the current schedule update. Provide City with four copies of each TIE.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

DIVISION 1 GENERAL REQUIREMENTS**SECTION 01 3300****SUBMITTALS****PART 1 - GENERAL****1.01 SUMMARY**

- A. Section includes description of requirements and procedures for submittals.

1.02 SCHEDULE OF SUBMITTALS

- A. Contractor shall prepare for City's review and acceptance prior to commencement of work on the Site, for purposes of contract administration, a schedule of submittals (also referred to as a submittal register) required to complete the Work, prepared by Contractor and accepted by City for contract administration. Schedule of submittals shall include, for each submittal: the specification or drawing reference requiring the submittal, if applicable; the material, item, or process for which the submittal is required; the submittal number and identifying title of the submittal; the Contractor's anticipated submission date and the approval need date.
- B. Contractor shall update monthly the schedule of submittals to reflect actual submission and acceptance dates for submittals. Review by City of schedule of submittals does not excuse Contractor of obligation to supply, schedule and coordinate all submittals required by the Contract Documents.

1.03 CONTRACTOR TO SUBMIT SHOP DRAWINGS, PRODUCT DATA AND SUBMITTALS.

- A. Contractor shall review for compliance with Contract Documents, approve and submit to City Shop Drawings, Product Data, Samples and similar submittals required by Contract Documents.
- B. Contractor shall schedule and submit concurrently submittals covering component items forming a system or items that are interrelated. Contractor shall include certifications to be submitted with the pertinent drawings at the same time.
- C. Contractor shall coordinate scheduling, sequencing, preparing and processing of all submittals with performance of work so that work will not be delayed by submittal processing.
- D. Submittals shall specifically identify any Work depicted that does not conform to the Contract Documents.

1.04 CITY REVIEW OF SHOP DRAWINGS, PRODUCT DATA AND SUBMITTALS.

- A. After review by City of each Submittal, material will be returned to Contractor with actions defined as follows:
 - 1. NO EXCEPTIONS TAKEN - Accepted subject to its compatibility with general design concept of the Work, future Submittals and additional partial Submittals for any portions of the Work not covered in this Submittal. Does not constitute acceptance or deletion of specified or required items not shown on the Submittal.
 - 2. MAKE CORRECTIONS NOTED (NO RESUBMISSIONS REQUIRED) - Same as item 1 above, except that minor corrections as noted shall be made by Contractor.
 - 3. REVISE AS NOTED AND RESUBMIT - Rejected because of major inconsistencies or errors that shall be resolved or corrected by Contractor prior to subsequent review by City.
 - 4. REJECTED - RESUBMIT - Submitted material does not conform to Drawings and/or Specifications in major respect, i.e.: wrong size, model, capacity, or material.

- B. Favorable review will not constitute acceptance by City of any responsibility for the accuracy, coordination, or completeness of the Submittals. Accuracy, coordination, and completeness of Submittals shall be sole responsibility of Contractor, including responsibility to back-check comments, corrections, and modifications from City's review before fabrication. Contractor, Subcontractors, or suppliers may prepare Submittals, but Contractor shall ascertain that Submittals meet requirements of Contract Documents, while conforming to structural space and access conditions at point of installation. City's review will be only to assess if the items covered by the Submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as indicated by the Contract Documents. Favorable review of Submittal, method of Work, or information regarding materials and equipment Contractor proposes to furnish shall not relieve Contractor of responsibility for errors therein and shall not be regarded as assumption of risks or liability by City, or any officer or employee thereof, and Contractor shall have no claim under Contract Documents on account of failure or partial failure or inefficiency or insufficiency of any plan or method of Work or material and equipment so accepted. Favorable review shall be considered to mean merely that City has no objection to Contractor using, upon Contractor's own full responsibility, plan or method of Work proposed, or furnishing materials and equipment proposed.
- C. Unless otherwise specified, City's review will not extend to the means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
- D. Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been favorably reviewed by the City; otherwise, any such Work is at Contractor's sole risk.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 4100

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
1. Regulatory requirements applicable to Contract Documents
 2. Required provisions under Local Agency Disputes Act
 3. Required references under federal law

1.02 GENERAL

- A. Compliance with Laws
1. Conform to all applicable codes, laws, ordinances, rules and regulations, which shall have full force and effect as though printed in full in these Specifications. Codes, laws, ordinances, rules, regulations and ordinances (**Regulatory Requirements**) are not furnished to Contractor, because Contractor is assumed to be familiar with these requirements.
 2. Any listing of Regulatory Requirements for hazardous waste abatement Work in the Contract Documents is supplied to Contractor as a courtesy and shall not limit Contractor's responsibility for complying with all applicable Regulatory Requirements having application to the Work. Where conflict among the Regulatory Requirements or with these Specifications occurs, the most stringent requirements shall be used.
 3. Specific reference in the Specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency in effect at the time of the opening of Bids, except as may be otherwise specifically stated in the Contract Documents.
- B. Precedence
1. Where specified requirements differ from Regulatory Requirements, the more stringent requirements shall take precedence. Where Drawings or Specifications require or describe products or execution of better quality, higher standard or greater size than required by Regulatory Requirements, then Drawings and Specifications shall take precedence so long as such increase is legal. Where no requirements are identified on Drawings or in Specifications, comply with all Regulatory Requirements of governing authorities having jurisdiction.
 2. Should any conditions develop not covered by the Contract Documents wherein the finished Work will not comply with current codes, a Change Order detailing and specifying the required Work shall be submitted to and approved by City before proceeding with the Work.

1.03 REGULATORY REQUIREMENTS

- A. Applicable Codes
1. Codes that apply to Contract Documents include all Codes applicable to construction, including, but not limited to, the following:
 - a. California Building Code (2016 Edition or latest applicable code) as amended by applicable local ordinances for all construction work.

- b. California Electrical Code (2016 Edition or latest applicable code) as amended by applicable local ordinances for all construction work.
 - c. California Plumbing Code (2016 Edition or latest applicable code) as amended by applicable local ordinances for plumbing, sewage disposal and health requirements.
 - d. California Mechanical Code (2016 Edition or latest applicable code) as amended by applicable local ordinances for all construction work.
 - e. California Energy Code (2016 Edition or latest applicable code) as amended by applicable local ordinances for all construction work.
 - f. California Green Building Standard Code (2016 Edition or latest applicable code) as amended by applicable local ordinances for all construction work.
 - g. International Fire Code (2016 Edition or latest applicable code) as amended by applicable local ordinances for all construction work.
 - h. California Administrative Code Titles 15, 19 and 24 (with California amendments), and Americans with Disabilities Act (ADA) accessibility guidelines, whichever is more stringent.
 - i. All State laws and City and County Ordinances, rules of the State or City or County Health Departments, rules of the National Board of Fire Underwriters and National Fire Protection Associations, and local power company regulations for mechanical and electrical work.
- B. Applicable Laws, Statutes, Ordinances, Rules, And Regulations
1. During prosecution of Work to be done under Contract Documents, Contractor shall comply with applicable laws, ordinances, rules and regulations, including, but not limited to, the following:
 - a. Federal:
 - 1) Americans With Disabilities Act of 1990
 - 2) 29 CFR, Section 1910.1001, Asbestos
 - 3) 40 CFR, Subpart M, National Emission Standards for Asbestos
 - 4) Executive Order 11246
 - 5) Federal Endangered Species Act
 - 6) Clean Water Act
 - b. State of California:
 - 1) California Code of Regulations, Titles 5, 8, 17, 19, 21, 22, 24 and 25
 - 2) California Public Contract Code
 - 3) California Health and Safety Code
 - 4) California Government Code
 - 5) California Labor Code
 - 6) California Civil Code
 - 7) California Code of Civil Procedure
 - 8) CPUC General Order 95, Rules for Overhead Electric Line Construction
 - 9) CPUC General Order 128, Rules for Construction of Underground Electric Supply and Communications Systems
 - 10) Cal/OSHA
 - 11) OSHA: Hazard Communications Standards
 - 12) California Endangered Species Act
 - 13) Water Code
 - 14) Fish and Game Code
 - c. State of California Agencies:
 - 1) State and Consumer Services Agency
 - 2) Office of the State Fire Marshall
 - 3) Office of Statewide Health Planning and Development
 - 4) Department of Fish and Game
 - 5) All Air Quality Management Districts with jurisdiction
 - 6) All Regional Water Quality Control Boards with jurisdiction
 - 7) Division of the State Architect (if having jurisdiction)
 - d. All Local Agencies with jurisdiction (cities, counties, fire departments)
- C. Change Orders and Claims:

1. The California Public Contract Code, including but not limited to Section 7105(d)(2), and the California Government Code Section 930.2 et seq., apply to all contract procedures for changes, time extensions, change orders (time or compensation) and claims. Federal law (U.S. v. Holpuch 326 U.S. 234) shall supplement California law on the enforceability of these requirements.
2. Any change, waiver, or omission to implement contract change order and claim procedures shall have no legal effect unless expressly permitted in a fully executed change order approved by Contractor and City and approved as to form by their respective legal counsel.

D. Required Provisions On Contract Claim Resolution

1. The California Public Contract Code specifies required provisions on resolving contract claims less than \$375,000, which are set forth below, and constitute a part of this Contract.
2. For the purposes of this section, "Claim" means a separate demand by Contractor of \$375,000 or less for (1) a time extension, (2) payment or money or damages arising from Work done by or on behalf of Contractor arising under the Contract Documents and payment of which is not otherwise expressly provided for or the Claimant is not otherwise entitled to, or (3) an amount the payment of which is disputed by City. In order to qualify as a Claim, the written demand must state that it is a Claim submitted under paragraph 12 of Document 00 7200 (General Conditions) and be submitted in compliance with all requirements of Document 00 7200 (General Conditions), paragraph 12. Separate Claims which total more than \$375,000 do not qualify as a "separate demand of \$375,000 or less," as referenced above, and are not subject to this section.
3. A voucher, invoice, payment application, or other routine or authorized form of request for payment is not a Claim for purposes of this section. If such request is disputed as to liability or amount, then the disputed portion of the submission may be converted to a Claim under this section by submitting a separate claim in compliance with Contract Documents claim submission requirements.
4. Caution. This section does not apply to tort claims and nothing in this section is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 and Chapter 2 of Part 3 of Division 3.6 of Title 1 of the California Government Code.
5. Procedure:
 - a. The Claim must be in writing, submitted in compliance with all requirements of Document 00 7200 (General Conditions), paragraph 12, including, but not limited to, the time prescribed by and including the documents necessary to substantiate the Claim, pursuant to Document 00 7200 (General Conditions), paragraph 12.3. Claims must be filed on or before the day of final payment. Nothing in this section is intended to extend the time limit or supersede notice requirements for the filing of claims as set forth in Document 00 7200 (General Conditions), paragraph 12 or elsewhere in the Contract Documents.
 - b. For Claims of fifty thousand dollars (\$50,000) or less, City shall respond in writing within forty-five (45) calendar days of receipt of the Claim, or City may request in writing within thirty (30) calendar days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims City may have against Claimant. If additional information is thereafter required, it shall be requested and provided in accordance with this section upon mutual agreement of City and Claimant. City's written response to the Claim, as further documented, shall be submitted to Claimant within fifteen (15) calendar days after receipt of further documentation or within a period of time no greater than taken by Claimant in producing the additional information, whichever is greater.
 - c. For Claims over Fifty Thousand Dollars (\$50,000) and less than or equal to \$375,000: City shall respond in writing within sixty (60) calendar days of receipt of the Claim, or City may request in writing within thirty (30) calendar days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims City may have against Claimant. If additional information is thereafter required, it shall be requested and provided in accordance with this section, upon mutual agreement of City and Claimant;

City's written response to the Claim, as further documented, shall be submitted to Claimant within thirty (30) calendar days after receipt of further documentation or within a period of time no greater than taken by Claimant in producing the additional information, whichever is greater.

- d. Meet and Confer: If Claimant disputes City's written response, or City fails to respond within the time prescribed above, Claimant shall notify City, in writing, either within fifteen (15) calendar days of receipt of City's response or within fifteen (15) calendar days of City's failure to timely respond, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon demand City will schedule a meet and confer conference within thirty (30) calendar days for settlement of the dispute.
- e. Following the meet and confer conference, if the Claim or any portion remains in dispute, Claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the California Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time Claimant submits its written claim as set forth herein, until the time that Claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

E. Compliance With Americans With Disabilities Act

1. Contractor acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a Contractor, must be accessible to the disabled public. Contractor shall provide the services specified in the Contract Documents in a manner that complies with the ADA and any and all other applicable federal, state and local disability rights legislation. Contractor agrees not to discriminate against disabled persons in the provision of services, benefits or activities provided under the Contract Documents and further agrees that any violation of this prohibition on the part of Contractor, its employees, agents or assigns shall constitute a material breach of the Contract Documents.

F. Compliance With IRCA

1. Contractor acknowledges that Contractor, and all subcontractors hired by Contractor to perform services under this Agreement, are aware of and understand the immigration Reform and Control Act ("IRCA"). Contractor is and shall remain in compliance with the IRCA and shall ensure that any subcontractors hired by Contractor to perform services under this Agreement are in compliance with the IRCA. In addition, Contractor agrees to indemnify, defend and hold harmless City, its agents, officers and employees, from any liability, damages or causes of action arising out of or relating to any claims that Contractor's employees, or employees of any subcontractor hired by Contractor, are not authorized to work in the United States for Contractor or its subcontractor and/or any other claims based upon alleged IRCA violations committed by Contractor or Contractor's subcontractors.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 4200

REFERENCES AND DEFINITIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Reference standards, abbreviations, symbols, and definitions used in Contract Documents.
2. Full titles are given in this Section for standards cited in other Sections of Specifications.

1.02 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES;
REPORTING AND RESOLVING DISCREPANCIES

A. References

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code, or laws or regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated in the Contract Documents.
2. If during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such law or regulation applicable to the performance of the Work or of any such standard, specification, manual, or code or of any instruction of any supplier, Contractor shall report it in writing at once to City's Representative and Architect/Engineer, and Contractor shall not proceed with the Work affected thereby until consent to do so is given by City.

B. Precedence

1. Except as otherwise specifically stated in the Contract Documents or as may be provided by Change Order, CCD, or Supplemental Instruction, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. The provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. The provisions of any such laws or regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such law or regulation).
2. No provision of any such standard, specification, manual, code, or instruction shall be effective to change the duties and responsibilities of City, City's Representative, Architect/Engineer or Contractor, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents, nor shall it be effective to assign to City, Architect/Engineer, or any of their consultants, agents, representatives or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

C. Referenced Grades, Classes, and Types:

1. Where an alternative or optional grade, class, or type of product or execution is included in a reference but is not identified in Drawings or in Specifications, provide the highest, best, and

greatest of the alternatives or options for the intended use and prevailing conditions.

D. Edition Date of References:

1. When an edition or effective date of a reference is not given, it shall be understood to be the current edition or latest revision published as of the date of opening Bids.
2. All amendments, changes, errata and supplements as of the effective date shall be included.

E. **ASTM and ANSI References:** Specifications and Standards of the American Society for Testing and Materials (ASTM) and the American National Standards Institute (ANSI) are identified in the Drawings and Specifications by abbreviation and number only and may not be further identified by title, date, revision, or amendment. It is presumed that Contractor is familiar with and has access to these nationally- and industry-recognized specifications and standards.

1.03 DEFINITIONS

A. Meaning of Words and Phrases

Wherever any of the words or phrases defined below, or a pronoun used in place thereof, is used in any part of the Contract Documents, it shall have the meaning here set forth. Where abbreviations and symbols are used, such abbreviations and symbols shall be given their common meaning in the construction industry. In the Contract Documents, the neuter gender includes the feminine and masculine, and the singular number includes the plural.

While City has made an effort to identify all defined terms with initial caps, the following definitions shall apply regardless of case unless the context otherwise requires:

1. Addenda: Written or graphic instruments issued prior to the opening of Bids, which clarify, correct, or change the bidding requirements or the Contract Documents. Addenda shall not include the minutes of the Pre-Bid Conference and/or Site Visit.
2. Agreement (Document 00 5200): Agreement is the basic Contract Document that binds the parties to construction Work. Agreement defines relationships and obligations between City and Contractor and by reference incorporates Conditions of Contract, Drawings, and Specifications and contains Addenda and all Modifications subsequent to execution of Contract Documents.
3. Alternate: Work added to or deducted from the base Bid, if accepted by City.
4. Application for Payment: Written application for monthly or periodic progress or final payment made by Contractor complying with the Contract Documents.
5. Approved Equal: Approved in writing by City as being of equivalent quality, utility and appearance.
6. Architect/Engineer: If used elsewhere in the Contract Documents, "Architect/Engineer" shall mean a person (or that person's firm) holding a valid California State Architect's or Engineer's license representing the City in the administration of the Contract Documents. Architect/Engineer may be an employee of or an independent consultant to City. When Architect/Engineer is referred to within the Contract Documents and not an employee of City, Architect/Engineer shall be construed to include employees of Architect/Engineer and/or employees that Architect/Engineer supervises. When the designated Architect/Engineer is an employee of City, his or her authorized representatives on the Project will be included under the term Architect/Engineer. If Architect/Engineer is an employee of City, Architect/Engineer is the beneficiary of all Contractor obligations to City, including without limitation, all releases and indemnities. Architect/Engineer may also be referred to as Architect or Engineer.
7. Asbestos: Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by OSHA or Cal/OSHA.

8. Bid: The offer or proposal of the Bidder submitted on the prescribed form(s) setting forth the prices for the Work to be performed.
9. Bidder: One who submits a Bid.
10. Bidding Documents: All documents comprising the Project Manual (including all documents and Specification Sections listed in Document 00 0110 [Table of Contents]), including documents supplied for bidding purposes only and Contract Documents.
11. Board: The governing body of the City.
12. Business Day: Any Day other than Saturday, Sunday, and the following days that have been designated as holidays by City. If a holiday falls on a Saturday, the preceding Friday will be the holiday. If a holiday falls on a Sunday, the following Monday will be the holiday.
 - a. New Year's Day, January 1;
 - b. Martin Luther King Jr.'s Birthday, third Monday in January;
 - c. Lincoln's Birthday, February 12;
 - d. Presidents' Day, third Monday in February;
 - e. Malcolm X Day, third Friday in May;
 - f. Memorial Day, last Monday in May;
 - g. Juneteenth, June 19;
 - h. Independence Day, July 4;
 - i. Labor Day, first Monday in September;
 - j. Indigenous People's Day, second Monday in October;
 - k. Veterans' Day, November 11;
 - l. Thanksgiving Day, as designated by the President;
 - m. The Day following Thanksgiving Day;
 - n. Christmas Day, December 25; and
 - o. Each day appointed by the Governor of California and formally recognized by the Governing Board as a day of mourning, thanksgiving, or special observance.
13. By City: Work that will be performed by City or its agents at the City's expense.
14. By Others: Work that is outside scope of Work to be performed by Contractor under this Contract, which will be performed by City, other contractors, or other means.
15. Change Order: A written instrument prepared by City and signed by City and Contractor, stating their agreement upon all of the following:
 - a. a change in the Work;
 - b. the amount of the adjustment in the Contract Sum, if any; and
 - c. the amount of the adjustment in the Contract Time, if any.
16. Change Proposal Request (CPR): A document prepared by Contractor requesting or initiating a request for modifying the Contract Documents and determining costs for changes in contract amount and any requested changes to Contract Time.
17. City: City is defined in Document 00 5200 (Agreement).
18. City-Furnished, Contractor Installed: Items furnished by City at its cost for installation by Contractor at its cost under Contract Documents.
19. City's Representative(s): See Document 00 5200 (Agreement).
20. Code Inspector: A local or state agency responsible for the enforcement of applicable codes and regulations.
21. Concealed: Work not exposed to view in the finished Work, including within or behind various construction elements.
22. Construction Change Directive ("CCD"): A written order prepared and signed by City, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both.

23. Contract Amount: a change order price, line item price, Contract Sum, or other price assigned to a scope of work.
24. Contract Conditions or Conditions of the Contract: Consists of two parts: General Conditions and Supplementary Conditions.
 - a. General Conditions are general clauses that are common to the City Contracts, including Document 00 7200 (General Conditions).
 - b. Supplementary Conditions modify or supplement General Conditions to meet specific requirements for Contract Documents, including Document 00 7201 (Supplementary Conditions).
25. Contract Documents and Contract: Contract Documents and Contract shall consist of the documents identified as the Contract Documents in Document 00 5200 (Agreement), plus all changes, Addenda, and modifications thereto.
26. Contract Modification: Either:
 - a. a written amendment to Contract signed by Contractor and City; or
 - b. a Change Order; or
 - c. a Construction Change Directive; or
 - d. a written directive for a minor change in the Work issued by City.
27. Contract Sum: The sum stated in the Agreement and, including authorized adjustments, the total amount payable by City to Contractor for performance of the Work and the Contract Documents. The Contract Sum is also sometimes referred to as the Contract Price or the Contract Amount.
28. Contract Time: The number or numbers of calendar days or the dates stated in the Agreement to achieve Substantial Completion of the Work or designated Milestones; and/or to achieve Final Completion of the Work so that it is ready for final payment and is accepted.
29. Contractor: The person or entity identified as such in the Agreement and referred to throughout the Contract Documents as if singular in number and neutral in gender. The term "Contractor" means the Contractor or its authorized representative.
30. Contractor's Employees: Persons engaged in execution of Work under Contract as direct employees of Contractor, as Subcontractors, or as employees of Subcontractors.
31. Day: One calendar day of 24 hours measured from midnight to the next midnight, unless the word "day" is specifically modified to the contrary.
32. Defective: An adjective which, when modifying the word "Work," refers to Work that is unsatisfactory or unsuited for the use intended, faulty, or deficient, that does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents (including but not limited to approval of Samples and "or equal" items), or has been damaged prior to final payment (unless responsibility for the protection thereof has been assumed by City). Unapproved substitutions are defective. City is the judge of whether Work is Defective.
33. Division of State Architect: A division of the State of California providing, design and construction oversight for K-12 schools and community colleges, and developing and maintaining accessibility standards and codes utilized in public and private buildings throughout the State of California.
34. Drawings: The graphic and pictorial portions of Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.
35. Equal: Equal in opinion of City. Burden of proof of equality is responsibility of Contractor.
36. Final Acceptance or Final Completion: City's acceptance of the Work as satisfactorily completed in accordance with Contract Documents. Requirements for Final Acceptance/Final

Completion include, but are not limited to:

- a. Final cleaning is completed.
 - b. All systems having been tested and accepted as having met requirements of Contract Documents.
 - c. All required instructions and training sessions having been given by Contractor.
 - d. All Project Record Documents having been submitted by Contractor, reviewed by City, and accepted by City.
 - e. All punch list Work, as directed by City, having been completed by Contractor.
 - f. Generally all Work, except Contractor maintenance after Final Acceptance/Final Completion, having been completed to satisfaction of City.
37. Force Account: Work directed to be performed without prior agreement as to lump sum or unit price cost thereof, and which is to be billed at cost for labor, materials, equipment, taxes, and other costs, plus a specified percentage for overhead and profit.
 38. Exposed: Work exposed to view in the finished Work, including behind louvers, grilles, registers and various other construction elements.
 39. Furnish: Supply Indicated: Shown or noted on the Drawings.
 40. Indicated: Shown or noted on the Drawings.
 41. Install: Install or apply only, do not furnish.
 42. Latent: Not apparent by reasonable inspection, including but not limited to, the inspections and research required as a condition to bidding under Document 00 7200 (General Conditions).
 43. Law: Unless otherwise limited, all applicable laws including without limitation all federal, state, and local laws, statutes, standards, rules, regulations, ordinances, and judicial and administrative decisions.
 44. Material: This word shall be construed to embrace machinery, manufactured articles, materials of construction (fabricated or otherwise), and any other classes of material to be furnished in connection with Contract, except where a more limited meaning is indicated by context.
 45. Milestone: A principal event specified in Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all Work.
 46. Modification: Same as Contract Modification.
 47. Not in Contract or "NIC": Work that is outside the scope of Work to be performed by Contractor under Contract Documents.
 48. Notice of Completion: Shall have the meaning provided in California Civil Code §3093, and any successor statute.
 49. Off Site: Outside geographical location of the Project.
 50. Owner: Owner is the City of Berkeley, see Document 00 5200 (Agreement).
 51. Partial Utilization: Use by City of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all of the Work.
 52. PCBs: Polychlorinated byphenyls.
 53. Phase: A specified portion of the Work (if any) specifically identified as a Phase in Document 00 5200 (Agreement) or Document 01 1100 (Summary).
 54. Product Data: That information (brochures, catalog sheets, manufacturer's cut sheets, etc.) supplied by vendors having technical and commercial characteristics of the supplied equipment or materials and accompanying commercial terms such as warranties, instructions, and manuals.
 55. Progress Report: A periodic report submitted by Contractor to City with progress payment

invoices accompanying progress schedule. See Document 00 7200 (General Conditions).

56. Project: Total construction of which Work performed under Contract Documents may be whole or part.
57. Project Manager: If used elsewhere in the Contract Documents, "Project Manager" shall mean a person representing the City in the administration of the Contract Documents. Project Manager may be an employee of or an independent consultant to City. When Project Manager is referred to within the Contract Documents and no Project Manager has in fact been designated, then the matter shall be referred to City. The term Project Manager shall be construed to include employees of Project Manager and/or employees that Project Manager supervises. When the designated Project Manager is an employee of City, his or her authorized representatives on the Project will be included under the term Project Manager. If Project Manager is an employee of City Project Manager is the beneficiary of all Contractor obligations to City, including without limitation, all releases and indemnities.
58. Project Manual: Project Manual consists of Bidding Requirements, Agreement, Bonds, Certificates, Contract Conditions, Drawings, and Specifications.
59. Project Record Documents: All Project deliverables required under the Contract Documents, including without limitation, as built drawings; Installation, Operation, and Maintenance Manuals; and Machine Inventory Sheets.
60. Provide: Furnish and install.
61. Request for Information ("RFI"): A document prepared by Contractor requesting information regarding the Project or Contract Documents. The RFI system is also a means for City to submit Contract Document clarifications or supplements to Contractor.
62. Request for Proposals ("RFP"): A document issued by City to Contractor whereby City may initiate changes in the Work or Contract Time as provided in Contract Documents.
63. Request for Substitution ("RFS"): A document prepared by Contractor requesting substitution of materials as permitted and to the extent permitted in Contract Documents.
64. RFI-Reply: A document consisting of supplementary details, instructions, or information issued by City that clarifies or supplements Contract Documents, and with which Contractor shall comply. RFI-Replies do not constitute changes in Contract Sum or Contract Time except as otherwise agreed in writing by City. RFI-Replies will be issued through the RFI administrative system.
65. Samples: Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
66. Shop Drawings: All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
67. Shown: As indicated on Drawings.
68. Site: The particular geographical location of Work performed pursuant to the Contract Documents.
69. Specifications: The written portion of the Contract Documents consisting of requirements for materials, equipment, construction systems, standards, and workmanship for the Work; performance of related services.
70. Specified: As written in Specifications.
71. Subcontractor: A person or entity that has a direct contract with Contractor to perform a portion of the Work at the Site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and neutral in gender and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a

separate contractor or subcontractors of a separate contractor.

72. Substantial Completion: The Work (or a specified part thereof) has progressed to the point where, in the opinion of City as evidenced by a notice or certificate of Substantial Completion, the Work is sufficiently complete, in accordance with Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended, and unperformed or incomplete work elements are minor in nature; or if no such certificate is issued, when the Work (or specified part) is complete and ready for final payment as evidenced by written recommendation of City for final payment. The terms "Substantially Complete" and "Substantially Completed" as applied to all or part of the Work refer to Substantial Completion thereof.
73. Supplemental Instruction: A written directive from City to Contractor ordering alterations or Modifications that do not result in change in Contract Sum or Contract Time, and do not substantially change Drawings or Specifications.
74. Testing and Special Inspection Agency: An independent entity engaged to inspect and/or test the workmanship, materials, or manner of construction of buildings or portions of buildings, to determine if such construction complies with the Contract Documents and applicable codes.
75. Time Impact Evaluation (TIE): A written narrative and a schedule diagram depicting how the changed Work or other impact affects other scheduled activities, prepared by Contractor in conjunction with a Change Proposal Request (CPR) for Change Orders, Time Extensions, and Delays. See Document 01 3230 (Progress Schedules and Submittals), and Document 01 2600 (Modification Procedures).
76. Underground Facilities: All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities that have been installed underground to furnish any of the following services or materials: Electricity, gases, chemicals, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems, or water.
77. Unit Price Work: Shall be the portions of the Work for which a unit price is provided in Document 00 5200 (Agreement) or Section 01 1100 (Summary).
78. Work: The entire completed construction, or the various separately identifiable parts thereof, required to be furnished under the Contract Documents within the Contract Time. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents including everything shown in the Drawings and set forth in the Specifications. Wherever the word "work" is used, rather than the word "Work," it shall be understood to have its ordinary and customary meaning.

B. Other Defined Terms

The following terms are not necessarily identified with initial caps; however they shall have the meaning set forth below:

1. Wherever words "as directed," "as required," "as permitted," or words of like effect are used, it shall be understood that direction, requirements, or permission of City is intended. Words "sufficient," "necessary," "proper," and the like shall mean sufficient, necessary, or proper in judgment of City. Words "approved," "acceptable," "satisfactory," "favorably reviewed," or words of like import, shall mean approved by, or acceptable to, or satisfactory to, or favorably reviewed by City.
2. Wherever the word "may" or "ought" is used, the action to which it refers is discretionary. Wherever the word "shall" or "will" is used, the action to which it refers is mandatory.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 4500

TESTING AND INSPECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Regulatory requirements for testing and inspection.
 2. Contractor's quality control.
 3. Quality of the Work.
 4. Inspections and tests by governing authorities.
 5. Inspections and tests by serving utilities.
 6. Inspections and tests by manufacturer's representatives.
 7. Inspections by Independent Testing and Inspection Agency.

1.02 RELATED SECTIONS

- A. Document 00 7200 General Conditions
B. Section 01 4100 Regulatory Requirements

1.03 CONTRACTOR'S QUALITY CONTROL

- A. Contractor's Quality Control: Contractor shall ensure that products, services, workmanship and site conditions comply with requirements of the Drawings and Specifications by coordinating, supervising, testing and inspecting the work and by utilizing only suitably qualified personnel.
- B. Quality Requirements: Work shall be accomplished in accordance with quality requirements of the Drawings and Specifications, including, by reference, all Codes, laws, rules, regulations and standards. When no quality basis is prescribed, the quality shall be in accordance with the best accepted practices of the construction industry for the locale of the Project, for projects of this type.
- C. Quality Control Personnel: Contractor shall employ and assign knowledgeable and skilled personnel as necessary to perform quality control functions to ensure that the Work is provided as required.

1.04 QUALITY OF THE WORK

- A. Quality of Products: Unless otherwise indicated or specified, all products shall be new, free of defects and fit for the intended use.
- B. Quality of Installation: All Work shall be produced plumb, level, square and true, or true to indicated angle, and with proper alignment and relationship between the various elements.
- C. Protection of Completed Work: Take all measures necessary to preserve completed Work free from damage, deterioration, soiling and staining, until Acceptance by the City.
- D. Standards and Code Compliance and Manufacturer's Instructions and Recommendations: Unless more stringent requirements are indicated or specified, comply with manufacturer's instructions and recommendations, reference standards and building code research report

requirements in preparing, fabricating erecting, installing, applying, connecting and finishing Work.

- E. Deviations from Standards and Code Compliance and Manufacturer's Instructions and Recommendations: Document and explain all deviations from reference standards and building code research report requirements and manufacturer's product installation instructions and recommendations, including acknowledgement by the manufacturer that such deviations are acceptable and appropriate for the Project.
- F. Verification of Quality: Work shall be subject to verification of quality by City or Architect/Engineer in accordance with provisions of the General Conditions of the Contract.
 - 1. Contractor shall cooperate by making Work available for inspection by City, Architect/Engineer or their designated representatives.
 - 2. Such verification may include mill, plant, shop, or field inspection as required.
 - 3. Provide access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated.
 - 4. Provide all information and assistance as required, including that by and from subcontractors, fabricators, materials suppliers and manufacturers, for verification of quality by City or Architect/Engineer.
 - 5. Contract modifications, if any, resulting from such verification activities shall be governed by applicable provisions in the General Conditions of the Contract.
- G. Observations by Architect/Engineer: Periodic and occasional observations of Work in progress will be made by Architect/Engineer as deemed necessary to review progress of Work and general conformance with design intent.
- H. Limitations on Inspection, Test and Observation: Neither employment of independent testing and inspection agency nor observations by Architect/Engineer shall in way relieve Contractor of obligation to perform Work in full conformance to all requirements of Contract Documents.
- I. Rejection of Work: City reserves the right to reject all Work not in conformance to the requirements of the Drawings and Specifications.
- J. Correction of Non-Conforming Work: Non-conforming Work shall be modified, replaced, repaired or redone by the Contractor at no change in Contract Sum or Contract Time.
- K. Acceptance of Non-Conforming Work: Acceptance of nonconforming Work, without specific written acknowledgement and approval of the City, shall not relieve the Contractor of the obligation to correct such Work.
- L. Contract Adjustment for Non-Conforming Work: Should City determine that it is not feasible or in City's interest to require non-conforming Work to be repaired or replaced, an equitable reduction in Contract Sum shall be made by agreement between City and Contractor. If equitable amount cannot be agreed upon, a Construction Change Directive will be issued and the amount in dispute resolved in accordance with applicable provisions of the General Conditions.

1.05 INSPECTIONS AND TESTS BY GOVERNING AUTHORITIES

- A. Regulatory Requirements for testing and Inspection: Comply with Uniform Building Code (UBC) requirements and all other requirements of governing authorities having jurisdiction.
- B. Inspections and Tests by Governing Authorities: Contractor shall cause all tests and inspections required by governing authorities having jurisdiction to be made for Work under this Contract.
 - 1. Such authorities include the Division of Occupational Safety and Health (Cal/OSHA), City of Berkeley Public Works Department, Fire Department, and similar agencies.
 - 2. Except as specifically noted, scheduling, conducting and paying for such inspections shall be solely the Contractor's responsibility.

1.06 INSPECTIONS AND TESTS BY SERVING UTILITIES

- A. Inspections and Tests by Serving Utilities: Contractor shall cause all tests and inspections required by serving utilities to be made for Work under this Contract. Scheduling conducting and paying for such inspections shall be solely the Contractor's responsibility.

1.07 INSPECTIONS AND TESTS BY MANUFACTURER'S REPRESENTATIVES

- A. Inspections and Tests by Manufacturer's Representatives: Contractor shall cause all tests and inspections specified to be conducted by materials or systems manufacturers to be made. Additionally, all tests and inspections required by materials or systems manufacturers as conditions of warranty or certification of Work shall be made, the cost of which shall be included in the Contract Sum.

1.08 INSPECTIONS BY INDEPENDENT TESTING AND INSPECTION AGENCY

- A. City will select an independent testing and inspection agency or agencies to conduct tests and inspections as indicated on Drawings, in Specifications and as required by governing authorities having jurisdiction.
- B. Responsibility for payment for tests and inspections shall be as indicated in schedule below. All time and costs for Contractor's service related to such tests and inspections shall be included in Contract Time and Contract Sum.
- C. Contractor shall notify City and, if directed by City, testing and inspection agency, when Work is ready for specified tests and inspections.
- D. Contractor shall pay for all additional charges by testing and inspection agencies and governing authorities having jurisdiction due to the following:
 - 1. Contractor's failure to properly schedule or notify testing and inspection agency or authorities having jurisdiction.
 - 2. Changes in sources, lots or suppliers of products after original tests or inspections.
 - 3. Changes in means methods, techniques, sequences and procedures of construction which necessitate additional testing, inspection and related services.
 - 4. Changes in mix designs for concrete and mortar after review and acceptance of submitted mix design.
- E. Tests and inspections shall include the following:

<u>Section</u>	<u>Inspections and Tests</u>	<u>Paid by</u>
Section 03 35 11	Concrete Floor Finishes	Paid by Contractor.
CBC § 1705.1.1	All Drill & Epoxy Mechanical Anchors	Paid by City.
CBC § 1705.4 Masonry Construction	Rebar and Grout Placement	Paid by City.

- F. Test and Inspection Reports: After each inspection and test, one copy of report shall be promptly submitted each to Architect/Engineer, City, City's field representative, Contractor and to agency having jurisdiction (if required by Code).
 - 1. Reports shall clearly identify the following:
 - a. Date issued.
 - b. Project name and number.
 - c. Identification of product and Specifications Section in which Work is specified.
 - d. Name of inspector.

- e. Date and time of sampling or inspection.
 - f. Location in Project where sampling or inspection was conducted.
 - g. Type of inspection or test.
 - h. Date of test.
 - i. Results of tests.
 - j. Comments concerning conformance with Contract Documents and other requirements.
2. Test reports shall indicate specified or required values and shall include statement whether test results indicate satisfactory performance of products.
 3. Samples taken but not tested shall be reported.
 4. Test reports shall confirm that methods used for sampling and testing conform to specified test procedures.
 5. When requested, testing and inspection agency shall provide interpretations of test results.
 6. Verification reports shall be prepared and submitted, stating that tests and inspections specified or otherwise required for the project, have been completed and that material and workmanship comply with the Contract Drawings and Specifications. Verification reports shall be submitted at intervals not exceeding 6 months, at Substantial Completion of the Project, and at all times when Work of Project is suspended.
- G. Contractor Responsibilities in Inspections and Tests:
1. Notify testing and inspection agencies 24 hours in advance of expected time for operations requiring inspection and testing services.
 2. Deliver to laboratory or designated location, adequate samples of materials proposed to be used which require advance testing, together with proposed mix designs.
 3. Cooperate with testing and inspection agency personnel, City's field representative, Architect/Engineer. Provide access to Work areas and off-site fabrication and assembly locations, including during weekends and after normal work hours.
 4. Provide incidental labor and facilities to provide safe access to Work to be tested and inspected, to obtain and handle samples at the Project site or at source of products to be tested, and to store and cure test samples.
 5. Provide, at least 15 calendar days in advance of first test or inspection of each type, a schedule of tests or inspections indicating types of tests or inspections and their scheduled dates.
 6. Provide 24 hours advance notice to the Project Manager, Architect/Engineer of each test and inspection, as directed.
 - a. When tests or inspections cannot be performed after such notice, reimburse City for Testing Laboratory personnel and travel expenses incurred due to Contractor's negligence.

1.09 ADDITIONAL TESTING AND INSPECTION

- A. If initial tests or inspections made by the Testing Laboratory reveal that materials do not comply with Contract Documents, or if City has reasonable doubt that materials do not comply with Contract Documents, additional tests and inspections shall be made as directed.
 1. If additional tests and inspections establish that materials comply with Contract Documents, all costs for such tests and inspections shall be paid by City.
 2. If additional tests and inspections establish that materials do not comply with Contract Documents, all costs of such tests and inspections shall be deducted for Contract Sum.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 5200**TEMPORARY FACILITIES****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. General Conditions Document 00 7200
- B. Supplemental General Conditions Document 00 7201

1.02 SUMMARY

- A. This section describes the temporary facilities required for the Project site. The Project site shall be maintained by Contractor as set forth in this section unless otherwise added to or superseded by the requirements of Document 00 7200 (General Conditions).

1.03 TEMPORARY FACILITIES

- A. Contractor shall obtain permits for, install and maintain in safe condition, whatever scaffolds, hoisting equipment, barricades, walkways, or other temporary structures which may be required to accomplish the work on the Project. Such structures shall be adequate for the intended use and capable of safely accepting all loads that may be imposed upon them. They shall be installed and maintained in accordance with all applicable State and local codes and regulations.
- B. Contractor shall provide and maintain temporary heat from an approved source whenever in the course of the Work it may become necessary for curing and drying of materials, or to warm spaces as may be required for the installation of materials or finishes.
- C. Contractor shall provide and maintain any and all facilities that may be required for dewatering in order that work may proceed on the Project. If it is necessary for dewatering to occur continually, Contractor shall have on hand whatever spare parts or equipment that may be required to prevent interruption of dewatering.
- D. Contractor shall provide and maintain all utility services necessary to perform the work under this Contract.
- E. Materials, tools, accessories, etc., shall be stored only where directed by City. Storage area shall be kept neat and clean. Security of stored items shall be Contractor's responsibility.
- F. Flammable materials stored on site, shall be stored in a safe and secure manner per the manufacture's direction. Extra precautions, including clear identification, shall be the responsibility of Contractor.
- G. Contractor shall maintain an office at the Project site that will be his headquarters for the Project. Any communications delivered to this office shall be considered as delivered to Contractor. Location and size of office shall be such that it will adequately serve the needs of Contractor's superintendent and assistants in the performance of their duties.
- H. Contractor shall promptly remove all such temporary facilities when they are no longer needed for the work or for completion of the Project, mutually agreed upon by Contractor and City.

1.04 SIGNS

- A. No signs may be displayed on or about the City's property (except those required by law) without the City's specific approval; the size, content, and location to be as specified by the

City.

1.05 USE OF ROADWAYS AND WALKWAYS

- A. Contractor shall never block or interfere with use of any existing roadway, walkway or other facility for vehicular or pedestrian traffic, from any party entitled to use it. Wherever and whenever such interference becomes necessary for the proper and convenient performance of the Work, and no satisfactory detour route exists, Contractor shall, before beginning the interference, notify City and post signs at least 72 hours in advance of such interference, and provide a satisfactory detour, including temporary bridge if necessary, or other proper facility for traffic to pass around or over the interference. Contractor shall maintain the detour in a safe and satisfactory condition as long as the interference continues, all without extra payment unless otherwise expressly stipulated in the Specifications.
- B. Contractor shall at all times comply with any and all requirements applying to the work under the transportation, circulation and parking mitigation measures, truck and construction access plan.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 5526**TRAFFIC CONTROL**

Contractor shall provide traffic control throughout the project as needed for the various traffic situations and street configurations in full conformance with the latest "California Manual on Uniform Traffic Control Devices and the Federal Highway Administration (FHWA) Manual of Uniform Traffic Control Devices (MUTCD) latest edition, as amended for use in California" herein after referred to as Traffic Control Manual. The Traffic Control Manual may be obtained online at <https://dot.ca.gov/programs/safety-programs/camutcd/camutcd-files>

As required, the Contractor shall submit a Traffic Control Plan to the City of Berkeley's Transportation Division or the California Department of Transportation (Caltrans).

Construction area signs and temporary traffic control devices shall be furnished, installed, maintained and removed by the Contractor. Traffic signage, e.g., warning signs and detour signs, may be required for this project. Contractor shall be responsible for placing all barricades for perimeter street closures as required. Per Section 501.10 – Traffic Control of the General Provisions, at main entry and exit points of each work location, the Contractor shall provide a 30" x 30" sign advising the public of the anticipated period of time that traffic delays may be anticipated. This sign will also include name and telephone number of the Contractor along with starting and completion dates of the contract. Sign will be erected 7 calendar days in advance of any work.

Construction work requiring traffic control on San Pablo Avenue (State Route 123) or Ashby Avenue (State Route 13) will require an encroachment permit from Caltrans. Contractor is solely responsible for obtaining and abiding by any necessary encroachment permits. The permit fees and other associated costs to obtain the required permits from the State of California shall be included in the cost bid for this item. Contractor shall be responsible for providing traffic control plan for encroachment permit to and obtaining approval of said traffic control plan from State of California. Contractor shall be responsible for all notification of work to, application for and obtaining work authorization number from Caltrans. Any damages arising from work related to encroachment permit shall be the responsibility of the Contractor.

The Contractor shall be responsible for posting "No Parking" signs a minimum of four calendar days in advance of concrete work, paving operations, failed area, and planning work so as to comply with the City's construction notification requirement of 4 days. Cones shall not be used as barricades. "No Parking" signs may be obtained from the City at no cost to the Contractor. The "No Parking" signs shall be updated as necessary. The Contractor shall check and maintain (e.g., re-install missing signs, reposition displaced barricades, etc.) postings on a regular basis prior to start of work.

If traffic is to be detoured over a centerline or detoured in advance of the work, detour plans must be part of the submitted Traffic Control plans and approved by the City prior to starting work. Police, Fire and Public Works Department shall be notified by the contractor at least four calendar days in advance of any work which will interfere with the normal flow of vehicular or pedestrian traffic. Intersection closure may only occur if the two adjacent intersections remain open, unless otherwise approved by the City. The Contractor shall coordinate his traffic control/diversion plan with the City, a minimum of 3 weeks prior to starting work, to assure that traffic is diverted in a safe and convenient manner.

Truck routes shall be approved by the City prior to start of work.

Truck traffic is not allowed on Marin Avenue within the City of Albany. Personal vehicles of the Contractor's employees shall not be parked within the area of work.

A minimum of one (paved) traffic lane, not less than 12 ft. wide, shall remain open for use by public traffic during construction operations. When construction operations are not actively in progress, not less than two such lanes shall be open to public traffic. The Contractor may be allowed to close residential streets if approved in writing in advance by the City. No work that interferes with public traffic shall be performed between 6:00 p.m. and 7:00 a.m.

Start of work shall be no earlier than 7:00 a.m. No work process, including starting, warm up, and delivery of equipment, shall be done outside of work hours. The use of vehicle horns to alert residents to move their vehicles out of the construction zone is not permitted. The Contractor should attempt to locate vehicle owners by knocking on doors.

The full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays and designated legal holidays, and when construction operations are not actively in progress, unless specified otherwise.

Minor deviations from the requirements of this section concerning hours of work may be permitted upon the written request of the Contractor, if in the opinion of the City, public traffic will be better served and the work expedited. Such deviations shall not be adopted until the City provides written approval.

The traffic control system shall consist of closing traffic lanes in accordance with the Traffic Control Manual. Signs and other devices for the traffic control system shall conform to the Traffic Control Manual.

If any component in the traffic control system is damaged, displaced or ceases to operate or function as specified, from any cause during the progress of the work, the Contractor shall immediately repair said component to its original condition or replace said component and shall restore the component to its original location.

Lane closures may be made for work periods only. At the end of each work period, all components of the traffic control system shall be removed from the traveled way, shoulder and auxiliary lanes. If the Contractor so elects, said components may be stored at selected central locations approved by the City within the limits of the public right-of-way.

Sufficient barricades and flashing lights shall also be placed to supplement all traffic signs used to divert and control traffic. Signs and barricades shall be checked periodically every day and replaced or repaired as necessary. Any hazardous conditions shall be immediately eliminated.

The Contractor, at the end of each day, shall provide ADA compliant pedestrian and vehicle crossings at all street intersections. If the project is left open overnight, it shall be graded in such a way that pedestrians and vehicles can safely pass through the project. Temporary concrete, asphalt, or wood ramps shall be installed and maintained at all locations where existing ramps have been temporarily removed.

Cleanliness is extremely important. Dust producing conditions shall be eliminated as soon as they are created.

If Contractor violates any of these provisions, a fine of \$1,000 will be assessed for the first violation, \$5,000 for the second and \$10,000 for the third and further subsequent violations.

ACCESS AND EGRESS

The Contractor shall endeavor to cooperate with all business owners and residents occupying properties fronting on the streets in the matter of access and egress. **Contractor shall maintain a clear and accessible pedestrian corridor.**

Where a business property has more than two vehicular paths of access, one path, 10 feet in width, shall remain open during all business hours, unless accepted by the City.

LANE CLOSURES

No lane closures shall be permitted on the following streets Monday through Friday between 7:00 A.M. – 9:00 A.M. and 4:00 P.M. – 6:00 P.M., and Saturdays between 10:00 A.M. – 2:00 P.M., unless approved in advance by the City, if it can be explained why such closure cannot reasonably be avoided. On Saturdays when UC football games are scheduled all construction-related lane closures along these corridors must be reopened at least 4 hours before the start of the game and remain open for 2 hours after the conclusion of the game.

Major Streets:

- University Avenue
- San Pablo Avenue
- Shattuck Avenue
- Telegraph Avenue
- Sacramento Street
- Martin Luther King Jr. Way
- Ashby Avenue
- College Avenue
- Gilman Avenue
- Adeline Street

Notwithstanding the above, the City reserves the right to review and comment on each individual traffic control plan based on its own merits.

Note: Routine maintenance, inconvenience to construction method or schedule, or adverse impacts on cost of work will generally not be accepted as grounds for exceptions.

END OF SECTION

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 5700**TEMPORARY CONTROLS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. General Conditions Document 00 7200
- B. Supplemental General Conditions Document 00 7201

1.02 SUMMARY

- A. This section describes the temporary controls required for the Project site. The Project site shall be maintained by Contractor as set forth in this section unless otherwise added to or superseded by the requirements of Document 00 7200 (General Conditions).

1.03 TEMPORARY CONTROLS

- A. Contractor shall obtain permits for, install and maintain in safe condition, whatever scaffolds, equipment, shoring, barricades, walkways, or other temporary structures which may be required to accomplish the Work. Such items shall be adequate for the intended use and shall be installed and maintained in accordance with all applicable State and local codes and regulations.
- B. The Contractor shall perform a pre-construction audio/video tape survey and provide supplemental photographic documentation to adequately document the condition of existing improvements. It is the responsibility of the Contractor to adequately document the condition of existing improvements and the Contractor may be held liable for any damage or condition whose pre-existence he/she is unable to document. No additional compensation for such tape survey and still photographs will be allowed.
- C. Upon notification of the City, the Contractor shall correct any deficiencies of the temporary controls within 72 hours. The City may request City crews or contract with another contractor to perform the necessary work and repairs if the deficiencies have not been corrected after the 72-hour notification. The Contractor shall pay the cost of the work performed by the City crews or other contractor plus an additional seventy percent (70%) surcharge by deduction from payment due on the contract.
- D. The Contractor shall begin cleanup operation at least one hour before the end of each day's work, clean all paved portions of the project and paved streets leading from the project that have dust-producing materials or debris deposited upon them. The work areas shall be swept clean at the end of each day's work and at other times when directed by the City.

1.04 DUST AND DEBRIS CONTROLS

- A. The Contractor shall be responsible for controlling dust in the air and rocks, debris, mud or dirt which are scattered as a result of his operations on the job. The Contractor shall be responsible for cleaning all mud, rock, dust, dirt, and debris-producing materials that originate in the project area and are deposited on other public or private property by truck tires, spillages, or by other means. The Contractor shall have suitable and adequate street cleaning equipment on the project site at all times.
- B. The Contractor shall endeavor, whenever possible, to restrict the use of water to control dust for his convenience in order to conserve water during drought situations or

mandated rationing required by the Water Utility Company. Whenever flushing of streets or any other work is necessary, the Contractor shall provide filter materials at the catch basin to retain any debris and dirt flowing into the City's drainage system.

- C. The cost of the above work, including the providing of barricades, water and other materials, labor, and equipment shall be at the sole cost and expense of the Contractor.
- D. The City may determine that an emergency exists when dust, rocks, debris, mud, or dirt are scattered in the public right of way or in the private properties as a result of Contractor's activities and/or deterioration of such conditions due to rain. The emergency conditions may also be declared when traffic or the Contractor's equipment travelling through a job causes dust to fly or rocks, debris, mud, or dirt to be scattered. Similar emergency conditions may be determined by the City's Representative if the storage of materials, tools, or any other equipment related to the project, in the public rights of way, is causing any obstruction or blocks access to the neighboring properties and/or dangerously placed without proper barricades and lights and/or backfill stockpiles or debris washing away into the street gutter and catch basins.

1.05 NOISE CONTROL

- A. Equipment which operates with noise levels in excess of 85 decibels measured on the A-weighted scale defined in ANSI S-1.4 at a distance of 100 feet from the equipment is prohibited.
- B. All equipment and impact tools shall have mufflers to comply with specified noise control.
- C. Use of unusually noisy equipment, such as jackhammers and roto-hammers is prohibited.
- D. Exterior construction work is limited to the hours of 8 AM to 5 PM.
- E. Cooperate with City if an ongoing construction activity becomes objectionable by its longevity, or by overlapping into an activity started later by the City. It is understood and agreed that both parties shall cooperate so that neither will be unduly inconvenienced by this requirement.
- F. Comply by requirements specified in the various sections.

1.06 CLEAN UP

- A. The Contractor shall not allow the site of the work to become littered with trash, rubbish, and waste material but shall maintain the same in a neat and orderly condition throughout the construction period. Cleanup, debris and dust control shall be a daily maintenance requirement. The City shall have the right to determine what is or is not trash, rubbish or waste material and the place and manner of disposal.
- B. The Contractor shall maintain a neat appearance to the work. Contractor shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids and cleaning solutions from surfaces to prevent marring or other damage.
- C. Broken concrete debris, and unsuitable excavated native soil during construction shall be disposed of concurrently with its removal. If stockpiling is necessary all debris shall be placed in trash bins daily and shall be removed or disposed of weekly. Any waste shall not be buried on the site or disposed of into storm drains, sanitary sewers, streams, or waterways.
- D. Forms or falsework that are to be re-used shall be stacked neatly concurrently with their removal. Forms and falsework that are not to be re-used shall be disposed of concurrently with their removal.
- E. Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.
- F. Sidewalks, street area, parking strips, and driveway approaches must be kept reasonably

clean at all times during construction and be completely and carefully cleaned after the work has progressed beyond the immediate vicinity to the satisfaction of the City's Representative. Reasonable cleanup is defined as no dust, rock, or mud on any portion of the public right-of-way or the private properties as a result of the Contractor's work.

1.07 EMERGENCY CLEAN UP WORK

- A. In any case in which the Contractor fails to satisfactorily complete the cleanup work described in this section, the City may determine that an emergency exists. In the event an emergency is determined by the City, the Contractor will be notified by the City to correct the violation immediately. The Contractor shall immediately make available manual labor or mechanical equipment capable of handling the cleaning process. During such an emergency, City forces may be called upon to complete the cleanup work, or the City may contract for the cleanup work. All construction work shall be shut down during this cleanup work by the City/contract forces. The City may shut down further construction work until the violations are corrected to the satisfaction of the City. The cost of the work performed by City/Contract forces plus an additional 70% surcharge shall be paid by the Contractor by deduction from payment due him on the contract. No compensation shall be given to the Contractor for stoppage of work.
- B. Such action by the City, however, shall not relieve the Contractor of his responsibility for any damages which may occur before, during or after such action has been taken by the City, and shall place no liability upon the City.

1.08 FINAL CLEAN UP

- A. Upon completion of the work, and before acceptance and final payment, the Contractor shall clean the project areas and remove all surplus and discarded materials, falsework, rubbish and temporary structures and restore in an acceptable manner all property, both public and private, which has been damaged during the prosecution of the work, and shall leave the improvement in a neat and presentable condition throughout the entire length of the improvement under contract to the satisfaction of the City. If the Conditions as noted above are not corrected immediately, the City may declare an emergency and take necessary action in accordance with the Emergency Cleanup Work section of this specification.

1.09 CLEAN UP AND SAFETY

- A. If the Contractor stockpiles granular material in the gutter, he must provide a minimum 4" pipe below the stockpile in the gutter to accommodate typical gutter flow. Any lumber or stockpiles on the site, not ready for immediate use, shall be free of nails or torn edges that may cause injury. Any materials stockpiled in the street and any open excavation shall have barricades equipped with operative automatic flashers placed at each end. The Contractor shall maintain a neat appearance at all times. All material removed shall be disposed of off-site in a legal manner.
- B. The Contractor must take special precautions to protect the public and City employees from bodily and property damage resulting from the work. Contractor must exercise all necessary precautions to ensure a safe execution of the work.

1.10 CREEK PROTECTION [OPTIONAL]

- A. The Contractor shall be responsible for and conduct all aspects of the work within the requirements of BMC Chapter 17.08 – PRESERVATION AND RESTORATION OF NATURAL WATERCOURSES (Creek Ordinance), and any other creek protection requirements by other agencies.
- B. Portions of Work involving a creek channel may not be permitted between October 15 through April 15 or other dates as may be stipulated in applicable permits.

- C. Any work between creek banks shall be conducted to not create conditions, which will allow erosion, and shall be fully restored to at least the same erosion resistant condition as before the Work.
- D. Complying with the requirements of creek protection shall include but not be limited to scheduling the Work around any time periods prohibiting work within creek limits, installing erosion control measures and employing appropriate BMPs for controlling erosion, monitoring, updating and modifying BMPs to meet the requirements for changing site conditions to comply with erosion control and creek protection, replanting creek banks to reestablish erosion resistance and bank stability.

1.11 PROJECT SITE MAINTENANCE

- A. Water Pollution Control. The intent of these requirements is to enforce federal, state, and other local agencies' regulations that prohibit storm water pollution at construction sites. Storm drains discharge directly to creeks and the Bay without treatment, and discharge of pollutants (i.e., any substance, material, or waste other than uncontaminated storm water) into the storm drain system is strictly prohibited.
- B. The term "storm drain system" shall include storm water conduits, storm drain inlets and other storm drain structures, street gutters, channels, watercourses, creeks, lakes, and the San Francisco Bay.
- C. For the purpose of eliminating storm water pollution, the Contractor shall implement effective control measures at construction sites. There are several publications that provide guidance on selecting and implementing effective control measures known as Best Management Practices (BMPs). BMPs include schedules of activities, prohibition of specific practices, general good housekeeping practices, operational practices, pollution prevention practices, maintenance procedures and other management procedures to prevent the discharge of pollutants directly or indirectly to the storm drain system. BMPs also include the construction of some facilities that may be required to prevent, control, and abate storm water pollution. The reference publications are as follows:
 - 1. California Storm Water Best Management Practice Handbook - Industrial/Commercial
 - 2. California Storm Water Best Management Practice Handbook - Construction ActivityThese handbooks may be purchased from Blue Print Service (BPS), 1700 Jefferson St, Oakland, CA 94612.
 - 3. Manual of Standards for Erosion and Sediment Control Measures by the Association of Bay Area Governments (ABAG).
 - 4. Heavy Equipment Operation, Fresh Concrete & Mortar Application, Painting & Application of Solvents & Adhesives, Roadwork & Paving Activities, General Construction & Site Supervision, Parking Lots and Finish the Pour Right

These brochures are available at the Engineering Division, 1947 Center Street, 4th Floor, Berkeley, CA 94704.

1.12 STORMWATER POLLUTION CONTROL

- A. Stormwater Pollution Control. The intent of these requirements is to comply with federal, state, and other local agencies' regulations that prohibit non-stormwater discharges to storm drain sewer systems, creeks and San Francisco Bay. Storm drain sewers discharge directly to creeks and the Bay without treatment, and discharge of pollutants (any substance, material, or waste other than rainfall derived stormwater) into the storm drain sewer system is strictly prohibited. Further, the Contractor is informed that Federally Endangered species have been identified in creeks within the City Limits. The storm drain sewer system, pollutants, and other relevant information are further defined in

Berkeley Municipal Code (BMC) Chapter 17.20 DISCHARGE OF NON-STORMWATER INTO CITY'S STORM DRAIN SYSTEM – REDUCTION OF STORMWATER POLLUTION, and the City's stormwater NPDES (National Pollutant Discharge Elimination System) Permit No. CAS612008. These documents are available upon request.

- B. Best Management Practices (BMP) and Source Control. The contractor shall use appropriate BMPs and source control techniques on the site(s) at all times, regardless of time of year or rainfall conditions, in order to prohibit the discharge of non-stormwater discharges into the storm drain sewer system, creeks, and Bay. BMPs shall be in conformance with the California Stormwater Quality Association's "Stormwater Best Management Practice Handbook", current edition.
- C. Water Pollution Control Plan (WPCP) and Coordinator. The Contractor shall prepare, submit for favorable review by the City, and implement a WPCP which shall contain at a minimum the items included in this section.
1. The Contractor shall designate an individual (to be approved by the City) available at all times of sufficient authority to halt work and implement BMPs and source control measures for the Contractor and all sub-contractors, suppliers, and other personnel that may be at the construction site(s), to prevent non-stormwater discharges from the construction site(s). This individual shall be the contact person for all matters of the project regarding non-stormwater discharges.
 2. The WPCP shall show the locations of all storm drains, storm drain pipes, creeks, creek culverts, points of entry (catch basins, inlets, outlets), and other features through which stormwater flows.
 3. The WPCP shall identify each point of entry and show how each entry point will be protected. The WPCP shall include a protocol for allowing drainage to flow properly during rainfall events WHILE STILL PREVENTING non-stormwater discharges from entering the storm drains, creeks, and Bay.
 4. The WPCP shall include descriptions and sketches of all BMPs, show locations and describe protocols for implementing and maintaining the following BMPs for but not limited to material storage, dewatering operations, bypass pumping, saw-cutting operations, pavement operations, concrete operations, grading and excavation operations, spill prevention and control, vehicle and equipment cleaning, vehicle and equipment operation and maintenance, litter control, dust control, pavement cleaning, and construction waste management.
 5. All employees, subcontractors, suppliers, and any others involved with the construction site(s) shall be trained in implementing, the importance of, and purpose of the WPCP.
 6. The WPCP shall be updated to meet changing stages of the construction site(s). Work shall not begin without the City completing its review and finding no exceptions taken on the WPCP and finding at City's sole discretion that the WPCP meets the intent and goals of the project.
 7. In addition, the Contractor shall observe the following guidelines:
 - a. Paving during wet weather:
 - i. No paving while it is raining.
 - ii. No paving of the top lift of asphalt concrete (AC) on any day that experiences $\frac{1}{4}$ " of rain in a twenty-four period.
 - iii. No paving of bottom lift if previous seventy-two (72) hour period experienced more than $\frac{1}{2}$ " of rain, unless directed by the City Engineer or his designee.
 - b. Store materials as required by BMPs.

- c. Cover inlets and manholes when applying asphalt, seal coat, tack coat, slurry seal, fog seal, etc., and while sawcutting, grooving, and grinding, etc.
 - d. Place drip pans or absorbent materials under equipment when not in use.
 - e. During wet weather, store paving equipment indoors or cover with tarp or other waterproof covering.
 - f. Sweep site daily to prevent sand, gravel or excess asphalt from entering or being transported by rain into the storm drain system.
 - g. Keep ample supplies of drip pans or absorbent materials on-site.
 - h. If paving involves Portland cement concrete:
 - i. Do not wash out concrete trucks into storm drains, open ditches, streets, streams, etc. The Contractor shall prevent the discharge of pollutants from concrete operations by using measures to prevent run-on and run-off pollution, properly disposing of wastes, and by implementing the following BMP's:
 - a. Store all materials in waterproof containers or under cover away from drain inlets or drainage areas.
 - b. Avoid mixing excess amounts of Portland cement materials. Dispose of any excess materials properly.
 - c. Whenever possible, perform washout of concrete trucks off-site where discharge is controlled and not permitted to discharge to the storm drain system.
 - ii. For on-site washout:
 - a. Locate washout area at least fifty (50) feet from storm drains, open ditches or other water bodies, preferably in a dirt area.
 - b. Confine run-off from this area by constructing a temporary pit or bermed area large enough for the liquid and solid waste.
 - iii. Wash out concrete wastes into the temporary pit where the concrete can set, be broken up and then disposed of properly. If the volume of water is greater than what will allow concrete to set, allow the wash water to infiltrate and/or evaporate, if possible. Remove or vacuum the remaining silt and debris from the ponding or bermed area and dispose of it properly.
 - iv. Dispose of waste water from washing of exposed aggregate to dirt area. The dirt area shall be adequate to contain all the waste water and once the waste water has infiltrated, any remaining residue must be removed.
 - v. Collect and return sweepings from exposed aggregate concrete to a stockpile or dispose of the waste in trash container.
- D. Training. Contractor is responsible for ensuring all personnel, laborers, sub-contractors, suppliers, and any other personnel that are involved with the Work are trained in the importance of preventing non-stormwater discharges. Each worker shall be trained or certified as being trained before being allowed to work. Before any work begins, the Contractor shall submit and certify under penalty of perjury a list of all workers who have been trained on the importance of pollution prevention, BMP and source control operation and maintenance, and recognize the authority of the City to stop the work in the event of a non-stormwater discharge. The training shall include as a minimum, review of the BMP and WPCP, and all BMPs (including BMP operation and maintenance) that are planned for the Work.
- E. Enforcement. The City has the authority through this contract and appropriate sections of the BMC to enforce any portions of this section. City enforcement may include but is not limited to: citations, orders to abate, bills for City cleanup costs and administration, civil suits, and criminal charges and enforcement. Enforcement action by the City does not void or suspend any enforcement actions by other agencies, and actions by the City and other agencies shall be cumulative.
- F. Submittals and Contract Time. Contractor is cautioned and advised to have appropriately trained staff with any applicable certifications prepare all submittals for Storm Water

Pollution Controls including the WPCP, and have appropriately trained staff available to meet with City staff to review the submittals. It is considered reasonable that the Contractor shall make a complete and acceptable submittal at least by the second submission. The City reserves the right to deduct monies from payments due Contractor to cover additional costs of City's and Architect/Engineer's review beyond the second submission. Illegible submittals will be rejected and returned to the Contractor.

- G. Payment. There shall be no separate pay item for complying with the provisions of this section, unless a separate pay item is provided in the bid schedule.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 7329**CUTTING AND PATCHING****PART 1 - GENERAL****1.01 SUMMARY**

- A. Contractor shall be responsible for all cutting, fitting, and patching required to complete the work and to:
 - 1. Make its several parts fit together properly,
 - 2. Uncover portions of the work to provide for installation of ill-timed work,
 - 3. Remove and replace defective work,
 - 4. Remove and replace work not conforming to requirements of Contract Documents,
 - 5. Provide routine penetrations of nonstructural surfaces for installation of electrical conduit, plumbing, and ductwork,
 - 6. Remove Samples of installed work as specified for testing.

1.02 SUBMITTALS

- A. Submit a written request to the Architect/Engineer two weeks in advance of executing any cutting or alteration that affects the following and is not specifically indicated on the Drawings as part of the Scope of Work:
 - 1. Work of the City or any separate contractor,
 - 2. The structural value or integrity of any element of the completed building,
 - 3. The integrity or effectiveness of weather-exposed or moisture-resistant elements or systems,
 - 4. The efficiency, operational life, maintenance, and safety of operational elements,
 - 5. The visual qualities of sight-exposed elements.
- B. The request shall include:
 - 1. The necessity for cutting or alteration,
 - 2. The effect on the work of the City or any separate contractor or on the structural or weatherproof integrity of the building,
 - 3. Description of the Proposed Work:
 - a. The scope of cutting, patching, alteration, or excavation,
 - b. The trades who will execute the work,
 - c. The products proposed to be used,
 - d. The extent of refinishing to be done.
 - 4. Alternatives to cutting and patching,
 - 5. Cost proposal, when applicable,
 - 6. Written permission of any separate contractor whose work will be affected.
- C. Should conditions of the work or the schedule indicate a change of products from the original installation, submit a request for substitution per Section 00 6325 Substitution Request Form.

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Comply with specifications and standards for each specific product involved.

PART 3 - EXECUTION**3.01 EXAMINATION**

- A. Examine existing conditions of the Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, examine the conditions affecting the installation of products or performance of the Work.
- C. Report unsatisfactory or questionable conditions to the Project Manager in writing. Do not proceed with the work until the Project Manager has provided further instructions.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work.
- B. Provide devices and methods to protect other portions of the Project from damage.
- C. Provide protection from the elements for that portion of the Project that may be exposed by cutting and patching work.

3.03 PERFORMANCE

- A. Execute cutting and demolition by methods that will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- B. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
- C. All plumbing, mechanical, and electrical system elements shall be concealed, unless indicated otherwise.
- D. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.
- E. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- F. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes.
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish the entire unit.

END OF SECTION

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 7413**PROJECT CLEANING****PART 1 - GENERAL****1.01 SUMMARY**

- A. Maintain Project Site, surrounding areas and public properties free from accumulations of waste, debris, and rubbish, caused by operations.
- B. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave Project Site clean and ready for occupancy.

1.02 GENERAL

- A. Conduct cleaning and disposal operation in accord with legal requirements.
 - 1. Do not burn or bury rubbish and waste materials on Project Site.
 - 2. Do not dispose of volatile wastes in storm or sanitary drains.
- B. Hazards control:
 - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.

Note: Care shall be taken that discharge of volatile or noxious exhaust shall be shielded from air intakes of hospital mechanical systems.

1.03 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

1.04 DUST CONTROL

- A. Clean interior spaces prior to start of finish painting, and continue cleaning as required until painting is completed.

1.05 DURING CONSTRUCTION

- A. Execute cleaning daily to ensure Project Site, City's premises, adjacent and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to control dust.
- C. At reasonable intervals during progress of Work, clean Project Site and public properties, and dispose of waste materials, debris and rubbish.
- D. Provide on Project Site dump containers for collection of waste materials, debris and rubbish. Hospital waste containers shall not be used for construction waste.
- E. Remove waste materials, debris and rubbish from City's premises and legally dispose of off City's property.
- F. Vacuum clean interior areas when ready to receive finish painting, and continue vacuum cleaning on an as-needed basis until building is ready for substantial completion or

occupancy.

- G. Handle materials in a controlled manner with as few handlings as possible. Do not drop or throw materials.
- H. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

1.06 FINAL CLEANING

- A. Employ experienced workers, or professional cleaners for final cleaning.
- B. In preparation for Substantial Completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of accessible concealed spaces.
- C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed finished surfaces; polish surfaces so designated to shine finish.
- D. Repair, patch and touch up marred surfaces to specified finish, and to match adjacent surfaces.
- E. Broom clean paved surfaces.
- F. Keep Project clean until it is occupied by the City.
- G. Clean equipment and fixtures to a sanitary condition.
- H. Clean or replace, if required, filters of operating equipment.
- I. Clean Debris from roofs, gutters, downspouts and drainage systems.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 7419**CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 - 1. Salvaging and recycling nonhazardous demolition and construction waste.
 - 2. Disposing of nonhazardous demolition and construction waste.
- B. Related Sections include the following:
 - 1. Division 01 Section "Temporary Facilities and Controls" for environmental-protection measures during construction.

1.03 DEFINITIONS

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

1.04 PERFORMANCE REQUIREMENTS

- A. General: Develop waste management plan that results in end-of-Project rates for a minimum salvage/recycling percent by weight of total waste generated by the Work, as required by the Berkeley Municipal Code 19.37 Berkeley Green Code..
- B. Salvage/Recycle Goals: Owner's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible.
 - 1. Demolition Waste:
 - a. Asphaltic concrete paving.
 - b. Concrete.
 - c. Concrete reinforcing steel.
 - d. Brick.
 - e. Concrete masonry units.

- f. Wood studs.
 - g. Wood joists.
 - h. Plywood and oriented strand board.
 - i. Wood paneling.
 - j. Wood trim.
 - k. Structural and miscellaneous steel.
 - l. Rough hardware.
 - m. Roofing.
 - n. Insulation.
 - o. Doors and frames.
 - p. Door hardware.
 - q. Windows.
 - r. Glazing.
 - s. Metal studs.
 - t. Gypsum board.
 - u. Acoustical tile and panels.
 - v. Carpet.
 - w. Carpet pad.
 - x. Demountable partitions.
 - y. Equipment.
 - z. Cabinets.
 - aa. Plumbing fixtures.
 - bb. Piping.
 - cc. Supports and hangers.
 - dd. Valves.
 - ee. Sprinklers.
 - ff. Mechanical equipment.
 - gg. Refrigerants.
 - hh. Electrical conduit.
 - ii. Copper wiring.
 - jj. Lighting fixtures.
 - kk. Lamps.
 - ll. Ballasts.
 - mm. Electrical devices.
 - nn. Switchgear and panelboards.
 - oo. Transformers.
2. Construction Waste:
- a. Site-clearing waste.
 - b. Masonry and CMU.
 - c. Lumber.
 - d. Wood sheet materials.
 - e. Wood trim.
 - f. Metals.
 - g. Roofing.
 - h. Insulation.
 - i. Carpet and pad.
 - j. Gypsum board.
 - k. Piping.
 - l. Electrical conduit.
 - m. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1. Paper.
 - 2. Cardboard.
 - 3. Boxes.
 - 4. Plastic sheet and film.

5. Polystyrene packaging.
6. Wood crates.
7. Plastic pails.

1.05 SUBMITTALS

- A. Waste Management Plan: Submit **3** copies of plan within **7** days of date established for the Notice to Proceed.
- B. See Evaluations for example of Waste Reduction Progress Reports in paragraph below.
- C. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit 3 copies of report. Include the following information:
 1. Material category.
 2. Generation point of waste.
 3. Total quantity of waste in tons
 4. Quantity of waste salvaged, both estimated and actual in tons
 5. Quantity of waste recycled, both estimated and actual in tons
 6. Total quantity of waste recovered (salvaged plus recycled) in tons
 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- D. Waste Reduction Calculations: Before request for Substantial Completion, submit **3** copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- E. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- F. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- G. 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.
- H. 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.

1.06 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Green Building Professional. Waste management coordinator may also serve as Green Building coordinator.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.07 WASTE MANAGEMENT PLAN

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

quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

D.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by Construction Manager. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 1. Comply with Division 01 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 1. Distribute waste management plan to all relevant sub-contractor within 3 days of submittal return.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 2. Comply with Division 01 Section "Temporary Facilities and Temporary Controls" for controlling dust and dirt, environmental protection, and noise control.

3.02 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until installation.
 4. Protect items from damage during transport and storage.
 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.
- B. Salvaged Items for Owner's Use:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area.
 5. Protect items from damage during transport and storage.
- C. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

3.03 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following

The City of Berkeley Transfer Station
1201 Second Streets, Berkeley, CA

- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.04 RECYCLING DEMOLITION WASTE

- A. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.
- B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
- C. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with

other metals.

1. Clean and stack undamaged, whole masonry units on wood pallets.
- D. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
1. Treated Wood Waste: Treated wood waste is required to be managed, stored, transported, and disposed of as hazardous waste per California State regulations. Treated wood waste is required to be transported and disposed of at a Class I hazardous waste landfill by a Hazardous Waste contractor.
- E. Metals: Separate metals by type.
1. Structural Steel: Stack members according to size, type of member, and length.
 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- F. 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.
- G. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- H. Plumbing Fixtures: Separate by type and size.
- I. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- J. Lighting Fixtures: Separate lamps by type and protect from breakage.
- K. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.
- L. Conduit: Reduce conduit to straight lengths and store by type and size.

3.05 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 2. Polystyrene Packaging: Separate and bag materials.
 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees.
- C. Wood Materials:
1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
 3. Treated Wood Waste: Treated wood waste is required to be managed, stored, transported, and disposed of as hazardous waste per California State regulations. Treated wood waste is required to be transported and disposed of at a Class I hazardous waste landfill by a Hazardous Waste contractor.
- D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile

chipper or hammer mill. Screen out paper after grinding.

3.06 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 7700**CONTRACT CLOSEOUT****PART 1 - GENERAL****1.01 SUMMARY**

A. Section describes requirements and procedures for:

1. Project cleaning.
2. Testing of equipment and systems
3. Substantial Completion
4. Final Completion
5. Close Out
6. Warranties

1.02 SUBSTANTIAL COMPLETION

A. Removal of Temporary Construction Facilities and Project Cleaning.

1. Prior to Substantial Completion inspection: remove temporary materials, equipment, services, and construction; clean all areas affected by the Work; clean and repair damage caused by installation or use of temporary facilities; restore permanent facilities used during construction to specified condition.

B. Equipment and Systems.

1. Prior to Substantial Completion, Contractor shall start up, run for periods prescribed by City, operate, adjust and balance all manufactured equipment and Project systems, including but not limited to, mechanical, electrical, safety, fire, and controls.
2. Demonstrate that such equipment and systems conform to contract standards and manufacturer's guarantees. Where applicable, use testing protocols specified, and if the contract is silent, then consistent with manufacturer's recommendations and industry standards.

C. Procedure for Substantial Completion

1. When Contractor considers Work or designated portion of the Work as Substantially Complete, submit written notice to City, with list of items remaining to be completed or corrected and explanation of why such items do not prevent City's beneficial use and occupancy of the Work for its intended purposes. Within reasonable time, City will inspect to determine status of completion.
2. Should City determine that Work is not Substantially Complete, City will promptly notify Contractor in writing, listing all defects and omissions. Contractor shall remedy deficiencies and send a second written notice of Substantial Completion. City will reinspect the Work. If deficiencies previously noted are not corrected on reinspection, then pay the cost of the reinspection.
3. When City concurs that Work is Substantially Complete, City will issue a written notice or certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected as verified by City.
4. Manufactured units, equipment and systems that require startup must have been

started up and before a notice or certificate of Substantial Completion will be issued.

5. A punch list examination will be performed upon Substantial Completion. One follow-up review of punch list items for each discipline will be provided. If further Site visits are required to review punch list items due to incompleteness of the Work by Contractor, Contractor will reimburse City for costs associated with these visits.

1.03 FINAL COMPLETION

A. Requirements

1. Final Completion occurs when Work meets requirements for City's Final Acceptance.

B. Procedure

1. When Contractor considers Work is Finally Complete, submit written certification that:
 - a. Contractor has inspected Work for compliance with Contract Documents, and all requirements for Final Acceptance have been met.
 - b. Except for Contractor maintenance after Final Acceptance, Work has been completed in accordance with Contract Documents and deficiencies listed with Certificate of Substantial Completion have been corrected. Equipment and systems have been tested in the presence of City, and are operative.
 - c. Project Record Documents are completed and turned over to City, and Work is complete and ready for final inspection.
2. In addition to submittals required by Contract Documents, provide submittals required by governing authorities and submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
3. Should City determine that Work is incomplete or Defective, City promptly will so notify Contractor, in writing, listing the incomplete or Defective items. Contractor shall promptly remedy the deficiencies and notify the City when it is ready for reinspection.

C. Final Adjustments of Accounts:

1. Submit a final statement of accounting to City, showing all adjustments to the Contract Sum and complete and execute Document 00 6530 (Agreement and Release of Claims).
2. If so required, City shall prepare a final Change Order for submittal to Contractor, showing adjustments to the Contract Sum that were not previously made into a Contract Modification.

D. Warranties

1. Execute Contractor's Submittals and assemble warranty documents, and Installation, Operation, and Maintenance Manuals, executed or supplied by Subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in 8½ inches by 11 inches three-ring binder with durable plastic cover, appropriately separated and organized. Assemble in Specification Section order.
2. Submit material prior to final Application for Payment. For equipment put into use with City's permission during construction, submit within 14 calendar days after first operation. For items of Work delayed materially beyond Date of Substantial Completion, provide updated Submittal within 14 calendar days after acceptance, listing date of acceptance as start of warranty period.
3. Warranty Forms: Submit drafts to Owner for approval prior to execution. Forms shall not detract from or confuse requirements or interpretations of Contract Documents. Warranty shall be countersigned by manufacturers. Where specified, warranty shall be countersigned by Subcontractors and installers.

4. Rejection of Warranties: Owner reserves right to reject unsolicited and coincidental product warranties that detract from or confuse requirements or interpretations of Contract Documents.
 5. Term of Warranties: For materials, equipment, systems, and workmanship, warranty period shall be one year minimum from date of Final Completion of entire Work except where:
 - a. Detailed Specifications for certain materials, equipment or systems require longer warranty periods.
 - b. Materials, equipment or systems are put into beneficial use of City prior to Final Completion as agreed to in writing by City.
- E. Warranty of Title:
1. No material, supplies, or equipment for Work under Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver premises, together with improvements and appurtenances constructed or placed thereon by Contractor, to City free from any claim, liens, security interest, or charges, and further agrees that neither Contractor nor any person, firm, or corporation furnishing any materials or labor for any Work covered by Contract shall have right to lien upon premises or improvement or appurtenances thereon. Nothing contained in this paragraph, however, shall defeat or impair right of persons furnishing materials or labor under bond given by Contractor for their protection or any rights under law permitting persons to look to funds due Contractor in hands of City.
- F. Turn-In. Contract Documents will not be closed out and final payment will not be made until all keys issued to Contractor during prosecution of Work and letters from property owners, pursuant to Contract Documents, are turned in to City.
- G. Release of Claims. Contract Documents will not be closed out and final payment will not be due or made until Document 00 6530 (Agreement and Release of Claims) is completed and executed by Contractor and City.
- H. Fire Inspection Coordination. Coordinate fire inspection and secure sufficient notice to City to permit convenient scheduling (if applicable).
- I. Building Inspection Coordination. Coordinate with City a final inspection for the purpose of obtaining an occupancy certificate (if applicable).

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01 7800**CLOSEOUT SUBMITTALS****PART 1 - GENERAL****1.01 SUMMARY**

- A. This section specifies administrative and procedural requirements for Project Record Documents.
- B. Project Record Documents required include:
 - 1. Marked-up copies of Contract Drawings
 - 2. Marked-up copies of Shop Drawings
 - 3. Newly prepared Drawings
 - 4. Marked-up copies of Specifications, Addenda and Change Orders
 - 5. Marked-up Project Data submittals
 - 6. Record Samples
 - 7. Field records for variable and concealed conditions
 - 8. Record information on Work that is recorded only schematically
- C. Specific Project Record Documents requirements that expand requirements of this Section are included in the individual Sections of Divisions 1 through 33.
- D. General Project closeout requirements are included in Section 01 7700, "Contract Closeout."
- E. Maintenance of Documents and Samples:
 - 1. Store Project Record Documents and samples in the field office apart from Contract Documents used for construction.
 - 2. Do not permit Project Record Documents to be used for construction purposes.
 - 3. Maintain Project Record Documents in good order, and in a clean, dry, legible condition.
 - 4. Make documents and samples available at all times for inspection by Architect and Project Manager.
- F. City will provide one set of sepias and one blueline set of the construction drawings and one project manual for the Contractor's use and copying during construction.

1.02 PROJECT RECORD DRAWINGS

- A. Mark-up Procedure: During the construction period, maintain a set of blueline or blackline prints of Contract Drawings and Shop Drawings for Project Record Document purposes. Label each document (on first sheet or page) "PROJECT RECORD" in 2 in. high printed letters. Keep record documents current. Note: A reference by number to a Change Order, RFI, RFQ, Field Order or other such document is not acceptable as sufficient record information on any record document. Do not permanently conceal any Work until required information has been recorded.
 - 1. Mark these Drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to

information on concealed elements which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

- a. Dimensional changes to the Drawings
 - b. Revisions to details shown on the Drawings
 - c. Depths of various elements of foundation in relation to main floor level or survey datum.
 - d. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - e. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - f. Establish locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, and similar items.
 - g. Provide actual numbering of each electrical circuit.
 - h. Field changes of dimension and detail.
 - i. Revisions to routing of piping and conduits
 - j. Revisions to electrical circuitry
 - k. Actual equipment locations
 - l. Duct size and routing
 - m. Changes made by Change Order
 - n. Details not on original Contract Drawings
2. Mark completely and accurately Project Record Drawing prints of Contract Drawings or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.
 3. Mark Project Record Drawing sets with red erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location.
 4. Mark important additional information which was either shown schematically or omitted from original Drawings.
 5. Note construction change directive numbers; alternate numbers; Change Order numbers and similar identification.
 6. Responsibility for Mark-up: Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer, subcontractor, or similar entity, is required to prepare the mark-up on Project Record Drawings.
 - a. Accurately record information in an understandable and legible drawing technique.
 - b. Record data as soon as possible after it has been obtained. In the case of concealed installations, record and check the mark-up prior to concealment.
- B. Preparation of Transparencies: Immediately prior to inspection for Certification of Substantial Completion, review completed marked-up Project Record Drawings with the Project Manager]. When authorized, prepare a full set of correct transparencies of Contract Drawings and Shop Drawings.
1. Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Drawing; include the printed designation "PROJECT RECORD DRAWINGS" in a prominent location on each Drawing.
 2. Refer instances of uncertainty to the Project Manager for resolution.
 3. Review of Transparencies: Before copying and distributing, submit corrected

transparencies and the original marked-up prints to the Project Manager and Architect/Engineer for review.

- a. Transparencies and the original marked-up prints will be returned to the Contractor for organizing into sets, printing, binding, and final submittal.
4. Copies and Distribution: After completing the preparation of transparency Project Record Drawings, print three blue-line or black-line prints of each Drawing, whether or not changes and additional information were recorded. Organize the copies into manageable sets. Bind each set with durable paper cover sheets, with appropriate identification, including titles, dates and other information on cover sheets.
- a. Organize and bind original marked-up set of prints that were maintained during the construction period in the same manner.
 - b. Organize Project Record Drawings transparencies into sets matching the print sets. Place these sets in durable tube-type drawing containers with end caps. Mark the end cap of each container with suitable identification.
- C. Distribution of Marked up Drawings and Transparencies
1. Submit the marked-up Project Record Drawings set, pdfs, transparencies, and five copy sets to the Project Manager for City's records.
- D. Shop Drawings and Samples: Maintain as record documents; legibly annotate Shop Drawings and Samples to record changes made after review.
- E. In addition to requirements of this Section, comply with supplemental requirements of Divisions 02, 03, 05, 06, 07, and 08.
1. Divisions 02 through 08 of the specifications require the preparation of large scale, detailed Layout Drawings of the work of those divisions. These Layout Drawings are not shop drawings as defined by the General Conditions, but together with shop drawing or Layout Drawings of all other affected sections are used check, coordinate and integrate the work of the various sections
 2. Include these Layout Drawings as part of the As Built Documents.
- F. Delete Architect/Engineer title block and seal from documents.
- G. As-Built Documents are subject to review and acceptance by the City and Architect/Engineer.
- H. Submit documents to Project Manager with final Application for payment.

1.03 PROJECT RECORD SPECIFICATIONS

- A. During the construction period, maintain one copy of the Project Specifications, including addenda and modifications issued, for Project Record Document purposes.
1. Mark the Project Record Specifications to indicate the actual installation where the installation varies substantially from that indicated in Specifications and Modifications issued. Note related Project Record Drawing information, where applicable. Give particular attention to substitutions, selection of product options, change order work, and information on concealed installation that would be difficult to identify or measure and record later.
 - a. In each Specification Section where products, materials or units of equipment are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.
 - b. Record the name of the manufacturer, catalog number, supplier and installer, and other information necessary to provide a record of selections made and to document coordination with Project Record Product Data submittals and maintenance manuals.

- c. Note related Project Record Product Data, where applicable, for each principal product specified, indicate whether Project Record Product Data has been submitted in maintenance manual instead of submitted as Project Record Product Data.
2. Upon completion of mark-up, submit Project Record Specifications to the Project Manager for City's records.

1.04 PROJECT RECORD PRODUCT DATA

- A. During the construction period, maintain one copy of each Project Record Product Data submittal for Project Record Document purposes.
 1. Mark Project Record Product Data to indicate the actual product installation where the installation varies substantially from that indicated in Project Record Product Data submitted. Include significant changes in the product delivered to the site, and changes in manufacturer's instructions and recommendations for installation.
 2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 3. Note related Change Orders and mark-up of Project Record Drawings, where applicable.
 4. Upon completion of mark-up, submit a complete set of Project Record Product Data to the Project Manager for City's records.
 5. Where Project Record Product Data is required as part of maintenance manuals, submit marked-up Project Record Product Data as an insert in the manual, instead of submittal as Project Record Product Data.
 6. Each prime Contractor is responsible for mark-up and submittal of record Project Record Product Data for its own Work.
- B. Material, Equipment and Finish Data
 1. Provide data for primary materials, equipment and finishes as required under each specification section.
 2. Submit two sets prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers; provide typewritten table of contents for each volume.
 3. Arrange by Specification division and give names, addresses, and telephone numbers of subcontractors and suppliers. List:
 - a. Trade names.
 - b. Model or type numbers.
 - c. Assembly diagrams.
 - d. Operating instructions.
 - e. Cleaning instructions.
 - f. Maintenance instructions.
 - g. Recommended spare parts.
 - h. Product data.

1.05 MISCELLANEOUS PROJECT RECORD SUBMITTALS

- A. Refer to other Specification Sections for miscellaneous record keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Project Manager for City's records. Categories of requirements resulting in miscellaneous records include, but are not limited to the following:

1. Field records on excavations and foundations
2. Field records on underground construction and similar work
3. Survey showing locations and elevations of underground lines
4. Invert elevations of drainage piping
5. Surveys establishing building lines and levels
6. Authorized measurements utilizing unit prices or allowances
7. Records of plant treatment
8. Ambient and substrate condition tests
9. Certifications received in lieu of labels on bulk products
10. Batch mixing and bulk delivery records
11. Testing and qualification of tradespersons
12. Documented qualification of installation firms
13. Load and performance testing
14. Inspections and certifications by governing authorities
15. Leakage and water-penetration tests
16. Fire resistance and flame spread test results
17. Final inspection and correction procedures

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 RECORDING

- A. Post changes and modifications to the Documents as they occur. Do not wait until the end of the Project. City may review Project Record Documents prior to each progress payment to see that the required information is being properly and faithfully recorded to assure compliance with this requirement. If Contractor has not complied with this requirement, the progress payment will be withheld until the Record Documents have been brought up to date.

3.02 SUBMITTAL

- A. At completion of Project, deliver Record Documents to Project Manager.
- B. Accompany submittal with transmittal letter containing:
 1. Date
 2. Project title and number
 3. Contractor's name and address
 4. Number and title of each record documents
 5. Certification that each document as submitted is complete and accurate, and signature of Contractor, or his authorized representative.

END OF SECTION

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CORPORATION YARD GREEN ROOM TECHNICAL SPECIFICATIONS

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CORPORATION YARD GREEN ROOM TECHNICAL SPECIFICATIONS

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SECTION 01 43 39 - MOCK-UPS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Mock-up requirements.

1.02 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Divisions 2 through 33 Sections for specific mock-up requirements.

1.03 DEFINITIONS

- A. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Accepted mockups establish the standard by which the Work will be judged.

1.04 QUALITY ASSURANCE

- A. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect or Construction Manager.
 - 2. Notify Architect and Construction Manager 7 calendar days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Architect's and Construction Manager's approval of mockups before starting work, fabrication, or construction.
 - 5. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
 - 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
- B. Demolish and remove mockups when directed, unless otherwise indicated.
- C. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by Architect and Construction Manager.

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- D. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 ASSEMBLY MOCKUP

- A. Provide site-built mockups as described in individual sections.
- B. No work on the represented on the mockup shall proceed prior before approval of that portion of mockup by Architect and Owner.
- C. Mockup may not remain as part of the Work unless approved by owner.

END OF SECTION

**SECTION 01 73 29
CUTTING AND PATCHING**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work.
- C. Cutting and patching.
- D. Cleaning and protection.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections apply to this section.
- B. Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse to be coordinated with the City of Berkeley.
- C. Section 02 41 13 – Selective Demolition: Demolition of portions of existing building as indicated.
- D. Reference Standard: NFPA 241 – Standard for Safeguarding Construction, Alteration, and Demolition Operations, 2019.

1.03 SUMMARY

- A. Contractor shall be responsible for all cutting, fitting, and patching required to complete the work and to:
 - 1. Make its several parts fit together properly,
 - 2. Uncover portions of the work to provide for installation of ill-timed work,
 - 3. Remove and replace defective work,
 - 4. Remove and replace work not conforming to requirements of Contract Documents,
 - 5. Provide routine penetrations of nonstructural surfaces for installation of electrical conduit, plumbing, and ductwork,
 - 6. Remove Samples of installed work as specified for testing.

1.04 SUBMITTALS

- A. Submit a written request to the Architect/Owner two weeks in advance of executing any cutting or alteration that affects the following and is not specifically indicated on the Drawings as part of the Scope of Work:
 - 1. Work of the Owner or any separate contractor,
 - 2. The structural value or integrity of any element of the completed building,
 - 3. The integrity or effectiveness of weather-exposed or moisture-resistant elements or systems,
 - 4. The efficiency, operational life, maintenance, and safety of operational elements,
 - 5. The visual qualities of sight-exposed elements.
- B. The request shall include:
 - 1. The necessity for cutting or alteration,

2. The effect on the work of the Owner or any separate contractor or on the structural or weatherproof integrity of the building,
 3. Description of the Proposed Work:
 - a. The scope of cutting, patching, alteration, or excavation,
 - b. The trades who will execute the work,
 - c. The products proposed to be used,
 - d. The extent of refinishing to be done.
 4. Alternatives to cutting and patching,
 5. Cost proposal, when applicable,
 6. Written permission of any separate contractor whose work will be affected.
- C. Should conditions of the work or the schedule indicate a change of products from the original installation, submit a request for substitution per Section 00 6325 Substitution Request Form.

1.05 PROJECT CONDITIONS

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- C. Provide dust-proof enclosures to prevent entry of dust generated outdoors.
- D. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.
- E. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- F. At All Times: Excessively noisy tools and operations will not be tolerated inside the building at any time of day; excessively noisy includes jackhammers.
- G. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- H. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- C. In finished areas, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- D. Coordinate completion and clean-up of work of separate sections.
- E. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of

Owner's activities.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Comply with specifications and standards for each specific product involved.
- B. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- C. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine existing conditions of the Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, examine the conditions affecting the installation of products or performance of the Work.
- C. Report unsatisfactory or questionable conditions to the Project Manager in writing. Do not proceed with the work until the Project Manager has provided further instructions.
- D. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- E. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- F. Examine and verify specific conditions described in individual specification sections.
- G. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or mis-fabrication.
- H. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- I. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work.
- B. Provide devices and methods to protect other portions of the Project from damage.
- C. Provide protection from the elements for that portion of the Project that may be exposed by cutting and patching work.
- D. Clean substrate surfaces prior to applying next material or substance.
- E. Seal cracks or openings of substrate prior to applying next material or substance.
- F. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.

- B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to the necessity for replacement.
- C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.04 ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Owner/Architect before disturbing existing installation.
 - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove rotted wood, corroded metals, and deteriorated roofing and concrete; replace with new construction specified.
 - 2. Remove items indicated on drawings.
 - 3. Relocate items indicated on drawings.
 - 4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
 - 5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, Telecommunications, and Site Utilities): Remove, relocate, and extend existing systems to accommodate new construction.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
 - 2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
 - 3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
 - b. Provide temporary connections as required to maintain existing systems in service.
 - 4. Verify that abandoned services serve only abandoned facilities.
 - 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- F. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.

2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 3. Repair adjacent construction and finishes damaged during removal work.
- G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
 2. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

3.05 PERFORMANCE

- A. Execute cutting and demolition by methods that will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- B. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
- C. All plumbing, mechanical, and electrical system elements shall be concealed, unless indicated otherwise.
- D. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.
- E. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- F. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes.
 1. For continuous surfaces, refinish to nearest intersection.
 2. For an assembly, refinish the entire unit.

3.06 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site weekly and dispose offsite; do not burn or bury.

3.07 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Protect work from spilled liquids. If work is exposed to spilled liquids, immediately remove protective coverings, dry out work, and replace protective coverings.

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- G. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- H. Prohibit traffic from landscaped areas.
- I. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

END OF SECTION

**SECTION 02 41 13
SELECTIVE DEMOLITION**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
1. Selective demolition of building elements as indicated.
 2. Pollutant control measures.
 3. Protection of existing building finishes during demolition and construction, including, but not limited to, wood paneling and trim, vinyl flooring, sound absorbing panels and trim, and all other finishes potentially impacted by new work.
 4. Protection of mechanical, electrical, and plumbing systems not indicated to be removed.
 5. Construction waste reduction, disposal, and recycling including required documentation for Construction Waste Management Plan and its implementation.
- B. Related Sections
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
 2. Section 01 32 00 - Cutting and Patching.
 3. Division 22 - Plumbing: For demolition requirements as specified and as indicated on the Drawings.
 4. Division 23 - Heating, Ventilating, and Air Conditioning (HVAC): For demolition requirements as specified and as indicated on the Drawings.
 5. Division 26 - Electrical: For demolition requirements as specified and as indicated on the Drawings.

1.02 REFERENCES

- A. ANSI/ASSE - American National Standards Institute/American Society of Safety Engineers
1. A10.6 - Safety Requirements for Demolition Operations.
- B. EPA - Environmental Protection Agency
- C. NFPA - National Fire Protection Association
1. 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations.

1.03 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
1. Storage or sale of removed items or materials on-site is not permitted.
- B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to the Owner's designated storage area.
- C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.
- D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, at the Contractor's option and at no additional cost, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.
- E. Materials Ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.04 SUBMITTALS

- A. Schedule of selective demolition activities indicating the following:

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1. Interruption of utility services and security devices.
 2. Coordination for shutoff, capping, and continuation of utility services and security devices.
 3. Locations of temporary barricades, partitions, and means of egress.
 4. Above items shall be shown on Preliminary schedule and approved by the Owner, Final Schedule, and 3-week look ahead. Final dates of shutdowns are required no less than 10 days prior to activity in a request to Program Manager in writing.
- B. Construction Logistics Plan indicating the following:
1. Barricades and enclosures.
 2. Laydown and staging area.
 3. Location of Commercial shower and locker room trailer, if used.
- C. Inventory of items to be removed and salvaged.
- D. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.
1. Wood paneling, ceilings, soffits, and trim not indicated to be removed.
- E. Record Drawings at Project Closeout: Identify and accurately locate capped utilities and other subsurface structural, electrical, plumbing, mechanical and security devices.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements
1. Comply with governing EPA notification regulations before beginning selective demolition.
 2. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.
- C. Pre-demolition Conference: Conduct conference at Project site.

1.06 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by the Owner as far as practical.
- B. Portions of site, buildings, and portions of buildings immediately adjacent to selective demolition area will be occupied. Conduct selective demolition so Owner's operations will not be disrupted.
- C. Asbestos: If any previously unidentified materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Architect and the Owner.

1.07 WARRANTIES

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that utilities have been disconnected and capped where indicated.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
1. Notify Owner and Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged. Items to be salvaged include wood wainscot, wood trim, acoustic paneling, expansion joint covers, fire extinguisher cabinet, signage, and other items as indicated on the drawings.

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- D. When unanticipated plumbing, mechanical, electrical, security, or structural elements that conflict with the intended function or design are encountered, investigate, and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.
- E. Survey the condition of the buildings to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structures during selective demolition.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.02 UTILITY SERVICES

- A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized by the Owner. Provide temporary services during interruptions to existing utilities, as acceptable to the Owner and to governing authorities.
 - a. Provide not less than 10 calendar days' notice to the Owner if shutdown of service is required during changeover.
 - 2. Sitework will affect existing irrigation services. Provide not less than 72 hours' notice to the Owner when shutdown of irrigation service is required during sitework. Temporarily reconnect irrigation service to maintain irrigation in operation during construction.
- B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving portions of the buildings or sitework to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with the Owner.
 - 2. Where utility services are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.
 - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit after bypassing.

3.03 PREPARATION

- A. Conduct demolition operations and remove debris to ensure minimum interference with streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the Owner and authorities having jurisdiction.
- B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.
 - 1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by the Owner.
 - 2. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition and construction operations.
 - a. Exercise care to protect existing wood paneling and ceilings to remain.
 - 3. Cover and protect furniture, furnishings, and equipment that have not been removed.
- C. Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
 - 1. Construct dustproof partitions of not less than nominal 4 inch studs and 1/2-inch fire retardant plywood on the demolition side; seal joints and perimeter.
 - 2. Non-plastic sheet materials shall be used to further mitigate dust and shall not trap moisture; seal to prevent dust penetration.
- D. Provide and maintain interior and exterior bracing or structural support to preserve stability and prevent movement, settlement, or collapse of portions of building to be selectively demolished.
 - 1. Strengthen or add new supports when required during progress of selective demolition.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner, items may be removed to a suitable,

protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.04 POLLUTANT CONTROLS

- A. Use temporary enclosures and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
- B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.05 SELECTIVE DEMOLITION

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
 - 5. Maintain adequate ventilation when using cutting torches.
 - 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - 8. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 9. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - 10. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- B. Demolish concrete in small sections. Cut concrete at junctures with construction to remain, using power-driven masonry saw or hand tools; do not use power-driven impact tools.

3.06 MANAGEMENT OF DEMOLISHED MATERIALS

- A. Recycle and/or salvage for reuse non-hazardous demolition waste in accordance with the Owner's direction and requirements of Division 01. Remove from site all materials not to be reused on site.
- B. Store items to be salvaged and reinstalled in a secure and protected location until ready for reinstallation.
- C. Burning: Do not burn demolished materials.
- D. Refer to the Division 01 for procedures to follow when materials containing asbestos and lead are encountered.

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3.07 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.
- B. Return adjacent areas to condition existing before selective demolition operations began.
- C. Sweep the building broom clean on completion of selective demolition operation.

END OF SECTION

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SECTION 02 82 00 – HAZARDOUS MATERIALS ABATEMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Removal, repair, encapsulation, enclosure, and other abatement of asbestos-containing and lead-containing materials as specified herein and shown on drawings.
2. Compliance with all applicable Federal, State, and local regulations pertaining to work practices.
3. Protection of workers, visitors to the site, and persons occupying areas adjacent to the site.
4. Provide medical examinations and maintain medical records of personnel as required by the applicable Federal, State, and local regulations.
5. The scope of this work includes the manifesting, transporting, or disposal of hazardous waste.
6. Refer to the City of Berkeley's "Asbestos, Lead and Hazardous Materials Investigation" report prepared by Acumen Industrial Hygiene, Inc., Acumen Project C.O.B. 2125, February 2021.

B. Related Sections:

1. Division 01 Section "General Requirements."
2. Division 02 41 00 "Demolition".
3. Division 09 91 00 "Painting."

1.02 DEFINITIONS

- A. Asbestos-In-Construction Supervisor (Competent Person): One who is capable of identifying existing and predicting asbestos hazards in the surroundings or working conditions and who has the authorization to take prompt corrective measures to eliminate them.
- B. Asbestos 30-minute Excursion Limit (EL): 1.0 fiber per cubic centimeter of air (1.0 f/cc).
- C. Asbestos-in-air, 8-hour Time Weighted Average (TWA) Permissible Exposure Limit (PEL): 0.1 fiber per cubic centimeter of air (0.1 f/cc).
 1. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.

1.03 SUBMITTALS

- A. Submit under provisions of Division 01 Section "General Requirements" for review and approval by the City of Berkeley's Project Manager and Nicole Kim, Toxics Management Division, 510-981-7467.
- B. Product Data: Submit [five (5)] copies of the following:
 1. Material Safety Data Sheets (MSDS) sheets for each product containing hazardous materials as defined by OSHA's Hazardous Communication Standard; 29 CFR 1910.1200.
 2. Test reports for materials impacted by new work and assumed to contain asbestos that were not tested in Acumen Project No. COB 2125 but identified in section 4.1.3 (and other sections) as "Assumed Asbestos Containing Materials".
- C. Quality Assurance/Control Submittals: Submit [five (5)] copies of the following:

1. Asbestos Compliance Work Plan: Detailed, job-specific plan of the procedures proposed for use in complying with the requirements of this Specification and 29 CFR 1926.1101.
 - a. As a minimum, provide the information required in Attachment A, the Asbestos Compliance Work Plan Outline.
 - b. The plan shall be approved by the City of Berkeley prior to the mobilization of equipment, supplies, or workers to the site.
 2. Worker Certification: Current asbestos worker certifications for personnel to be engaged in the work of this Section. Workers will not be permitted on the project site until the submittal is complete and has been accepted by the Project Manager. Provide the following information for each worker:
 - a. Employee quantitative respirator fit-test records that identify the testing agency, the individual fit test exercise fit factor results, and the overall fit factor result;
 - b. Employee medical approval to wear respirator protection records;
 - c. Current AHERA-certified asbestos contractor supervisor certificate(s) and training for the designated contractor supervisor only;
 - d. Current AHERA-certified asbestos worker certificate(s) and training; and
 - e. Employee picture identification matching names on records. Picture IDs can be photo copies of training cards; however, pictures of employee faces must be viewable vs. dark images from poor quality photo copying.
 3. Subcontractor License: Submit proof of license for asbestos-related contracting from the California Contractors State License Board (CSLB) as required by California Business and Professions Code, Section 7058.5 et.seq.
 4. Subcontractor Registration: Submit proof of registration with the California Division of Occupational Safety and Health (DOSH) for asbestos-related work as required by Title 8 CCR, Sections 341.6 to 341.9.
 5. Carcinogen Registration: Submit proof of carcinogen registration (report of use) with DOSH as required by California Labor Code, Section 9000 et. seq.
 6. Bay Area Air Quality Management District (BAAQMD) Notification: Submit proof of notification made to the BAAQMD, 10 working days prior to asbestos demolition or renovation activities, as required by BAAQMD Regulation 11, Rule 2. Subcontractor shall update and resubmit notifications as needed due to changes in the project schedule or material quantities. The subcontractor shall be responsible for obtaining variances from the BAAQMD as necessary.
 7. Respiratory Protection Program: Submit company's Respiratory Protection Program.
 8. Written record from negative air machine and HEPA vacuum cleaner challenge aerosol testing on the day of the testing.
 9. Per 29 CFR 1926.1101 (f)(5), the subcontractor shall notify their employees of exposure monitoring results within 5 days of receiving the results including both excursion and calculated 8-hour TWA results for all results, not just those results above the PEL or excursion limit.
- D. Closeout / Ongoing Project Submittals
1. Personal air sampling results collected by the asbestos abatement subcontractor for airborne asbestos within 24 hours of sample collection.
 2. Pressure differential recorder readings shall be submitted in written form (i.e., circular chart or other form of print out).
- E. All submittals will be provided to the City of Berkeley three (3) working days prior to mobilization for each individual site job and must be approved prior to work commencing.

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1.04 QUALITY ASSURANCE

A. Qualifications:

1. Qualifications of Subcontractor:
 - a. Work performed under this Section shall be by a single Subcontractor.
 - b. The Subcontractor shall have a minimum of five (5) years experience as an approved asbestos abatement subcontractor. If requested, the Subcontractor shall provide the names and locations of 5 projects of similar size and scope that he has completed within the previous five years.
 - c. The Subcontractor must hold a current and valid asbestos license issued by the California Contractors State Licensing Board (CSLB).
 - d. The Subcontractor must hold a current and valid Certificate of Registration for Asbestos-Related Work issued by the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA).
 - e. The Subcontractor must hold all insurance and bonds as required by other sections of this specification, and maintain as valid and current for the duration of the project.
2. Qualifications of Asbestos Abatement Personnel:
 - a. All work shall be completed utilizing fully qualified persons who are trained, experienced, and knowledgeable in the proper techniques and procedures for asbestos abatement activities covered by this Section.
 - b. Asbestos Workers: All workers performing asbestos related work shall be currently certified as AHERA asbestos workers.
 - c. Asbestos in Construction Contractor Supervisor: Currently certified as an AHERA Asbestos Contractor Supervisor.
3. Qualifications of Analytical Laboratory:
 - a. The subcontractor shall submit asbestos air samples to an analytical laboratory that is accredited by the American Industrial Hygiene Association's (AIHA) Industrial Hygiene Laboratory Accreditation Program (IHLAP). The subcontractor shall choose another AIHA accredited lab if their current AIHA accredited lab does not maintain accreditation throughout the duration of this project.

B. Regulatory Requirements: All asbestos removal work shall be performed in accordance with requirements of Federal, state, and local regulations as follows:

1. Federal Regulations:
 - a. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA):
 - 1) Asbestos Standard: Title 29, Part 1910, Section 1001
 - 2) Respiratory Protection: Title 29, Part 1910, Section 134
 - 3) Construction Industry: Title 29, Part 1926, Section 1101
 - 4) Hazard Communication: Title 29, Part 1910, Section 1200
 - b. U.S. Environmental Protection Agency (EPA):
 - 1) Resource Conservation and Recovery Act (RCRA):
 - (a) Title 40, Part 260 to 265
 - (b) U.S. Department of Energy 10 CFR 851 Worker Protection Rule
2. U.S. Environmental Protection Agency (EPA):
 - a. Worker Protection Rule
 - 1) 40 CFR Part 763, Subpart G

- 2) CPTS 62044, FLR 2843-9
- 3) Federal Register, Vol. 50, No. 134, 7/12/85
- 4) P28530-28540
- b. Regulation for General Industry:
 - 1) Title 40, Part 61, Subpart A of the Code of Federal Regulations
- c. National Emissions Standard for Hazardous Air Pollutants (Asbestos):
 - 1) Title 40, Part 61, Subpart M of the Code of Federal Regulations including Asbestos NESHAP Revision; Final Rule, Federal Register; Tuesday, November 20, 1990.
- d. Asbestos Hazard Emergency Response Act: Final Rule:
 - 1) Title 40, Part 763, Subpart E of the Code of Federal Regulations.
3. State and Local Regulations: Abide by all State and local regulations which govern asbestos abatement work or storage of asbestos waste materials:
 - a. Asbestos in General Industry:
 - 1) Title 8, Section 5208, of the California Code of Regulations.
 - b. Asbestos in the Construction Industry:
 - 1) Title 8, Section 1529, of the California Code of Regulations.
 - c. Respiratory Protection:
 - 1) Title 8, Section 5144, of the California Code of Regulations.
 - d. Medical and Environmental Records
 - 1) Title 8, Section 3204, of the California Code of Regulations
 - e. Registration and Permits
 - 1) Title 8, Section 341, of the California Code of Regulations
4. Bay Area Air Quality Management District (BAAQMD):
 - a. Regulation 11 Rule 2
- C. Pre-Construction Meeting: At least one week before work commences, a pre-construction meeting shall be held at a location designated by the City of Berkeley's Project Manager. Attendees shall include the City's Project Manager, Construction Manager, Superintendent, Safety Inspector, and Building Inspector; the Subcontractor's Project Superintendent and Abatement Superintendent; and others as necessary. The agenda shall include a review of project safety requirements, the Subcontractor's written asbestos compliance work plan, emergency contacts and notification plan, containment and work area design, facility requirements, submittals, and any other issues pertinent to the safe execution of the asbestos abatement work.
 1. Work shall not commence until all required submittals and plans have been approved by the City of Berkeley.

1.05 PROJECT CONDITIONS

A. Existing Conditions:

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1. Building materials that contain asbestos are known to be present at the Project site. Building materials that have not been previously tested, that may be affected by the project scope, should be assumed to contain asbestos and handled according to this section. [See Acumen Industrial Hygiene report # COB 2125].
 - a. If any other materials are found which are suspected of containing asbestos or other hazardous materials, immediately stop work in the affected area and notify the City of Berkeley’s Project Manager. Handle suspected asbestos containing material according to this section.
 - b. Acumen report lists suspected asbestos containing materials that were not tested in the “Assumed Asbestos Containing Materials” section. It is the responsibility of the Subcontractor to test these materials before commencing work and provide test results to the City of Berkeley’s Project Manager. Removal of all asbestos containing materials impacted by the proposed work scope will be in the abatement scope and identified in the “Work Plan”.
2. The City of Berkeley will not occupy adjacent areas during the course of the Work.
3. The abatement subcontractor is responsible for notifying other subcontractors in writing regarding asbestos work per OSHA requirements (29 CFR 1926.1101).

PART 2 PRODUCTS

2.01 MATERIALS

- A. Plastic Sheeting: Fire retardant polyethylene sheeting conforming to NFPA 701 and ASTM S502-74T for surface flammability and smoke density. A single polyethylene film in the largest sheet size possible to minimize seams, 6 mils thick, clear, frosted or black as indicated.
- B. Duct Tape: Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to polyethylene sheeting.
- C. Spray Adhesive: Shall not contain methylene chloride, as listed on the product's label and/or Material Safety Data Sheet (MSDS). Provide spray adhesive in aerosol cans that is specifically formulated to stick aggressively to polyethylene sheeting.
- D. Disposal Bags: 6-mil polyethylene.
- E. Asbestos-Containing Materials Disposal Containers: Leak-tight drums procured by abatement subcontractor.
- F. Detergent: High-phosphate wash containing at least 5% trisodium phosphate (TSP).

2.02 EQUIPMENT

- A. Clothing: Furnish the following for each worker and others as specified.
 1. Coveralls:
 - a. Disposable full-body coveralls with attached head and foot covers conforming to requirements of OSHA Standards 29 CFR 1926.1101.
 2. Respirators:
 - a. Full facepiece negative pressure respirators with an assigned protection factor of 50X the PEL, or equivalent, for asbestos related work.
 - b. Respirators shall be equipped with HEPA (P-100) Filters.
 - c. Powered Air Purifying Respirators (PAPRs) with protection factors of 50X that have been quantitatively fit tested and equipped with HEPA (P-100) filters shall be acceptable substitutes for the respirator specified in 2.02(A)(2)(a) and must be worn for Class 1 work involving TSI or surfacing materials.

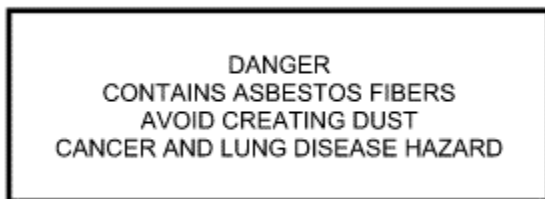
- 3. Goggles, safety glasses, face shields: Provide eye and face protection as required by OSHA.
 - 4. Gloves:
 - a. Leather work gloves.
 - b. Compatible chemical resistant gloves for asbestos removal/solvent products.
 - 5. Boots: Steel toed foot protective work boots with non-skid soles and steel shanks.
 - 6. Hard Hats: Head protection (hard hats) approved by ANSI.
 - 7. Soap and Towels.
- B. Industrial Grade Vacuum and Negative Air Machines: High Efficiency Particulate Air (HEPA) filtered vacuum and negative air machines with appropriate HEPA filters and prefilters. Household type HEPA vacuum cleaners shall not be acceptable. Provide one spare negative air machine per work area at all times. Spare negative air machines shall be of the same size and capacity as the largest operating units onsite.
- C. Pressure differential recorders shall be in working condition, calibrated and operated continuously during the operation of the negative pressure enclosure and provide a pressure reading at least every 10 minutes, or more frequent.
- D. Temporary Shower Facility: A pre-fabricated or site-built temporary shower facility, with hot and cold water to shower head that can be controlled from inside shower, shall be installed and used by all workers.

PART 3 EXECUTION

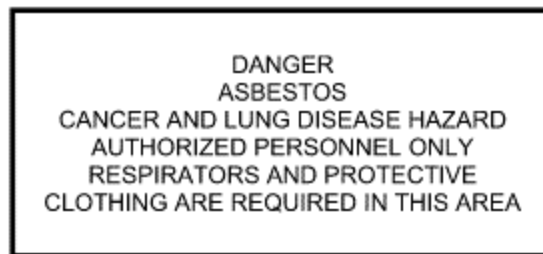
3.01 PROTECTION

A. General:

- 1. Take appropriate continuous measures as necessary to protect all building occupants from exposure to asbestos fibers. Such measures shall include the procedures and methods described herein, and shall be in accordance with regulations and guidelines of applicable Federal, State, and local agencies.
- 2. Securing the Work Area: Secure the work area from access by the public, occupants, staff, or users of the building.
 - a. Provide and maintain temporary partitions to prevent spread of dust, fumes, odors, and noise to permit continued City occupancy.
 - b. Demarcate the regulated work area, as required by OSHA regulation 29 CFR 1926.1101, by posting warning signs at each locked door and at the entrance to the change room leading to the regulated area as follows:



- c. Provide labels affixed to all asbestos waste containers, as required by OSHA regulation 29 CFR 1926.1101, as follows:



3. Do not block, or reduce width, of egress to exits.
 4. Conduct operations with minimum interference to corridors, exits, and public thoroughfares.
 5. Path of travel for debris removal shall be maintained dust free and clean at all times.
 6. Cover and protect windows, doors, and walls that are adjacent to asbestos work areas.
 7. Water used during this project shall be collected and prevented from entering storm water drains.
 8. Eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics is prohibited in the work area.
- B. Personnel:
1. Asbestos Contractor Supervisor (Competent Person):
 - a. Provide an on-site, full-time Asbestos in Construction Supervisor (or Supervisors) to ensure that the worker protection program and engineering controls are effective. The Supervisor is also responsible for understanding City of Berkeley and Alameda County waste management policies.
 2. Asbestos Workers: The Subcontractor shall communicate information concerning asbestos hazards according to the requirements of the Hazard Communication Standard (29 CFR 1910.1200), including but not limited to the requirements concerning warning signs and labels, material safety data sheets (MSDS), and employee information and training.
 3. Respiratory Protection Program: Comply with ANSI Z88.2 - 1992 "Practices for Respiratory Protection" and OSHA 29 CFR 1926.62.
 - a. Require that respiratory protection be used at all times when there is any possibility of disturbance of asbestos containing material.
 - b. Down grading respiratory protection to a lower level protection factor is not allowed even with objective data to support the down grade.
 4. Protective Clothing:
 - a. The following clothing shall be worn by all asbestos workers in the work area.
 - 1) Disposable Coveralls with head and shoe covers (except for welders): Provide a sufficient number for all required changes for all workers in the work area. Dispose of coveralls as clothing waste at the end of each day.
 - 2) Gloves: Chemical resistant gloves shall be used when using solvents to remove mastic material. Gloves shall be secured to coveralls using duct tape to protect arms and hands. Do not remove gloves from the work area.
 - 3) Goggles, safety glasses, or face shields: Shall be worn by all workers involved in scraping, spraying, stripping, or any other activity that may potentially cause eye or face injury.

5. Temporary Shower Facilities: Shall be used in accordance with subsection 2.02 (C) and subsection 3.08 (C) of this section.

3.02 GENERAL

PROCEDURES A.

Containment Systems:

1. If at any time during the course of the work visual emissions are detected, the Subcontractor shall immediately stop work, correct the condition(s) causing the emission, and notify the City of Berkeley's Project Manager.
2. In case of inclement weather, such as high winds or rain, which may jeopardize the containment system, immediately secure the work area and stop work until weather conditions improve.

3.03 WORK AREA PROCEDURES

- A. No visitors shall be allowed in work area, except as authorized by the City of Berkeley's Project Manager.
- B. Provide workers with sufficient sets of disposable protective full-body clothing. Such clothing shall consist of full-body coveralls, footwear, and head gear as one-piece coveralls. Provide eye protection and hard hats as required by applicable safety regulations. Reusable type protective clothing and footwear intended for reuse shall be left in the Contaminated Equipment Room until the end of the asbestos abatement work at which time such items shall be disposed of as asbestos waste. Disposable clothing shall not be allowed to accumulate and shall be disposed of as contaminated waste.
- C. Do not enter occupied building areas while wearing either new or contaminated disposable coveralls or respirators. Provide a visual barrier between the asbestos related work area and occupied areas.
- D. Provide additional make-up air openings as necessary to effectively move air through the work area and to avoid creating too high a pressure differential that would jeopardize the integrity of the enclosure system. Provide self-closing polyethylene flaps over the openings to prevent backflow of air from the contained area to the outside.
- E. Vent all exhaust units to the outside of the building. Provide flexible or rigid duct as necessary to provide exterior venting and proper location of exhaust units. Ducts shall be completely sealed, in good repair, and protected from possible damage within the work area. "Make-shift" type ducting made from poly and spray glue will not be acceptable. New ducting shall be used for each new containment system. F. After asbestos removal has begun, maintain operation of exhaust units continuously to maintain a constant negative pressure until final clearance results are achieved. Do not turn units off at the end of the work shift or when removal operations temporarily stop. Ensure arrangements are made with subcontractor employees to visit and make repairs to the NPE during after hours or on weekends as necessary.

3.04 ASBESTOS REMOVAL PROCEDURES

- A. Asbestos removal: Remove asbestos containing material as described in the contractor's asbestos compliance work plan prior to disturbing the substrate. Modifications to this plan shall be reviewed and approved by the City of Berkeley's Project Manager prior to work continuing.
 1. Prohibited Asbestos Removal Methods:

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- a. Removing mastic material with methylene chloride-based products
 - b. Uncontained abrasive blasting
 - c. Uncontained power washing
 - d. Dry sanding or scraping
 - e. Power sanding without HEPA attachment
- B. Asbestos abatement operations shall include all tasks necessary for the proper and complete abatement of the materials in the scope of work. Tasks include, but are not limited to, the following:
- 1. Preparation of work areas, including pre-cleaning, isolation of HVAC equipment, establishment of critical barriers and isolation barriers, establishment of negative pressure enclosures as needed, protection of building equipment, life safety systems, and electrical equipment and systems.
 - 2. Providing water and waste services to work areas, including hot and cold-water supply for abatement-related work, and proper filtering of wastewater for disposal.
 - 3. Maintaining adequate negative air pressure (minimum of - 0.02”w.g) and at least four air changes per hour as needed.
 - 4. Protecting and maintaining active, as applicable, all life safety systems and building equipment operation.
 - 5. Removing asbestos-containing materials and decontamination of asbestos-contaminated surfaces, equipment, and areas.
 - 6. Encapsulating asbestos-containing materials and/or surfaces possibly contaminated with asbestos fibers, using penetrating and/or bridging encapsulants.
 - 7. Proper storage of asbestos-containing waste, including packaging and labeling. Once a full 55-gal drum of friable asbestos waste is generated, it must be moved into a 90-day Hazardous Waste Accumulation Area (WAA) within three days.
 - 8. Cleaning work areas and surfaces as necessary to achieve acceptance by final visual inspection and final clearance air monitoring.
 - 9. Coordinating work with other Subcontractors, City crews, staff, inspectors, and representatives.
 - 10. Upon completion of all work area preparation, and not less than four hours before abatement work is to begin, notify the City’s Project Manager that the work area is ready for inspection.
 - 11. The Subcontractor shall not begin abatement work until the City’s Industrial Hygienist has inspected the area and deficiencies have been corrected.
- C. Waste Disposal: HEPA vacuum and/or wet wipe to remove all asbestos or contaminated debris generated during the work. Do not allow asbestos material to accumulate. Place all asbestos containing material and contaminated debris in properly labeled plastic disposal bags at the end of each shift. This waste must be labeled and disposed of off site in accordance with Alameda County protocols and guidelines.

3.05 FIELD QUALITY CONTROL

A. Site Tests:

- 1. Respiratory protective equipment shall be quantitatively fit tested, including PAPR units. Qualitative fit test using irritant smoke tests or other qualitative test methods shall not be acceptable.
- 2. All HEPA vacuums and negative air machines (including spare negative air machines) shall be challenge tested, by emery oil aerosol or equivalent, and certified as in "passing"

condition prior to work commencing. Negative air machines and HEPA vacuums shall be tested every three months, and immediately after changing HEPA filters, and remain onsite during the duration of the project. HEPA vacuums and negative air machines shall not be used after changing HEPA filters until they have been tested by a challenge aerosol.

B. Inspection (Asbestos Air Monitoring):

1. Personal Exposure Monitoring Results: Subcontractor shall provide personal air monitoring of its employees, in accordance with requirements of 29 CFR 1926.1101. Per 1.05 (A)(3)(a) of this section, the Subcontractor shall submit air samples to an analytical laboratory accredited by the American Industrial Hygiene Association (AIHA) for analysis by Phase Contrast Microscopy (PCM) per NIOSH method 7400.
 - a The personal air monitoring data shall include the employee's name, date of monitoring, task(s) performed, employees represented by the monitoring, analytical result, and time-weighted average exposure.
 - b The analytical lab results shall be submitted to the City's Project Manager within 24 hours of sample collection.

3.06 CLEANING

A. Daily Cleaning: Thoroughly clean the entire area under active asbestos disturbance at the end of each workday.

1. At end of work shift remove any asbestos containing material or debris by using a HEPA vacuum or by spraying with wet wash solution, collect debris with wet paper towels or equivalent, place in disposal bag while still wet, and clean surface of plastic sheets with wet paper towels or equivalent.
2. Exterior Cleanup:
 - a. Examine immediate area to ensure that no asbestos debris has escaped containment. Debris shall be placed in double plastic bags, sealed and stored with other contaminated debris.

3.07 PROJECT CLEARANCE

- A. Upon completion of asbestos removal, placement of removed asbestos material and debris per City of Berkeley and County of Alameda hazardous waste disposal protocols and final HEPA vacuuming of surfaces, notify the City's Project Manager that the abatement area is ready for post abatement visual inspection.
- B. The work area shall have passed post abatement visual inspection prior to post removal encapsulation. Negative air must continue to run and workers must remain in specified respiratory protection.
- C. An approved encapsulant shall be applied, using airless spraying equipment, to all areas of the project where asbestos-containing materials have been removed. Encapsulants shall be colored for ready visibility.
- D. Upon completion of encapsulation of surfaces from which asbestos has been removed (allowing for at least two hours for encapsulant to dry), the Subcontractor shall inform the City's Project Manager that the area is ready for clearance monitoring.

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- E. The Subcontractor shall not tear down / remove the negative pressure enclosure or negative air machines until verbal notice has been given to the Subcontractor by the City's Project Manager.

3.08 STORAGE OF WASTE MATERIALS

- A. Waste Evaluation: The materials collected from the cleaning operations must be evaluated to determine if the materials are hazardous and require special handling. The Subcontractor is responsible for segregating waste as it is generated and labeling all waste containers appropriately. Stored waste must be labeled with the accumulation date, type of waste, and area from which it was generated. All materials are to be contained in one of the following:
 - 1. Two properly sealed 6-mil disposal bags labeled with a hazardous waste label in addition to the required OSHA specified asbestos warning label.
 - 2. Wrapped in 6-mil polyethylene sheeting and sealed with duct tape. Wrapped waste must be properly labeled with as hazardous waste label in addition to the required OSHA specified asbestos warning label.
- B. If a dumpster is to be located on site for the duration of the project, arrange location of the dumpster with the Project Manager.
 - 1. Do not store containerized materials outside of the work area. Take containers from the work area directly to an approved disposal site. All open dumpsters are prohibited for any construction debris. Take special care in transporting the waste materials from the location of generation to the disposal facility.
- C. Treatment and Testing of Project Waste Water: The handling and treatment of project waste water must conform with all State and local regulations. Project waste water includes shower water and waste water from cleaning operations.
 - 1. The Subcontractor shall not discharge waste water containing asbestos into a community sanitary sewer as per the requirements of the San Francisco Bay Basin Water Quality Control Plan. All waste water shall be discharged into a sanitary filter. Do not discharge any waste water on ground or soil. Filter water as necessary to meet local requirements.
 - 2. Waste water containing asbestos, including drainage from decontamination showers, shall be filtered in accordance with the following requirements prior to introduction into the sanitary sewer system.
 - a. Filter water using four in-line filter cartridges with 2" inlets and outlets. The outlet of each filter cartridge shall be connected in series to the inlet of the next cartridge. The first cartridge shall contain 100 µm prefilters and the second and third cartridge shall contain 25 µm filters and the final cartridge shall contain 5 µm filters.
 - b. Spare filters of all three sizes shall be maintained at the site at all times to replace prefilters during cleaning.
 - c. When the prefilters become clogged, replace with spares, store accumulated debris as contaminated waste receptacles for disposal at an approved facility, and wash out the prefilters in the shower, allowing the drainage from the cleaning operation to go through the filtration system.
 - d. Provide a holding tank for contaminated wastewater as required to prevent backup of water into shower when the amount of water generated exceeds the flow rate of the filters.

END OF SECTION 02 82 00

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SECTION 02 82 01
ASBESTOS ABATEMENT
WORK PLAN

ATTACHMENT A - ASBESTOS COMPLIANCE WORK PLAN OUTLINE

IN ACCORDANCE THE CITY OF BERKELEY AND COUNTY OF ALAMEDA'S ABATEMENT SPECIFICATIONS, THE SUBCONTRACTOR IS REQUIRED TO PREPARE A WRITTEN (TYPED OR WORD-PROCESSED), SITE-SPECIFIC ASBESTOS WORK PLAN, AND SUBMIT TO THE CITY PRIOR TO START OF WORK. THIS PLAN IS REQUIRED FOR THE SUBCONTRACTOR TO MEET OSHA REQUIREMENTS AS WELL AS THE PROJECT SPECIFICATIONS AND SHALL DESCRIBE WORK PROCEDURES AND CONTROL METHODS THAT WILL PROTECT CITY OF BERKELEY'S FACILITIES AND CITIZENS.

THE SUBCONTRACTOR SHALL PREPARE THE ASBESTOS WORK PLAN TO INCLUDE, AT A MINIMUM, THE FOLLOWING INFORMATION:

2.01 LOCATION OF WORK:

- A. The work to be completed under this Asbestos Work Plan will be completed at:
1. Berkeley Corporation Yard, Building "B", "Green Room"
 2. 1326 Allston Way
 3. Berkeley, California, 94702
- B. Previous hazardous materials inspections or surveys have found that asbestos-containing and lead-containing materials are present at the following locations:
1. (list all materials and locations, to assure the City of Berkeley that the Subcontractor is aware of all hazardous materials locations)
- C. The presence of asbestos represents a hazard to workers who may disturb these materials during the course of this work.

2.02 DESCRIPTION OF WORK:

- A. Describe the anticipated work scope, including:
- B. Removal (list materials and locations)
- C. Encapsulation (list materials and locations)
- D. Repair (list materials and locations)
- E. Decontamination (list materials and locations)
- F. Any other activities that will or may result in worker exposures to asbestos.

2.03 SCHEDULE:

- A. General
1. Start Date:
 2. Completion Date:

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3. The competent person [], will conduct worksite visual inspections on a daily basis, or more often as necessary.

B. Phase Dates

- 1 Phase/Task Anticipated Date(s)
- 2 Mobilization
- 3 Setup of work area(s), containments, other
- 4 Removal/repair/other abatement
- 5 Final cleaning
- 6 Visual Inspection
- 7 Final clearance (visual and air sampling)
- 8 Teardown
- 9 Demobilization

2.04 EQUIPMENT AND MATERIALS:

- A. List all equipment and materials to be used, such as the following. List trade names or types where known.

1. HEPA vacuums
2. scrapers
3. power saws
4. hammers
5. screwdrivers
6. pry bars
7. cutting shears
8. other hand tools
9. negative air filtration units
10. manometers
11. shower facilities
12. airless sprayers/compressors
13. cleaning detergents
14. solvents (must be approved by City of Berkeley)
15. paints/sealants/encapsulants (must be approved by City of Berkeley)
16. rollers/brushes
17. butyl rubber gloves
18. disposable coveralls
19. respiratory protection
20. cotton work gloves 21. leather work gloves

2.05 CREW:

- A. List all workers and supervisors, with emergency contact names and pagers.
- B. Clearly identify the supervisor and competent person who has authority for all safety and health.

2.06 CONTROL MEASURES AND WORK PROCEDURES:

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- A. Describe, in a narrative format, specific work procedures, exposure/contamination controls, and engineering controls. This description should include, but not be limited to, the following types of information:
- B. OSHA Class I, II, III, IV
- C. Negative pressure enclosure
- D. Wet methods
- E. Glovebagging
- F. Respiratory Protection
- G. HEPA vacuums
- H. Containment (polyethylene barriers) without negative pressure
- I. Solvent removal of mastic J. Other procedures (list)

2.7 RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING/PERSONAL PROTECTIVE EQUIPMENT:

- A. List all respiratory protection, including types and manufacturers, which are anticipated for this project. Identify the phases of the project for which respirators will be required or likely to be required.
- B. List all personal protective equipment anticipated to be used on the project.

2.8 DECONTAMINATION/HYGIENE FACILITIES

- a. Identify the types and locations of decontamination or hygiene facilities to be used on this project. Specify use of disposable towels, soap, hot and cold water, and other supplies, all to be provided by the Subcontractor.
- b. Specify the required use of the facilities, including use of the facilities prior to eating, drinking, and smoking, and before leaving the project site.
- c. Describe handling or treatment of asbestos-contaminated solid waste and wastewater.

2.9 AIR MONITORING DATA:

- A. Identify general worker air monitoring protocol to be followed on this project, including worker category classifications, frequency of monitoring, anticipated laboratory to be used for sample analysis, and how pumps are calibrated and worn by employees. Identify competent person who will oversee Subcontractor's air monitoring.

2.10 WORKER TRAINING AND QUALIFICATIONS:

- A. Provide the Subcontractor's worker documents as an attachment to the Asbestos Work Plan. Include each worker's current AHERA training records, respiratory protection training and fit-testing certification, and asbestos and respiratory protection medical clearances.

2.11 NOTIFICATION:

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- A. Describe all arrangements made on multi-employer work sites to inform affected employers about the asbestos project. Attach copies of any notifications.

2.12 CONTAINMENT DIAGRAM:

- A. Include a diagram (either neatly and legibly hand-drawn, or generated on a word processor or CAD program) of the containment showing the containment perimeter in relation to surrounding areas, locations of negative air machines, direction of air flow, decontamination chamber, bag out area, exhaust points to exterior of building, etc.

2.13 WASTE:

- A. Describe how all waste generated on this project will be packaged, labeled, and stored. Describe means for off-site transport, manifest, disposal arrangements for all hazardous waste.

2.14 PREPARATION OF ASBESTOS

- A. Date Prepared:
- B. Prepared By (signature, name, and title)

END OF SECTION 02 82 01

SECTION 03 35 11 - CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface treatments for concrete floors and slabs.

1.02 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with installation of new structural tubes, electrical slab penetrations, and new heating system.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.
- B. Maintenance Data: Provide data on maintenance and renewal of applied finishes.
- C. Qualification Data: For firms indicated in "Quality Assurance" Article, including lists of completed projects with project names and addresses, names and addresses of architects, owners, and other information specified.

1.04 MOCK-UP

- A. Mock-Up Size: 100 feet square.
- B. Locate where directed.
- C. Mock-up may remain as part of the work.

1.05 QUALITY ASSURANCE

- A. Polisher Qualifications:
 - 1. Experience: Company experienced in performing specified work similar in design, products, and extent to scope of this Project; with a record of successful in-service performance; and with sufficient production capability, facilities, and personnel to produce specified work.
 - a. Supervision: Maintain competent supervisor who is at Project during times specified work is in progress, and is currently certified as Craftsman or Master Craftsman by CPAA.
 - b. Manufacturer Qualification: Approved by manufacturer to apply liquid applied products.
- B. Dynamic coefficient of friction of 0.43 or higher using the ANSI B101.3.
- C. Walkway Auditor: Certified by NFSI to test polished floors for dynamic coefficient of friction according to ANSI/NFSI B101.3.
- D. Liquid Surface Treatment Applicator Qualifications:
 - 1. Provide letter of certification from manufacturer stating that the applicator is an approved applicator of the product system, is in good standing, and is familiar with the proper manufacturer's procedures and installation requirements.
 - 2. Provide a list of a minimum of 5 projects performed of similar type, size and complexity.
- E. Ensure slab surface is protected from equipment scrapes, impact abrasions, etc.
- F. Source Limitations: Obtain each specified material from one source and from a single manufacturer.
- G. Single Source Responsibility: Provide required material complete, produced by the same manufacturer.
- H. Mockups: Before finishing concrete floors designated for polishing, build mockups to verify selections made under sample submittals and to demonstrate typical joints, surface finish, texture, tolerances, and standard of fabrication and installation. Build mockups to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups of 100 square feet in size in a room as directed by Architect.

2. Build mockups of typical concrete slab area including polishing and joints.
 3. Polish concrete to demonstrate finished result obtainable without staining.
 - a. Polish up to specified finish grit.
 - b. Interrupt polishing after completion of 400 grit polish to allow evaluation of gloss level prior to proceeding to specified finish grit.
 4. Demonstrate preparation, cleaning, and protecting of concrete, finishes, cracks, and contraction joints, as applicable.
 5. Produce mock up with the same workers who will polish the concrete.
 6. In presence of Architect, damage part of the exposed-face surface for each finish, color, and texture, and demonstrate materials and techniques proposed for repair of damage and surface blemishes to match adjacent undamaged surfaces.
 - a. Include an area that has been damaged and repaired.
 7. Obtain Architect's approval of mockups before proceeding with finishing concrete floors.
- I. Mockup may be placed as part of the final construction of the project, but must be removed and replaced if rejected as a sample. Sample will serve as the standard for the balance of the work and shall be protected against damage until final approval of the entire installation.

1.06 PRE-INSTALLATION CONFERENCE

- A. Pre-Installation Conference: Prior to initiating concrete floor polishing operations, conduct conference at Project site.
1. Required Attendees:
 - a. Owner.
 - b. Architect.
 - c. Contractor, including supervisor.
 - d. Concrete finisher and his foreman.
 - e. Concrete polisher and his foreman.
 - f. Technical representative of liquid applied product manufacturers.
 - g. Walkway auditor.
 2. Determine at what stage in construction floors are to be finished.
 3. Review patching requirements and relationship to polishing operations for existing floor penetrations.
 4. Review procedures, materials, techniques, and coordinate related work and shutdowns.
 - a. Tour mock-up and representative areas of required work, discuss and evaluate for compliance with Contract Documents, including substrate conditions, surface preparations, sequence of procedures, and other preparatory work performed by other installers.
 - b. Review Contract Document requirements.
 - c. Review approved submittals.
 - d. Review procedures, including, but not limited to:
 - 1) Details of each step of grinding, honing, and polishing operations.
 - 2) Application of liquid applied products and stage in the polishing operations they should be applied.
 - 3) Protecting concrete floor surfaces until polishing work begins.
 - 4) Protecting polished concrete floors after polishing work is completed.
- B. Reports: Record discussions, including decisions and agreements reached, and furnish copy of record to each party attending.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver the specified products in original, unopened containers with legible manufacturer's identification and information.
- B. Store specified products in conditions recommended by the manufacturer.
- C. Deliver materials in manufacturer's original containers, with seals unbroken, bearing manufacturer's labels indicating brand name, batch/lot numbers and directions for storage.

- D. Dispense special concrete finish materials from factory numbered and sealed containers. Maintain record of batch/lot numbers.
- E. Submit record of batch/lot numbers to liquid surface treatment manufacturer for validation and issuance of warranties at the conclusion of the applications.

1.08 SITE CONDITIONS

- A. Coordinate the work so as not to delay other work in progress.
- B. Maintain the immediate work areas clear of other trades, pedestrian traffic and disturbances immediately prior to and during polishing operations.
- C. Control and collect dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.
- D. Provide dustproof partitions and temporary enclosures to limit dust migration and to isolate areas from noise.
- E. Damage and Stain Prevention: Take precautions to prevent damage and staining of concrete surfaces to be polished.
 - 1. Inspect and Diaper all hydraulic powered equipment to avoid staining of the concrete.
 - a. Ensure vehicles and equipment used on slabs have tires that will not leave marks.
 - 2. Prohibit vehicle parking over concrete surfaces to be polished.
 - a. If necessary to complete their scope of work, place drop cloths under vehicles at all times.
 - 3. Prohibit pipe cutting and threading operations over concrete surfaces to be polished.
 - 4. Prohibit ferrous metals storage over concrete surfaces to be polished.
 - 5. Protect from petroleum, oil, hydraulic fluid, or other liquid dripping from equipment working over concrete surfaces to be polished.
 - 6. Protect from acids and acidic detergents contacting concrete surfaces to be polished.
 - 7. Protect from painting activities over concrete surfaces to be polished.
- F. Close areas to traffic during polishing operations and, after completion of polishing, for time period recommended in writing by manufacturer.
- G. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting liquid applied product application.
 - 1. Dispose of used or diluted liquid surface treatment chemicals and wash water according to applicable Governmental standards.
- H. Protection: Precautions shall be taken to avoid damage or contamination of any surfaces near the work zone.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Improve performance of floor by installation of polished concrete floor system as measured by the following criteria:
 - 1. Dynamic Coefficient of Friction: Achieve the following for level floor surfaces as determined by quality control testing using a digital, calibrated tribometer slip resistance tester according to ANSI/NFSI B101.3, "wet dynamic COF standard".
 - a. Dynamic coefficient of friction of 0.43 or higher using the ANSI B101.3 test procedure
 - b. Test on the mock-up and continuously per NFSI and ISCS guidelines.
 - c. Tribometer validation reports per ASTM F2509-2011 to be provided.
 - d. Readings to be taken and documented for the Owner by a certified NFSI walkway auditor.
 - 2. Specular Gloss/Reflectance, ASTM D 523:
 - a. 20 Degrees: 3.66 degrees.
 - b. 60 Degrees: 23.7 degrees.

- c. 85 Degrees: 30.6 degrees.
- 3. Floor Surface Profile, ASTM E 1155:
 - a. Floor Flatness Number (FF): 50.
 - b. Floor Levelness Number (FL): 35.

2.02 MANUFACTURERS

- A. Basis-of-Design Product: The design for the floor polishing system is based on the manufacturer identified below. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
 - 1. Basis-of-Design: Advanced Floor Products, RetroPlate.
 - 2. L & M Construction Chemicals, PermaShine.
 - 3. PROSOCO, Inc., Consolideck.

2.03 EQUIPMENT

- A. Field Grinding and Polishing Equipment:
 - 1. Variable speed, machine with planetary/counter rotating concrete grinding heads, walk-behind machine with not less than 600 pounds of down pressure on grinding or diamond polishing pads.
 - 2. If dry grinding, honing, or polishing, use dust extraction equipment with flow rate suitable for dust generated, with squeegee attachments.
 - a. Areas over 6,000 square feet are considered large projects and machines with a 32 inch grinding area are recommended. Smaller project recommend a heavy 21 inch or comparable planetary/counter rotating head machine.
 - 3. Edge Grinding and Polishing Equipment: Hand-held or walk-behind machines which produces same results, without noticeable differences, as field grinding and polishing equipment.
- B. Burnishing Equipment: High speed walk-behind or ride-on machines capable of generating 1000 to 2000 revolutions per minute and with sufficient head pressure of not less than 20 pounds to raise floor temperature by 20 degrees F.
- C. Metal Bonded Pads: Grinding pads with embedded industrial grade diamonds of varying grits fabricated for mounting on equipment.
- D. Resin Bonded Pads: Polishing pads with embedded industrial grade diamonds of varying grits fabricated for mounting on equipment.
- E. Burnishing Pads: Maintenance pads for use with high speed burnishing equipment.

2.04 POLISHING MATERIALS

- A. Liquid Densifier: Odorless, non-hazardous, silicate that penetrates concrete to react with free lime and calcium hydroxide to produce permanent chemical reaction that hardens and densifies concrete surface.
 - 1. Use materials that have maximum VOC content of 100 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Grout Material: Clear modified silicate sealant, containing no pore clogging latex, when mixed with dust salvaged from grinding process forms a paste that reacts with calcium hydroxide in concrete that hardens when surface imperfections are filled.
- C. Polish Guard: Non-film forming, stain resistant, food resistant, chemical stain resistant, impregnating sealant designed to be used on concrete surfaces previously densified.
- D. Protective Cover: Non-woven, puncture and tear resistant, polypropylene fibers laminated with a multi-ply, textured membrane, not less than 18 mils in thickness.
- E. Water: Potable.

2.05 INTEGRAL CONCRETE COLOR MATERIAL

- A. Integral Color: Iron oxide pigments by one of the following:
 - 1. Davis Colors Colored Additives for Integrally Colored Concrete.

2. Solomon Colors SGS Integral Colors for Ready Mix Concrete.
- B. Dry Powder Iron Oxide Pigments: ASTM C979; natural and synthetic, milled, blended iron oxide in dry powder form, and having the following characteristics:
 1. Produce uniform and consistent color.
 2. Permanent, inert, stable to atmospheric conditions, sunfast, weather resistant, alkali resistant, water insoluble, lime proof, and nonbleeding.
 3. Free of deleterious fillers and extenders.
 4. Free of admixtures.
 5. Particle Size: 95 to 99 percent minus 325 mesh.
 6. Color additives containing carbon black are only acceptable where required to achieve 'lamp black' colored concrete and as approved under mockup review.

PART 3 EXECUTION

3.01 EXAMINATION, GENERAL

- A. Verification of Conditions: Examine areas and conditions under which work will be performed and identify conditions detrimental to proper and timely completion of work. Do not proceed until unsatisfactory conditions have been corrected
- B. Remove coatings, water repellents, previously applied adhesives, and curing membranes by sandblasting; small spots of paint may be removed with a scraper and a commercial paint stripper.
- C. Do not use acid washing as a cleaning procedure.

3.02 EXAMINATION FOR POLISHING

- A. Acceptance of Surfaces and Conditions:
 1. Examine substrates to be polished for compliance with requirements and other conditions affecting performance.
 2. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents.
 3. Starting work within a particular area will be construed as acceptance of surface conditions.

3.03 PREPARATION FOR POLISHING

- A. Correct cracks and abrupt changes in surface profile. Remove fins and projections.
- B. Remove all curing compounds and sealers.
- C. Examine slab surface prior to starting work, with liquid surface treatment applicator present, for any conditions affecting the Applicator's ability to properly apply the liquid surface treatment. Do not proceed until unsatisfactory conditions are corrected.
- D. Prior to application, verify that floor surfaces are free of laitance.
- E. Do not allow vehicular traffic on the slab.
- F. Report in writing surfaces left in improper condition by other trades.
- G. Commencement of finishing procedures will constitute applicators acceptance of conditions.

3.04 POLISHING

- A. Sequence of Polishing: Perform polishing after partition studs are erected, but before gypsum board is installed.
- B. Examination and Preparation:
 1. Immediately prior to starting work, verify that surfaces conform to product manufacturer's requirements for substrate conditions.
 2. Vacuum and clean saw cut joints and surrounding area so that no dust remains to react with liquid surface treatment material.

3. Prior to application, verify floor is free of latent salts, curing membrane, bond- breaker, laitance and any other residues that are detrimental to achieving surface appearance requirements.
 4. Beginning of liquid surface treatment application indicates acceptance of existing conditions.
- C. Treating Surface Imperfections:
1. Mix patching compound and grout material with dust created by grinding operations to match color of adjacent concrete surface.
 2. Fill surface imperfections including, but not limited to, holes, surface damage, small and micro cracks, air holes, pop-outs, and voids.
 3. Work compound and treatment until color differences between concrete surface and filled surface imperfections are not reasonably noticeable when viewed from 10 feet away under lighting conditions that will be present after construction.
- D. Liquid Densifier Application:
1. Apply products to substrates in accordance with manufacturer's instructions, and application procedures.
 2. Apply to clean, dry, and properly prepared surfaces approved by the Architect.
 3. Do not dilute or alter product. Apply as packaged.
 4. Do not apply to painted surfaces.
 5. Allow applied material to remain on the surface for reaction for time period recommended by manufacture. If the material puddles on surface, move applied material around with a micro fiber pad to achieve uniform coverage. Do not apply additional material.
 6. Allow applied material on surface to dry, approximately 30 to 60 minutes before polishing to next level. If white residue appears on surface after drying, material will be removed with additional polishing steps.
- E. Comply with flooring system manufacturer's recommendations and instructions regarding preparation and mixing of materials and application of each component of floor finishing system.
1. Employ methods to ensure concrete surface is not damaged during application, including discoloration.
 2. Apply liquid surface treatment in accordance with latest manufacturer's published instructions.
 3. Whitening of concrete by over-application or inadequate removal of liquid surface treatment may be cause for rejection.
- F. Grout Grinding:
1. Use grinding equipment and appropriate grit grinding pads.
 2. While applying fresh grout material prior to, grind concrete in direction perpendicular to initial grinding to remove scratches.
 3. Vacuum floor using squeegee vacuum attachment after each pass.
- G. Honing:
1. Use grinding equipment with resin bonded grinding pads.
 2. Grind concrete in one direction starting with 50 grit pad and make as many sequential passes required to remove scratches, each pass perpendicular to previous pass, up to 400 grit pad reaching maximum refinement with each pass before proceeding to finer grit pads.
 3. Auto scrub or vacuum floor using squeegee vacuum attachment after each pass.
- H. Polishing:
1. Use polishing equipment with resin bonded polishing and burnishing pads.
 2. Begin polishing in one direction starting with 60 grit pad.
 3. Make sequential passes with each pass perpendicular to previous pass using finer grit pad with each pass, up to 800 grit.
 4. Achieve maximum refinement with each pass before proceeding to finer grit pads.

5. Auto scrub or vacuum floor using squeegee vacuum attachment after each pass.
6. Continue polishing until gloss appearance, as measured according to ASTM E430, matches approved field mock-ups.
7. Ensure that there are no visible “disc marks” on polished concrete finished floor.
- I. Polish Guard: Uniformly apply and remove excessive liquid according to manufacturer’s instructions.
- J. Final Polish: Using burnishing equipment and finest grit burnishing pads, burnish to uniform sheen matching approved mock-up.
- K. Final Polished Concrete Floor Finish:
 1. Class C - Medium Aggregate Finish: Remove not more than 1/8 inch of concrete surface by grinding and polishing resulting in majority of exposure displaying medium aggregate with no, or small amount of, large aggregate at random locations.
 2. Level 3 - High Gloss Appearance:
 - a. Procedure: Not less than 6 steps with full refinement of each diamond pad up to 1500 grit resin bonded pad with one application of densifier.
 - b. Gloss Reading: Not less than 60 according to ASTM E430 before polish guard application.

3.05 SEALING INTEGRAL COLOR CONCRETE

- A. Concrete substrate shall be completely dry.
- B. Apply sealer according to manufacturer’s written instructions at a rate of 300 to 500 square feet per gallon per coat. Two coats are required.
 1. Maintain a wet edge at all times.
 2. Allow sealer to completely dry before applying additional coats.
 3. Apply second coat of sealer at 90o to the direction of the first coat using the same application method and rates.
 4. Seal horizontal joints in areas subject to pedestrian or vehicular traffic.
- C. Thoroughly inspect all sealed surfaces to verify and approve installation and safety, including wet and dry slip resistance, before the area is opened to traffic.

3.06 FIELD QUALITY CONTROL

- A. Field Testing: Engage a qualified walkway auditor to perform field testing according to ANSI/NFSI B101.1 and B101.3 to determine if polished concrete floor finish complies with specified static coefficient of friction.
- B. Inspect completed polished concrete floor system with Contractor, Architect, Owner’s Representative, and Installer.
- C. Review procedures with Architect to correct unacceptable areas of completed polished concrete floor system.
- D. Testing: Test the following from completed polished concrete floor system:
 1. Dynamic Coefficient of Friction, Engage a qualified walkway auditor to perform field testing according to ANSI/NFSI B101.3 to determine if polished concrete floor finish complies with specified dynamic coefficient of friction:
 - a. Dry surface.
 - b. Wet surface.
 2. Specular Gloss/Reflectance, ASTM D523:
 - a. 20 degrees.
 - b. 60 degrees.
 - c. 85 degrees.
 3. Floor Surface Profiles, ASTM E1155:
 - a. Floor Flatness Number (FF).
 - b. Floor Levelness Number (FL).
- E. Test Results:

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1. Report test results in writing to Contractor, Architect, and Owner's Representative within 24 hours after tests.
2. Compare test results from tests performed before and after installation of polished concrete floor system.

3.07 CLEANING

- A. Construction Waste Management: Manage construction waste in accordance with provisions of Section 017419 Construction Waste Management and Disposal. Submit documentation for Credit MRp2/MRc5 to satisfy the requirements of that Section.
- B. Covering: After completion of polishing, protect polished floors from subsequent construction activities with protective covering.

3.08 DEMONSTRATION

- A. Maintenance Training: CPAA Master Craftsman shall train Owner's designated personnel in proper procedures for maintaining polished concrete floor.

3.09 PROTECTION

- A. Restrict foot traffic for a minimum of 72-hours after final application of sealer.
- B. Do not permit marking of the finished floor, even with pencil. Do not apply chemicals of any kind.
- C. Do not permit spills of any kind from coming in contact with finished floors as they will be impossible to remove without damaging the finish.
- D. Leave finished work and work area in a neat, broom-clean condition without evidence of spillovers onto adjacent areas.
- E. Follow all protection requirements specified in Quality Assurance Article.
- F. Architect and Owner will review protection procedures to approve their adequacy.

END OF SECTION 03 35 11

**SECTION 05 50 00
METAL FABRICATIONS**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Shop fabricated steel and aluminum items.
- B. Countertop Supports
- C. Non-structural miscellaneous metal channels, angle imbeds, and other shapes as required or indicated on the drawings.
- D. Rough hardware.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 06 10 00 - Rough Carpentry
- C. Section 07 72 00 - Roof Accessories
- D. Section 08 71 00 - Door Hardware
- E. Section 09 91 00 - Painting and Coating

1.03 REFERENCE STANDARDS

- A. CBC - California Building Code. Latest Addition.
- B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum 2014 (2015 Errata).
- C. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- D. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- E. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- F. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements 2008.
- G. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2014.
- H. ASTM A48/A48M - Standard Specification for Gray Iron Castings 2003 (Reapproved 2016).
- I. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2012.
- J. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- K. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- L. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2014 (Editorial 2017).
- M. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes 2013.
- N. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing 2014.
- O. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2017.
- P. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.

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- Q. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2015.
- R. AWS D1.1/D1.1M - Structural Welding Code - Steel 2015, with Errata (2016).
- S. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer 1999 (Ed. 2004).

1.04 SUBMITTALS

- A. See Division 01, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable
- C. Product Data: Submit manufacturer's product data for paint products and grout.
- D. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.

PART 2 PRODUCTS

2.01 METAL SURFACES - GENERAL

- A. For metal fabrications exposed to view in the completed Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

2.02 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- C. Plates: ASTM A283/A283M.
- D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- E. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.
- F. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.
- G. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- H. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.03 MATERIALS - FASTENERS

- A. Fasteners: Provide plated fasteners complying with ASTM B633, Class Fe/Zn 25 for electrodeposited zinc coating, for exterior use or where built into exterior walls, concrete slabs, or ceilings. Select fasteners for the type, grade, and class required.
 - 1. Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A, with hex nuts, ASTM A563, and, where indicated, flat washers.
 - 2. Machine Screws: ANSI B18.6.3.
 - 3. Plain Washers: Round, carbon steel, ANSI B18.22.1.
 - 4. Lock Washers: Helical, spring type, carbon steel, ANSI B18.21.1.
 - 5. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E488 conducted by a qualified independent testing agency.
 - a. Material: Carbon steel components zinc-plated to comply with ASTM B633, Class Fe/Zn 5.

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- b. Material: Group 1 alloy 304 or 316 stainless steel bolts and nuts complying with ASTM F593 and ASTM F594.
- 6. Epoxy Cement: As manufactured by Simpson Strong-Tie, "SET/ET/AT High Strength Anchoring Adhesives", or equal.

2.04 MATERIALS - ALUMINUM

- A. Sheet Aluminum: ASTM B209 (ASTM B209M), 5052 alloy, H32 or H22 temper.
- B. Bolts, Nuts, and Washers: Stainless steel.
- C. Welding Materials: AWS D1.2/D1.2M; type required for materials being welded.

2.05 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by intermittent welds and plastic filler.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- G. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain design and nighttime sky heat loss.
 - 1. Temperature Change (Range): 100 degrees Fahrenheit.

2.06 FABRICATED ITEMS

- A. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of equipment screen; galvanized, to receive high-performance top-coat.
- B. Steel canopy supports: As detailed; steel, galvanized finish. To receive high-performance top-coat.
- C. Toilet Partition Suspension Members: Steel channel sections; prime paint finish.
- D. Countertop supports.

2.07 PREFABRICATED ITEMS

- A. Prefabricated counter and shelf supports, substitute for fabricated items performing similar function. Custom fabricated as detailed or when approved by cast lavatory manufacturer:
 - 1. A & M Hardware Inc., (888) 647-0200, info@aandmhardware.com
 - 2. 2" concealed bracket: C or EC series in length and load limit required for installation.
 - 3. Color: Black
 - 4. Installed per manufacturer's instructions and hardware.

2.08 FINISHES - STEEL

- A. Prime paint steel items.
 - 1. Exterior metal components/fabrications that are intended to be exposed at the completion of construction and their attachments shall be shop treated with galvanic "metalized" process; then shop primed and painted as indicated herewith.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

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- D. Prime Painting: One coat.
- E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.
- F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.
- G. Finish Painting: As specified in Section 09 90 00

2.09 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required. Fasteners not installed but required after pour shall be submitted to the Architect for approval. Fastener shall not be installed until the Architect approval is received.
- D. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.
- F. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop-welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been galvanized after fabrication and are intended for bolted or screwed field connections.
- G. Field weld components as indicated on drawings.
 1. Perform field welding in accordance with AWS D1.1/D1.1M.
 2. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 3. Obtain fusion without undercut or overlap.
 4. Remove welding flux immediately.

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- 5. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.
- 6. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.
- H. Obtain approval prior to site cutting or making adjustments not scheduled.
- I. After erection, prime welds, abrasions, and surfaces not shop primed , except surfaces to be in contact with concrete.

3.04 SETTING

- A. Set item shown or required to be installed in sleeves with quick-setting anchor cement unless otherwise noted. Set item shown or required
- B. Use non-shrink grout mixed in accordance with manufacturer's directions for setting plates, bolts, and similar items.

3.05 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and prime and paint exposed areas with same material as used for shop painting to comply with SSPC PA 1 requirements for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a 2.0-mil minimum dry film thickness.
- B. B. For galvanized surfaces, clean welds, bolted connections, and abraded areas, and apply galvanizing repair paint to comply with ASTM A780.

END OF SECTION

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**SECTION 06 20 00
FINISH CARPENTRY**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Finish carpentry items.
- B. Exterior and Interior wood trim.
- C. Wood casings, base and moldings.
- D. Interior MDF paneling and trim.
- E. Plastic Paneling (FRP)
- F. Hardware and attachment accessories.
- G. Exterior fiber cement and poly-ash paneling and trim.

1.02 RELATED REQUIREMENTS

- A. Division 01 requirements apply to this section.
- B. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- C. Section 06 41 00 - Architectural Wood Casework: Shop fabricated custom cabinet work.
- D. Section 08 14 16 - Flush Wood Doors.
- E. Section 09 90 00 - Painting and Coating

1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials current edition.
- B. ANSI A135.4 - American National Standard for Basic Hardboard 2012.
- C. ANSI A208.1 - American National Standard for Particleboard 2009.
- D. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test 2015.
- E. ASTM C1036 - Standard Specification for Flat Glass 2016.
- F. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards 2014, with Errata (2016).
- G. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1 2016, with Errata (2017).
- H. AWPA U1 - Use Category System: User Specification for Treated Wood 2017.
- I. BHMA A156.9 - American National Standard for Cabinet Hardware 2015.
- J. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood 2016.
- K. PS 1 - Structural Plywood 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with plumbing rough-in, electrical rough-in, installation of associated and adjacent components, and other items as indicated on the drawings.

1.05 SUBMITTALS

- A. See Division 01 for submittal procedures.
- B. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

1.06 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating and installing the products specified in this section with minimum five years of documented experience.
 - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

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- B. Quality Certification:
 1. Provide labels or certificates indicating that the work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
 2. Provide designated labels on shop drawings as required by certification program.
 3. Provide designated labels on installed products as required by certification program.
 4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.07 MOCK-UP

- A. Provide for exterior canopy: one, four-foot wide section from steel support to steel support.
- B. Provide exterior poly-ash mechanical screen and trim mockup for one, four-foot wide section of typical, roof-top equipment screen.
- C. Locate where directed.
- D. Mock-ups may remain as part of the Work.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

- A. Quality Standard: Premium Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Exterior Woodwork Items:
 1. Trim and Moldings: Redwood; prepare for paint finish.
 2. Canopy T&G Decking: v-groove, Douglas fir, selected for appearance, minimal knots and checking. Stained and sealed. Rabbeted for metal trim.
 3. Fiber Cement trim for mechanical screen: 1x4 nominal, pre-primed, by James Hardie or equal, cut edges primed, to receive paint finish.
 4. Metal trims in shapes and sizes as indicated on the drawings.
- C. Interior Woodwork Items:
 1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white pine or MDF; prepare for paint finish.
 2. Loose Shelving: Birch plywood; prepare for paint finish.

2.02 LUMBER MATERIALS

- A. Softwood Lumber: Douglas Fir species, smooth sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

2.03 SHEET MATERIALS

- A. Softwood Plywood, Not Exposed to View: Any face species, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application. MDF core: "California 93120 Compliant for Formaldehyde" or "California Phase 2 Compliant."
- B. Softwood Plywood, Exposed to View: Face species as indicated, plain sawn, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application. Core: "California 93120 Compliant for Formaldehyde" or "California Phase 2 Compliant."
- C. Medium Density Fiberboard: Roseburg "Medite" or otherwise "California 93120 Compliant for Formaldehyde" or "California Phase 2 Compliant."

2.04 FIBERGLASS REINFORCED PLASTIC (FRP) WALL PANELS

- A. For storage and utility room wainscot, and other areas indicated on plans.
- B. Manufacturer: Crane, "Varietex", Class A FRP panel, color to be selected.
- C. Manufacturer: Marlite, Class A FRP panel, smooth surface, "Artizan 211 – Grizel".
- D. Provide with trims and all components necessary for a water-tight installations.
- E. Top of FRP at 60-inches above finished floor, installed on all walls in rooms 102 and 104.

2.05 FASTENINGS

- A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.
- B. Fasteners: Of size and type to suit application; zinc finish in concealed locations and stainless steel finish in exposed locations. See drawings for spacing and size at canopy.
- C. Concealed Joint Fasteners: Threaded steel.
- D. For exterior cement fiber panel and interior MDF panel attachment: install fasteners 3/8 inch from panel edges, 2 inches from corners, countersink and fill.

2.06 ACCESSORIES

- A. Lumber for Shimming and Blocking: Softwood lumber of Douglas Fir species.
- B. Primer: Alkyd primer sealer.
- C. Wood Filler: Solvent base, tinted to match surface finish color.

2.07 HARDWARE AND METAL PANEL TRIM

- A. Hardware: Comply with BHMA A156.9.
- B. Standard Shelf, Countertop, and Workstation Brackets:
 - 1. Material: Steel.
 - 2. Color: Black.
 - 3. Products:
 - a. A&M Hardware, Inc ; Standard Brackets: <http://www.aandmhardware.com/#sle>.
 - b. 2" concealed in length load bearing capacity as required by application.

2.08 WOOD TREATMENT

- A. Factory-Treated Lumber: Comply with requirements of AWP A U1 - Use Category System for pressure impregnated wood treatments determined by use categories, expected service conditions, and specific applications.
- B. Wood Preservative by Pressure Treatment (PT Type): Provide AWP A U1 treatment using waterborne preservative with 0.25 percent retainage.

2.09 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.
- C. Salvaged trim and paneling cut to sizes indicated on drawings and details. All edges exposed to view to be surfaced and prepared for clear finish.

2.10 SHOP FINISHING

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.
- D. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
 - 1. Transparent:
 - a. System - 12, Polyurethane, Water-based.
 - b. Sheen: Satin.
 - 2. Opaque:
 - a. System - 10, UV Curable, Water-based.
 - b. Color: As selected by Architect.
 - c. Sheen: Satin.

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- E. Prime paint surfaces in contact with cementitious materials.
- F. Back prime woodwork items to be field finished, prior to installation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 INSTALLATION

- A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- D. Install hardware and aluminum panel trims in accordance with manufacturer's written instructions.
- E. Install poly-ash and cement-fiber trim and paneling in accordance with manufacturer's printed installation instructions.

3.03 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment in accordance with manufacturer's instructions.
- B. Brush apply one coats of preservative treatment on wood in contact with cementitious materials. Treat site-sawn cuts.
- C. Allow preservative to dry prior to erecting members.

3.04 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

END OF SECTION

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SECTION 06 41 00 - ARCHITECTURAL WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specially fabricated cabinet units.
- B. Cabinet hardware.
- C. Factory finishing.
- D. Preparation for installing utilities.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- C. Section 09 90 00 - Painting and Coating: Field finishing of exposed cabinet surfaces not indicated to receive shop finish.
- D. Section 12 36 69 – Solid Surface Countertops, Shower Wall Panels, and Shower Seat.

1.03 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).
- B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards 2021, with Errata.
- C. BHMA A156.9 - Cabinet Hardware 2020.
- D. NEMA LD 3 - High-Pressure Decorative Laminates 2005.
- E. WI (CCP) - Certified Compliance Program (CCP) Current Edition.
- F. WI (CSIP) - Certified Seismic Installation Program (CSIP) Current Edition.

1.04 DEFINITIONS

- A. Exposed surfaces include all surfaces visible when:
 - 1. Drawers and opaque doors (if any) are closed.
 - 2. Areas behind clear glass doors.
 - 3. Bottoms of cabinets 42-inches or more above finished floor.
 - 4. Top of cabinets below 78-inches above finished floor.

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- B. Semi-exposed surfaces include the following:
 - 1. Open opaque doors or extended drawers.
 - 2. Bottoms of cabinets that are more than 30-inches and less than 42-inches above finished floor.
- C. Concealed surfaces include the following:
 - 1. Surfaces not visible after installation.
 - 2. Bottoms of cabinets less than 30-inches above finished floor.
 - 3. Tops of cabinets over 78-inches above finish floor and not visible from an upper level.
 - 4. Stretchers, blocking, and components concealed by drawers.

1.05 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.
- B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

1.06 SUBMITTALS

- A. CALGreen Submittals: Provide the following:
 - 1. Product Data for CALGreen 5.504.4.1 – Finish Material Pollutant Control; Adhesives, Sealants, and Caulks: For adhesives, sealants, and caulks, including printed statement of VOC content and chemical components.
 - 2. Product Data for CALGreen 5.504.4.3 – Finish Material Pollutant Control; Architectural paints and coatings, including printed statement of VOC content and chemical components.
 - 3. Product Data for CALGreen 5.504.4.5 – Composite Wood Products: For composite-wood products, showing requirements for formaldehyde as specified in Table 5.504.4.
 - 4. Refer to Section 01 81 13 - NTU Sustainable Design Requirements: Requirements for certified wood and low-emitting materials.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
 - 1. Scale of Drawings: 1-1/2 inch to 1 foot, minimum.
 - 2. Show details full size.
 - 3. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).

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4. Include certification program label.
 5. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
- C. Product Data: Provide data for hardware accessories.
- D. Samples:
1. Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.
 2. Veneer-faced panel products with or for transparent finish, 12 by 24 inches (300 by 600 mm), for each species and cut. Include at least one face-veneer seam and edge condition, finished as specified.
 3. Plastic laminates, 8 by 10 inches, for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
 4. Thermoset decorative-panels, 8 by 10 inches, for each type, color, pattern, and surface finish, with edge banding on 1 edge.
- E. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- F. Sustainable Design Submittal: Documentation for sustainably harvested wood-based components.

1.07 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with a minimum of five years of documented experience.
1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
 2. Single Source Responsibility: Provide and install this work from a single fabricator.
- B. Quality Certification:
1. Comply with WI (CCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: <https://woodworkinstitute.com/#sle>.
 2. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
 3. Provide designated labels on shop drawings as required by certification program.
 4. Provide designated labels on installed products as required by certification program.

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5. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.
 6. Replace, repair, or rework all work for which certification is refused.
- C. Forest Stewardship Council (FSC) Certified Products:
1. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
 2. Forest Certification: Provide components made with not less than 50 percent of wood products obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture damage.
- B. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in this Section.

1.09 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.

1.10 FIELD MEASUREMENTS

- A. All casework dimensions shall be field verified prior to fabrication.

PART 2 PRODUCTS

2.01 GENERAL PRODUCT REQUIREMENTS

- A. Provide materials that comply with requirements of NAAWS's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Single Source Responsibility: Provide and install this work from a single fabricator.

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2.02 CABINETS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Plastic Laminate Faced Cabinets: Custom grade.
 - 1. Cabinet doors indicated to receive glazing or other infill panels shall be constructed as stile and rail units with solid lumber frame. Frames fabricated from MDF substrate material are not acceptable.
- C. Cabinets:
 - 1. Finish - Exposed Exterior Surfaces: Decorative laminate.
 - 2. Finish - Exposed Interior Surfaces: Decorative laminate.
 - 3. Finish - Semi-Exposed Surfaces: Decorative laminate
 - 4. Finish - Concealed Surfaces: Manufacturer's option.
 - 5. Casework Construction Type: Type A - Frameless.
 - 6. Interface Style for Cabinet and Door: flush overlay.
 - 7. Layout for Cabinet and Door Fronts: Flush panel.
 - a. Custom Grade: Doors, drawer fronts and false fronts wood grain patterns to run and match vertically within each cabinet unit.
 - 8. Adjustable Shelf Loading: 40 psf.
 - a. Deflection: L/144.
 - 9. Cabinet Style: Flush overlay.
 - 10. Cabinet Doors and Drawer Fronts: Flush style.
 - 11. Drawer Side Construction: Multiple-dovetailed.
 - 12. Drawer Construction Technique: Dovetail joints.

2.03 WOOD-BASED COMPONENTS

- A. Refer to Section 01, City of Berkeley, Sustainable Design Requirements: Requirements for low-emitting materials, Adhesives and Sealants and Composite Wood Products.
- B. Certified Wood: Wood shall be certified as "FSC Pure" or "FSC Mixed Credit" according to FSC STD-01-00 and FSC STD-40-004.
- C. Wood fabricated from old growth timber is not permitted.

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- D. Provide sustainably harvested wood, certified or labeled; see City of Berkeley, Section 01, Sustainable Design Requirements.
- E. Wood fabricated from timber recovered from riverbeds or otherwise abandoned is permitted, unless otherwise noted, provided it is clean and free of contamination; identify source; provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc.
- F. Hardwood and Softwood Lumber: Custom graded in accordance with NAAWS; average moisture content of 8 percent.
 - 1. Species: Any closed-grain hardwood. For use at concealed areas only.
- G. Cabinet Substrate, Shelves: MDF: ANSI A208.2, Grade mr-50, made with binder containing no urea-formaldehyde resin; 3/4-inch Medite II, interior grade woodbased composite panels manufactured from softwood fibers with minimum 90% preconsumer recycled wood combined with formaldehyde-free synthetic resin, with clear sealer.
 - 1. Acceptable Products: SierraPine's "Medex," "Medex NC," and "Medite II" and Weyerhaeuser's "Premier Plus".
- H. Stile and Rail Door Substrate: Plywood: Domestic ANSI/HPVA HP-1 with both faces Grade A.
 - 1. Thickness: 1 inch.

2.04 LAMINATE MATERIALS

- A. Manufacturers:
 - 1. Basis-of-Design Product: Wilsonart Solicor; through-color laminate; super-matte finish.
 - 2. Acceptable Products:
 - a. Panolam Industries International, Inc; Nevamar ThruColor: www.panolam.com/#sle.
 - b. Panolam Industries International, Inc; Pionite ThruColor: www.panolam.com/#sle.
 - c. Wilsonart Solicor: www.wilsonart.com/#sle
- B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.
- C. Provide specific types as indicated.
 - 1. Horizontal and Vertical Surfaces: HGS, 0.048 inch nominal thickness, Wilsonart "Silver Velvet" 15503 color, finish as selected.
 - 2. Cabinet Liner: CLS, 0.020 inch nominal thickness, through color, white color, satin finish.

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3. Laminate Backer: BKL, 0.020 inch nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.

2.05 COUNTERTOPS

- A. Countertops: See Section 12 36 69 – Solid Surface Countertops.

2.06 ACCESSORIES

- A. Adhesive: FS MMM-A-130 contact adhesive; type recommended by laminate manufacturer to suit application. Comply with requirements of Section 01 81 13 - NTU Sustainable Design Requirements for low-emitting materials.
- B. Plastic Edge Banding: Extruded PVC, convex shaped; smooth finish; self-locking serrated tongue; of width to match component thickness.
 1. Color: As indicated on drawings.
 2. Use at all exposed plywood edges.
 3. Use at all exposed shelf edges.
- C. Fasteners: Size and type to suit application.
- D. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.
- E. Concealed Joint Fasteners: Threaded steel.
- F. Grommets: Standard plastic or rubber grommets for cut-outs, in color to match adjacent surface.

2.07 HARDWARE

- A. Hardware: BHMA A156.9, types as indicated for quality grade specified. See sheet A9.11 for Finish Schedule.
- B. Adjustable Shelf Supports: Standard side-mounted system using recessed metal shelf standards or multiple holes for pin supports and coordinated self rests, polished chrome finish, for nominal 1 inch spacing adjustments.
- C. Americans with Disabilities Act (ADA)-Compliant Lavatory Cabinet Door Toekick Brackets:
 1. Product: 18 gauge steel. 12 inch long prefinished, "Z" profile, prepunched with slotted holes permitting adjustment to floor surface and cabinet clearance conditions. Brackets shall be designed to securely attach toe kick to cabinet door.
 2. Finish: Manufacturer's standard, factory-applied powder coat.
 3. Color: Selected by Architect from manufacturer's standard range.

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4. Manufacturer:
 - a. ADA Toekick; <http://www.adataoekick.com>.
- D. Drawer and Door Pulls: see finish plan A9.11.
- E. Cabinet Locks at all doors and drawers: Keyed cylinder, two keys per lock, keyed alike in each room, master keyed, steel with chrome finish.
- F. Drawer Slides:
 1. Type: Full extension.
 2. Static Load Capacity: Extra Heavy Duty grade.
 3. Mounting: Side mounted.
 4. Stops: Integral type.
 5. Features: Provide self-closing/stay closed type.
 6. Manufacturers:
 - a. Accuride International, Inc; Heavy-Duty Drawer Slides: www.accuride.com/#sle.
 - b. Grass America Inc: www.grassusa.com/#sle.
 - c. Knape & Vogt Manufacturing Company; Heavy-Duty Drawer Slides: www.knapeandvogt.com/#sle.
- G. Hinges: European style concealed self-closing type, steel with nickel-plated finish.
 1. Manufacturers:
 - a. Grass America Inc: www.grassusa.com/#sle.
 - b. Hettich America, LP: www.hettich.com/#sle.

2.08 FABRICATION

- A. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- B. Fabricate woodwork to dimensions, profiles, and details indicated.
- C. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

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- D. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.
- E. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- F. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- G. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- H. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises.
 - 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
 - 2. Cap exposed plastic laminate finish edges with plastic trim.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Verify adequacy of backing and support framing.
- C. Verify location and sizes of utility rough-in associated with work of this section. Verify that mechanical, electrical, plumbing and other building items are in place, complete and ready to receive the work of this Section.
- D. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing material and back-priming.

3.02 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- C. Use fixture attachments in concealed locations for wall mounted components.
- D. Use concealed joint fasteners to align and secure adjoining cabinet units.

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- E. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.
- F. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose. Refinish cut surfaces, and repair damaged finish at cuts.
- G. Secure cabinets to floor using appropriate angles and anchorages.
 - 1. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation.
- H. Secure and anchor countertops specified in other Sections.

3.03 ADJUSTING

- A. Test installed work for rigidity and ability to support loads.
- B. Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Adjust joinery for uniform appearance.
- C. Provide seismic anchorage for casework in accordance with drawing details.
- D. Adjust moving or operating parts to function smoothly and correctly.
- E. Repair damaged and defective casework, where possible, to eliminate functional and visual defects; where not possible to repair, replace casework.

3.04 PROTECTION AND CLEANING

- A. Protect casework after installation; do not allow other trades to use countertops as footstools or ladders to perform their work.
- B. Prior to Final Completion, remove and dispose of protective coverings. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

**SECTION 07 16 00
UNDERSLAB VAPOR RETARDER**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Application of an underslab vapor retarder in areas of new work.

1.02 RELATED SECTIONS

- A. Section 09 30 00 - Tiling
- B. Section 03 35 11 – Concrete Floor Finishes

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil Or Granular Fill Under Concrete Slabs.
 - 2. ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs.
 - 3. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
 - 4. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
 - 5. ASTM F1249-01 Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
- B. American Concrete Institute (ACI)
 - 1. ACI 302.1R-96 Vapor Barrier Component (plastic membrane) is not less than 15 mils thick.

1.04 SUBMITTALS

- A. Comply with City of Berkeley, Section 01 - Submittal Procedures.
- B. Submit manufacturer's product data and application instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean dry area in accordance with manufacturer's instructions.
- C. Stack membrane on smooth ground or wood platform to eliminate warping.
- D. Protect materials during handling and application to prevent damage or contamination.
- E. Ensure membrane is stamped with manufacturer's name, product name and membrane thickness at intervals of no more than 85" (220 cm).

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.
- B. Do not apply on frozen ground.

PART 2 PRODUCTS**2.01 MANUFACTURER**

- A. W.R. Meadows, Inc., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Web Site www.wrmeadows.com.

2.02 MATERIALS

- A. Plastic Vapor Retarder
 - 1. Performance Based Specification: Vapor Retarder membrane must meet or exceed all requirements of ASTM E1745 Classes A, B, & C.

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- a. Maximum Permeance ASTM E96: 0.024 Perms
- b. Water Vapor Transmission Rate ASTM F1249 calibrated to ASTM E96 (water method): 0.012 grains/ft²/hr
- c. Resistance to Organisms and Substrates in Contact with Soil
- d. ASTM E154, Section 13: 0.051 Perms
- e. Tensile Strength ASTM E154, Section 9: 52 LBS. Force/Inch
- f. Puncture Resistance ASTM D1709, Method B: 3,770 Grams
- g. Water Vapor Retarder ASTM E1745: Meets or exceeds Class A, B & C
- h. Thickness of Retarder (plastic) ACI 302.1R-96: Not less than 10 mils
- 2. Proprietary Based Specification
 - a. Perminator™ 15 mil by W.R. Meadows.
 - b. Stego-Wrap 15 mil by Stego Industries.

2.03 ACCESSORIES

- A. Seam Tape
 - 1. High Density Polyethylene Tape with pressure sensitive adhesive. Minimum width 4 inches.
- B. Pipe Boots
 - 1. Construct pipe boots from vapor barrier material and pressure sensitive tape per manufacturer's instructions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive membrane. Notify Architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Prepare surfaces in accordance with manufacturer's instructions.

3.03 APPLICATION

- A. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643-98.
- B. Unroll vapor barrier with the longest dimension parallel with the direction of the pour.
- C. Lap vapor barrier over footings and seal to foundation walls.
- D. Lap self-adhered flashing over vapor barrier at perimeter of matt-slab.
- E. Overlap joints 6 inches and seal with manufacturer's tape.
- F. Seal all penetrations (including pipes) with manufacturer's pipe boot.
- G. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
- H. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6-inches and taping all four sides with tape.

END OF SECTION

**SECTION 07 21 00
THERMAL INSULATION**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Sound attenuating batt insulation for existing interior walls impacted by new work.
- B. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 RELATED REQUIREMENTS

- A. Sections from Division 01 apply to this section.
- B. Section 07 25 00 - Weather Barriers: Separate air barrier and vapor retarder materials.
- C. Section 07 52 16 - SBS Modified Bituminous Membrane Roofing, Hot-Applied
- D. Section 09 29 00 - Gypsum Board

1.03 REFERENCE STANDARDS

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2017.
- B. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation 2016a.
- C. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications 2013.
- D. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2017a.
- E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2017.
- F. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board 2017.
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2017.
- H. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C 2016a.

1.04 SUBMITTALS

- A. See Section 01 33 00 Submittals, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.05 FIELD CONDITIONS

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Thermal Insulation Manufacturers:
 - 1. Owens Corning: "PINK Fiberglas Sonobatts Insulation" for interior walls.
 - 2. GAF: "EnergyGuard" Tapered and non-tapered Polyiso rigid foam insulation.
 - 3. Substitutions: see Section 01600: Product Requirements.

2.02 APPLICATIONS

- A. Insulation in Wood Framed Interior Walls: Sound attenuating batt insulation.

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- B. Insulation Over Roof Deck: Tapered Polyisocyanurate board or tapered Rockwool roofing boards.

2.03 FOAM BOARD INSULATION MATERIALS

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.
 - 1. Classifications:
 - a. Type IV: Faced with cellulosic fiber insulating board on one major surface of core foam and glass fiber reinforced cellulosic felt or uncoated or coated polymer-bonded glass fiber mat facer on other major surface of core foam.
 - 1) Compressive Strength: 16 psi, minimum.
 - 2) Thermal Resistance, R-value: At 1-1/2 inch thick; 6.9 at 75 degrees F.
 - 2. Board Size: 48 inch by 96 inch.
 - 3. Board Thickness: 1.0 inch minimum.
 - 4. Tapered Board: Slope as indicated; minimum thickness 1 inch; fabricate of fewest layers possible.
 - 5. Non-tapered Board at low-slope roof applications and other locations where indicated on details.
 - 6. Board Edges: Square.
 - 7. Manufacturers:
 - a. GAF; EnergyGuard Polyiso Insulation: www.gaf.com/#sle.

2.04 BATT INSULATION MATERIALS

- A. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
 - 1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
 - 3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
 - 4. Formaldehyde Content: Zero.
 - 5. Thickness: as required to completely fill stud or ceiling joist cavity.
 - 6. Thermal Resistance: R-value of R-21 in exterior wall and R-38 in ceiling/roof cavities.. R-11 unfaced batts at interior walls.
 - 7. Manufacturers:
 - a. Owens Corning Corporation; EcoTouch PINK FIBERGLAS Insulation: www.ocbuildingspec.com/#sle.
 - b. Owens Corning Corporation; Sound Attenuation Batt Insulation: www.ocbuildingspec.com/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 ACCESSORIES

- A. Insulation Fasteners: Lengths of unfinished, 13 gauge, 0.072 inch high carbon spring steel with chisel or mitered tips, held in place by tension, length to suit insulation thickness and substrate, capable of securely supporting insulation in place.
- B. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
- C. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
- D. Wire Mesh: Galvanized steel, hexagonal wire mesh.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

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- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION OVER LOW SLOPE ROOF DECK

- A. Installation of board insulation over low slope roof deck as specified in Section 07 52 16 - SBS Modified Bituminous Membrane Roofing.
- B. Board Installation Over Roof Deck, General:
 1. See applicable roofing specification section for specific board installation requirements.
 2. Ensure vapor retarder is clean and dry, continuous, and ready for application of roofing system.
 3. Fasten insulation to deck in accordance with roofing manufacturer's written instructions and applicable Factory Mutual requirements.
 4. Do not apply more insulation than can be covered with roofing in same day.

3.03 BATT INSTALLATION

- A. Install insulation in accordance with manufacturer's instructions.
- B. Install in interior wall spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. Retain insulation batts in place with wire mesh secured to framing members where required between ceiling/roof framing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.

3.05 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

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**SECTION 07 21 19
FOAMED-IN-PLACE INSULATION**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Foamed-in-place insulation.
 - 1. In exterior framed walls where framing is exposed by new structural work.
 - 2. In underside of roofs and ceilings where framing is exposed by new structural work.

1.02 REFERENCE STANDARDS

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2017.
- B. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics 2016.
- C. ASTM D1622/D1622M - Standard Test Method for Apparent Density of Rigid Cellular Plastics 2014.
- D. ASTM D1623 - Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics 2017.
- E. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics 2012.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2017.
- G. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials 2016.
- H. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials 2013.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

1.04 SUBMITTALS

- A. See Section 01 33 00 Submittals, for submittal procedures.
- B. Product Data: Provide product description, insulation properties, overcoat properties, and preparation requirements.
- C. Certificates: Certify that products of this section meet or exceed specified requirements.
- D. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.
- E. Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.
- F. Installer Qualification: Submit documentation of current contractor accreditation and current installer certification. Keep copies of all contractor accreditation and installer certification on site during and after installation. Present on-site documentation upon request.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified, with minimum three years documented experience, and approved by manufacturer.

1.06 FIELD CONDITIONS

- A. Do not apply foam when temperature is below that specified by the manufacturer for ambient air and substrate.
- B. Do not apply foam when temperature is within 5 degrees F of dew point.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Foamed-In-Place Insulation:
 - 1. Icynene-Lapolla: "Classic Ultra" Open-Cell Spray Foam: www.icynene.com/#sle.
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

- A. Foamed-In-Place Insulation: Low-density, flexible, open cell, water vapor permeable polyurethane foam; foamed on-site, using blowing agent of water or non-ozone-depleting gas.
 - 1. Regulatory Requirements: Comply with applicable code for flame and smoke, concealment, and overcoat limitations.
 - 2. Thermal Resistance: R-value of 3.7, minimum, per 1 inch thickness at 75 degrees F mean temperature when tested in accordance with ASTM C518.
 - 3. Air Permeance: 0.04 cfm per square foot, maximum, when tested at intended thickness in accordance with ASTM E2178 at 1.57 psf.
 - 4. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, maximum, when tested in accordance with ASTM E84.
 - 5. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Remove existing insulation in wall or ceilings where framing, construction spaces, and crevices are exposed by new structural work.
- B. Verify work within construction spaces or crevices is complete prior to insulation application.
- C. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.

3.02 PREPARATION

- A. Mask and protect adjacent surfaces from over spray or dusting.
- B. Apply primer in accordance with manufacturer's instructions.

3.03 APPLICATION

- A. Apply insulation in accordance with manufacturer's instructions.
- B. Apply insulation by spray method, to a uniform monolithic density without voids.
- C. Apply to completely fill ceiling joist cavities in new roof/ceilings and existing cavities exposed by new work.
- D. Patch damaged areas.
- E. Where applied to voids and gaps assure space for expansion to avoid pressure on adjacent materials that may bind operable parts.
- F. Trim excess away for applied trim or remove as required for continuous sealant bead.

3.04 PROTECTION

- A. Do not permit subsequent construction work to disturb applied insulation.

END OF SECTION

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SECTION 07 52 16
SBS MODIFIED BITUMINOUS MEMBRANE ROOFING, FLUID-APPLIED

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
1. Styrene-butadiene-styrene (SBS) modified bituminous membrane roofing system on a plywood deck with a layer of 1"-thick insulation in areas of new work, including but not limited to:
 2.
 - a. Roof insulation.
 - b. Roof membrane system consisting of base sheet, modified bitumen cap and membrane base flashings.
 - c. Roof surfacing consisting of mineral granulated cap sheet with field applied coating compliant with Title 24/CRRC.
 - d. Flashings for all penetrations, projections, and pipes.
 - e. New gutters, downspouts and all metal terminations where occur.
 - f. Walkway Pads
- B. Related Sections:
1. Section 01 73 29 – Cutting and Patching.
 2. Section 07 62 00 - Sheet Metal Flashing and Trim
 3. Section 07 72 00 – Roof Accessories
 4. Section 07 92 00 – Joint Sealants

1.03 DEFINITIONS

- A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. ENDURE BIO: Is a two [2] part urethane, 100 % solids, bio based, asbestos free, cold process membrane interply adhesive. Is a certified BIO based material approved by USDA. Approved to be used in MB and BUR systems.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work. Provide roof plan showing orientation and types of roof deck, orientation of membrane roofing, and fastening spacing's and patterns for mechanically fastened components.
1. Base flashings and built-up terminations.
 2. Indicate details meet requirements of NRCA and FMG required by this Section.
 3. Tapered or un-tapered insulation, including slopes.
 4. Crickets, saddles, and tapered edge strips, including slopes.
 5. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Samples for Verification: For the following products:
1. Sheet roofing materials, of color specified for exposed material.
 2. Roof substrate board and insulation.

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1.05 INFORMATIONAL SUBMITTALS

- A. Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.
- B. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.
 - 1. Include letter from Manufacturer written for this Project indicating approval of Installer.
- C. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 - 1. Submit evidence of compliance with performance requirements, including UL listing certificate.
 - 2. Indicate that proposed system components are compatible.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of built-up roofing.
- E. Warranties: Unexecuted sample copies of special warranties.
- F. Field Quality Control Reports: Daily reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions taken to correct defective work.

1.06 CLOSEOUT SUBMITTALS

- A. Maintenance Data: To include in maintenance manuals.
- B. Warranties: Executed copies of warranties.

1.07 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
- B. Manufacturer Qualifications: Approved manufacturer with UL Class A listed roofing systems comparable to those specified for this Project, with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements.
 - 1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
 - a. Product data, including certified independent test data indicating compliance with requirements.
 - b. Samples of each component.
 - c. Sample submittal from similar project.
 - d. Project references: Minimum of five installations of specified products not less than five years old, with Owner and Architect contact information.
 - e. Sample warranty.
 - 2. Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements. Only prime contractor will be allowed to submit request for substitution.
 - 3. Approved manufacturers must meet separate requirements of Submittals Article.
 - 4. Wind uplift requirement: Provide information to support system to be installed meets or exceed wind uplift criteria set forth and is based upon system to be installed.

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- C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer’s compliance with the requirements of this Project and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 - 1. An authorized full-time technical employee of the manufacturer.
 - 2. An independent party certified as a Registered Roof Observer by the Roof Consultants Institute, retained by the Contractor or the Manufacturer and approved by the Manufacturer.

- D. Preinstallation Roofing Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 - 5. Review structural loading limitations of roof deck during and after roofing.
 - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 - 7. Review governing regulations and requirements for insurance and certificates if applicable.
 - 8. Review temporary protection requirements for roofing system during and after installation.
 - 9. Review roof observation and repair procedures after roofing installation.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation. D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.09 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

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1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.
2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
3. Remove temporary plugs from roof drains at end of each day.
4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.10 WARRANTY

- A. Warranty, General: Warranties specified 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.
- B. Manufacturer's Warranty: Manufacturer's standard or customized form, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
 1. Manufacturer's warranty includes roofing membrane, base flashings, fasteners, roofing membrane accessories and other components of roofing system specified in this Section.
 2. Warranty Period: 20 years from date of Substantial Completion.
- C. Installer's Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:
 1. Warranty Period: Five years from date of Substantial Completion.
- D. Manufacturer Inspection and Preventive Maintenance Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's annual inspections and preventive maintenance is included in the Contract Sum.
 1. Inspections to occur in the following years subsequent to completion: 2, 5, 10 and 15 completing: Follow up inspections with reports to owner, preventative maintenance and housekeeping.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco, Inc., www.tremcoroofing.com for basis of design, named in other Part 2 articles. Subject to compliance with requirements, provide the named product or an approved comparable product by one of the following:
 1. System meeting system performance criteria
 2. Warranty coverage and length
 3. Cool roof rating in most current CRRC manual
 4. Approved by the Owner and Architect deemed to be equal based on criteria defined.
- B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.
- C. Or Approved Equal

2.02 PERFORMANCE REQUIREMENTS

- A. General Performance: Roofing shall withstand exposure to weather without failure or leaks due to defective manufacture or installation.
 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.

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2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- C. Flashings and Fastening: Comply with requirements of Division 07 Sections "Sheet Metal Flashing and Trim" and "Roof Specialties." Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with requirements and recommendations of the following:
 1. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
 2. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.
 3. Copper Development Association, Inc
- D. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- E. Fire-Resistance Ratings: Where indicated, provide fire-resistance-rated roof assemblies identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- F. Energy Star Listing: Roofing system shall be listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.
- G. Energy Performance: Roofing system shall have an initial solar reflectance index of not less than 0.70 and an emissivity of not less than 0.75 when tested according to CRR-1.
- H. FM Global Compliance: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4470 as part of a roofing system and shall be listed in FM Global's "RoofNav" or shall receive written FM Global project approval for Class 1 or non-combustible construction, as applicable. Identify applicable materials with FM Global markings.
 1. Fire/Windstorm Classification: Class 1A-75
- I. Flashings: Comply with requirements of Division 07 Sections "Sheet Metal Flashing and Trim" and "Manufactured Roof Specialties." Provide base flashings, perimeter flashings, detail flashings and component materials that comply with requirements and recommendations of the following:
 1. FMG 1-49 Loss Prevention Data Sheet for Perimeter Flashings.
 2. FMG 1-29 Loss Prevention Data Sheet for Above Deck Roof Components.
 3. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
 4. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details

2.03 ROOFING MEMBRANE MATERIALS

- A. Sheathing Paper: Red rosin type, minimum 3 lb/100 sq. ft. (0.16 kg/sq. m).
- B. Base Sheet:
 1. ASTM D 6163 Type III Grade S heavy-duty base sheet
 - a. Basis of design product: Tremco, Powerply Heavy Duty Base or equal
 - b. Tear strength, ASTM D 5147 220 lbf/in/MD and 240 lbf/in XMD
 - c. Tensile Strength, ASTM 5147 220 lbf/inMD and 190 lbf/in XMD
 - d. Thickness: 3.0 mm
- C. SBS Modified Bituminous Cap Sheet:
 - a. **Roof finishing sheet:** ASTM D 6164 Type I Grade G SBS-modified asphalt-coated glass-fiber-reinforced sheet, granular surfaced with a factory applied white reflective granule.
 - b. Basis of design product: Tremco, POWERply Endure 200 FR, or equal

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- c. Exterior Fire-Test Exposure, ASTM E 108: Class A.
 - d. Tensile Strength at 73 deg. F (23 deg. C), minimum, ASTM D 5147: Machine direction 165 lbf/in (12.0 kN/m); Cross machine direction 140 lbf/in (8.8 kN/m).
 - e. Tear Strength at 73 deg. F (23 deg. C), minimum, ASTM D 5147: Machine direction, 160 lbf (400 N); Cross machine direction 110 lbf (400 N).
 - f. Elongation at 73 deg. F (23 deg. C), minimum, ASTM D 5147: Machine direction 55 percent; Cross machine direction 60 percent.
 - g. Low Temperature Flex, maximum, ASTM D 5147: -10 deg. F (-23 deg. C).
 - h. Thickness, minimum, ASTM D 5147: 0.157 inch (3.8 mm).
 - i. Solar Reflectance Index (SRI), ASTM E 1980: 88. D. Base Flashing Backer Sheet:
 - 1. ASTM D 6163 Type III Grade S heavy-duty base sheet
 - a. Basis of design product: Tremco, Powerply Heavy Duty Base or equal
 - b. Tear strength, ASTM D 5147 220 lbf/in/MD and 240 lbf/in XMD
 - c. Tensile Strength, ASTM 5147 220 lbf/inMD and 190 lbf/in XMD
 - d. Thickness: 3.0 mm
- E. Base Flashing Sheet: for walls and curbs
- a. ASTM D 6163 Type I Grade G SBS-modified asphalt-coated glass-fiber-reinforced sheet, granular surfaced with a factory applied white reflective granule; CRRC listed and California Title 24 Energy Code compliant.
 - b. Basis of design product: Tremco, POWERply Standard FR GT24W, or equal
 - c. Exterior Fire-Test Exposure, ASTM E 108: Class A.
 - d. Tensile Strength at 73 deg. F (23 deg. C), minimum, ASTM D 5147: Machine direction 70 lbf/in (12.0 kN/m); Cross machine direction 50 lbf/in (8.8 kN/m).
 - e. Tear Strength at 73 deg. F (23 deg. C), minimum, ASTM D 5147: Machine direction, 90 lbf (400 N); Cross machine direction 90 lbf (400 N).
 - f. Elongation at 73 deg. F (23 deg. C), minimum, ASTM D 5147: Machine direction 4 percent; Cross machine direction 4 percent.
 - g. Low Temperature Flex, maximum, ASTM D 5147: -10 deg. F (-23 deg. C).
 - h. Thickness, minimum, ASTM D 5147: 0.157 inch (4 mm).
 - i. Solar Reflectance Index (SRI), ASTM E 1980: 88.
- F. Glass-Fiber Fabric: Woven glass-fiber cloth treated with asphalt, ASTM D 1668 Type I.

2.04 FLUID-APPLIED MATERIALS

- A. BIO Adhesive
 - 1. Basis of design product: Tremco, BIO ENDURE ADHESIVE, or equal
 - 2. Bio base content: ASTM D6866 71%
 - 3. Density ASTM D1475 11.1lbs./gal
 - 4. Volume solids ASTM D2697 100%
 - 5. Weight solids ASTM D1644 100%
- B. Asphalt primer, water-based, polymer modified.
 - 1. Basis of design product: Tremco, TREMprime WB.
 - 2. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 2 g/L.
- C. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.

2.05 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
 - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

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- B. Cold-Applied Adhesive:
 - 1. Roof Cement, Asphalt-Based: ASTM D 4586, Type II, Class I, fibrated roof cement formulated for use in installation and repair of asphalt ply and modified bitumen roofing plies and flashings; UL-classified for fire resistance.
 - a. Basis of design product: Tremco, ELS.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 190 g/L.
 - c. Non-Volatile Matter, ASTM D 4586: 85 percent.
- C. Joint Sealant: Elastomeric joint sealant compatible with roofing materials, with movement capability appropriate for application.
 - 1. Joint Sealant, Polyurethane: ASTM C 920, Type S, Grade NS, Class 25 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints.
 - a. Basis of design product: Tremo, Proseal.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 85 g/L.
 - c. Hardness, Shore A, ASTM C 661: 40.
 - d. Color: White.
- D. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion resistance provisions in FM Global 4470, designed for fastening roofing components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- E. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."
- F. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.
- G. Fluid applied membrane: Fluid applied reinforced membrane for pipes, penetrations and projections: Two [2] part Bio based fluid applied membrane by roof systems manufacture.

2.06 ROOF INSULATION/SUBSTRATE BOARD

- A. Roof Insulation, General: Preformed roof insulation/substrate boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated on drawings and details.
 - 1. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes at backside of curbs.
 - 2. Tapered insulations: ASTM C1289 Polyisocyanurate tapered system
 - 3. Maintain minimum insulation depth as required to achieve an R-5 insulation value at edges of conditioned space.
- B. Roof Insulation Cover Board: Dens Deck: ASTM C 1177 ½ inch primed Dens Deck
- C. Cant Strips: ASTM C 208, Type II, Grade I, cellulosic -fiber.
- D. Insulation cant strips: ASTM C 208, Type II, Grade I, cellulosic-fiber insulation board.
- E. Substrate Joint Tape: Minimum 6 inch (150 mm) wide, coated, glass-fiber joint tape F.
 - Tapered Edge Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.

2.07 SURFACING MATERIALS

- A. Acrylic Roof Coating, Fire-Retardant Elastomeric: Intumescent and solar reflectant, Energy Star qualified, CRRC listed, and California Title 24 Energy Code compliant, formulated for use on bituminous roof surfaces. Tinted to match existing roof color.
 - 1. Basis of design product: Tremco, Polarcote FR or equal
 - 2. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: Not more than 30 g/L.
 - 3. Reflectance, minimum, ASTM C 1549: 82 percent.
 - 4. 4. Solar Reflectance Index (SRI), ASTM E 1980: 103.

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2.08 WALKWAYS

- A. Walkway pads, ceramic-granule-surfaced reinforced asphaltic composition slip-resisting pads, manufactured as a traffic pad for foot traffic, 1/2-inch (13 mm) thick minimum.
 - 1. Basis of design product: Tremco, Trem-Tred, or equal.
 - 2. Flexural Strength at max. load, minimum, ASTM C 203: 210 psi (1.5 kPa).
 - 3. Granule adhesion (weight loss), maximum, ASTM D 4977: 1.1 gram.
 - 4. Impact Resistance at 77 deg. F (25 deg. C), ASTM D 3746: No Damage to Roof.
 - 5. Pad Size: 36 by 48 inch (914 by 1220 mm).
 - 6. Provide shop drawing indicating walkway pad layout for access to roof-top equipment from line "D" to equipment enclosure.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - 2. Concrete Roof Deck: Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed, with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.
 - 3. Verify that concrete substrate is visibly dry, free of moisture, and slopes to drain.
 - 4. Verify that cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation. B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Spud off all existing aggregate from membrane. Do not damage membrane.
- D. Install sloped insulation where needed to provide cricketing and maintain positive drainage to existing roof drains and scuppers.

3.03 INSTALLATION, GENERAL

- A. Install roofing system in accordance with manufacturer's recommendations.
- B. Install roofing system in accordance with the following NRCA Manual Plates and NRCA recommendations, as applicable; modify as required to comply with requirements of FM Global references above and specific project details for gutters, canopy edges, and others as detailed:
 - 1. Metal Parapet Cap (Coping) and Base Flashing: Plates MB-1 and MB-1S.
 - 2. Base Flashing for Wall-supported Deck: Plates MB-5 and MB-5S.
 - 3. Base Flashing for Non-wall-supported deck (Movement Joint): Plates MB-6 and MB-6S.
 - 4. Base and Surface-mounted Counterflashing: Plates MB-4 and MB-4S..
 - 5. Raised Perimeter Edge with Metal Flashing (Fascia Cap): Plates MB-2 and MB-2S.
 - 6. Embedded Edge Metal Flashing Edge (Gravel-stop): Plates MB-3 and MB-3S.
 - 7. Gutter at Draining Edge: Plates MB-22 and MB-22S.
 - 8. Equipment Support Curb: Plates MB-9 and MB-9S.

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9. Raised Curb Detail at Rooftop HVAC Units (Job site constructed wood curb): Plates MB-13 and MB-13S and Division 06 Section "Miscellaneous Rough Carpentry."
10. Penetration, Sheet Metal Enclosure for Piping Through Roof Deck: Plates MB-16 and MB-16S
11. Penetration, Isolated Stack Flashing: Plates MB-17 and MB-17S.
12. Penetration, Plumbing Vent: Plates MB-18 and MB-18S.
13. Penetration, Pocket: Plates MB-19 and MB-19S.
14. Roof Drain: Plates MB-20 and MB-20S.
15. Guide for Clearances between Pipes / Walls / Curbs - Table 4
16. Guide for Crickets and Saddles - Table 5

3.04 SUBSTRATE BOARD /INSULATION INSTALLATION

- A. Comply with built-up roofing manufacturer's written instructions for installing roof insulation.
- B. Cant Strips: Install and secure preformed 45-degree cant strips at junctures of built-up roofing with vertical surfaces or angle changes greater than 45 degrees.
- C. Install insulation/ substrate board with long joints of board in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 1. Cut and fit substrate board/insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- D. Trim surface of substrate board/ insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- E. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- F. Mechanically Fastened Substrate board/Insulation: Install layer of substrate board/insulation to deck using mechanical fasteners specifically designed and sized for fastening specified boardtype roof insulation to deck type.
 1. Fasten layer of substrate board/insulation according to requirements in FM Global's "RoofNav" for specified Windstorm Resistance Classification, meet I-75
 2. Set cants and tapered edge in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg. F (14 deg. C) of equiviscuous temperature.

3.05 FLUID-APPLIED ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:
 1. Deck Type: Concrete.
 2. Base Sheet: One.
 - a. Adhering Method: Fluid applied.
 3. Granular-Surfaced SBS-Modified Asphalt Cap Sheet:
 - a. Adhering Method: Fluid applied.
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Cooperate with testing agencies engaged or required to perform services for installing roofing system.

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- D. Coordinate installation of roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 - 1. Provide tie-offs at end of each day's work configured as recommended by NRCA Roofing Manual Appendix: Quality Control Guidelines - Insulation to protect new [and existing] roofing.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
 - 3. Remove temporary plugs from roof drains at end of each day.
 - 4. Remove and discard temporary seals before beginning work on adjoining roofing.
- E. Fluid applied mixing: Mix Part A [base] for 1 minute before adding Part B [curative]. After adding part B, mix the combined materials for a minimum of two [2] minutes. Make sure to mix areas around the side walls and bottom of pail.
 - 1. Apply fluid applied adhesive at the rate of two [2] gallons per 100 square feet, interply.
- F. Substrate-Joint Penetrations: Prevent adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.06 BASE-SHEET INSTALLATION

- A. Loosely lay one course of rosin sheet, lapping edges and ends a minimum of 2 inches and 6 inches. Scatter nail into place with square head nails driven flush.
- B. Install lapped base-sheet course, extending sheet over and terminating beyond cants. Attach base sheet as follows:
 - 1. Adhere to insulation in a solid application of fluid applied adhesive @ the rate of two [2] gallons per 100 square feet.
 - 2. Press base sheet into adhesive with weighted roller.

3.07 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing membrane [basesheet] cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
 - 1. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer. Back nail as required for slope.
 - 2. Adhere to base sheet in a continuous application of fluid applied adhesive at the rate of two [2] gallons per 100 square feet.
 - 3. Press membrane into adhesive using a weighted roll. Side laps 4 inches and end laps 6 inches. Heat weld all laps
- B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Install roofing membrane sheets so side and end laps shed water. Completely bond and seal laps, leaving no voids.
 - 1. Repair tears and voids in laps and lapped seams not completely sealed.
 - 2. Heat weld all laps.

3.08 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloped and vertical surfaces, at roof edges, and at penetrations through roof; secure to substrates according to roofing system manufacturer's written instructions, and as follows:

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1. Prime substrates with asphalt primer if required by roofing system manufacturer.
2. Backer Sheet Application: Install backer sheet and adhere to substrate in a continuous application of fluid applied adhesive.
3. Flashing Sheet Application: Adhere flashing sheet to substrate in a continuous application of fluid applied adhesive at the rate of two [2] gallons per 100 square feet.
- B. Extend base flashing up walls or parapets a minimum of 12 inches (300 mm) above built-up roofing and 6 inches (150 mm) onto field of roof membrane.
- C. Flashing Sheet Top Termination: Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
 1. Seal top termination of base flashing with a metal termination bar and joint sealant.
- D. Flashing Sheet Bottom Termination: Adhere flashing sheet to roof membrane sheet continuously along bottom of flashing sheet.
- E. Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions.
- F. Pipes/penetrations/projections: Clean prime and coat all pipes/penetrations and projections with AG Bio base @ the rate of two [2] gallons per 100 square feet. While base is wet, embed Perma fab reinforcement around projection, allow to cure and top coat with AG top coat @ the rate of one [1] gallon per 100 square feet. Extend onto the field of the roof and square off neatly.
- G. Gravelstop: After installation of new cool roof cap, furnish and install a bead of ICE coating at the intersection of the [n] cool roof cap and gravelstop rise. Cover adhesive completely.
- H. Baseflashing @ corners: Apply BIO to all corners from field sheet up to counterflashing.

3.09 SURFACING AND COATING INSTALLATION

- A. Over a clean and dry membrane, apply Cool Roof coating over entire roof and base-flashings in an even and continuous manner. Apply coating in two [2] equal applications per manufactures required. Note if roof is left without being coated for over 30 calendar days, consult with manufacturer and Architect. At minimum roof shall be washed free of all accumulated dirt and debris. If the roof is left for an extended period of time, the roof will need to be primed at the rate ½ gallon per 100 square feet.
- B. B. Apply Coating as required to touch up roof membrane, paint vent pipes, conduits and miscellaneous projections.

3.10 WALKWAY INSTALLATION

- A. Walkway Pads: Install walkway pads using units of size indicated or, if not indicated, of manufacturer's standard size according to walkway pad manufacturer's written instructions.
 1. Set walkway pads in cold-applied adhesive.
 2. Install walkway pad path from Owner's roof access point (line D) to all new equipment.

3.11 FIELD QUALITY CONTROL

- A. Roofing Inspector: Owner will engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.
- B. Roofing Inspector: Contractor shall engage a qualified roofing inspector for a minimum of 6 fulltime days on site to perform roof tests and inspections and to prepare start up, interim, and final reports. Roofing Inspector's quality assurance inspections shall comply with criteria established in ARMA/NRCA's "Quality Control Guidelines for the Application of Built-up Roofing."
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation at commencement and upon completion.
 1. Notify Architect and Owner 48 hours in advance of date and time of inspection.

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- D. Repair or remove and replace components of built-up roofing where test results or inspections indicate that they do not comply with specified requirements.
- 1. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.12 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.13 3.14 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 - 1. Owner:
 - 2. Address:
 - 3. Building Name/Type:
 - 4. Address:
 - 5. Area of Work:
 - 6. Acceptance Date:
 - 7. Warranty Period:
 - 8. Expiration Date:
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition. D. This Warranty is made subject to the following terms and conditions:
 - 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding 74 mph (33 m/s);
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
 - 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.

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3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor. E. IN WITNESS THEREOF, this instrument has been duly executed by:
 1. Authorized Signature:
 2. Name:
 3. Date:

END OF SECTION 07 52 16

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**SECTION 07 72 00
ROOF ACCESSORIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Curbs.
- B. Equipment rails.
- C. Roof penetrations mounting curbs.

1.02 RELATED REQUIREMENTS

- A. Section 07 52 15 – SBS Modified Bituminous Membrane Roofing, Fluid-Applied
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: Roof accessory items fabricated from sheet metal.
- C. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zincron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2017.
- D. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process 2010 (Reapproved 2015).

1.04 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used.
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Maintenance requirements.
- B. Warranty Documentation:
 - 1. Submit manufacturer warranty.
 - 2. Ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products under cover and elevated above grade.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 ROOF CURBS

- A. Roof Curbs Mounting Assemblies: Factory fabricated hollow sheet metal construction, internally reinforced, and capable of supporting superimposed live and dead loads and designated equipment load with fully mitered and sealed corner joints welded or mechanically fastened, and integral counterflashing with top and edges formed to shed water.
 - 1. Roof Curb Mounting Substrate: Curb substrate consists of standing seam metal roof panel system.
 - 2. Sheet Metal Material:

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- a. Aluminum: 0.080 inch minimum thickness, with 3003 alloy, and H14 temper.
- 3. Fabricate curb bottom and mounting flanges for installation directly on metal roof panel system to match slope and configuration of system.
 - a. Extend side flange to next adjacent roof panel seam and comply with seam configurations and seal connection, providing at least 6 inch clearance between curb and metal roof panel flange allowing water to properly flow past curb.
 - b. Where side of curb aligns with metal roof panel flange, attach fasteners on upper slope of flange to curb connection allowing water to flow past below fasteners, and seal connection.
 - c. Maintain at least 12 inch clearance from curb, and lap upper curb flange on underside of down sloping metal roof panel, and seal connection.
 - d. Lap lower curb flange overtop of down sloping metal roof panel and seal connection.
- 4. Provide layouts and configurations indicated on drawings.
- B. Curbs Adjacent to Roof Openings: Provide curb on each side of opening, with top of curb horizontal for equipment mounting.
 - 1. Provide preservative treated wood nailers along top of curb.
 - 2. Insulate inside curbs with 1-1/2 inch thick fiberglass insulation.
- C. Equipment Rail Curbs: Straight curbs on each side of equipment, with top of curbs horizontal and level with each other for equipment mounting.
 - 1. Provide preservative treated wood nailers along top of rails.
 - 2. Height Above Finished Roof Surface: 8 inches, minimum or as indicated in drawings.
- D. Equipment Support: Straight curbs on each side of equipment, with top of curbs parallel with metal roofing system and each other for equipment mounting.

PART 3 EXECUTION 3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using methods recommended by manufacturer for achieving acceptable results for applicable substrate under project conditions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

3.04 CLEANING

- A. Clean installed work to like-new condition.

3.05 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

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SECTION 07 92 00 - JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.
- D. Field quality control

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 08 11 13 - Hollow Metal Doors and Frames.
- C. Section 08 71 00 - Door Hardware: Setting exterior door thresholds in sealant.
- D. Section 09 21 16 - Gypsum Board Assemblies: Acoustical insulation in sound-rated walls and ceilings.
- E. Section 09 30 00 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

1.03 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer 2015 (Reapproved 2022).
- B. ASTM C834 - Standard Specification for Latex Sealants 2017.
- C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications 2022.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- E. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.
- F. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants 2018.
- G. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2018.
- H. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints 2019 (Reapproved 2020).

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- I. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension 2016 (Reapproved 2021).
- J. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- K. SCAQMD 1168 - Adhesive and Sealant Applications 1989, with Amendment (2017).

1.04 ACTION SUBMITTALS

- A. CALGreen Submittals: Provide product data to demonstrate that adhesives, sealants, and caulks, including all system components such as primers, adhesives, and coatings meet the requirements of the following standards:
 - 1. TABLE 5.504.4.1 - ADHESIVE VOC LIMIT; TABLE 5.504.4.2 - SEALANT VOC LIMIT as listed in Section 01 81 13 - NTU Sustainable Design Requirements.
- B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
 - 5. Substrates for which use of primer is required.
 - 6. Substrates for which laboratory adhesion and/or compatibility testing is required.
 - 7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
 - 8. Sample product warranty.
 - 9. Certification by manufacturer indicating that product complies with specification requirements.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Drawings or catalog illustrations in sufficient detail to show installation and interface of the work of this Section with the work of adjacent trades.
- E. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

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1.05 INFORMATIONAL SUBMITTALS

- A. Certification by joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds (VOCs).
- B. Submit manufacturer's letter of certification that products comply with specified requirements and are suitable for the uses intended.
- C. Product Test Reports:
 - 1. Certified test results of elastomeric sealants showing compliance with specified requirements. Include results of aged performances including hardness, stain-resistance, adhesion and cohesion under cyclic movement, low temperature flexibility, modulus of elasticity at 100-percent strain, effects of heat and aging, and effects of accelerated weathering.
 - 2. Preconstruction field test results indicating which products and joint preparation methods demonstrated acceptable adhesion to joint substrates.
- D. Installer Qualifications:
 - 1. Written documentation of applicator's qualifications, including reference projects of similar scope and complexity, with current phone contacts of architects and owners for verification.

1.06 CLOSEOUT SUBMITTALS

- A. Sustainable Design Documentation: For sealants and primers, submit VOC content and emissions documentation; see Division 1: Sustainable Design Requirements.
- B. Preinstallation Field Adhesion Test Plan: Submit at least two weeks prior to start of installation.
- C. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.
- D. Field Quality Control Log: Submit filled-out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.
- E. Manufacturer's qualification statement.
- F. Installer's qualification statement.

1.07 QUALITY ASSURANCE

- A. Single Source Responsibility for Joint Sealants: Obtain joint sealants of each type from a single manufacturer.

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- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company shall be approved by the sealant manufacturer and shall demonstrate at least three years of documented experience in installing materials of types specified.
 - 1. Provide list of at least three projects of similar scope and complexity.
 - 2. Installer shall designate a single individual as project foreman who shall be on site at all times during installation.
- D. Pre-Installation Conference: Prior to scheduled commencement of the sealant installation and associated work, conduct a meeting at the project site with the installer, architect/consultant, owner, manufacturer’s representative and any other persons directly involved with the performance of the Work. The Installer shall record conference discussions and to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to the Work.
- E. Preinstallation Field Adhesion Test Plan: For jobsite field samples prior to general installation, conduct field-tests for adhesion of each type of joint sealant and joint substrates using proposed joint preparation methods recommended by manufacturer.,
 - 1. Include destructive field adhesion testing of one sample of each combination of sealant type and substrate.
 - 2. Field Adhesion Test Method: Use manufacturer's standard field adhesion test methods and methods proposed for joint preparation to verify proper priming and joint preparation techniques required to obtain optimum adhesion of joint sealants to joint substrate. Evaluate and report results of field adhesion testing.
 - 3. Propose locations for field-test joints where inconspicuous and obtain Architect's approval prior to proceeding.
 - 4. Field Samples: Joints installed during pre-construction field adhesion testing that are accepted by Architect shall be retained as standard of acceptability and incorporated into Work of that area during general installation. At least one such standard of minimum 5 feet in length shall be established for each type of sealant and substrate.
 - 5. Destructive testing is not required for interior acrylic latex sealants.
- F. Nondestructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.
 - 1. Record results on Field Quality Control Log.
 - 2. Repair failed portions of joints.
- G. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.

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1. Sample: At least 18 inches long.
2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the 1-inch mark is that distance from the substrate, the test has failed.
3. If either adhesive or cohesive failure occurs before minimum elongation, take necessary measures to correct conditions and retest; record each modification to products or installation procedures.
4. Record results on Field Quality Control Log.
5. Repair failed portions of joints.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in the manufacturer's unopened containers with all labels intact and legible at time of use. Handle and store materials in accordance with manufacturer's recommendations with proper precautions to ensure fitness of material when installed.

1.09 WARRANTY

- A. Manufacturer Warranty: Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.
- B. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.
- D. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: Two years from date of Substantial Completion.
- E. Exterior Sealants: Furnish a written warranty against leaks or other defects of materials and workmanship. Defects include but are not limited to changes in the structural, physical or chemical properties of the sealant materials that impair function or require abnormal maintenance, changes in surface finish, color or texture, failure in adhesion, weather resistance or durability, failure to prevent entry of water, or failure to comply with specified requirements.
 1. This warranty shall not cover formation of cracks or defects in substrate materials adjacent to the seal, joint movement in excess of movement rating of sealant, or physical damage caused by others.

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2. Repair or replace defective materials and workmanship during warranty period without expense to Owner, including removal and replacement of other items as required.
 3. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.
 4. Warranty Period: Ten years from date of Substantial Completion.
- F. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 PRODUCTS

2.01 SUSTAINABLE MATERIAL REQUIREMENTS, GENERAL

- A. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene), except for aerosol products as specified in subsection 2, below.
- B. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to:
 - a. Wall expansion and control joints.
 - b. Joints between door, window, and other frames and adjacent construction.

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- c. Joints between different exposed materials.
 - d. Openings below ledge angles in masonry.
 - e. Other joints indicated below.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
- a. Joints between door, window, and other frames and adjacent construction.
 - b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
 - c. Other joints indicated below.
3. Do not seal the following types of joints:
- a. Intentional weep holes in masonry.
 - b. Joints indicated to be treated with manufactured expansion joint cover, or some other type of sealing device.
 - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - d. Joints where installation of sealant is specified in another section.
 - e. Joints between suspended panel ceilings/grid and walls.

2.03 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products with acceptable levels of volatile organic compound (VOC) content; see Section 01 81 13 - NTU Sustainable Design Requirements.
- B. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.04 ELASTOMERIC JOINT SEALANTS

- A. Sealant Type A: Low-modulus, non-sag sealant; comply with ASTM C920, Type S or M, Grade NS, Class 25, Class 35, Class +50/-50, Class +100/-50 as applicable.
 - 1. Applications: For **exterior** joints in **vertical surfaces and non-traffic horizontal surfaces** including, but not limited to, the following:
 - a. Control and expansion joints in cast-in-place concrete.
 - b. Joints between architectural pre-cast concrete units.
 - c. Control and expansion joints in unit masonry.

- d. Butt joints between metal panels.
 - e. Joints between marble and granite.
 - f. Joints between different materials listed above.
 - g. Perimeter joints between materials listed above and frames of doors, windows, storefronts, louvers and similar openings.
 - h. Control and expansion joints in ceiling and overhead surfaces.
2. Single-Component Urethanes and Silyl-Terminated Polymers:
 - a. Sikaflex-1a (13)
 - b. Sikaflex Textured Sealant (40)
 - c. Sikaflex-15 LM (33)
 - d. SikaHyflex 150 LM (18)
 3. Multiple-Component Urethanes and Silyl-Terminated Polymers:
 - a. Sikaflex-2c NS EZ mix (63)
 4. Single-Component Silicones:
 - a. Sikasil WS 290 (29)
 - b. Sikasil WS 295 (37)
 - c. Sika Silbridge 300 (?)
 - d. Sikasil 728NS (21)
 - e. Sikasil N Plus (37)
- B. Sealant Type B: Low-modulus, non-sag sealant; comply with ASTM C920, Type S or M, Grade NS, Class 25, Class 35, Class +50/-50, Class +100/-50 as applicable.
1. Applications: For **interior** joints in **vertical surfaces and non-traffic horizontal surfaces** including, but not limited to, the following:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints on exposed interior surfaces of exterior openings.
 - c. Joints on pre-cast beams and planks.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors, windows, storefronts, louvers, elevator entrances and similar openings.
 - e. Trim or finish joints subject to movement.

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2. Single-Component Urethanes and Silyl-Terminated Polymers:
 - a. Sikaflex-1a (13)
 - b. Sikaflex Textured Sealant (40)
 - c. Sikaflex-15 LM (33)
 - d. SikaHyflex 150LM (18)
 3. Multiple-Component Urethanes and Silyl-Terminated Polymers:
 - a. Sikaflex-2c NS EZ mix (63)
 4. Single-Component Silicones:
 - a. Sikasil WS-290 (29)
 - b. Sikasil WS-295 (37)
 - c. Sika Silbridge 300 (?)
- C. Sealant Type C: Polyurethane complying with ASTM C920, Type S or M, Grade P, Class 25 or silicone sealant complying with ASTM C920, Type S or M, Grade P or NS, Class 100/50 as applicable.
1. Applications: For **exterior and interior** joints in **horizontal and sloped traffic surfaces** including, but not limited to, the following:
 - a. Control expansion and isolation joints in cast-in-place concrete.
 - b. Control expansion and isolation joints in structural pre-cast concrete units.
 - c. Joints between architectural pre-cast concrete paving units.
 - d. Tile control and expansion joints.
 - e. Joints between different materials listed above.
 2. Single Component Urethane.
 - a. Sikaflex-1c SL (40)
 3. Multiple-Component Urethane.
 - a. Sikaflex-2c SL (38)
 4. Single Component Silicone:
 - a. Sikasil 728 SL (29)
 5. Multiple-Component Silicone:

- a. Sikasil 728 RCS (30)
- D. Sealant Type D: Single-component or multi-component polyurethane sealant certified by National Sanitation Foundation as conforming to the requirements of NSF Standard 61- Drinking Water System Components-Health Effects; comply with ASTM C920, Type S or M, Grade P or NS, Class 25; select color from the NSF listing.
1. Applications: For **exterior and interior** joints in vertical and horizontal surfaces of **potable water storage areas**.
 2. Single Component Urethane:
 - a. Sikaflex-1a (13)
 3. Multiple-Component Urethane:
 - a. Sikaflex-2c NS EZ mix (63)
- E. Sealant Type E: Single-component or multi-component polyurethane sealant complying United States Department of Agriculture (USDA) guidelines for incidental food contact with the cured sealant; comply with ASTM C920, Type S or M, Grade P or NS, Class 25; select color from listing of those approved.
1. Applications: For **interior joints in vertical and horizontal surfaces where incidental food contact** may occur.
 2. Single Component Urethane:
 - a. Sikaflex-1a (13)
 3. Multiple-Component Urethane:
 - a. Sikaflex-2c NS EZ Mix (63)
- F. Sealant Type F: Single-component urethanes and silyl-terminated polymers.
1. Applications: For interior or exterior joints in vertical surfaces between laps in fabrications of sheet metal.
 2. Single Component Urethane; Sikaflex-1a, Sikaflex Textured Sealant, SikaHyflex 150LM.
 - a. Sikaflex-1a (13)
 - b. Sikaflex Textured Sealant (63)
 - c. SikaHyflex 150LM (18)
- G. Sealant Type G: Single-component urethanes and silicones.
1. Applications: For **exterior vertical joints under metal thresholds and saddles or as bedding sealant for sheet metal flashing and frames of metal or wood**.

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2. Single Component Urethane:
 - a. Sikaflex-1a (13)
 - b. Sikaflex Textured Sealant (40)
3. Single Component Silicone:
 - a. Sikasil WS 295 (37)

2.05 NONSAG JOINT SEALANTS -

- A. Type H - Nonstaining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
 1. Movement Capability: Plus and minus [____] percent, minimum.
 2. Nonstaining to Porous Stone: Nonstaining to light-colored natural stone when tested in accordance with ASTM C1248.
 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
 4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
 5. Color: Match adjacent finished surfaces.
 6. Color: To be selected by Architect from manufacturer's standard range.
 7. Cure Type: Single-component, neutral moisture curing.
 8. Service Temperature Range: Minus 20 to 180 degrees F.
 9. Products:
 - a. Dow; DOWSIL 756 SMS Building Sealant: www.dow.com/#sle. (43.8 g/L)
 - b. Dow; DOWSIL 790 Silicone Building Sealant: www.dow.com/#sle. (38.5 g/L)
 - c. Dow; DOWSIL 791 Silicone Weatherproofing Sealant: www.dow.com/#sle. (30 g/L)
 - d. Dow; DOWSIL 795 Silicone Building Sealant: www.dow.com/#sle. (30 g/L)
 - e. Pecora Corporation; Pecora 890 NST (Non-Staining Technology): www.pecora.com/#sle. (98; GG)
 - f. Pecora Corporation; Pecora 864 NST (Non-Staining Technology): www.pecora.com/#sle. (98; GG)
 - g. Sika Corporation; Sikasil WS-290; www.usa.sika.com/#sle. (29)
 - h. Sika Corporation; Sikasil WS-295: www.usa.sika.com/#sle. (37)

- i. Sika Corporation; Sikasil 728NS: www.usa.sika.com/#sle. (21)
 - j. Tremco Commercial Sealants & Waterproofing; Spectrem 1: www.tremcosealants.com/#sle. (1, GG)
 - k. Tremco Commercial Sealants & Waterproofing; Spectrem 2: www.tremcosealants.com/#sle. (42, GG)
 - l. Tremco Commercial Sealants & Waterproofing; Spectrem 3: www.tremcosealants.com/#sle. (18, GG)
 - m. Tremco Commercial Sealants & Waterproofing; Spectrem 4-TS: www.tremcosealants.com/#sle. (18, GG)
 - n. Tremco Commercial Sealants & Waterproofing; Tremsil 200: www.tremcosealants.com/#sle. (1, GG)
 - o. Tremco Commercial Sealants & Waterproofing; Tremsil 400: www.tremcosealants.com/#sle. (42 g/L)
- B. Type J - Silicone Sealant: ASTM C920, Grade NS, Use T; single component, explicitly approved by manufacturer for traffic exposure when recessed below traffic surface; not expected to withstand continuous water immersion.
1. Movement Capability: Plus 100 percent and minus 50 percent, minimum.
 2. Hardness Range: 0 to 15, Shore A, when tested in accordance with ASTM C661.
 3. Color: To be selected by Architect from manufacturer's standard range.
 4. Products:
 - a. Dow; DOWSIL NS Parking Structure Sealant: www.dow.com/#sle. (37 g/L)
 - b. Dow; DOWSIL 888 Silicone Joint Sealant: www.dow.com/#sle. (26 g/L)
 - c. Pecora Corporation; Pecora PCS: www.pecora.com/#sle. (82, GG)
 - d. Pecora Corporation; Pecora 301 NS (Non-Sag): www.pecora.com/#sle. (50, GG)
 - e. Tremco Commercial Sealants & Waterproofing; Spectrem 800: www.tremcosealants.com/#sle. (1, GG)
- C. Type K - Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 25 percent, minimum.
 2. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
 3. Color: Match adjacent finished surfaces.

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4. Color: To be selected by Architect from manufacturer's standard range.
5. Cure Type: Single component, neutral moisture curing.
6. Service Temperature Range: Minus 65 to 180 degrees F.
7. Products:
 - a. Dow; DOWSIL 999-A Building and Glazing Sealant: www.dow.com/#sle. (40 g/L)
 - b. Dow; DOWSIL 758 Silicone Weather Barrier Sealant: www.dow.com/#sle. (22.2 g/L)
 - c. Franklin International, Inc; Titebond 100% Silicone Sealant: www.titebond.com/#sle. (50 g/L)
 - d. Pecora Corporation; Pecora 860: www.pecora.com/#sle. (25, GG)
 - e. Pecora Corporation; Pecora 890FTS (Field Tintable Smooth): www.pecora.com/#sle. (98, GG)
 - f. Sika Corporation; Sikasil GP: www.usa.sika.com/#sle. (29)
 - g. Sika Corporation; Sikasil WS-295 www.usa.sika.com/#sle. (37)
 - h. Sika Corporation; Sikasil N-Plus US: www.usa.sika.com/#sle. (37)
 - i. Sika Corporation; Sikasil 728NS: www.usa.sika.com/#sle. (21)
- D. Type L - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
 1. Color: White.
 2. Products:
 - a. Pecora Corporation; Pecora 898 NST (Non-Staining Technology): www.pecora.com/#sle. (82, GG)
 - b. Sika Corporation; Sikasil GP: www.usa.sika.com/#sle. (29)
- E. Type M - Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single or multicomponent; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface.
 1. Movement Capability: Plus and minus 35 percent, minimum.
 2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
 3. Color: Match adjacent finished surfaces.

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4. Service Temperature Range: Minus 40 to 180 degrees F.
 5. Products:
 - a. Sika Corporation; Sikaflex-1a: www.usa.sika.com/#sle. (13)
 - b. Sika Corporation; Sikaflex-2c NS: www.usa.sika.com/#sle. (63)
- F. Type N - Nonsag Traffic-Grade Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; T, M and O single or multi-component; explicitly approved by manufacturer for continuous water immersion and traffic without the necessity to recess sealant below traffic surface.
1. Movement Capability: Plus and minus 25 percent, minimum.
 2. Hardness Range: 40 to 50, Shore A, when tested in accordance with ASTM C661.
 3. Color: Match adjacent finished surfaces.
 4. Service Temperature Range: Minus 40 to 180 degrees F.
 5. Products:
 - a. Pecora Corporation; Urexpam NR-200 (0)
 - b. Sika, Inc.; Sikaflex-2c SL (38)
 - c. Tremco Incorporated, THC 900/901. (94)

2.06 NON-SAG ACRYLIC SEALANTS

- A. Type O - Acrylic-Urethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; paintable; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 12-1/2 percent, minimum.
 2. Hardness Range: 15 to 40, Shore A, when tested in accordance with ASTM C661.
 3. Color: White.
 4. Service Temperature Range: Minus 40 to 180 degrees F.
 5. Products:
 - a. Sherwin-Williams Company; Shermax Urethanized Elastomeric Sealant: www.sherwin-williams.com/#sle.(1)
 - b. Top Gun, a brand of PPG Architectural Coatings; Top Gun 400: www.ppgpaints.com/#sle. (2)
- B. Type P - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, nonstaining, nonbleeding, nonsagging; not intended for exterior use. Product shall be formulated to

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effectively reduce airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E90 use for drywall or plaster wall systems, bedding electrical boxes and other wall outlets.

1. Color: To be selected by Architect from manufacturer's standard range.
2. Products:
 - a. Franklin International, Inc; Titebond GREENchoice Acoustical Smoke & Sound Sealant: www.titebond.com/#sle. (50)
 - b. Hilti, Inc; CP 506 Smoke and Acoustical Sealant: www.us.hilti.com/#sle. (57)
 - c. Pecora Corporation; AC-20 +Silicone: www.pecora.com/#sle. (31, GG)
 - d. Sherwin-Williams Company; 950A Siliconized Acrylic Latex Caulk: www.sherwin-williams.com/#sle. (50 g/L)
 - e. Specified Technologies Inc; Smoke N' Sound Acoustical Sealant: www.stifirestop.com/#sle. (1, GG)
 - f. Top Gun, a brand of PPG Architectural Coatings; Top Gun 200: www.ppgpaints.com/#sle. (1, GG)

2.07 SELF-LEVELING JOINT SEALANTS

- A. Type Q - Self-Leveling Silicone Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent, explicitly approved by manufacturer for traffic exposure when recessed below traffic surface; not expected to withstand continuous water immersion.
 1. Movement Capability: Plus 100 percent, minus 50 percent, minimum.
 2. Hardness Range: 0 to 15, Shore A, when tested in accordance with ASTM C661.
 3. Color: To be selected by Architect from manufacturer's standard range.
 4. Service Temperature Range: Minus 40 to 180 degrees F.
 5. Products:
 - a. Dow; DOWSIL SL Parking Structure Sealant: www.dow.com/#sle. (30)
 - b. Dow; DOWSIL FC Parking Structure Sealant: www.dow.com/#sle. (30)
 - c. Pecora Corporation; Pecora 300 SL (Self-Leveling): www.pecora.com/#sle. (40, GG)
 - d. Sika Corporation; Sikasil 728RCS: www.usa.sika.com/#sle. (30)
 - e. Sika Corporation; Sikasil 728SL: www.usa.sika.com/#sle. (29)

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- f. Tremco Commercial Sealants & Waterproofing; Spectrem 900SL:
www.tremcosealants.com/#sle. (1)

- B. Type R - Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
 - 3. Color: To be selected by Architect from manufacturer's standard range.
 - 4. Products:
 - a. Pecora Corporation: Pecora 300 SL (Self-Leveling): www.pecora.com/#sle. (40)
 - b. Sherwin-Williams Company; Loxon/Stampede 1SL Polyurethane Sealant:
www.sherwin-williams.com/#sle. (50 g/L)
 - c. Sherwin-Williams Company; Loxon/Stampede 2SL Polyurethane Sealant:
www.sherwin-williams.com/#sle. (50 g/L)
 - d. Sika Corporation; Sikaflex-1c SL: www.usa.sika.com/#sle. (40)
 - e. Sika Corporation; Sikaflex-2c SL: www.usa.sika.com/#sle. (38)

- C. Type S - Self-Leveling Polyurethane Sealant for Horizontal Expansion Joints: ASTM C920, Grade P, Uses T, M, and O; multicomponent; explicitly approved by manufacturer for horizontal expansion joints.
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Hardness Range: 30 to 35, Shore A, when tested in accordance with ASTM C661.
 - 3. Color: To be selected by Architect from manufacturer's standard range.
 - 4. Tensile Strength: 200 to 250 psi in accordance with ASTM D412.
 - 5. Products:
 - a. Pecora Corporation; DynaTrol II-SG (Slope Grade): www.pecora.com/#sle. (25)
 - b. Pecora Corporation; Urexpan NR-200: www.pecora.com/#sle. (0)
 - c. Tremco Commercial Sealants & Waterproofing; THC-901:
www.tremcosealants.com/#sle. (94)

- D. Type T - Self-Leveling Polyurethane Sealant for Continuous Water Immersion: Polyurethane; ASTM C920, Grade P, Uses M and A; single component; explicitly approved by manufacturer for traffic exposure and continuous water immersion.

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1. Movement Capability: Plus and minus 25 percent, minimum.
 2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
 3. Color: To be selected by Architect from manufacturer's standard range.
 4. Service Temperature Range: Minus 40 to 180 degrees F.
 5. Products:
 - a. Sika Corporation: Sikaflex-1c SL: www.usa.sika.com/#sle. (40)
 - b. Sika Corporation: Sikaflex-2c SL: www.usa.sika.com/#sle. (38)
- E. Type U - Self-Leveling Silyl-Terminated Polyether/Polyurethane (STPE/STPU)
Sealant: ASTM C920, Grade P, Uses M and A; single component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion.
1. Movement Capability: Plus and minus 35 percent.
 2. Hardness Range: 30 to 55, Shore A, when tested in accordance with ASTM C661.
 3. Color: To be selected by Architect from manufacturer's standard range.
 4. Service Temperature Range: Minus 40 to 180 degrees F.
 5. Products:
 - a. Pecora Corporation; Urexpan NR-201: www.pecora.com/#sle. (50, GG)
- F. Type V - Rigid Self-Leveling Polyurethane Joint Filler: Two part, low viscosity, fast setting; intended for cracks and control joints not subject to significant movement.
1. Hardness Range: Greater than 100, Shore A, and 50 to 80, Shore D, when tested in accordance with ASTM C661.
 2. Products:
 - a. ARDEX Engineered Cements; ARDEX ARDIFIX: www.ardexamericas.com/#sle. (0)

2.08 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
 2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.

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3. Open Cell: 40 to 50 percent larger in diameter than joint width.
 4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Outlet Box Sealant: Resilient sealer pads; use to seal back and sides of all junction boxes recessed in acoustically-rated partitions.
1. Fire-Rated Partitions: Hevi-Duty Nelson FSP Firestop Putty Pads, or equal (no known equal)
 2. Non-Fire-Rated Partitions: Lowry's Outlet Box Pad, or equal (no known equal).
- E. Compressible Tape: 1/4-inch-thick, double-sided, closed-cell foam tape; use to seal interior partitions to window mullions.
1. Norseal V988, 3M 4992, or equal
- F. Foam Sealing Tape:
1. General: Open-cell, flexible, polyurethane foam impregnated with synthetic resin and developed to expand into openings and create seals which are airtight, thermally efficient, and vapor permeable.
 2. Applications: Door and window shim spaces at heads and jambs, and elsewhere as indicated.
 3. Basis-of-Design Product: Tremco Incorporated; ExoAir Trio.
 4. Tape Width: As required for intended applications.
- G. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- H. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

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- D. Preinstallation Adhesion Testing: Install a sample for each test location indicated in the test plan.
1. Test each sample as specified in PART 1 under QUALITY ASSURANCE article.
 2. Notify Architect of date and time that tests will be performed, at least seven days in advance.
 3. Arrange for sealant manufacturer's technical representative to be present during tests.
 4. Record each test on Preinstallation Adhesion Test Log as indicated.
 5. If any sample fails, review products and installation procedures, consult manufacturer, or take other measures that are necessary to ensure adhesion; retest in a different location; if unable to obtain satisfactory adhesion, report to Architect.
 6. After completion of tests, remove remaining sample material and prepare joints for new sealant installation.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
1. Remove paints from joint surfaces except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
 2. Remove wax, oil, grease, dirt film residues, temporary protective coatings and other residues by wiping with cleaner recommended for that purpose.
 3. Remove dust by blowing clean with oil-free, compressed air.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.
- E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in an inconspicuous area to verify that it does not stain or discolor slab.
- F. For previously sealed joints, remove all traces of previous sealant and joint backer by mechanical methods, such as by cutting, grinding and wire brushing, in manner not damaging to surrounding surfaces.

3.03 INSTALLATION

- A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Provide joint sealant installations complying with ASTM C1193.

- C. Install acoustical sealant application work in accordance with ASTM C919.
- D. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
 - 1. Width/depth ratio of 2:1.
 - 2. Neck dimension no greater than 1/3 of the joint width.
 - 3. Surface bond area on each side not less than 75 percent of joint width.
- E. Fit joint backer securely by compressing backer material 25 percent to 40 percent so no displacement occurs during tooling. Avoid stretching or twisting joint backer.
- F. Install bond breaker backing tape where backer rod cannot be used, adhering strictly to the manufacturers installation requirements.
- G. Prime joint substrates where required. Use and apply primer according to sealant manufacturers recommendations. Confine primers to sealant bond surfaces; do not allow spillage or migration onto adjoining surfaces.
- H. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- I. Install sealants to uniform cross-sectional shapes with depths relative to joint widths that allow optimum sealant movement capability as recommended by sealant manufacturer.
- J. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- K. Tool sealants in manner that forces sealant against back of joint, ensures firm, full contact at joint interfaces and leaves a finish that is smooth, uniform and free of ridges, wrinkles, sags, air pockets and embedded impurities.
- L. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
- M. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - NTU Quality Requirements for additional requirements.
- B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.
- C. Non-Destructive Adhesion Testing: If there are any failures in first 100 linear feet, notify Architect immediately.

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- D. Destructive Adhesion Testing: If there are any failures in first 1,000 linear feet, notify Architect immediately.
- E. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.
- F. Repair destructive test location damage immediately after evaluation and recording of results.

3.05 PROTECTION

- A. Protect sealants from contact with contaminating substances and from damage from construction operations. Cut out, remove and replace contaminated or damaged sealants immediately, so that they are without contamination or damage at time of Substantial Completion.

3.06 CLEANING

- A. Construction Waste Management: Manage construction waste in accordance with provisions of Section 01 74 19 - NTU Construction Waste Management and Disposal. Submit documentation for CALGreen compliance in accordance with Division 1 Sustainable Design Requirements.

3.07 POST-OCCUPANCY

- A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width, i.e., at low temperature in thermal cycle. Report failures immediately and repair them.

END OF SECTION

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SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Non-fire-rated hollow metal doors and frames.
- B. Fire-rated hollow metal doors and frames.
- C. Thermally insulated hollow metal doors with frames.
- D. Accessories, including glazing, louvers, and matching panels.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 08 14 16 - Flush Wood Doors.
- C. Section 08 71 00 - Door Hardware.
- D. Section 09 90 00 - Painting and Coating: Field finishing.

1.03 ABBREVIATIONS AND ACRONYMS

- A. ANSI: American National Standards Institute.
- B. HMMA: Hollow Metal Manufacturers Association.
- C. NAAMM: National Association of Architectural Metal Manufacturers.
- D. NFPA: National Fire Protection Association.
- E. SDI: Steel Door Institute.
- F. UL: Underwriters Laboratories.

1.04 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2018.
- C. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames 2020.
- D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2017.
- E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2020.

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- F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2022.
- G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable 2021a.
- H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2018a.
- I. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
- J. ASTM C476 - Standard Specification for Grout for Masonry 2022.
- K. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2022.
- L. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames 2016.
- M. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- N. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames 2002.
- O. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames 2011.
- P. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames 2017.
- Q. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames 2014.
- R. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames 2019.

1.05 SUBMITTALS

- A. CALGreen Submittals: Provide the following:
 - 1. Product Data for CALGreen 5.504.4.1 – Finish Material Pollutant Control; Adhesives, Sealants, and Caulks: For adhesives, sealants, and caulks, including printed statement of VOC content and chemical components.
 - 2. Product Data for CALGreen 5.504.4.3 – Finish Material Pollutant Control; Architectural paints and coatings, including printed statement of VOC content and chemical components.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

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- D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.
- E. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.
- F. Manufacturer's Qualification Statement.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide hollow metal doors and frames from SDI Certified manufacturer: <https://steeldoor.org/sdi-certified/#sle>.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hollow Metal Doors and Frames:
 - 1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com/#sle.
 - 2. Curries, an Assa Abloy Group company: www.assaabloydss.com/#sle.
 - 3. Republic Doors, an Allegion brand: www.republicdoor.com/#sle.
 - 4. Steelcraft, an Allegion brand: www.allegion.com/#sle.

2.02 PERFORMANCE REQUIREMENTS

- A. Requirements for Hollow Metal Doors and Frames:
 - 1. Steel Sheet: Comply with one or more of the following requirements: galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
 - 2. Accessibility: Comply with ICC A117.1 and ADA Standards.
 - 3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
 - 4. Door Edge Profile: Manufacturers standard for application indicated.
 - 5. Typical Door Face Sheets: Flush.

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6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturer's standard.
7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
8. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
 - a. Based on SDI Standards: Provide at least A40/ZF120 (galvannealed) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvannealed) for corrosive locations.
- B. Hollow Metal Panels: Same construction, performance, and finish as doors.
- C. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

- A. Door Finish: Factory primed and field finished.
- B. Exterior Doors: Thermally insulated.
 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 3 - Extra Heavy-duty.
 - b. Physical Performance Level A 1 000 000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Model 1 - Full Flush.
 - d. Door Face Metal Thickness: 20 gauge, 0.032 inch, minimum.
 - e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
 2. Door Core Material: Vertical steel stiffeners with fiberglass batts.
 - a. Foam Plastic Insulation: Manufacturer's standard board insulation with maximum flame spread index (FSI) of 75, and maximum smoke developed index (SDI) of 450 in accordance with ASTM E84, and completely enclosed within interior of door.
 3. Door Thermal Resistance: R-Value of 2, minimum.

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4. Door Thickness: 1-3/4 inches, nominal.
5. Top Closures for Outswinging Doors: Flush with top of faces and edges.
6. Weatherstripping: 08 71 00 - Door Hardware.

2.04 HOLLOW METAL FRAMES

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Frame Finish: Factory primed and field finished.
- C. Exterior Door Frames: Full profile/continuously welded type.
 1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
 2. Frame Metal Thickness: 14 gage, 0.067 inch, minimum.
 3. Weatherstripping: 08 71 00 - NTU Door Hardware.
- D. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
- E. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.05 FINISHES

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.
- B. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15 mil, 0.015 inch dry film thickness (DFT) per coat; provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.06 ACCESSORIES

- A. Door Window Frames: Door window frames with glazing securely fastened within door opening.
 1. Size: As indicated on drawings.
 2. Frame Material: 18 gage, 0.0478 inch, galvanized steel, with finish to match door.
 3. Glazing: 1/4 inch thick, tempered glass, in compliance with requirements of authorities having jurisdiction. Provide fire rated glazing at labeled doors.
- B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered corners; prepared for countersink style tamper proof screws.

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- C. Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish.
- D. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.
- E. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- F. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Coordinate frame anchor placement with wall construction.
- C. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- D. Install door hardware as specified in Section 08 71 00 - Door Hardware.
 - 1. Comply with recommended practice for hardware placement of doors and frames in accordance with ANSI/SDI A250.6 or NAAMM HMMA 861.
- E. Coordinate installation of electrical connections to electrical hardware items.
- F. Touch up damaged factory finishes.

3.04 TOLERANCES

- A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

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- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING

- A. Adjust for smooth and balanced door movement.
- B. Test sound control doors for force to close, latch, and unlatch; adjust as necessary in compliance with requirements.

3.06 SCHEDULE

- A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

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**SECTION 08 12 13
HOLLOW METAL FRAMES**

PART 1 GENERAL 1.01 SECTION INCLUDES

- A. Fire-rated hollow metal frames for non-hollow metal doors and flush wood doors.

1.02 RELATED REQUIREMENTS

- A. Section 08 14 16 - Flush Wood Doors: Non-hollow metal door for hollow metal frames.
- B. Section 08 71 00 - Door Hardware: Hardware, silencers, and weatherstripping.
- C. Section 09 91 00 - Painting

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2011.
- C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2014.
- D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2011.
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zincron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2017.
- F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable 2016.
- G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2017.
- H. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames 2016.
- I. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- J. NAAMM HMMA 805 - Recommended Selection and Usage Guide for Hollow Metal Doors and Frames 2012.
- K. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames 2002.
- L. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames 2011.
- M. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames 2007.
- N. NAAMM HMMA 860 - Guide Specifications for Hollow Metal Doors and Frames 2013.

1.04 SUBMITTALS

- A. See Division 1 for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.
- D. Samples: Submit one sample of frame metal, 2 inch by 2 inch, showing factory finishes, colors, and surface textures.
- E. Manufacturer's Qualification Statement.

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1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store in accordance with applicable requirements and in compliance with standards and/or custom guidelines as indicated.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hollow Metal Frames with Integral Casings:
 1. Allegion, Steelcraft. 877-671-7011, www.steelcraft.com, "K-Series Drywall"
 2. Substitutions: See Division 1 for Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

- A. Door Frame Type: Provide hollow metal door frames with integral casings at interior and exterior locations.
- B. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
- C. Accessibility: Comply with ICC A117.1 and ADA Standards.
- D. Glazed Lights and Sidelights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.
- E. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior frame that is also indicated as being sound-rated must comply with the requirements specified for exterior frames and for sound-rated frames; where two requirements conflict, comply with the most stringent.
- F. Hardware Preparations, Selections and Locations: Comply with BHMA A156.115, NAAMM HMMA 830, NAAMM HMMA 831 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- G. Zinc Coating for Units Subject to Corrosive Conditions: Components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvanized) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise. H. Transom Bars: Fixed, of profile same as jamb and head.
- I. Frames for Interior Glazing or Borrowed Lites: Construction and face dimensions to match door frames, and as indicated on drawings.
- J. Frames Wider than 48 Inch: Reinforce with steel channel fitted tightly into head of frame, flush with top.

2.03 REGULATORY REQUIREMENTS

- A. A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 1. 1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

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- B. Fire-Rated, Borrowed-Lite Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2.04 INTERIOR FRAMES

A. A. Construct interior frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified. B. Extra-Heavy-Duty Frames: SDI A250.8, Level 3.

1. Physical Performance: Level A according to SDI A250.4.
2. Frames:
 - a. Materials: Uncoated, steel sheet, minimum thickness of (16 gauge) 0.053 inch.
 - b. Construction: Full profile welded.
3. Exposed Finish: Factory primed.

2.05 FRAME ANCHORS

A. A. Jamb Anchors:

1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
 - a. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - b. Poured Concrete Wall Anchors: Provide "Punch and Dimpled" pipe sleeve, butterfly or hat anchors with 3/8-inch diameter by 5-inch long Redhead sleeve anchors each hole.
2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.
3. Postinstalled Expansion Anchor: Minimum 3/8-inch-diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.06 MATERIALS

- A. A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008 or ASTM A 1011, hot-dip galvanized according to ASTM A 153, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153.
- F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143.

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- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- I. Glazing: Comply with requirements in Division 08 Section "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.07 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 2. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
 - 3. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches on center and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - 4. Head Anchors: Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
- C. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
- D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
 - 1. Reinforce frames to receive non-templated, mortised, and surface-mounted door hardware.
 - 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- E. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
 - 1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollowmetal work.
 - 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
 - 3. Provide loose stops and moldings on inside of hollow-metal work.
 - 4. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.08 FINISHES

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

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- B. Color to match adjacent stucco color.

2.09 ACCESSORIES

- A. Silencers: As indicated in Section 08 71 00 - Door Hardware or otherwise: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.
- B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.
- D. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- E. Drill and tap frames to receive non-templated, mortised, and surface-mounted hardware.

3.02 INSTALLATION

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
- B. Hollow-Metal Frames: Install hollow-metal frames for doors of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable stops located on secure side of opening.
 - d. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - e. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - f. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
 4. In-Place Concrete: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 5. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

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- c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
- d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

3.03 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Factory-Finish Touchup: Clean abraded areas and repair with same material used for factory finish according to manufacturer's written instructions.
- F. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.
- G. Comply with glazing installation requirements of Section 08 80 00.
- H. Install door hardware as specified in Section 08 71 00.

END OF SECTION

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SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flush wood doors; flush configuration; non-rated.
- B. Transom panels.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 08 11 13 - Hollow Metal Doors and Frames.
- C. Section 08 71 00 - Door Hardware.
- D. Section 09 21 16 - Gypsum Board Assemblies.
- E. Section 09 90 00 - Painting and Coating: Field finishing of doors.

1.03 REFERENCE STANDARDS

- A. ANSI A135.4 - Basic Hardboard 2012 (Reaffirmed 2020).
- B. ASTM E413 - Classification for Rating Sound Insulation 2022.
- C. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights 2019c.
- D. AWI (QCP) - Quality Certification Program Current Edition.
- E. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).
- F. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards 2021, with Errata.
- G. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.
- H. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives 2022.
- I. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies 2022.
- J. WDMA I.S. 1A - Interior Architectural Wood Flush Doors 2021, with Errata.
- K. WI (CCP) - Certified Compliance Program (CCP) Current Edition.

1.04 SUBMITTALS

- A. CALGreen Submittals: Provide the following:

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1. Product Data for CALGreen 5.504.4.1 – Finish Material Pollutant Control; Adhesives, Sealants, and Caulks: For adhesives, sealants, and caulks, including printed statement of VOC content and chemical components.
 2. Product Data for CALGreen 5.504.4.3 – Finish Material Pollutant Control; Architectural paints and coatings, including printed statement of VOC content and chemical components.
 3. Product Data for CALGreen 5.504.4.5 – Composite Wood Products: For composite-wood products, showing requirements for formaldehyde as specified in Table 5.504.4.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
1. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
 2. Include certification program label.
- D. Samples: Submit two samples of door construction, 8 by 8 inches in size cut from top corner of door.
- E. Samples: Submit two samples of door veneer, 8 by 8 inches in size illustrating wood grain, stain color, and sheen.
- F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- G. Test Reports: Show compliance with specified requirements for the following:
1. Sound-retardant doors and frames; sealed panel tests are not acceptable.
- H. Manufacturer's Installation Instructions: Indicate special installation instructions.
- I. Manufacturer's qualification statement.
- J. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- B. Forest Stewardship Council (FSC) Certified Products:

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1. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
 2. Forest Certification: Provide components made with not less than 50 percent of wood products obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- C. Woodwork Quality Assurance Program:
1. Comply with AWI (QCP) woodwork association quality assurance service/program in accordance with requirements for work specified in this section; www.awiqcp.org/#sle.
 2. Comply with WI (CCP) woodwork association quality assurance service/program in accordance with requirements for work specified in this section; www.woodworkinstitute.com/#sle.
 3. Provide labels indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
 4. Provide designated labels on shop drawings as required by quality assurance program.
 5. Provide designated labels on installed products as required by quality assurance program.
 6. Submit documentation upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging and inspect for damage.
- C. Protect doors with resilient packaging. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges if stored for more than one week. Break seal on site to permit ventilation.

1.07 WARRANTY

- A. See Section 01 for Project Record Documents for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Wood Veneer Faced Doors:
 1. Masonite Architectural; Aspiro Select Wood Veneer Doors: www.architectural.masonite.com/#sle.
 2. Oregon Door: www.oregondoor.com/#sle.

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3. VT Industries, Inc: www.vtindustries.com/#sle.

2.02 DOORS AND PANELS

- A. Doors: See drawings for locations and additional requirements.
 1. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
 1. Provide solid core doors at each location.
 2. Hardboard facing with factory opaque finish as indicated on drawings.

2.03 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type structural composite lumber core (SCLC), plies and faces as indicated.

2.04 DOOR FACINGS

- A. Hardboard Facing for Opaque Finish: ANSI A135.4, Class 1 - Tempered, S2S (smooth two sides) hardboard, 1/8 inch thick.

2.05 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
 1. Provide solid blocks at lock edge for hardware reinforcement.
 2. Provide solid blocking for other through-bolted hardware.
- C. Where supplementary protective edge trim is required, install trim after veneer facing has been applied full-width.
- D. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- E. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
 1. Exception: Doors to be field finished.
- F. Provide edge clearances in accordance with the quality standard specified.

2.06 FINISHES - WOOD VENEER DOORS

- A. Finish work in accordance with WDMA I.S. 1A for grade specified and as follows:

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1. Opaque:
 - a. System - OP-2, Catalyzed Lacquer.
 - b. Color: As selected by Architect.
 - c. Sheen: Satin.
- B. Factory finish doors in accordance with approved sample.
- C. Seal door top edge with transparent sealer to match door facing.

2.07 ACCESSORIES

- A. Hollow Metal Door Frames: See Section 08 11 13 - Hollow Metal Doors and Frames.
- B. Door Hardware: See Section 08 71 00 - Door Hardware.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
 1. Install fire-rated doors in accordance with NFPA 80 requirements.
 2. Install smoke and draft control doors in accordance with NFPA 105 requirements.
 3. Install exterior doors in accordance with ASTM E2112.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Field-Finished Doors: Trimming to fit is acceptable.
 1. Adjust width of non-rated doors by cutting equally on both jamb edges.
 2. Trim maximum of 3/4 inch off bottom edges.
- D. Use machine tools to cut or drill for hardware.
- E. Coordinate installation of doors with installation of frames and hardware.
- F. Install door louvers plumb and level.

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3.03 TOLERANCES

- A. Comply with specified quality standard for fit and clearance tolerances.
- B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following, but is not necessarily limited to:
 - 1. Door Hardware, including electric hardware.
 - 2. Storefront and Entrance door hardware.
 - 3. Gate Hardware.
 - 4. Digital keypad access control devices.
 - 5. Hold-open closers with smoke detectors.
 - 6. Wall or floor-mounted electromagnetic hold-open devices.
 - 7. Power supplies for electric hardware.
 - 8. Low-energy door operators plus sensors and actuators.
 - 9. Thresholds, gasketing and weather-stripping.
 - 10. Door silencers or mutes.
- C. Related Sections: The following sections are noted as containing requirements that relate to this Section, but may not be limited to this listing.
 - 1. Division 8: Section - Steel Doors and Frames.
 - 2. Division 8: Section - Wood Doors.
 - 3. Division 8: Section - Aluminum Storefront
 - 4. Division 28: Section - Fire/Life-Safety Systems & Security Access Systems.

1.03 REFERENCES (USE DATE OF STANDARD IN EFFECT AS OF BID DATE.)

- A. 2022 California Building Code, CCR, Title 24.
- B. BHMA – Builders' Hardware Manufacturers Association
- C. CCR – California Code of Regulations, Title 24, Part 2, California State Accessibility Standards.
- D. DHI – Door and Hardware Institute
- E. NFPA - National Fire Protection Association.
 - 1. NFPA 80 - Fire Doors and Other Opening Protectives

2. NFPA 105 - Smoke and Draft Control Door Assemblies

F. UL - Underwriters Laboratories.

- 1. UL 10C - Fire Tests of Door Assemblies
- 2. UL 305 - Panic Hardware

G. WHI - Warnock Hersey Incorporated

H. SDI - Steel Door Institute

1.04 SUBMITTALS & SUBSTITUTIONS

- A. General: Submit in accordance with Conditions of the Contract and Division 1 Specification sections.
- B. Submit product data (catalog cuts) including manufacturers' technical product information for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- C. Submit six (6) copies of schedule organized vertically into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
 - 1. Include a Cover Sheet with;
 - a. Job Name, location, telephone number.
 - b. Architects name, location and telephone number.
 - c. Contractors name, location, telephone number and job number.
 - d. Suppliers name, location, telephone number and job number.
 - e. Hardware consultant's name, location and telephone number.
 - 2. Job Index information included;
 - a. Numerical door number index including; door number, hardware heading number and page number.
 - b. Complete keying information (referred to DHI hand-book "Keying Systems and Nomenclature"). Provision should be made in the schedule to provide keying information when available; if it is not available at the time the preliminary schedule is submitted.
 - c. Manufacturers' names and abbreviations for all materials.
 - d. Explanation of abbreviations, symbols, and codes used in the schedule.
 - e. Mounting locations for hardware.
 - f. Clarification statements or questions.
 - g. Catalog cuts and manufacturer's technical data and instructions.
 - 3. Vertical schedule format sample:

Heading Number 1 (Hardware group or set number – HW -1)					
			(a) 1 Single Door #1 - Exterior from Corridor 101	(b) 90°	(c) RH
			(d) 3' 0"x7' 0" x 1-3/4" x (e) 20 Minute (f) WD x HM		
(g) 1	(h)	(i) ea	(j) Hinges - (k) 5BB1HW 4.5 x 4.5 NRP (l) ½ TMS	(m) 626	(n) IVE

2	6AA	1 ea	Lockset - ND50PD x RHO x RH x 10-025 x JTMS	626	SCH
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(a) - Single or pair with opening number and location. (b) - Degree of opening (c) - Hand of door(s) (d) - Door and frame dimensions and door thickness. (e) - Label requirements if any. (f) - Door by frame material. (g) - (Optional) Hardware item line #. (h) - Keyset Symbol. (i) - Quantity. (j) - Product description. (k) - Product Number. (l) - Fastenings and other pertinent information. (m) - Hardware finish codes per ANSI A156.18. (n) - Manufacture abbreviation.

- D. Make substitution requests in accordance with Division 1. Substitution requests must be made prior to bid date. Include product data and indicate benefit to the project. Furnish samples of any proposed substitution.
- E. Wiring Diagrams: Provide product data and wiring and riser diagrams for all electrical products listed in the Hardware Schedule portion of this section.
- F. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- G. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- H. Furnish as-built/as-installed schedule with close-out documents, including keying schedule and transcript, wiring/riser diagrams, manufacturers' installation and adjustment and maintenance information.
- I. Fire Door Assembly Testing: Submit a written record of each fire door assembly to the Owner to be made available to the Authority Having Jurisdiction (AHJ) for future building inspections.
- J. LEED Certification Points: Submit information and certifications necessary to achieve maximum points for LEED certification; coordinate and cooperate with Owner and Architect in providing information necessary for required LEED rating.

1.05 QUALITY ASSURANCE

- A. Obtain each type of hardware (latch and lock sets, hinges, closers, exit devices, etc.) from a single manufacturer.
- B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
 - 1. Responsible for detailing, scheduling and ordering of finish hardware.
 - 2. Meet with Owner to finalize keying requirements and to obtain final instructions in writing.
 - 3. Stock parts for products supplied and are capable of repairing and replacing hardware items found defective within warranty periods.

- C. Hardware Installer: Company specializing in the installation of commercial door hardware with five years documented experience.
- D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not.
 - 1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".
- E. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Coordinate delivery of packaged hardware items to the appropriate locations (shop or field) for installation.
- B. Hardware items shall be individually packaged in manufacturers' original containers, complete with proper fasteners. Clearly mark packages on outside to indicate contents and locations in hardware schedule and in work.
- C. Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc.
- D. Contractor to inventory door hardware jointly with representatives of hardware supplier and hardware installer until each all are satisfied that count is correct.
- E. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- F. Product packaging to be labelled in compliance with CA Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986.

1.07 WARRANTY

- A. Provide warranties of respective manufacturers' regular terms of sale from day of final acceptance as follows:
 - 1. Locksets: "ND" Ten (10) years.
 - 2. Electronic: One (1) year.
 - 3. Closers: Thirty (30) years.
 - 4. Exit devices: Three (3) years.
 - 5. All other hardware: Two (2) years.

1.08 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

1.09 PRE-INSTALLATION CONFERENCE

- A. Convene a pre-installation conference at least one week prior to beginning work of this section.
- B. Attendance: Architect, Construction Manager, Contractor, Security Contractor, Hardware Supplier, Installer, Key District Personnel, and Project Inspector.
- C. Agenda: Review hardware schedule, products, installation procedures and coordination required with related work. Review District's keying standards.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

<u>Item</u>	<u>Manufacturer</u>	<u>Acceptable Substitutes</u>
Hinges	Ives	Hager, Stanley, McKinney
Locks, Latches & Cylinders	Schlage	Or Approved Equal
Exit Devices	Von Duprin	Or Approved Equal
Closers	LCN	Or Approved Equal
Push, Pulls & Protection Plates	Ives	Trimco, BBW, DCI
Flush Bolts	Ives	Trimco, BBW, DCI
Dust Proof Strikes	Ives	Trimco, BBW, DCI
Coordinators	Ives	Trimco, BBW, DCI
Stops	Ives	Trimco, BBW, DCI
Overhead Stops	Glynn-Johnson	Or Approved Equal
Thresholds	Zero	Pemko, National Guard
Seals & Bottoms	Zero	Pemko, National Guard

2.02 MATERIALS

- A. Hinges: Exterior out-swinging door butts shall be non-ferrous material and shall have stainless steel hinge pins. All doors to have non-rising pins.
 - 1. Hinges shall be sized in accordance with the following:
 - a. Height:
 - 1) Doors up to 42" wide: 4-1/2" inches.
 - 2) Doors 43" to 48" wide: 5 inches.
 - b. Width: Sufficient to clear frame and trim when door swings 180 degrees.

- c. Number of Hinges: Furnish 3 hinges per leaf to 7'-5" in height. Add one for each additional 2 feet in height.
 2. Furnish non-removable pins (NRP) at all exterior out-swing doors and interior key lock doors with reverse bevels.
- B. Floor Closers: Shall be equipped with compression springs, cam and roller operating mechanism and a one piece spindle-cam for maximum operating performance and longevity.
- C. Pivots: High strength forgings and castings with precision bearings for smooth operation. Positive locking vertical adjustment mechanism to allow installer to precisely position the door and balance the load.
- D. Continuous Hinges: As manufactured by Ives, an Allegion Company. UL rated as required.
- E. Heavy Duty Cylindrical Locks and Latches: Schlage "ND" Series as scheduled with "Rhodes" design, fastened with through-bolts and threaded chassis hubs.
 1. Provide cylindrical locksets exceeding the ANSI/BHMA A156.2 Grade 1 performance standards for strength, security, and durability in the categories below:
 - a. Abusive Locked Lever Torque Test – minimum 3,100 inch-pounds without gaining access
 - b. Offset lever pull – minimum 1,600 foot pounds without gaining access
 - c. Vertical lever impact – minimum 100 impacts without gaining access
 2. Cycle life - tested to minimum 16 million cycles per ANSI/BHMA A156.2 Cycle Test with no visible lever sag or use of performance aids such as set screws or spacers
 3. UL 10C for 4'-0" x 10'-0" 3-hour fire door.
 4. Cylinders: Refer to "KEYING" article, herein.
 5. Provide solid steel anti-rotation through bolts and posts to control excessive rotation of lever.
 6. Provide lockset that allows lock function to be changed to over twenty other common functions by swapping easily accessible parts.
 7. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2 inch latch throw capable of UL listing of 3 hours on a 4' x 10' opening. Provide proper latch throw for UL listing at pairs.
 8. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
 9. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
 10. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
 11. Provide wired electrified options as scheduled in the hardware sets.
 - a. 12 through 24 volt DC operating capability, auto-detecting
 - b. Selectable EL (fail safe)/EU (fail secure) operating mode via switch on chassis
 - c. 0.230A (230mA) maximum current draw
 - d. 0.010A (10mA) holding current
 - e. Modular / "plug in" request to exit switch
 12. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides.
- F. Closers: LCN as scheduled. Place closers inside building, stairs, room, etc.
 1. Door closer cylinders shall be of high strength cast iron construction with double heat treated pinion shaft to provide low wear operating capabilities of internal parts throughout the life of the installation. All door closers shall be tested to ANSI/BHMA A156.4 test

- requirements by a BHMA certified testing laboratory. A written certification showing successful completion of a minimum of 10,000,000 cycles must be provided.
2. All door closers shall be fully hydraulic and have full rack and pinion action with a shaft diameter of a minimum of 11/16 inch and piston diameter of 1 inch to ensure longevity and durability under all closer applications.
 3. All parallel arm closers shall incorporate one piece solid forged steel arms with bronze bushings. 1-9/16" steel stud shoulder bolts, shall be incorporated in regular arms, hold-open arms, arms with hold open and stop built in. All other closers to have forged steel main arms for strength, durability, and aesthetics for versatility of trim accommodation, high strength and long life.
 4. All parallel arm closers so detailed shall provide advanced backcheck for doors subject to severe abuse or extreme wind conditions. This advanced backcheck shall be located to begin cushioning the opening swing of the door at approximately 45 degrees. The intensity of the backcheck shall be fully adjustable by tamper resistant non-critical screw valve.
 5. Closers shall be installed to permit doors to swing 180 degrees.
 6. All closers shall utilize a stable fluid withstanding temperature range of 120 degrees F. to -30 degrees F. without requiring seasonal adjustment of closer speed to properly close the door.
 7. Provide the manufactures drop plates, brackets and spacers as required at narrow head rails and special frame conditions. NO wood plates or spacers will be allowed.
 8. Maximum effort to operate closers shall not exceed 5 lbs., such pull or push effort being applied at right angles to hinged doors. Compensating devices or automatic door operators may be utilized to meet the above standards. When fire doors are required, the maximum effort to operate the closer may be increased but shall not exceed 15 lbs. when specifically approved by fire marshal. All closers shall be adjusted to operate with the minimum amount of opening force and still close and latch the door. These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position. Per 11B-404.2.8.1, door shall take at least 5 seconds to move from an open position of 90 degrees to a position of 12 degrees from the latch jamb.
- G. Flush Bolts & Dust Proof Strikes: Automatic Flush Bolts shall be of the low operating force design. Utilize the top bolt only model for interior doors where applicable and as permitted by testing procedures.
1. Manual flush bolts only permitted on storage or mechanical openings as scheduled.
 2. Provide dust proof strikes at openings using bottom bolts.
- H. Door Stops:
1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where wall type cannot be used, provide floor type. If neither can be used, provide overhead type.
 2. Do not install floor stops more than four (4) inches from the face of the wall or partition (CBC Section 11B-307).
 3. Overhead stops shall be made of stainless steel and non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.
- I. Protection Plates: Fabricate either kick, armor, or mop plates with four beveled edges. Provide kick plates 10" high and 2" LDW. Sizes of armor and mop plates shall be listed in the Hardware Schedule. Furnish with machine or wood screws of bronze or stainless to match other hardware.
- J. Thresholds: As Scheduled and per details.

1. Thresholds shall not exceed 1/2" in height, with a beveled surface of 1:2 maximum slope.
 2. Set thresholds in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 7 "Thermal and Moisture Protection".
 3. Use 1/4" fasteners, red-head flat-head sleeve anchors (SS/FHSL).
 4. Thresholds shall comply with CBC Section 11B-404.2.5.
- K. Seals: Provide silicone gasket at all rated and exterior doors.
1. Fire-rated Doors, Resilient Seals: UL10C Classified complies with NFPA 80 & NFPA 252. Coordinate with selected door manufacturers' and selected frame manufacturers' requirements.
 2. Fire-rated Doors, Intumescent Seals: Furnished by selected door manufacturer. Furnish fire-labeled opening assembly complete and in full compliance with UL10C Classified complies with NFPA 80 & NFPA 252. Where required, intumescent seals vary in requirement by door type and door manufacture -- careful coordination required.
 3. Smoke & Draft Control Doors, Provide UL10C Classified complies with NFPA 80 & NFPA 252 for use on "S" labeled Positive Pressure door assemblies.
- L. Door Shoes & Door Top Caps: Provide door shoes at all exterior wood doors and top caps at all exterior out-swing doors.
- M. Silencers: Furnish silencers for interior hollow metal frames, 3 for single doors, 2 for pairs of doors. Omit where sound or light seals occurs, or for fire-resistive-rated door assemblies.

2.03 KEYING

- A. Furnish all cylinders in the Schlage conventional style except the exit device and removable mullion cylinders which will be supplied in Schlage Full Size Interchangeable Core (FSIC). Pack change keys independently (PKI).
- B. Furnish construction keying for doors requiring locking during construction.
1. For "Split Key" Construction Cylinders (non-IC cylinders) specify "CK" for each keyed cylinder.
 2. Provide ten Construction Keys (48-104 "Classic", 48-008 "Everest")
 3. Provide two Extractor Tools (35-057)
- C. Furnish all keys with visual key control.
1. Stamp key "Do Not Duplicate".
 2. Stamp (BHMA) key symbol on key.
- D. Furnish all cylinders with visual key control.
1. Stamp (BHMA) key symbol on side of cylinder (CKC).
- E. Furnish mechanical keys as follows:
1. Furnish 2 cut change keys for each different change key code.
 2. Furnish 1 uncut key blank for each change key code.
 3. Furnish 6 cut masterkeys for each different masterkey set.
 4. Furnish 3 uncut key blanks for each masterkey set.
 5. Furnish 2 cut control keys cut to the top masterkey for permanent I/C cylinders.
 6. Furnish 1 cut control key cut to each SKD combination.

- F. Furnish Schlage Padlocks and the cylinders to tie them into the masterkey system for gates, storage boxes, utility valve security, roof hatches and roll-up doors keyed as directed in the keying schedule.
 - 1. Furnish KS43D2200 padlock for use with non-I/C Schlage cylinders. Furnish 47-413 (conventional) or 47-743-XP (PrimusXP) with above.
 - 2. Furnish KS43G3200 padlock for use with FSIC Schlage cylinders. Furnish 23-030 (Classic / Everest) or 20-740 (PrimusXP) with above.
 - 3. Furnish KS41D1200 padlock for use with SFIC Schlage cylinders. Furnish 80-037 (Everest-B) with above.
- G. Furnish one Schlage cabinet lock for each cabinet door or drawer so designated on the drawings or keying schedule to match the masterkey system.
 - 1. Furnish CL100PB for use with non-I/C Schlage cylinders.
 - 2. Furnish CL77R for use with FSIC Schlage cylinders.
 - 3. Furnish CL721G for use with SFIC Schlage cylinders.

2.04 FINISHES

- A. Generally to be satin chrome US26D (626 on bronze and 652 on steel) unless otherwise noted.
- B. Furnish push plates, pull plates and kick or armor plates in satin stainless steel US32D (630) unless otherwise noted.
- C. Door closers shall be powder-coated to match other hardware, unless otherwise noted.
- D. Aluminum items to be finished anodized aluminum except thresholds which can be furnished as standard mill finish.

2.05 FASTENERS

- A. Screws for strikes, face plates and similar items shall be flat head, countersunk type, provide machine screws for metal and standard wood screws for wood.
- B. Screws for butt hinges shall be flathead, countersunk, full-thread type.
- C. Fastening of closer bases or closer shoes to doors shall be by means of sex bolts and spray painted to match closer finish.
- D. Provide expansion anchors for attaching hardware items to concrete or masonry.
- E. All exposed fasteners shall have a phillips head.
- F. Finish of exposed screws to match surface finish of hardware or other adjacent work.
- G. All Exit Devices and Lock Protectors shall be fastened to the door by the means of sex bolts or through bolts.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify that doors and frames are square and plumb and ready to receive work and dimensions are as instructed by the manufacturer.
- B. Beginning of installation means acceptance of existing conditions.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and requirements of DHI.
- B. Use the templates provided by hardware item manufacturer.
- C. Mounting heights for hardware shall be as recommended by the Door and Hardware Institute. Operating hardware will to be located between 34" and 44" AFF.
- D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- F. Set thresholds for exterior doors in full bed of butyl-rubber sealant.
- G. If hand of door is changed during construction, make necessary changes in hardware at no additional cost.
- H. Hardware Installer shall coordinate with security contractor to route cable to connect electrified locks, panic hardware and fire exit hardware to power transfers or electric hinges at the time these items are installed so as to avoid disassembly and reinstallation of hardware.
- I. Hardware Installer shall also be present with the security contractor when the power is turned on for the testing of the electronic hardware applications. Installer shall make adjustments to solenoids, latches, vertical rods and closers to insure proper and secure operation.
- J. All wiring for electro-mechanical hardware mounted on the door shall be connected through the power transfer and terminated in the interface junction box specified for in the Electrical Section.
- K. Conductors shall be minimum 18 gage stranded, multicolored. A minimum 12 in. loop of conductors shall be coiled in the interface junction box. Each conductor shall be permanently marked with its function.
- L. If a power supply is specified in the hardware sets, all conductors shall be terminated in the power supply. Make all connections required for proper operation between the power supply and the electro-mechanical hardware. Provide the proper size conductors as specified in the manufacturer's technical documentation.

3.03 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Clean adjacent surface soiled by hardware installation.

- C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy, return to that work area and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- D. Instruct Owner's Personnel in proper adjustment and maintenance of hardware finishes, during the final adjustment of hardware.
- E. Continued Maintenance Service: Approximately six months after the completion of the project, the Contractor accompanied by the Architectural Hardware Consultant, shall return to the project and re-adjust every item of hardware to restore proper functions of doors and hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.04 HARDWARE LOCATIONS

- A. Conform to CCR, Title 24, Part 2; and ADAAG; and the drawings for access-compliant positioning requirements for the disabled.

3.05 FIELD QUALITY CONTROL

- A. Contractor is responsible for providing the services of an Architectural Hardware Consultant (AHC) or a proprietary product technician to inspect installation and certify that hardware and its installation have been furnished and installed in accordance with manufacturers' instructions and as specified herein.

3.06 SCHEDULE

- A. The items listed in the following schedule shall conform to the requirements of the foregoing specifications.
- B. While the hardware schedule is intended to cover all doors, and other movable parts of the building, and establish type and standard of quality, the contractor is responsible for examining the Plans and Specifications and furnishing proper hardware for all openings whether listed or not. If there are any omissions in hardware groups in regard to regular doors they shall be called to the attention of the Architect prior to bid opening for instruction; otherwise, list will be considered Complete. No extras will be allowed for omissions.
- C. The Door Schedule on the Drawings indicates which hardware set is used with each door.

Manufacturers Abbreviations (Mfr.)

ADA	=	Adams Rite Mfg.	Aluminum Door Hardware
GLY	=	Glynn-Johnson Corporation	Overhead Door Stops
IVE	=	Ives	Hinges, Pivots, Bolts, Coordinators, Dust Proof Strikes, Push Pull & Kick Plates, Door Stops & Silencers
JOH	=	L.E. Johnson	Sliding Door Hardware
LCN	=	LCN	Door Closers
SCE	=	Schlage Electronics	Electronic Door Components
SCH	=	Schlage Lock Company	Locks, Latches & Cylinders

TRI = Trimco	Signs
VON = Von Duprin	Exit Devices
ZER = Zero International	Thresholds, Gasketing & Weather-stripping

HARDWARE GROUP NO. 01

For use on Door #(s):

105A 106A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	LOCK GUARD	LG10	630	IVE
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 24" X 2" LDW B-CS	630	IVE
1	EA	FLOOR STOP/HOLDER	FS43	626	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	PER DETAIL	AL	ZER

HARDWARE GROUP NO. 02

For use on Door #(s):

101C

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 24" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP/HOLDER	FS495	626	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

HARDWARE GROUP NO. 03

For use on Door #(s):

101D 103A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	OH STOP	100S	630	GLY
1	EA	KICK PLATE	8400 24" X 2" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

HARDWARE GROUP NO. 04

For use on Door #(s):

101A 101B

Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1		EXISTING DOOR, FRAME AND HARDWARE TO REMAIN		

HARDWARE GROUP NO. 05

For use on Door #(s):

103B

Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
	EXISTING DOOR REMOVED, FRAME REMAINS			

END OF SECTION

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SECTION 09 22 26 - METAL SUSPENSION SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Suspension System Framing and Furring for flat or curved Plaster and Gypsum Board Assemblies
 2. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.
 3. Transition moldings, shared pockets, and fascia systems.

1.02 RELATED SECTIONS

- A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.
- B. Section 09 29 00 - Gypsum Board Assemblies - Gypsum Board
- C. Section 09 51 00 - Acoustical Ceilings - Acoustical Ceilings
- D. Division 21 Sections - Fire Suppression systems.
- E. Division 23 Sections - Mechanical Work
- F. Division 26 Sections - Electrical Work

1.03 REFERENCES

- A. ASTM A641/A641M Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
- B. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability"
- D. ASTM D 610 Standard Test Method for Evaluating Degree of Rusting on Painted Steel Surfaces
- E. ASTM B 117 Standard Practice for Operating Salt Spray (Fog) Apparatus
- F. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- G. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

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- H. ASTM C 1858 Standard Practice for Design, Construction, and Material Requirements for Direct Hung Suspended T-bar Type Ceiling Systems Intended to Receive Gypsum Panel Products in Areas Subject to Earthquake Ground Motions
- I. ASTM C 645 Standard Specification for Nonstructural Steel Framing Members
- J. ASTM C 754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board
- K. ASTM C1002 Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases.
- L. ASTM E 119 Standard Test Method for Fire Tests of Building Construction and Material (if applicable).
- M. ESR-1289 ICC-ES Evaluation Report.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's technical literature, specifications and installation instructions with Project conditions and materials clearly identified for each required system.
- B. Shop Drawings: Submit reflected ceiling plans drawn to scale. Include coordinated penetrations and ceiling-mounted items. Include any necessary details or drawings from the manufacturer regarding recommended installation.
- C. Samples: 8 inch long samples of suspension system components, including main runner, cross tees and angle molding.
- D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.

1.05 QUALITY ASSURANCE

- A. Single-Source Responsibility: To ensure proper interface, all drywall furring components shall be produced or supplied by a single manufacturer.
- B. All accessory components from other manufacturers shall conform to ASTM standards.
- C. Installer qualifications: Must be experienced in the installation of systems similar to those specified herein.
- D. Fire Resistance Ratings: As indicated by reference to design designations in UL Fire Resistance Directory, for types of assemblies in which drywall ceilings function as a fire protective membrane and tested per ASTM E 119. Installation in accordance with the UL Design being referenced.

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1.06 COORDINATION

- A. Coordinate drywall furring work with installers of related work including, but not limited to acoustical ceilings, building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.
- B. All work above the ceiling line should be completed prior to installing the drywall sheet goods. There should be no materials resting against or wrapped around the suspension system, hanger wires or ties.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

1.08 WARRANTY

- A. Suspensions System: Submit a written limited warranty executed by the manufacturer, agreeing to repair or replace grid components that are supplied with a hot-dipped galvanized coating or aluminum base material. Failures include, but are not limited to: The occurrence of 50% red rust as defined by ASTM D 610 test procedures as a result of defects in materials or factory workmanship.
- B. Warranty Period: Grid: Ten years from date of installation.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.09 EXTRA MATERIALS

- A. Provide extra materials in the manufacturer's unopened packaging, with the manufacturer's label intact: Suspension System Components - minimum 5% of each type installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Suspension Systems: Armstrong World Industries, Inc.

2.02 SUSPENSION SYSTEMS

- A. Main Beam: Shall be double-web construction (minimum 0.0179 inch prior to protective coating, ASTM C645), hot dipped galvanized (per ASTM A653/A653M).
 - 1. HD8906HRC: 1-11/16 inch web height, 1-1/2 inch flange, available with G40 or hot dipped galvanization. (61% Recycle content, 53% Post Consumer, 8% Pre-Consumer).

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- B. Primary Cross Tees: Shall be double-web steel construction (minimum 0.0179 inch prior to protective coating, ASTM C645), hot dipped galvanized (minimum G40 or G90 per ASTM A653/A653M)
1. XL8945PHRC: 48 inch, web height 1-1/2 inch with rectangular bulb and pre-finished 1-1/2 inch knurled flange. (61% Recycle content, 53% Post Consumer, 8& Pre-Consumer).
- C. QuikStix Soffits DGS: Shall be double web steel construction (minimum 0.0179 inch prior to protective coating, ASTM C645), Tees designed for creating soffits; 1-1/2 inch web height. 1-1/2 inch flange, flattened bulb, bending crimp, knockouts and alignment holes to facilitate creating 15, 30, 45, 60 and 90 degree angles; available with G40 or G90 hot dipped galvanization.
1. QS612: 12 foot tee with knockouts 6 inches on center, route holes 6 inches on center.
- D. Wall Molding:
1. LAM-12HRC: 12 foot Locking Angle Molding, 1-1/4 inch x 1-1/4 inch with pre-engineered locking tabs punched 8 inches on center, knurled surface, screw stop hem, pre-punched holes in top flange, 4" O.C., .018 mil. 25g. (61% Recycle content, 53% Post Consumer, 8& Pre-Consumer).
 2. KAM -12HRC: 12 foot Knurled Angle molding, 1-1/4 inch x 1-1/4 inch, knurled surface, screw stop hem, pre-punched holes in top flange, 4" O.C., .018 mil. 25g. (61% Recycle content, 53% Post Consumer, 8& Pre-Consumer).
- E. Transition Molding: Drywall to Acoustical ceiling.
1. Pre-Painted Armstrong Global White integral acoustical flange and drywall taping flange, hot dipped cold rolled steel.
 - a. 7901: 120 inch with 3/8 inch reveal and 9/16 inch acoustical flange.
- F. Support Hanger
1. SB12P: Strong Back Support Hanger
- G. Screws for wallboard application shall be bugle head screws in accordance with thickness of material used.
- H. Metal Trim or Plastic Members (by Others)
1. Corner bead: Minimum #26 gauge, zinc alloy of plastic square edge type with expanded flanges.
 2. Casing Bead: Minimum #24 gauge, zinc alloy or plastic square edge type with expanded flanges.
 3. Control Joints: Minimum #26 gauge, roll-formed zinc alloy, extruded aluminum or plastic with expanded flanges.

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4. Special Trim Shapes: As detailed on plans, extruded aluminum with acrylic coating by Fry Reglet or approved equal.

2.03 STRUCTURAL CLASSIFICATION

- A. Main Beam shall be heavy duty per ASTM C 635.
- B. Classification can require wires to be closer together for additional loading when used to support double layer gypsum, verticals, slopes, domes, half barrels, circles, soffits, canopies, and step conditions which call for loading or unusual designs and shapes in drywall construction. Using cross tees in the construction of circles, barrels, etc. is common in order to hold the radius.
- C. Deflection of fastening suspension system supporting light fixtures, ceiling grilles, access doors, verticals and horizontal loads shall have a maximum deflection of 1/360 of the span.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Install suspension system and panels in accordance with the manufacturer's instructions, in compliance with ASTM installation standard, and with applicable codes as required by the authorities having jurisdiction.
- B. Install hanger wire as required with necessary on center spacing to support expected ceiling load requirements, following local practices, codes and regulations. Provide additional wires at light fixtures, grilles, and access doors where necessary. A pigtail knot shall be used with three tight wraps at top and bottom fastening locations.
- C. Add additional wire as needed when using compatible clips and accessories.
- D. Control Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction as shown on drawings.
- E. Expansion Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction as shown on drawings.
- F. Main beams shall be suspended from the overhead construction with hanger wire, spaced as required for expected ceiling loads, along the length of the main beams.
- G. Install cross tees at on center spacing as specified by the drywall manufacturer. Typical drywall cross tee spacing:
 1. 16 inches on center with 5/8 or 1/2 inch gypsum board
 2. 24 inches on center with 5/8 inch gypsum board
- H. Other items such as wood, sheet metal, or plastic panels should be screwed to comply with deflection limit equivalent to that of the ceiling installation.

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- I. Use channel molding or angle molding to interface with Drywall Grid System to provide perimeter attachment or to obtain drop soffits, verticals, slopes, etc.
- J. For light fixtures (Type G, Type F) use secondary framing cross tees as required to frame opening.
- K. Single cross tees in a route hole to be secured by 7/16 inch framing screw or alternative methods.

3.02 INSTALLATION - INTERIOR APPLICATIONS

- A. Install main beams and cross tees at the on center spacing required for ceiling loading, and location of in-ceiling services.
- B. Additional bracing as required by code.

END OF SECTION

**SECTION 09 29 00
GYPSUM BOARD**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Interior Gypsum Board:
 - 2. Tile backing panels for interior wall tile.
 - 3. Metal trim accessories, auxiliary materials, joint treatment, corner guards and skim-coating.
- B. Related Requirements:
 - 1. Section 06 10 00 "Rough Carpentry" for wood framing that supports gypsum board panels.
 - 2. Section 06 20 00 "Finish Carpentry"
 - 3. Section 07 21 00 "Building Insulation" for insulation installed in gypsum board assemblies.
 - 4. Section 07 92 00 "Joint Sealants" for acoustical sealants installed in gypsum board assemblies.
 - 5. Section 09 22 26 "Metal Suspension Systems".
 - 6. Section 09 91 00 "Painting" for primers and topcoats applied to gypsum board surfaces.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.

1.03 DELIVERY, STORAGE AND HANDLING

- A. A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.04 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - a. Mold-resistant board is required whenever board is being installed before the building is enclosed and conditioned.
- B. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. 1. Marking and Identification: Fire walls, fire barriers, fire partitions, smoke barriers, smoke partitions, or any other wall required to have protected openings or penetrations,

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shall be effectively and permanently identified with signs or stenciling according to applicable CBC requirements.

- C. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.02 GYPSUM BOARD, GENERAL

- A. A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.03 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Georgia-Pacific Building Products.
 2. National Gypsum Company.
 3. PABCO Gypsum.
 4. Temple-Inland Building Products by Georgia-Pacific.
 5. United States Gypsum Company.
 6. Equal.
- B. Gypsum Wall Board: ASTM C 1396/C 1396M.
 1. Core: 5/8 inch or as required to flush with adjacent finishes.
 2. Long Edges: Tapered.

2.04 TILE BACKING PANELS FOR WALL TILE AND WET LOCATIONS

- A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. CertainTeed Corporation; "GlasRoc Tile Backer."
 - b. Georgia-Pacific Building Products; "DensShield Tile Backer."
 - c. Temple-Inland Building Products by Georgia-Pacific; "GreenGlass Tile Backer"
 - d. Equal.
 2. Core: 5/8 inch typical.
 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
- B. Cement Fiber Board Backing Panels, 1/4", 1/2", or 5/8" thickness or as indicated on drawings. Installed as Substrate for Ceramic Tile: As specified in Section 09 30 00 "Tiling."

2.05 METAL TRIM ACCESSORIES

- A. Typical Interior Trim: ASTM C 1047.
 1. Material: Screw-attached, galvanized or aluminum-coated steel sheet. No paper-faced trim products are acceptable.
 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. Expansion (control) joint.
 - d. Square-Edge Cornerbead: With notched or flexible flanges.
 - e. 3/8" Architectural Z-Shadow Bead at Wood windowsill, and other applications as noted on the drawings.
 - f. Interior expansion joint.
 - g. Furring Channels: Clarke Dietrich "Hat" channels in sizes indicated on the drawings.
 - h. Others as indicated in the drawings and details.
- B. Corner Guards: Wallguard.com, www.wallguard.com, Tel: 877 943 6826
 1. Model 2330C.1, 2" (51) x 2" (51) x 90° Flush mounted corner guard system with a continuous aluminum retainer and a 1/8" (3) radius snap-on stainless steel cover. Outer edges of retainer shall be tapered, ribbed, and perforated for use with drywall screws,

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drywall tape, and joint compound. Product is designed for full height, floor to ceiling installation.

2. Materials: Stainless Steel: Type 304 (ASTM A240), 22 gauge, with #4 satin finish.
Aluminum Retainer: Extruded aluminum, alloy 6063-T6 as described in ASTM B221, nominal 0.070" (1.8) thickness.
- C. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
1. Basis-of-Design Products: The design for aluminum trim accessories is based on products by Fry Reglet Corp.
 2. Subject to compliance with requirements, provide the named products or comparable products by one of the following:
 - a. Gordon, Inc.
 - a. Pittcon Industries.
 - b. Equal.
 3. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
 4. Finish: Mill finish, with corrosion-resistant primer compatible with joint compound and finish materials specified.
- D. Furring Channels
1. Basis of Design: Clarke Dietrich, cold-formed steel structural members
 2. Finish: galvanized
 3. Section: 7/8" and 1.5", 125F125-18 spaced at 16" o.c.

2.06 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
1. Interior Gypsum Board: Paper.
 2. Abuse-Resistant Gypsum Board: As recommended by panel manufacturer.
 3. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Tile Backing Panels:
1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

2.07 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
1. Adhesives shall have a VOC content of 50 g/L or less.
- C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
- D. Insulation: As specified in Section 07 21 00 "Building Insulation."
- E. Acoustical Sealant: As specified in Section 07 92 00 "Joint Sealants."
1. Sealant shall have a VOC content of 250 g/L or less.

PART 3 - EXECUTION**3.01 EXAMINATION**

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except long edges at right angles to framing and in applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
- J. Install gypsum board over furring channels at walls, ceilings, and other locations as indicated on the drawings.

3.03 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Paper faced gypsum panels: Throughout, unless otherwise indicated.
- B. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.

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2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
 3. 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws. Do not penetrate board face with screw heads.
- C. Multilayer Application:
1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
 2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 3. Fastening Methods: Fasten base layers with screws; fasten face layers with adhesive and supplementary fasteners. Do not penetrate board face with screw heads.
- D. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written instructions and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.04 APPLYING TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Tile Backing Panels: Comply with manufacturer's written installation instructions and install at locations indicated to receive tile, and non-wet locations as indicated. Install with 1/4-inch gap where panels abut other construction or penetrations.
- B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.
- C. Install fiber-cement backing panels where indicated on drawings and per manufacturer's recommendations.

3.05 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions. No "mudded-in" trim accessories are acceptable.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Typical Interior Trim: Install in the following locations:
 1. Cornerbead: Use at outside corners unless otherwise indicated.
 2. LC-Bead: Use at exposed panel edges.
 3. Curved-Edge Cornerbead: Use at curved openings.
- D. Aluminum Trim and Corner Guards: Install in locations indicated on the drawings.

3.06 FINISHING GYPSUM BOARD

- A. A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

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- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 0: In areas of temporary construction.
 - 2. Fire Tape Only: Ceiling plenum areas, concealed areas, and where indicated.
 - 3. Level 2: Panels that are substrate for tile.
 - 4. Level 3: Panels that are substrate for wood wall panels and fabric-wrapped wall panels.
 - 5. Level 5: At panel surfaces that will be exposed to view unless otherwise indicated; at panel surfaces that are scheduled to receive paints with semi-gloss or gloss sheen; and where otherwise indicated on Drawings.
 - a. Primer and its application to surfaces are specified in other Division 09 Sections.
- E. Tile Backing Panels: Finish according to manufacturer's written instructions.
 - 1. 1. Where exposed, finish according to manufacturer's written instructions for use as exposed board.

3.07 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

**SECTION 09 30 00
TILING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Tile for interior wall applications.
- B. Cementitious backer board as tile substrate.
- C. Ceramic accessories.
- D. Non-ceramic trim.

1.02 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
- B. Section 09 29 00 - Gypsum Board: Tile backer board.
- C. Division 23 - Plumbing

1.03 REFERENCE STANDARDS

- A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium). 2017.
- B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar 2014.
- C. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar 1999 (Reaffirmed 2010).
- D. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement 1999 (Reaffirmed 2010).
- E. ANSI A108.2 - American National Standard General Requirements: Materials, Environmental and Workmanship 2019.
- F. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive 2009 (Revised).
- G. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar 1999 (Reaffirmed 2010).
- H. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy 1999 (Reaffirmed 2010).
- I. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout 1999 (Reaffirmed 2010).
- J. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout 1999 (Reaffirmed 2010).
- K. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework 1999 (Reaffirmed 2010).
- L. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units 2010 (Reaffirmed 2016).
- M. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar 1999 (Reaffirmed 2010).
- N. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone 2005 (Reaffirmed 2010).

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- O. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar 2017.
- P. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive 2013 (Revised).
- Q. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar 2012 (Revised).
- R. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation 2010 (Reaffirmed 2016).
- S. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation 2010 (Reaffirmed 2016).
- T. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units 1999 (Reaffirmed 2016).
- U. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation 2014.
- V. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar 2012.
- W. ANSI A137.1 - American National Standard Specifications for Ceramic Tile 2012.
- X. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products 2017.
- Y. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel 2013.
- Z. ASTM D4068 - Standard Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane 2015.
- AA. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation 2017.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. See Section 01 33 00 - Submittals, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches in size illustrating pattern, color variations, and grout joint size variations.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.
- B. Installer Qualifications: Company specializing in performing tile installation, with minimum of five years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.

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- B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

PART 2 PRODUCTS

2.01 TILE

- A. Manufacturers:
 1. Statements Tile and Stone. www.statementsstile.com, 206-250-2415 (Jill Reid)
 2. Or approved equal.
 3. See Division One for Substitutions and Product Requirements.
- B. Glazed Wall Tile: ANSI A137.1 standard grade.
 1. Moisture Absorption: .1 percent as tested in accordance with ASTM C373.
 2. Surface Finish: High gloss,
 3. Color(s): As indicated on drawings.
 4. Pattern: stacked bond.
 5. Trim: Schluter Systems as indicated in the drawings.
 6. Products:
 - a. CWT-01: Wall Tile (in Locker Rooms).
 - 1) Basis-of-Design Manufacturer: Statements Tile and Stone
 - 2) Product: "Clay"
 - 3) Modular Size: 31.5 x 31.5 inches nominal.
 - 4) Thickness: 9mm.
 - 5) Color: Verve Natural.

2.02 TRIM AND ACCESSORIES

- A. Non-Ceramic Trim: Satin Nickel Anodized Aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
 1. Applications:
 - a. Open edges of wall tile.
 - b. Wall corners, outside.
 - c. Borders and other trim as indicated on drawings.
 2. Manufacturers:
 - a. Schluter-Systems: www.schluter.com/#sle.

2.03 SETTING MATERIALS

- A. Manufacturers:
 1. ARDEX Engineered Cements: www.ardexamericas.com/#sle.
 2. LATICRETE International, Inc: www.laticrete.com/#sle.
 3. Substitutions: Section 01600 Product Requirements.
- B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
 1. Applications: Use this type of bond coat where indicated and where no other type of bond coat is indicated.
 2. Products:
 - a. ARDEX Engineered Cements; ARDEX N 23
MICROTEC: www.ardexamericas.com/#sle.
 - b. LATICRETE International Inc.; LATICRETE MVIS Veneer Mortar for exterior tile application or LATICRETE MVIS Lite Wall Float if required by assembly detail.
 - c. Substitutions: Section 01600 Product Requirements.

2.04 GROUTS

- A. Manufacturers:
 1. Custom Building Products: www.custombuildingproducts.com/#sle.
 2. LATICRETE International, Inc; LATICRETE PERMACOLOR
Grout: www.laticrete.com/#sle.

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3. LATICRETE International, Inc; LATICRETE MVIS Pointing Mortar:
www.laticrete.com/#sle.
- B. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 1. Applications: Use this type of grout at walls and where no other type of grout is indicated.
 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
 3. Color(s): As selected by Architect from manufacturer's full line.
 4. Products:
 - a. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout:
www.laticrete.com/#sle.
 - b. Substitutions: Section 01600 Product Requirements..Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
 5. Applications: Where indicated at walls.
 6. Color(s): As selected by Architect from manufacturer's full line.
 7. Products:
 - a. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout: www.laticrete.com/#sle.
 - b. Substitutions: Section 01600 Product Requirements.

2.05 ACCESSORY MATERIALS

- A. Membrane at Walls:
 1. Material: No. 15 asphalt saturated felt.
- B. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 1/4", 1/2", 5/8" or built up to 3/4" thick as indicated or required to meet specified assembly thickness; 2 inch wide coated glass fiber tape for joints and corners.
 1. Products:
 - a. Custom Building Products; WonderBoard Lite Backerboard:
www.custombuildingproducts.com/#sle.
 - b. USG: DUROCK with Edgeguard.
 - c. James Hardie Products: Hardie Backer
 - d. Or Equal

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

3.03 INSTALLATION - GENERAL

- A. Lay tile to pattern indicated. Do not interrupt tile pattern through openings or mirror locations.
- B. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align wall joints.
- C. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- D. Form internal angles square and external angles bullnosed.

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- E. Install non-ceramic trim in accordance with manufacturer's instructions.
- F. Sound tile after setting. Replace hollow sounding units.
- G. Keep control and expansion joints free of mortar, grout, and adhesive.
- H. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- I. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- J. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - WALLS - THIN-SET METHODS

- A. See drawings for specified TCNA setting methods.

3.05 CLEANING

- A. Clean tile and grout surfaces.

END OF SECTION

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SECTION 09 51 13
ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL**1.01 SUMMARY**

- A. Section includes the following:
 - 1. Acoustical ceiling panels.
 - 2. Metal suspension systems for acoustical panel ceilings.
 - 3. Edge moldings, trim, transitions, perimeter pocket systems, and other suspension system accessory items for acoustical panel ceilings.
- B. Related Requirements:
 - 1. Section 09 29 00 "Gypsum Board"
 - 2. Division 23 - HVAC
 - 3. Division 26 - Electrical

1.02 COORDINATION

- A. Coordinate layout and installation of ceiling panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, tube skylights and partition assemblies.

1.03 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each acoustical panel ceiling system.
 - 1. Indicate materials, components, and profiles.
 - 2. Include reflected ceiling plans, sections, fastening methods, and installation and system details.
 - 3. Include details at joints and corners, and details at ceiling intersections and intersections with walls.
 - 4. Include details at cutouts and penetrations for other work.
- C. Samples: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:
 - 1. Acoustical Panels: Set of 6-inch-square Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch- long Samples of each type, finish, and color.
- D. Delegated-Design Submittal: For seismic restraints and attachment devices.
 - 1. 1. Structural Design Calculations: Retain and pay for services of a qualified professional engineer, licensed in the State of California, to prepare calculations and drawings for specified systems, acceptable to authorities having jurisdiction, including all connections between members of system and all connections to building structure.

1.05 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Ceiling suspension-system members.
 - 2. Items penetrating finished ceiling and ceiling-mounted items including the following:
 - a. Lighting fixtures.
 - b. Diffusers.
 - c. Grilles.
 - d. Speakers.
 - e. Sprinklers.
 - f. Access panels.

- g. Miscellaneous AV and security items.
- 3. Perimeter moldings.
- 4. Roller window shades.
- B. Product Test Reports: For each acoustical panel ceiling, for tests performed by manufacturer and witnessed by a qualified testing agency.
- C. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.

1.06 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For finishes to include in maintenance manuals.

1.07 MAINTENANCE MATERIAL SUBMITTALS

- A. A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size panels equal to 2 percent of quantity installed.
 - 2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed.
 - 3. Hold-Down Clips: Equal to 2 percent of quantity installed.
 - 4. Seismic Clips: Equal to 2 percent of quantity installed.

1.08 QUALITY ASSURANCE

- A. A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Size: Minimum 100 sq. ft. for each type, color, and pattern in locations directed by Architect.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.10 FIELD CONDITIONS

- A. A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. A. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.02 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design seismic restraints for ceiling systems.
- B. Seismic Performance: Suspended ceilings shall withstand the effects of earthquake motions determined according to ASTM E 580.

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- C. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: Class A according to ASTM E 1264.
 2. Smoke-Developed Index: 50 or less.

2.03 ACOUSTICAL PANELS

- A. Basis-of-Design Products: The design for acoustical panels is based on products by Armstrong World Industries, Inc.
- B. Subject to compliance with requirements, provide the named products or comparable products:
 1. ACP-1, Armstrong "Ultima" 24 inch by 24 inch panel. 3/4" thick, beveled tegular 9/16..
- C. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E 1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- D. Products, Patterns, Sizes, and Colors: As indicated on the Drawings.

2.04 METAL SUSPENSION SYSTEM

- A. Basis-of-Design Products: The design for metal suspension systems is based on products by Armstrong World Industries, Inc.
- B. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C 635/C 635M and designated by type, structural classification, and finish indicated.
- C. Recycled Content: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.
- D. Grid Type 1: Narrow-Face, Capped, Double-Web, Steel Suspension System:
 1. General: Main and cross runners roll formed from cold-rolled steel sheet; pre-painted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 9/16-inch-wide metal caps on flanges.
 2. Basis-of-Design Product: Armstrong's Silhouette XL 9/16-inch "bolt slot-1/4" reveal, incorporating Armstrong's "Seismic Rx Suspension System," designed to eliminate 2inch wall angle in seismic-compliant installations.
 3. Structural Classification: Heavy-duty system.
 4. End Condition of Cross Runners: Override (stepped) or butt-edge type.
 5. Face Design: Flat, flush.
 6. Cap Finish: Painted white.

2.05 ACCESSORIES

- A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
 1. Zinc-coated, carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 2. Size: As indicated.
- C. Hold-Down Clips: Manufacturer's standard hold-down.
- D. Seismic Clips: Manufacturer's standard seismic clips designed to secure acoustical panels in place during a seismic event.
- E. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.
- F. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.

2.06 METAL EDGE MOLDINGS AND TRIM

- A. Basis-of-Design Products: The design for metal edge moldings and trim is based on products by manufacturer of metal suspension system.

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- B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
 - 1. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners unless otherwise indicated.
 - 2. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
- C. Accessories: Provide the following at perimeter of ceilings as indicated.
 - 1. 1. Manufacturer's 2-inch beam end retaining clip, 0.034 inch thick, hot-dipped galvanized cold-rolled steel per ASTM A568. Used to join main beam or cross tee to wall molding.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated and comply with layout shown on reflected ceiling plans.
- B. Layout openings for penetrations centered on the penetrating items.

3.03 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated in ASTM E 580, according to manufacturer's written instructions, and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. When framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 - 6. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 - 7. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
 - 2. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
 - 1. Arrange directionally patterned acoustical panels as indicated on reflected ceiling plans.
 - 2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
 - 3. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 - 4. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
 - 5. Install hold-down and seismic clips in areas indicated and in areas required by authorities having jurisdiction; space according to panel manufacturer's written instructions unless otherwise indicated.

3.04 ERECTION TOLERANCES

- A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet, non-cumulative.
- B. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet, non-cumulative.

3.05 FIELD QUALITY CONTROL

- A. A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 - 1. Compliance with seismic design.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Perform the following tests and inspections of completed installations of acoustical panel ceiling hangers and anchors and fasteners in successive stages and when installation of ceiling suspension systems on each floor has reached 20 percent completion, but no panels have been installed. Do not proceed with installations of acoustical panel ceiling hangers for the next area until test results for previously completed installations of acoustical panel ceiling hangers show compliance with requirements.
 - 1. Tests and Extent of Each Test Area: As indicated on the Drawings.
- D. Acoustical panel ceiling hangers, anchors, and fasteners will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.

3.06 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

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END OF SECTION 09 51 13

SECTION 09 90 00 - PAINTING AND COATING**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Surface preparation and field painting of exposed interior items and surfaces.
- B. Surface preparation and field painting of exposed exterior items and surfaces.
- C. Surface preparation and field application of exterior high-performance coating systems to items and surfaces scheduled.
- D. Painting of exposed bare and covered pipes and ducts, hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 05 50 00 - Metal Fabrications: Shop finishing of metal fabrications.
- C. Section 06 20 00 - Finish Carpentry: Shop priming architectural woodwork.
- D. Section 07 46 49 - Poly-Ash Siding and Trim: Pre-primer material.
- E. Section 07 92 00 - Joint Sealants.
- F. Section 08 12 13 - Hollow Metal Doors and Frames: Factory priming of doors and frames.
- G. Section 08 14 16 - Flush Wood Doors: Factory finishing of flush wood doors.
- H. Section 09 29 00 - Gypsum Board Assemblies: Gypsum board finish levels.

1.03 DEFINITIONS

- A. General: Paint includes coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats. Standard coating terms are defined in ASTM D16.
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85 degree meter.
 - 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60 degree meter.
 - 3. Semi-Gloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60 degree meter.

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4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60 degree meter.
- B. Environments: The following terms distinguish between different corrosive exposures:
1. "Severe environments" are highly corrosive industrial atmospheres with sustained exposure to high humidity and condensation and with frequent cleaning using strong chemicals. Environments with heavy concentrations of strong chemical fumes and frequent splashing and spilling of harsh chemical products are severe environments.
 2. "Moderate environments" are corrosive industrial atmospheres with intermittent exposure to high humidity and condensation, occasional mold and mildew development, and regular cleaning with strong chemicals. Environments with exposure to heavy concentrations of chemical fumes and occasional splashing and spilling of chemical products are moderate environments.
 3. "Mild environments" are industrial atmospheres with normal exposure to moderate humidity and condensation, occasional mold and mildew development, and infrequent cleaning with strong chemicals. Environments with low levels of mild chemical fumes and occasional splashing and spilling of chemical products are mild environments. Normal outdoor weathering is also considered a mild environment.

1.04 REFERENCE STANDARDS

1.05 SYSTEM DESCRIPTION

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications 2019.
- B. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers 2017, v1.2.
- C. EN 15804 - Sustainability of Construction Works - Environmental Product Declarations - Core Rules for the Product Category of Construction Products 2022 (Corrigendum 2021).
- D. ISO 14025 - Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures 2006.
- E. ISO 14040 - Environmental Management - Life Cycle Assessment - Principles and Framework 2006, with Amendment (2020).
- F. ISO 14044 - Environmental Management - Life Cycle Assessment - Requirements and Guidelines 2006, with Amendment (2020).
- G. ISO 21930 - Sustainability in Buildings and Civil Engineering Works — Core Rules for Environmental Product Declarations of Construction Products and Services 2017.
- H. SSPC-SP 6 - Commercial Blast Cleaning 2007.

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1.06 SUBMITTALS

A. CALGreen Submittals:

1. Product Data for CALGreen 5.504.4.3 - Finish Material Pollutant Control, Paints and Coatings: Product data and material safety data sheets (MSDS) for coatings, including printed statement of chemical composition and VOC content of each product used.
2. Aerosol paints and coatings. Aerosol paints and coatings shall meet the PWMIR Limits for VOC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.
3. Field Verification of on-site product containers: If required by Authority Having Jurisdiction.

B. Product Data: For each paint system indicated, including:

1. Material List: An inclusive list of required coating materials. Indicate each material and cross reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
2. Preparation instructions and recommendations.
3. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

C. Verification Samples: For each finish product specified, two samples, minimum size 8 inch square, representing actual product, color, and patterns.

1. Step coats on Samples to show each coat required for system.
2. Label each coat of each Sample.
3. Label each Sample for location and application area.

1.07 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this project, whose work has resulted in applications with a record of successful in-service performance.
- B. Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Paint exposed surfaces. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

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- D. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
- E. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. See Section 01 43 39 - Mock-Ups for general requirements for mock-up.
 - 2. Finish areas designated by Architect. Simulate finished lighting conditions for review of in-place work.
 - 3. Do not proceed with remaining work until workmanship, color, and sheen are approved by Owner and Architect.
 - 4. Final colors to be approved by the Owner and Architect after a maximum of 3 adjustments to each color at no additional cost. Refinish mock-up area as required to produce acceptable work.
 - 5. Wood specified to receive stain finishes: Provide samples on full width boards at least 8 ft. in length. Apply over prepared surface utilizing proposed application method. Final color to be approved by the Owner and Architect after a maximum of 2 adjustments at no additional cost.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 degrees F. Maintain storage containers in a clean condition, free of foreign materials and residue.

1.09 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 degrees F and 90 degrees F.
- C. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 degrees F and 95 degrees F.
- D. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

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1.10 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
- B. Quantity: Furnish Owner with an additional three percent, but not less than 1 gallon or 1 case, as appropriate, of each material and color applied.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design Manufacturer: PPG Paints, 400 Bertha Lamme Drive Cranberry, PA 16066. Toll Free Tel: 888-PPG-IDEA. Web: www.ppgpaints.com/#sle.
- B. Other Acceptable Manufacturers:
 - 1. Dunn-Edwards.
 - 2. Kelly Moore
 - 3. Sherwin Williams.

2.02 PAINT MATERIALS - GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. VOC Classification: Provide high-performance coating materials, including primers, undercoats, and finish-coat materials, that meet the applicable local, state or federal VOC requirements.
- C. CalGreen Coating VOC Limits: Refer to Section 01 81 13 - NTU Sustainable Design Requirements.
- D. Color: Refer to Drawings for paint sheen and color.

2.03 CONCRETE MASONRY UNIT BLOCK FILLER

- A. Concrete Masonry Unit Block Filler: Factory formulated high-performance latex block fillers.
 - 1. PPG Paints; 6-15XI Speedhide Interior/Exterior Latex Masonry Block Filler (48 g/L VOC).
 - a. Applied at a dry film thickness of not less than 7.0 mils.

2.04 INTERIOR PRIMERS

- A. Interior Concrete and Masonry Primer: Factory-formulated alkali-resistant, zero VOC latex - based interior primer for interior application.

1. PPG Paints; 6-4900XI Speedhide zero Interior Zero VOC Latex Sealer (0 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.2 mils.
- B. Interior Gypsum Board Primer: Factory-formulated, zero VOC latex-based primer for interior application.
 1. PPG Paints; 6-4900XI Speedhide zero Interior Zero VOC Latex Sealer (0 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.2 mils.
- C. Interior Wood Primer: Factory-formulated, zero VOC latex-based interior wood primer.
 1. PPG Paints; 6-4900XI Speedhide zero Interior Zero VOC Latex Sealer (0 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.2 mils.
- D. Interior Ferrous, Non-Ferrous, Galvanized Metal, and Aluminum Primer: Factory-formulated waterborne acrylic rust-inhibitive metal primer.
 1. PPG Paints; 4020 PF Series Pitt-Tech Plus Interior/Exterior DTM Industrial Primer (91 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.2 mils.

2.05 EXTERIOR PRIMERS

- A. Exterior Concrete and Masonry Primer: Factory-formulated alkali-resistant acrylic primer for exterior application.
 1. PPG Paints; 17-921XI Series Seal Grip Acrylic Universal Primer (84 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.6 mils.
 2. Concrete Products Group; “Spec Finish” Coatings. Use for existing and new concrete masonry unit walls.
- B. Exterior Wood Primer for Acrylic Enamels: Factory-formulated acrylic wood primer for exterior application.
 1. PPG Paints; 17-921XI Series Seal Grip Acrylic Universal Primer (84 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.6 mils.
- C. Exterior Ferrous, Non-Ferrous, Galvanized Metal, and Aluminum Primer: Factory-formulated waterborne acrylic rust-inhibitive metal primer.
 1. PPG Paints; 4020 PF Series Pitt-Tech Plus Interior/Exterior DTM Industrial Primer (91 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.2 mils.

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2.06 INTERIOR FINISH COATS

- A. Interior Flat Latex (Gloss Level 1): Factory-formulated flat, zero VOC latex-based interior paint.
- B. Interior Eggshell Acrylic Enamel (Gloss Level 2): Factory-formulated eggshell, zero VOC latex-based interior enamel.
 - 1. PPG Paints; 6-4310XI Series Speedhide zero Interior Latex Eggshell (0 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.4 mils.
- C. Interior Eggshell Acrylic Enamel (Gloss Level 3): Factory-formulated satin, zero VOC latex-based interior enamel.
 - 1. PPG Paints; 6-4410XI Series Speedhide Zero Interior Zero VOC Latex Satin (0 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.3 mils.
- D. Interior Satin Acrylic Enamel (Gloss Level 4): Factory-formulated satin, waterborne acrylic interior enamel.
 - 1. PPG Paints; V51-410 Series Break-Through Interior/Exterior Water-Borne Acrylic Satin (less than 50 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.3 mils.
- E. Interior Semi-Gloss Acrylic Enamel (Gloss Level 5): Factory-formulated semi-gloss, zero VOC latex-based enamel.
 - 1. PPG Paints; 6-4510XI Series Speedhide zero Interior Zero VOC Latex Semi-Gloss (0 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.3 mils.
- F. Interior Full-Gloss Acrylic Enamel (Gloss Level 6): Factory-formulated full-gloss waterborne acrylic interior enamel.
 - 1. PPG Paints; V71-610 Series Break-Through Interior/Exterior Water-Borne Acrylic Gloss (less than 50 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.5 mils.
- G. Interior Eggshell Waterborne Acrylic Epoxy:
 - 1. PPG Paints; 16-310 Series Pitt-Glaze WB1 Interior Pre-Catalyzed Water-Borne Acrylic Epoxy Eggshell (95 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.5 mils.
- H. Interior Semi-Gloss Waterborne Acrylic Epoxy:

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1. PPG Paints; 16-510 Series Pitt-Glaze WB1 Interior Pre-Catalyzed Water-Borne Acrylic Epoxy Semi-Gloss (97 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.5 mils.
2. For existing and new interior concrete masonry unit walls: Concrete Products Group; Spec-Finish Coatings.
 - a. Primer – Waterborne Block Filler, applied @ 85 square feet/gal. Backrolled and squeegeed.
 - b. Intermediate Coat – Modified Polyamine Epoxy, applied @ 200 square-feet/gal.
 - c. Topcoat – Aliphatic Polyurethane, applied @ 305 square feet/gal.
- I. Interior Flat Latex Dry Fog:
 1. PPG Paints; 6-725XI Speedhide Super-Tech WB Interior Dry Fog Latex Flat (30 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.2 mils.
- J. Interior Eggshell Latex Dry Fog:
 1. PPG Paints; 6-724XI Speedhide Super-Tech WB Interior Dry Fog Latex Eggshell (30 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.2 mils.
- K. Interior Semi-Gloss Latex Dry Fog:
 1. PPG Paints; 6-727XI Series Speedhide Super Tech WB Interior Dry Fog Latex Semi-Gloss (less than 50 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.2 mils.
- L. Interior/Exterior High Performance Satin Polysiloxane:
 1. PPG Paints; PSX 805 Engineered Siloxane Satin (75 g/L VOC).
 - a. Applied at a dry film thickness of not less than 3.0 mils.

2.07 STAIN FINISHES FOR INTERIOR WOOD SUBSTRATES

- A. Interior Wood Bio-Based Stain Finish:
 1. Bio-based oil interior wood stain: Timber Pro; Log & Siding Formula, Smooth
 2. Sealer: Timber Pro Crystal Urethane Interior clear waterborne sealer.
- B. Interior Wood Stain and Sanding Sealer:
 1. Stain:

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- a. PPG Deft Water Based Interior Wood Stain DFT300 Series.
2. Sealer:
 - a. PPG Deft Sanding Sealer Interior Water Based DFT61.
3. Interior Satin Wood Varnish: Clear, waterborne, acrylic/urethane.
 - a. PPG Deft Clear Polyurethane Interior Water Based Acrylic Satin DFT159.

2.08 EXTERIOR FINISH COATS

- A. Exterior Flat Acrylic Paint: Factory-formulated flat 100% acrylic latex paint for exterior application.
 1. PPG Paints; 6-610XI Series Speedhide Exterior 100 percent Acrylic Latex Flat (less than 50 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.5 mils.
- B. Exterior Orange Peel for concrete block finish: Roller Applied. For existing and new concrete masonry unit walls. Allow for one primary color and two accent colors.
 1. Concrete Products Group, "Spec Finish" Coating products:
 - a. Primer – Waterborne Block Filler, applied @ 85 square feet/gal. Backrolled and squeegeed.
 - b. Intermediate Coat – Modified Polyamine Epoxy, applied @ 200 square-feet/gal.
 - c. Topcoat – Aliphatic Polyurethane, applied @ 305 square feet/gal.
- C. Exterior Satin Acrylic Paint: Factory-formulated satin waterborne acrylic paint for exterior application.
 1. PPG Paints; V51-410 Series Break-Through Interior/Exterior Water-Borne Acrylic Satin (less than 50 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.3 mils.

Metal Substrates

2. PPG Paints; 90-1110 Pitt-Tech Plus Interior/Exterior DTM Industrial Enamel Satin (85 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.0 mils.
- D. Exterior Semi-Gloss Acrylic Paint: Factory-formulated semi-gloss waterborne acrylic enamel for exterior application.

Metal Substrates

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1. PPG Paints; 4216 HP Series Pitt-Tech Plus Interior/Exterior DTM Industrial Enamel Semi-Gloss (90 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.0 mils.

- E. Exterior Full-Gloss Acrylic Enamel: Factory-formulated full-gloss waterborne acrylic-latex enamel for exterior application.
 1. PPG Paints; 90-1310 Pitt-Tech Plus Interior/Exterior DTM Industrial Enamel Gloss (90 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.0 mils.

- F. Exterior High Performance Low-VOC Polyester Acrylic Polurethane Coating
 1. Intermediate Coat: PPG Paints; Amerlock 400 or Amerlock 2 400 epoxy high solids intermediate coat as recommended by manufacturer for intended applications. (<100g/L).
 - a. Applied at a dry film thickness of not less than 2.0 mils.
 2. Topcoat: PPG Paints; PMC Amershield VOC, Low-VOC Polyester Acrylic Polurethane Coating (<85 g/L VOC).
 - a. Applied at a dry film thickness of not less than 3.0 mils.

2.09 STAIN FINISHES FOR EXTERIOR WOOD SUBSTRATES

- A. Semi-Transparent Bio-Based Wood Finish: Exterior bio-based oil wood stain.
 1. Stain: Timber Pro; Log & Siding Formula [Classic] [Smooth]
 2. Sealer: Timber Pro; Clear Log and Siding, Smooth Formula

- B. Semi-Transparent Wood Finish: Exterior waterborne wood stain.
 1. Basis of Design:
 - a. **PPG; ProLuxe: VOC<100g/L; approximately 25% solids by volume.**
 2. Acceptable Products:
 - a. Cabot; Semi-Transparent Acrylic Siding Stain 1300 Series: VOC<100g/L; approximately 25% solids by volume.
 - b. Duckback; Superdeck Semi-Transparent Waterborne Stain, 2400 Series.
 - c. Sherwin-Williams; Superdeck Semi-Transparent Acrylic Stain.

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PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.
 - 2. If a potential incompatibility of primers applied by others exists, obtain the following from the primer applicator before proceeding:
 - a. Confirmation of primer's suitability for expected service conditions.
 - b. Confirmation of primer's ability to be top coated with materials specified.

3.02 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Substrates: Prepare concrete, brick, concrete masonry block, and cement plaster surfaces to be coated. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods to prepare surfaces.
 - a. Use abrasive blast-cleaning methods if recommended by coating manufacturer.

- b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not coat surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
- 3. Wood Substrates: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Smoothly sand surfaces exposed to view and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer, before applying primer.
 - b. Immediately on delivery, prime edges, ends, faces, undersides, and backsides of wood to be coated.
 - c. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- 4. Ferrous Metal Substrates: Clean ungalvanized ferrous metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC recommendations.
 - a. Blast-clean steel surfaces as recommended by coating manufacturer and according to SSPC-SP 6.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire brush, solvent clean, and touch up with same primer as the shop coat.
- 5. Non-Ferrous Metal Substrates: Clean non-ferrous and galvanized surfaces according to manufacturer's written instructions for the type of service, metal substrate, and application required.
 - a. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.
 - 1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.
 - 2. Stir materials before applying to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain coating material before using.
 - 3. Use only the type of thinners approved by manufacturer and only within recommended limits.

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4. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.03 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
- B. General: Apply high-performance coatings according to manufacturer's written instructions.
 1. Use applicators and techniques best suited for the material being applied.
 2. Do not apply high-performance coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
 3. Coating surface treatments and finishes are indicated in the coating system descriptions.
 4. Provide finish coats compatible with primers used.
 5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, grilles, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
- C. Application Procedures: Apply coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
 1. The number of coats and film thickness required is the same regardless of application method.
 2. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or recoat work that does not comply with specified requirements.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 45 23 - NTU Testing and Inspecting Services, for general requirements for field inspection and testing.
- B. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:
 1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to project will be taken, identified, sealed, and certified in the presence of Contractor.
 2. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from project site, pay for testing, and repaint surfaces previously coated with the

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noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.05 CLEANING

- A. After completing painting, clean glass and paint spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.06 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
- C. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces.

3.07 INTERIOR PAINT SCHEDULE

- A. Concrete:
 - 1. General: Two finish coats over a primer.
 - 2. Primer: Interior zero VOC, **latex-based** primer as specified for substrate indicated.
 - 3. Finish Coats: Interior low-sheen, zero VOC **latex-based** enamel.
- B. Concrete Masonry Units:
 - 1. General: Two finish coats over a primer.
 - 2. Primer: Concrete masonry unit **latex** block filler.
 - 3. Finish Coats: Interior low sheen zero VOC **latex-based** enamel.
- C. Gypsum Board:
 - 1. Walls and Ceilings to receive Flat Finish:
 - a. General: Two finish coats over a primer.
 - b. Primer: Interior zero VOC **latex-based** primer as specified for substrate indicated.
 - c. Finish Coats: Interior flat zero VOC **latex-based** paint.
 - 2. Walls and Ceilings to receive Low-Luster (Eggshell) Finish:
 - a. General: Two finish coats over a primer.

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- b. Primer: Interior zero VOC **latex-based** primer as specified for substrate indicated.
- c. Finish Coats: Interior low-luster (eggshell) zero VOC **latex-based** enamel.
- 3. Walls and Ceilings to receive Satin Finish:
 - a. General: Two finish coats over a primer.
 - b. Primer: Interior zero VOC **latex-based** primer as specified for substrate indicated.
 - c. Finish Coats: Interior satin zero VOC **waterborne acrylic** enamel.
- 4. Walls and Ceilings to receive Semi-Gloss Finish:
 - a. General: Two finish coats over a primer.
 - b. Primer: Interior zero VOC **latex-based** primer as specified for substrate indicated.
 - c. Finish Coats: Interior semi-gloss zero VOC **latex-based** enamel.
- 5. Walls and Ceilings to receive Full-Gloss Finish:
 - a. General: Two finish coats over a primer.
 - b. Primer: Interior zero VOC **latex-based** primer as specified for substrate indicated.
 - c. Finish Coats: Interior gloss zero VOC **waterborne acrylic** enamel.
- 6. Walls and Ceilings to receive Semi-Gloss Epoxy Finish:
 - a. General: Two finish coats over a primer.
 - b. Primer: Interior zero VOC **latex-based** primer as specified for substrate indicated.
 - c. Finish Coats: Interior Semi-Gloss **Pre-Catalyzed Water-Borne Acrylic Epoxy** finish.
- D. Metal Doors and Frames, and Other Non-Prefinished Miscellaneous Metal, metal stairs, pipe and tube railings, and decorative metal exposed piping, conduits, and ductwork, :
 - 1. Ferrous Metal:
 - a. General: Two finish coats over a primer.
 - b. Primer: Interior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).
 - c. Finish Coats: Interior satin zero VOC **waterborne acrylic** enamel.
 - 2. Zinc-Coated Metal:
 - a. General: Two finish coats over a primer.

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- b. Primer: Interior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).
 - c. Finish Coats: Interior satin zero VOC **waterborne acrylic** enamel.
- E. Typical Exposed Structural and Steel Items not indicated to be Painted with Interior High Performance Topcoats.
 - 1. Ferrous Metal:
 - a. General: Two finish coats over a primer.
 - b. Primer: Interior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).
 - c. Finish Coats: Interior satin zero VOC **waterborne acrylic** enamel.
 - 2. Zinc-Coated Metal:
 - a. General: Two finish coats over a primer.
 - b. Primer: Interior **waterborne acrylic** as specified for substrate indicated (not required on shop-primed items).
 - c. Finish Coats: Interior satin zero VOC **waterborne acrylic** enamel.
- F. Selected Exposed Steel Items indicated to be Painted with Interior High Performance Topcoats including exposed structural steel, architecturally exposed structural steel, metal stairs, pipe and tube railings, and decorative metal.
 - 1. General: One topcoat over shop primer.
 - 2. Primer: Shop-applied in applicable Division 5 Section.
 - 3. Topcoat: Interior high performance **satin polysiloxane**
- G. Wood - Opaque Finish: Walls and Ceilings to receive Flat Finish:
 - 1. General: Two finish coats over a primer.
 - 2. Primer: Interior zero VOC, **latex-based** primer as specified for substrate indicated.
 - 3. Finish Coats: Interior Flat zero VOC **latex-based** paint.
- H. Wood - Opaque Finish: Trim to receive Satin Finish:
 - 1. General: Two finish coats over a primer.
 - 2. Primer: Interior zero VOC, **latex-based** primer as specified for substrate indicated.
 - 3. Finish Coats: Interior satin zero VOC **waterborne acrylic** enamel.
- I. Wood - Transparent Finish and varnish for miscellaneous field-finished wood::

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1. General: Two coats varnish minimum over one coat sanding sealer and one coat stain.
 2. Stain: Interior **water based**.
 3. Sanding Sealer: Interior **water based**.
 4. Varnish: Interior clear satin **waterborne acrylic/urethane**.
- J. Wood - Transparent Penetrating Finish for softwood substrates:
1. General: One coat penetrating sealer over one coat stain.
 2. Stain: Interior bio-based oil.
 3. Sealer: Interior clear waterborne urethane.

3.08 EXTERIOR PAINT SCHEDULE

- A. Concrete:
1. General: Two finish coats over primer.
 2. Primer: Exterior **acrylic** primer as specified for substrate indicated.
 3. Finish Coats: Exterior flat **acrylic latex** paint.
- B. Concrete Unit Masonry:
1. General: Two finish coats over a primer.
 2. Primer: Concrete masonry unit **latex** block filler.
 3. Finish Coats: Exterior flat **acrylic latex** paint.
- C. Cement Plaster: Refer to Section 09 24 00 - NTU Cement Plastering for finish coat system.
- D. Metal Doors and Frames, and Other Non-Prefinished Miscellaneous Metal:
1. Ferrous Metal:
 - a. General: Two finish coats over primer.
 - b. Primer: Exterior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).
 - c. Finish Coats: Exterior semi-gloss **waterborne acrylic** enamel.
 2. Zinc-Coated Metal:
 - a. General: Two finish coats over primer.
 - b. Primer: Exterior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).

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- c. Finish Coats: Exterior semi-gloss **waterborne acrylic** enamel.

- E. Aluminum:
 - 1. General: Two finish coats over primer.
 - 2. Primer: Exterior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).
 - 3. Finish Coats: Exterior semi-gloss **waterborne acrylic** enamel.

- F. Selected Exposed Steel Items indicated to be Painted with Exterior High Performance Topcoats including exposed structural steel, architecturally exposed structural steel, metal stairs, pipe and tube railings, and decorative metal.
 - 1. General: One topcoat over one intermediate coat and shop primer.
 - 2. Primer: Shop-applied in applicable Division 05 Section.
 - 3. Intermediate Coat: **Epoxy high-solids** intermediate coat as recommended by manufacturer of high-performance topcoat for intended application.
 - 4. Topcoat: Exterior semi-gloss **Polyester Acrylic Polyurethane** Coating

- G. Wood: Walls and Soffits to receive Stain Finish:
 - 1. General: One finish coat, minimum.
 - 2. Finish Coat(s): Exterior Semi-Transparent waterborne stain.

- H. Wood: Walls and Soffits to receive Semi-Transparent Bio-Based Wood Finish
 - 1. General: Exterior clear sealer over two coats stain.
 - 2. Stain: Exterior bio-based oil.
 - 3. Sealer: Exterior clear sealer.

- I. Poly-Ash Composite Siding:
 - 1. General: Two finish coats over pre-primed composite material
 - 2. Primer: Pre-primed. See Section 07 46 49 - NTU Poly-Ash Siding and Trim
 - 3. Finish Coats: Exterior flat **acrylic latex** paint.

- J. Wood Benches: All bench surfaces: Top, bottom, edges and ends:
 - 1. General: Apply cleaner/neutralizer prior to finish sanding. Two coats penetrating stabilizer.

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2. Stabilizer: Exterior transparent, penetrating.

END OF SECTION

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**SECTION 10 14 00
SIGNAGE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Room and door signs.
- B. Building identification signs.

1.02 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines current edition.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- C. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

1.03 SUBMITTALS

- A. See Division 1 - Submittals, for submittal procedures.
- B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
 - 1. When room numbers to appear on signs differ from those on drawings, include the drawing room number on schedule.
 - 2. When content of signs is indicated to be determined later, request such information from Owner through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
 - 3. Submit for approval by Owner through Architect prior to fabrication.
- D. Samples: Submit two samples of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment.
- E. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.
- C. Store tape adhesive at normal room temperature.

1.06 FIELD CONDITIONS

- A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
- B. Maintain this minimum temperature during and after installation of signs.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Flat Signs:
 - 1. Rowmark. Ultra-Mattes Front, "Driftwood Alpine"
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 SIGNAGE APPLICATIONS

- A. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- B. Room and Door Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.
 - 1. Sign Type: Flat signs with engraved panel media as specified.
 - 2. Provide "tactile" signage, with letters raised minimum 1/32 inch and Grade II braille.
 - 3. Character Height: 5/8-inch or minimum allowed by code.
 - 4. Sign Height: 2 inches or otherwise minimum allowed by code, unless otherwise indicated.
 - 5. Office Doors: Identify with room numbers to be determined later, not the numbers indicated on drawings.
 - 6. Conference and Meeting Rooms: Identify with room numbers to be determined later, not the numbers indicated on drawings.
 - 7. Service Rooms: Identify with room names and numbers to be determined later, not those indicated on drawings.
 - 8. Rest Rooms, Locker Rooms: Identify with pictograms, and as indicated on sheet G1.05 and G1.06, and braille.

2.03 SIGN TYPES

- A. Flat Signs: Signage media without frame.
 - 1. Edges: Beveled.
 - 2. Corners: Radiused.
 - 3. Wall Mounting of One-Sided Signs: Tape adhesive.
- B. Color and Font: Unless otherwise indicated:
 - 1. Character Font: Helvetica, Arial, or other sans serif font.
 - 2. Character Case: Upper case only.
 - 3. Background Color: to be determined from manufacturer's standard colors.
 - 4. Character Color: Contrasting color to be selected from manufacturer's standard colors.

2.04 TACTILE SIGNAGE MEDIA

- A. Engraved Panels: Laminated colored plastic; engraved through face to expose core as background color:
 - 1. Product: Ultra-Mattes Front, "Driftwood Alpine".
 - 2. Total Thickness: 1/8 inch.

2.05 ACCESSORIES

- A. Concealed Screws: Stainless steel, galvanized steel, chrome plated, or other non-corroding metal.
- B. Exposed Screws: compatible with associate finishes and as approved by Owner/Architect.
- C. Tape Adhesive: Double sided tape, permanent adhesive.
- D. Back-panels for signs mounted on glass.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.
- C. Locate signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

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D. Protect from damage until Substantial Completion; repair or replace damaged items.

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**SECTION 10 21 13
PHENOLIC TOILET COMPARTMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Compact Laminate (Solid Phenolic), Moisture Resistant Substrate
 - 1. Shower Partitions.
 - 2. Toilet Partitions.
 - 3. Urinal Screens

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Blocking and supports.
- B. Section 09 30 00 - Tiling
- C. Section 10 28 00 - Toilet, Bath, and Laundry Accessories.

1.03 REFERENCE STANDARDS

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate the work with placement of support framing and anchors in walls and ceilings.

1.05 SUBMITTALS

- A. See Division 1 for Submittals and for submittal procedures.
- B. Product Data: Provide data on panel construction, hardware, and accessories.
- C. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.
- D. Samples: Submit two samples of partition panels, 6 by 6 inch in size illustrating panel finish, color, and sheen.
- E. Manufacturer's Installation Instructions: Indicate special procedures.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design Products: Subject to compliance with requirements, provide products of **Bradley Corporation, Mills Metals Division, Menomonee Falls, WI 53051.**
 - 1. Contact Information: (800)272-3539, fax (262)251-5817; Email info@BradleyCorp.com; Website www.bradleycorp.com.
 - 2. Substitutions: see Division 1, Product Requirements.

2.02 PHENOLIC TOILET COMPARTMENTS

- A. Toilet Compartments: Factory fabricated doors, pilasters, and divider panels made of solid phenolic core panels with integral melamine finish, floor-mounted headrail-braced.
 - 1. Compact Laminate (Solid Phenolic) Toilet Partitions: **Bradley 700 Series.**
 - a. Design Type Showers: 1) Maximum Height.
 - (a) Door/Panel Height: 82 inches
 - (b) Floor Clearance: 1 inches
 - (c) Provide both a wet and dry area w/ door fronts, and shower curtain mounted under headrail separating dry/wet areas.
 - b. Design Type Toilet Partitions
 - 1) Maximum Height
 - (a) Door/Panel Height: 82 inches
 - (b) Floor Clearance: 1" AFF (9" AFF if required to meet CBC)

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- c. Privacy Style Partitions: No sightlines with gap-free interlocking doors and stiles routed 0.300 inches (7.6 mm) from the edge to allow for 0.175 inch (4.4 mm) overlap to prevent line-of-sight into the toilet compartment. Privacy strips fastened or adhered onto the partition material are not acceptable.
- d. Mounting Configuration:
 - 1) Floor-to-ceiling mounted: Bradley Sentinel Series 700.
- 2. Compact Laminate (Solid Phenolic) Urinal Screens: Bradley, Mills Partitions, Model No. 2.
 - a. Mounting Configuration:
 - 1) Screen Height: 48 inches, mounted 12" AFF
 - 2) Standard bracket hardware
- 3. Materials: Solidly fused plastic laminate with matte-finish melamine surfaces; integrally bonded colored face sheets and black phenolic-resin core.
- 4. Edges: Black; brown edges not acceptable.
- 5. Color: "Storm Solidz".
- 6. Finished Thickness:
 - a. Stiles and Doors: 3/4 inch (19 mm)
 - b. Panels and Screens: 1/2 inch (13 mm).
- 7. Stiles: Floor-anchored stiles furnished with expansion shields and threaded rods.
 - a. Leveling Devices: 7 gauge, 3/16 inches (5 mm) thick, corrosion-resistant, chromate-treated, double zinc-plated steel angle leveling bar bolted to stile; furnished with 3/8 inch (10 mm) diameter threaded rods, hex nuts, lock washers, flat washers, spacer sleeves, expansion anchors, and shoe retainers.
 - b. Stile Shoes: One-piece, 22 gauge (0.8 mm), 18-8, Type 304 stainless steel, 4 inch (102 mm) height; tops with 90 degree return to stile. One-piece shoe capable of adapting to 3/4 inch (19 mm) or 1 inch (25 mm) stile thickness and capable of being fastened (by clip) to stiles starting at wall line.
- 8. Anchors: Expansion shields and threaded rods at floor connections as applicable. Threaded rods secured to supports above ceiling as applicable. Supports above ceiling furnished and installed as Work of Section 05 50 00 - Metal Fabrications.
- 9. Hardware: All hardware to be concealed inside toilet compartments by factory installed threaded brass inserts at all fastening points, tested up to 1,500 pounds of pull force per insert. Exposed hardware unacceptable. Exception: Outswing doors.
 - a. Compliance: Operating force of less than 5 lb (2.25 kg).
 - b. Emergency Access: Hinges, latch allow door to be lifted over keeper from outside compartment on inswing doors.
 - c. Materials: 18-8, Type 304, heavy-gauge stainless steel with satin finish.
 - d. Doorstops: Prevents inswinging doors from swinging out beyond stile; on outswing doors, doorstop prevents door from swinging in beyond stile.
 - e. Fastening: Hardware is secured to door and stile with pin-in-head Torx stainless steel machine screws. Hinges, latch and optional door stops secured to door with pin-in-head Torx stainless steel machine screws into factory-installed, threaded brass inserts. Fasteners for hinges, latch and optional door stops secured directly into core not acceptable.
 - 1) Threaded Brass Inserts: Factory-installed; withstand direct pull force exceeding 1500 lb (680 kg) per insert.
 - f. Clothes Hooks: Projecting no more than 1-1/8 inch (29 mm) from face of door.
 - g. Door Latch Indicator Latch: All doors to be prepped by occupancy indicator latch, manufactured out of stainless steel housing.
 - h. Locking: Door locked from inside by sliding door latch into keeper.
 - i. Hinge Type

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- 1) Standard: Balanced, with field-adjustable cam to permit door to be fully closed or partially open when compartment is unoccupied.
- j. Mounting Brackets:
 - 1) Full-Height.
 - (a) Mounting Brackets: 18 gauge (1.2 mm) stainless steel and extend full height of panel.
 - (b) U-Channels: Secure panels to stiles.
 - (c) Angle Brackets: Secure stiles-to-walls and panels to walls.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Prepare substrates including but not limited to blocking and supports in walls and ceilings at points of attachment using methods recommended by the manufacturer for achieving the best result for the substrates under the project conditions.
 - 1. Inspect areas scheduled to receive compartments for correct dimensions, plumbness of walls, and soundness of surfaces that would affect installation of mounting brackets.
 - 2. Verify spacing of plumbing fixtures to assure compatibility with installation of
- B. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
- C. Do not proceed with installation until substrates have been properly prepared with blocking and supports in walls and ceilings at points of attachment and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

3.02 INSTALLATION

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
 - 1. Verify blocking and supports in walls and ceilings has been installed properly at points of attachment.
 - 2. Verify location does not interfere with door swings or use of fixtures.
 - 3. Use fasteners and anchors suitable for substrate and project conditions
 - 4. Install units rigid, straight, plumb, and level.
 - 5. Conceal evidence of drilling, cutting, and fitting to room finish.
 - 6. Test for proper operation.

3.03 TOLERANCES

- A. Maximum Variation From True Position: 1/4 inch.
- B. Maximum Variation From Plumb: 1/8 inch.

3.04 ADJUSTING

- A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.
- B. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.
- C. Adjust adjacent components for consistency of line or plane.

END OF SECTION

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**SECTION 10 28 00
TOILET, BATH, AND LAUNDRY ACCESSORIES**

PART 1 GENERAL 1.01 SECTION INCLUDES

- A. Commercial toilet accessories.
- B. Commercial shower and bath accessories.
- C. Under-lavatory pipe supply covers.

1.02 RELATED REQUIREMENTS

- A. Section 09 30 00 - Tiling: Ceramic washroom accessories.
- B. Section 10 21 13 - Phenolic Toilet Compartments

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures 2011.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- D. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.
- E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass 2012.
- F. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror 2008 (Reapproved 2013).
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2017.
- H. ASTM F2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use 2004, with Editorial Revision (2016).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.
- B. Soap dispensers, paper towel dispensers, toilet paper dispensers, shower curtains to be Owner furnished, Contractor Installed.

1.05 SUBMITTALS

- A. See Division 1 for Administrative Requirements and for submittal procedures.
- B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS 2.01 MANUFACTURERS

- A. Commercial Toilet, Shower, and Bath Accessories:
 - 1. Bobrick Washroom Equipment, Inc: www.bobrick.com.
 - 2. Bradley: www.bradleycorp.com
 - 3. Substitutions: see Division 1 for Product Requirements.

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2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation. B.

Keys: Provide three keys for each accessory to Owner; master key lockable accessories.

C. Stainless Steel Sheet: ASTM A666, Type 304.

D. Adhesive: Two component epoxy type, waterproof.

E. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type. **2.03**

FINISHES

A. Stainless Steel: Satin finish, unless otherwise noted.

B. Satin Aluminum: Shower track.

2.04 COMMERCIAL TOILET ACCESSORIES

A. Toilet Paper Dispensers: Bobrick B-30929, surface mounted to wall or partition, at “right side” conditions. Bobrick B-30919, surface mounted to wall or partitions, at “left side” conditions.

B. Seat Cover Dispenser: Bobrick B-221

C. Paper Towel Dispenser: Georgia Pacific “Enmotion” 10-inch automated touchless paper towel dispenser.

D. Soap Dispenser: Bobrick B-40 Soap Dispenser.

E. Motorized Hand Dryer: Excel Dryer Inc., “ThinAir” hand dryer, TA-SB, brushed stainless steel.

F. Robe and Towel Hooks: Bobrick B-6827 mounted at 40-inches a.f.f. and at 72-inches a.f.f., (12) total: (4) in each shower and (2) in each accessible stall.

G. Standard Duty Grab Bars:

1. Push/Pull Point Load: 250 pound-force, minimum.

2. Dimensions: 1-1/4 inch outside diameter, minimum 0.05 inch wall thickness, exposed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.

3. Finish: Satin.

4. Length and Configuration: As indicated on drawings.

5. Products:

a. Bobrick B-5806 series for walls and partitions in sizes and configuration indicated on the drawings.

2.05 COMMERCIAL SHOWER AND BATH ACCESSORIES

A. Shower Rod and Curtain:

1. Shower rods, mounting height 74.5-inches above finished floor, lengths as required:

a. Bobrick B-6107 shimmed for shower sidth.

2. Size: 74.5 inches height by width of shower compartment.

3. Shower Curtain: 72-inch by 72-inch heavy-duty, anti-microbial, anti-bacterial, white solid panel: MedicalProductsDirect.com or approve equal. Item #11A23100. Provide with hooks: Bobrick 204-1 or approved equal.

B. Folding Shower Seat: Wall-mounted surface; welded tubular seat frame, structural support members, swing-down legs, hinges, and mechanical fasteners of Type 304 stainless steel, phenolic seat.

1. Seat: Phenolic or polymeric composite one-piece seat or seat slats, of white color.

2. Size: ADA Standards compliant.

3. Products:

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- a. Bradley 9562- Phenolic Bariatric Shower Seat.

2.06 UNDER-LAVATORY PIPE AND SUPPLY COVERS

- A. Specified in 23 04 30 - Plumbing Specialties and as indicated on the drawings.

2.07 UTILITY ROOM ACCESSORIES

- A. Combination Utility Shelf/Mop and Broom Holder: 0.05 inch thick stainless steel, Type 304, with 1/2 inch returned edges, 0.06 inch steel wall brackets.
 - 1. Drying rod: Stainless steel, 1/4 inch diameter.
 - 2. Hooks: Two, 0.06 inch stainless steel rag hooks at shelf front.
 - 3. Mop/broom holders: Three spring-loaded rubber cam holders at shelf front.
 - 4. Length: Manufacturer's standard length for number of holders/hooks.
 - 5. Products: Bobrick B-224 x 36 for Janitor room.

PART 3 EXECUTION 3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation. Provide shims or backing as needed.
- C. For electrically-operated accessories, verify that electrical power connections are ready and in the correct locations.
- D. Verify that field measurements are as indicated on drawings.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings. See Sheet G3.24 and G3.25 general for mounting heights and clearances.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.04 PROTECTION

- A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

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**SECTION 10 44 00
FIRE PROTECTION SPECIALTIES**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Accessories.

1.02 REFERENCE STANDARDS

- A. NFPA 10 - Standard for Portable Fire Extinguishers 2017.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Fire Extinguishers:
 - 1. Larsen's MP5-A Multi-purpose Dry Chemical. .
- B. Fire Extinguisher Cabinets and Accessories:
 - 1. Larsen's Manufacturing Co; in locations indicated on drawings: www.larsensmfg.com.
- C. Or approved equal.

2.02 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
- B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
 - 1. Class: A:B:C type.
 - 2. Temperature range: Minus 40 degrees F to 120 degrees F.
 - 3. Surface mounted with B-2 bracket in two, locker room locations.

2.03 FIRE EXTINGUISHER CABINETS

- A. Cabinet Configuration: Recessed type.
 - 1. Size to accommodate accessories.
 - 2. **Model: 2409-6R, semi-recessed, rolled edge, full panel, tempered safety glass, (2) locations.**

2.04 ACCESSORIES

- A. Extinguisher Brackets: Formed steel, chrome-plated.
- B. Cabinet Signage: to be determined by Owner and Architect.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.
- C. Modify existing recess openings as required to receive new cabinets.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Secure rigidly in place.
- C. Place extinguishers in cabinets.

END OF SECTION

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SECTION 10 51 13 - METAL LOCKERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Metal lockers.
- B. Locker benches.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 06 10 00 - Rough Carpentry: Wood blocking and nailers.
- C. Section 06 20 00 - NTU Finish Carpentry: Bench tops for locker bench support brackets.

1.03 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. ASTM A879/A879M - Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface 2022.
- C. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable 2021a.
- D. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's published data on locker construction, sizes, and accessories.
- B. Shop Drawings: Indicate locker plan layout, numbering plan and combination lock code.
- C. Samples: Submit two samples 3 by 6 inches in size showing color and finish of metal locker material.
- D. Manufacturer's Installation Instructions: Indicate component installation assembly.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect locker finish and adjacent surfaces from damage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Lockers:

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1. Penco Products, Inc; Vanguard Series: www.pencoproducts.com/#sle.
2. Or approved equal.

2.02 LOCKER APPLICATIONS

A. Metal lockers, free-standing with matching closed base. **Type 1**

1. Width: 15 inches.
2. Depth: 18 inches.
3. Height: 72 inches.
4. Configuration: Single tier.
5. Fittings: Size and configuration as indicated on drawings.
 - a. Hat shelf.
 - b. Single shoe shelf.
 - c. Hooks: One double prong.
6. Ventilation: Louvers at top and bottom of door panel. Standard type.
7. Locking: Classic III recessed handle #6168R.
8. Provide an integral sloped top.
9. Color: To be selected from manufacturer's full range by Architect.

B. Metal lockers, free-standing with matching closed base. **Type 2**

1. Width: 12 inch.
2. Depth: 15 inches.
3. Height: 72 inches.
4. Configuration: Single tier.
5. Fittings: Size and configuration as indicated on drawings.
 - a. Upper shelf.
 - b. Coat rod.
 - c. Hooks: One double prong.
 - d. Single shoe shelf.
6. Ventilation: Louvers at top and bottom of door panel. Standard type.

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7. Locking: Classic III recessed handle #6168R.
8. Provide an integral sloped top.
9. Color: To be selected from manufacturer's full range by Architect.

2.03 METAL LOCKERS

- A. Accessibility: Design units indicated on drawings as 'accessible' to comply with ICC A117.1 and ADA Standards.
- B. Locker Case Construction:
 1. Standard-Duty, Knocked Down Construction: Made of formed sheet steel; metal edges finished smooth without burrs; baked enamel or powder coat finished inside and out.
 - a. Locker Body Components: Formed and flanged from steel sheet of the following type and minimum thicknesses:
 - 1) Unperforated Steel Sheet: Commercial Steel (CS), Type B, supplied for exposed applications and complying with ASTM A1008/A1008M and the following:
 - (a) Zinc-Coated by the Electrolytic Process: Comply with ASTM A879/A879M, coating designation 30Z.
 - (b) Door Perforations: Manufacturer's standard pattern of [_____] louvers.
 - 2) Body and Shelves: 24 gauge, 0.0239 inch.
 - 3) Backs: 24 gauge, 0.0239 inch.
 - 4) Legs: Manufacturer's option:
 - (a) Height: 16 inches.
 - (b) Install with concrete anchors and shoes, spaced per manufacturer's recommendations.
 - b. Frames: Formed channel shape, welded and ground flush, welded to body, resilient gaskets and latching for quiet operation.
 - 1) Door Frame: 16 gauge, 0.0598 inch, minimum.
 - c. Where ends or sides are exposed, provide flush panel closures.
 - d. Provide filler strips where required or indicated, securely attached to lockers.
- C. Doors: Channel edge; welded construction, manufacturer's standard stiffeners, grind and finish edges smooth.

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1. Door Thickness: 16 gauge, 0.0598 inch, minimum.
 2. Form recess for operating handle and locking device.
- D. Latches and Door Handles: Manufacturer's standard.
1. Latching: Manufacturer's standard for locking arrangement selected.
 - a. Three-Point Lift Handle Gravity Latch: Pocket-mounted, provide for doors 18 inches or taller.
 - 1) Handle Pocket, Recess: Stainless steel flush-mounted cup recessed into face of door.
 - 2) Rubber bumpers riveted to door stops for silent operation.
- E. Hinges: Continuous piano hinge with powder coat finish to match locker color.
- F. Sloped Top: 20 gauge, 0.0359 inch, with closed ends.
- G. Trim: 20 gauge, 0.0359 inch. Provide trim as needed at all inside corners, and against walls as needed.
- H. Coat Hooks: Stainless steel or zinc-plated steel.
- I. Number Plates: Provide oval shaped aluminum plates. Form numbers 5/8 inch high of block font style with ADA designation, in contrasting color.
- J. Locks: Locker manufacturer's standard type indicated in Applications article above.
- K. Legs: 16-inch tall legs.

2.04 LOCKER BENCHES

- A. Locker Benches: Stationary type; bench top of laminated birch; painted steel pedestals. (2) benches: 12-inches wide by 12-feet long. (1) ADA configured bench with back, 6-feet long.
- B. Locker Bench Support Brackets: Welded structural aluminum single arm floor mount pedestal bench support brackets; pre-drilled for bench top material attachment and for floor anchorage.
 1. Load Capacity per Bracket: 400 pounds.
 2. Finish: As selected by architect from manufacturer's available options.
 3. Bracket Spacing: 36 inches on-center, maximum. Project-specific spacing to be determined based on field measurements.
 4. Bracket-to-Floor Attachment: Fasteners/anchors recommended by bracket manufacturer for wall construction conditions encountered.
 5. Bench Top: Specify in Section 06 20 00 - Finish Carpentry.

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PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that prepared bases are in correct position and configuration.
- B. Verify bases and embedded anchors are properly sized.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Place and secure on prepared base.
- C. Install lockers plumb and square.
- D. Secure lockers with anchor devices to suit substrate materials. Minimum Pullout Force: 100 pounds.
- E. Bolt adjoining locker units together to provide rigid installation.
- F. Install end panels, filler panels, and sloped tops.
- G. Install fittings if not factory installed.
- H. Replace components that do not operate smoothly.

3.03 CLEANING

- A. Clean locker interiors and exterior surfaces.

END OF SECTION

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**SECTION 11 30 13
RESIDENTIAL APPLIANCES**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Kitchen appliances.

1.02 RELATED REQUIREMENTS

- A. Section 22 10 05 - Plumbing Piping: Plumbing connections for appliances.
- B. Section 26 05 83 - Wiring Connections: Electrical connections for appliances.

1.03 REFERENCE STANDARDS

- A. UL (DIR) - Online Certifications Directory Current Edition.

1.04 SUBMITTALS

- A. See Section 01330 Submittals, for submittal procedures.
- B. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.
- C. Copies of Warranties: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Electric Appliances: Listed and labeled by UL (DIR) and complying with NEMA Standards (National Electrical Manufacturers Association).
- B. Gas Appliances: Bearing design certification seal of American Gas Association (AGA).

1.06 WARRANTY

- A. See Section 01700 Contract Closeout, for additional warranty requirements.
- B. Provide five (5) year manufacturer warranty on refrigeration system of refrigerators.
- C. Provide ten (10) year manufacturer warranty on magnetron tube of microwave ovens.
- D. Provide ten (10) year manufacturer warranty on tub and door liner of dishwashers.

PART 2 PRODUCTS**2.01 KITCHEN APPLIANCES**

- A. Provide Equipment Eligible for Energy Star Rating: Energy Star Rated.
- B. Refrigerator: Free-standing, bottom-mounted freezer, and frost-free.
 - 1. Capacity: Total minimum storage of 18 cubic ft; minimum 15 percent freezer capacity.
 - 2. Energy Usage: Minimum 20 percent more energy efficient than energy efficiency standards set by U.S. Department of Energy (DOE).
 - 3. Features: Include glass shelves, automatic icemaker, and light in freezer compartment.
 - 4. Exterior Finish: Porcelain enameled steel, color as indicated.
 - 5. Manufacturers:
 - a. Frigidaire Home Products, Model # FFHN2750TS: www.frigidaire.com/#sle.
- C. Microwave: Countertop.
 - 1. Capacity: 2.1 cubic ft.
 - 2. Power: 700 watts.
 - 3. Features: Include turntable and cooktop light.
 - 4. Exterior Finish: Stainless.
 - 5. Product: Panasonic NW-SN966SR

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PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify utility rough-ins are provided and correctly located.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Anchor built-in equipment in place.

3.03 ADJUSTING

- A. Adjust equipment to provide efficient operation.

3.04 CLEANING

- A. Remove packing materials from equipment and properly discard.
- B. Wash and clean equipment.

END OF SECTION

SECTION 12 36 69

SOLID SURFACE COUNTERTOPS, SHOWER WALL PANELS & SHOWER SEAT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. [Drawing Designation SS-01] Quartz Solid Surfacing – Assembly Casework
2. [Drawing Designation SS-02] Resin Solid Panels – Restroom Shower Walls and Shower Pan
3. [Drawing Designation SS-03] Quartz Solid Surfacing – Walls and Wall Base
4. [Drawing Designation PP-01] Toilet Compartment Partitions
5. Shower Seat

B. Related Sections

1. Division 09 Section "Tiling" for floor and wall tiling.
2. Division 22 Section "Plumbing Fixtures" for plumbing fixtures and fittings.

1.3 ACTION SUBMITTALS

A. Product Data: For all materials.

B. Shop Drawings: For shower surrounds, wall panels, wall base, countertops, and toilet partitions. Show materials, finishes, beveled edge and apron profile, methods of joining, metal trims, and cutouts for plumbing fixtures.

1. Show locations and details of joints.
2. Show direction of directional pattern, if any.

C. Samples for Verification: For the following products:

1. 6-inches square of each color selected.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator and installer.

1.5 CLOSEOUT SUBMITTALS

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A. Maintenance Data: For solid surface (quartz agglomerate) countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

B. Maintenance Data: For all phenolic and solid surface products.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.

B. Installer Qualifications: Fabricator of solid surfacing.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.8 COORDINATION

A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide manufacturers and products specified or approved equal:

B. Solid Surface Countertops: Cambria, 1-866-226-2742, Andrew Yi, andrew.yi@cambriausa.com

C. Phenolic Wall Panels: LX Hausys Himacs, color to be determined, 12mm thickness, 30" x 145" panels, contact: Theresa Youn, tyoun@lxhausys.com

D. Restroom Shower Tray: LG Himacs 61" x 36.5" ADA center drain roll-in Shower base with integral coved curb – no threshold. Contact: Tanner Elmore, Watermark Fabrication, telmore@watermarkrfab.com

E. Shower Seat: Bradley Phenolic Bariatric Shower Seat #9562

2.2 SOLID SURFACE (QUARTZ) COUNTERTOP MATERIALS

A. Quartz Agglomerate: Solid sheets consisting of quartz aggregates bound together with a matrix of filled plastic resin and complying with ICPA SS-1, except for composition.

1. Product: Cambria "Fieldstone)

- a. Panel Sizes: 1/2-inch by 30-inches by 145-inches. Cut to sizes indicated. Provide a few joints as possible.
- b. Colors: Fieldstone

2.3 COUNTERTOP FABRICATION

A. Fabricate countertops according to quartz agglomerate manufacturer's written instructions and the AWI/AWMAC/WI's "Architectural Woodwork Standards."

1. Grade: Custom. B.

Configuration:

1. Countertop: 1/2-inch thick with 1/4-inch bevel front edge back with 3/4-inch, water resistant plywood.
2. Apron: 1/2-inch thick by height indicated on Drawings.
3. Splash: 1/2-inch thick by height indicated on Drawings.

C. Fabricate countertop with plywood backing and shop-applied apron. Comply with quartz agglomerate manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

D. Joints: Fabricate countertops without joints.

E. Cutouts and Holes:

1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
 - a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch into fixture opening.
 - b. Provide vertical edges, rounded to 3/8-inch radius at juncture of cutout edges with top surface of countertop, slightly eased at bottom, and projecting 3/16 inch into fixture opening.
 - c. Provide 3/4-inch full bullnose edges projecting 3/8 inch into fixture opening.
2. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.

F. Countertop Support Bracket: as indicated on Drawings. Prime and paint in accordance with Division 09 Section "Interior Painting" prior to installation.

- i Rakks, Needham Massachusetts 02494 Tel: 781-455-8700, 800-826-6006, www.rakks.com: EH-1824FM modified as needed for counter width, spaced at 36" o.c maximum.

- G. Shower and Wall Panels: ½" by width and height indicated on the drawings.

2.4 INSTALLATION MATERIALS

- A. Adhesives: Product recommended by solid surface or partition manufacturer.
- a Joint adhesive: Manufacturer's one or two-part adhesive kit to create inconspicuous, nonporous joints.
- b Panel adhesive: manufacturer's standard neoprene-based panel adhesive complying with ANSI A136.1-1967, UL listed.
- B. Sealants: Comply with applicable requirements in Division 07 Section "Joint Sealants" and otherwise: a manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.
- C. Fabrication: vertical seamed surfaces for showers and walls:

½-inch thick, with butt joints between sheets made with manufacturer's joint adhesive matching color of solid polymer material; adhesively applied to solid substrates; 1/8" expansion joints filled with color-matching silicone every 10'–15' with matching color.

2.5 PHENOLIC WALL PANELS (and wall base)

- A. HI-MACS: LX Hausys Himacs, color to be determined, 6mm for showers and 12mm thickness for walls and base, 30" x 145" panels, provide shop drawings showing panel layout and seam locations. All inside corners coved. Integrated with Schluter cove and edge trim.

2.6 SHOWER TRAY

- A. HI-MACS 30 X 60 Roll-in Shower tray, Manufacturer/Point of Contact: Watermark Fabrication, Tanner Elmore, email telmore@watermarkfab.com, 615-483-6634.

2.7 SHOWER SEAT

- A. Bradley #9562 - Folding white phenolic shower seat shall be ½" thick phenolic with Melamine bonded to its phenolic core. Secured to the frame of 18 gauge, 1" diameter tubing, and 1½" HDPE support bar. Support leg contained in 16 gauge lower support bracket. Shower seat must meet or exceed ADA guidelines. Overall dimensions: 28½"W x 15"D x ½" thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to receive quartz agglomerate countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION - COUNTERTOPS

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet, 1/4 inch maximum. Do not exceed 1/64-inch difference between planes of adjacent units.
- B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Predrill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with quartz agglomerate manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- C. Fasten subtops to cabinets by screwing through subtops into corner blocks of base cabinets. Shim as needed to align subtops in a level plane.
- D. Secure countertops to subtops with adhesive according to quartz agglomerate manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with quartz agglomerate manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- E. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
1. Install metal splines in kerfs in countertop edges at joints. Fill kerfs with adhesive before inserting splines and remove excess immediately after adjoining units are drawn into position.
 2. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned, and joints are of specified width.
- F. Install aprons to backing and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Fasten by screwing through backing. Predrill holes for screws as recommended by manufacturer.
- G. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
1. Seal edges of cutouts in plywood subtops by saturating with varnish.
- H. Apply sealant to gaps at walls; comply with Division 07 Section "Joint Sealants."

3.3 INSTALLATION – WALL PANELS

- A. Accessories:
- a Joint Adhesive: manufacturer's standard one or two-part adhesive kit to create inconspicuous, non-porous joints.
 - b Panel Adhesive: Manufacturer's standard neoprene-based panel adhesive complying with ANSI A136.1-1967, UL listed.
 - c Sealant: Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone – any type), UL-listed silicone sealant in colors matching components.
- B. Examination:
- a Examine substrates and conditions, with fabricator present, for compliance with requirements for installation tolerances, and other conditions affecting performance of work.
 - b Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Installation:
- a Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
 - b Provide product in the largest pieces available.
 - c Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. **Exposed joints/seams shall not be allowed.**
 - d Reinforce field joints with solid surface strips extending a minimum of 1-inch on either side of the seam with the strip being the same thickness as the top.
 - e Cut and finish component edges with clean, sharp returns.
 - f Rout radii and contours to template.
 - g Carefully dress joints smooth, remove surface scratches and clean entire surface.
- D. Repair: repair or replace damaged work, which cannot be repaired to architect's satisfaction.
- E. Cleaning and Protection: Keep components clean during installation. Remove adhesives, sealants, and other stains.

END OF SECTION

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SECTION 22 42 16 - CAST CONCRETE LAVATORY COUNTERS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Lavatories.
 - a. Wall-Hung Lavatory Systems
 - b. Wall-Hung, single and multi-basin, multi-station lavatories.
- B. Related Requirements: Section 22 05 00 Common Work for Plumbing.

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for lavatories.
 - 2. Include samples of selected finish material.
- B. Shop Drawings: For each counter-lavatory assembly.

1.04 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Structural support required for custom wall-mounted counter/lavatories.

1.05 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For lavatories and counters to include maintenance manuals.
 - 1. See additional items specified in Section 01 78 00.

PART 2 PRODUCTS

2.01 PRECAST GFRC, WALL-MOUNTED LAVATORY SYSTEM WITH INTEGRAL BASIN(S)

- A. Lavatory System: Rectangular countertop deck with Integral Ramp Basin(s), precast Concrete/GFRC, wall mounted.
 - 1. Basis-of-Design Product: Concrete commercial restroom sink, Rear-sloping “rampsink” in custom configuration:
 - a. Sonoma Cast Stone, 877 283 2400, www.sonomastone.com
 - b. Or approved equal.
 - 2. Basin(s) and Countertop:
 - a. Type: Straight front and side aprons with straight back.
 - b. Number of stations: see drawings, (2) for Men’s Restroom and Women’s Restroom/Locker Room.
 - c. Overall Countertop size: see drawings: (2) at 20 inches wide by 6’ - 8” long
 - d. Basin I.D.: 15 inches deep, 5 5/8” deep.
 - e. Faucet and soap dispenser Hole Punching: see plumbing drawings.
 - f. Faucet and soap dispenser Hole Location: see plumbing drawings and coordinate with Owner/Architect.
 - g. Drain type: Slot drain
 - h. Color: to be determined from manufacturer’s standard colors.
 - i. Mounting and Supports: custom wall brackets per manufacturer’s recommendations: steel tube/bracket to concrete masonry and angle at counter edge or 2” concealed extension brackets by A&M hardware, www.aandmhardware.com with steel angle at counter back and wall edge if approved by manufacturer.

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3. Faucet: per plumbing drawings and schedule.
4. Waste Fittings: per plumbing drawings and schedule
 - a. Standard: ASME A112.18.2/CSA B125.2.
 - b. Connection and Finish: per plumbing drawings and spec.
5. Lavatory Mounting Height: per drawings and details.

PART 3 EXECUTION 3.01 EXAMINATION

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before lavatory installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install counters with integral ramp lavatories level and plumb in accordance with roughing-in drawings.
- B. Install supports, affixed to building substrate, per details and manufacturer's recommendations.
- C. Install counters at handicapped/elderly mounting height for people with disabilities or the elderly, in accordance with ICC/ANSI A117.1.
- D. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."
- E. Seal joints between lavatories, counters, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
- F. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

3.03 CONNECTIONS

- A. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- B. Comply with water piping requirements specified in Section 22 05 00 "Common Work for Plumbing."
- C. Comply with soil and waste piping requirements specified in Section 22 05 00 "Common Work for Plumbing."

3.04 ADJUSTING

- A. Operate and adjust lavatories and controls. Replace damaged and malfunctioning lavatories, fittings, and controls.
- B. Adjust water pressure at faucets to produce proper flow.
- C. Install fresh batteries in battery-powered, electronic-sensor mechanisms.

3.05 CLEANING AND PROTECTION

- A. After completing installation of counter/lavatories, inspect and repair damaged finishes.
- B. Clean lavatories, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.
- C. Provide protective covering for installed lavatories and fittings.
- D. Do not allow use of lavatories for temporary facilities unless approved in writing by Owner.

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END OF SECTION 22 42 16

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CORPORATION YARD BUILDING H TECHNICAL SPECIFICATIONS

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CORPORATION YARD BUILDING H TECHNICAL SPECIFICATIONS

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SECTION 01 73 29 - CUTTING, PATCHING AND ALTERATION PROCEDURES**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work..
- C. Cutting and patching.
- D. Cleaning and protection.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 02 41 13 - Selective Demolition: Demolition of portions of existing building as indicated.
- C. Individual Product Specification Sections:
 - 1. Advance notification to other sections of openings required in work of those sections.
 - 2. Limitations on cutting structural members.

1.03 REFERENCE STANDARDS

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022.

1.04 SUBMITTALS

- A. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or separate Contractor.
 - 6. Include in request:
 - a. Identification of Project.
 - b. Location and description of affected work.
 - c. Necessity for cutting or alteration.

- d. Description of proposed work and products to be used.
- e. Effect on work of Owner or separate Contractor.
- f. Written permission of affected separate Contractor.
- g. Date and time work will be executed.

1.05 PROJECT CONDITIONS

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
 - 1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.
 - 2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.
- C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
 - 1. At All Times: Excessively noisy tools and operations will not be tolerated inside the building at any time of day; excessively noisy includes jackhammers.
- D. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- E. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

- E. Coordinate completion and clean-up of work of separate sections.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or mis-fabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.

- B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.04 ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to the City of Berkeley and the Architect before disturbing existing installation.
 - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
 - 1. Provide, erect, and maintain temporary dustproof partitions.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- D. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 - 2. Remove items indicated on drawings.
 - 3. Relocate items indicated on drawings.
 - 4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
 - 5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.

1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
 2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
 3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
 - b. Provide temporary connections as required to maintain existing systems in service.
 4. Verify that abandoned services serve only abandoned facilities.
 5. Remove abandoned pipe, ducts, conduits, and equipment , including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 3. Repair adjacent construction and finishes damaged during removal work.
- G. Adapt existing work to fit new work: Make as neat and smooth transitions as possible.
1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
 2. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.
- H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- I. Refinish existing surfaces as indicated:

1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

3.05 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
 1. Complete the work.
 2. Fit products together to integrate with other work.
 3. Provide openings for penetration of mechanical, electrical, and other services.
 4. Match work that has been cut to adjacent work.
 5. Repair areas adjacent to cuts to required condition.
 6. Repair new work damaged by subsequent work.
 7. Remove samples of installed work for testing when requested.
 8. Remove and replace defective and non-complying work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools are not allowed without prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. Patching:
 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish the entire unit.
 2. Match color, texture, and appearance.
 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.06 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site weekly and dispose off-site; do not burn or bury.

3.07 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Protect finished surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Protect work from spilled liquids. If work is exposed to spilled liquids, immediately remove protective coverings, dry out work, and replace protective coverings.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Prohibit traffic from landscaped areas.
- H. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.08 SYSTEM STARTUP

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect and Owner seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.

- F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.09 DEMONSTRATION AND INSTRUCTION

- A. See Section 01, City of Berkeley Closeout Procedures.
- B. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.

END OF SECTION

SECTION 02 41 13 - SELECTIVE DEMOLITION**PART 1 - GENERAL****1.01 SUMMARY**

- A. Section Includes
 - 1. Selective demolition of building elements as indicated.
 - 2. Protection of existing building finishes during demolition and construction, including, but not limited to, existing modular brick and portions of existing roof and roofing to remain.
 - 3. Construction waste reduction, disposal, and recycling including required documentation for Construction Waste Management Plan and its implementation per the City of Berkeley guidelines.
- B. Related Sections
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
 - 2. Section 01 11 00 - NTU Summary of Work: For items to be salvaged.
 - 3. Section 01 74 19 - NTU Construction Waste Management and Disposal: For procedures and documentation associated with demolition waste.
 - 4. Division 26 - Electrical: For demolition requirements as specified and as indicated on the Drawings.

1.02 REFERENCES

- A. ANSI/ASSE - American National Standards Institute/American Society of Safety Engineers
 - 1. A10.6 - Safety Requirements for Demolition Operations.
- B. EPA - Environmental Protection Agency

1.03 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
 - 1. Storage or sale of removed items or materials on-site is not permitted.
- B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver them to the Owner's designated storage area.

- C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.
- D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, at the Contractor's option and at no additional cost, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.
- E. Materials Ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.04 SUBMITTALS

- A. CALGreen submittals: Refer to Section 01 74 19 - NTU Construction Waste Management and Disposal for planning and documentation of construction waste resulting from demolition activities.
 - 1. Construction Waste Management Plan: Prepare and submit in accordance with CALGreen and City of Berkeley requirements.
 - 2. Construction Waste Management Worksheets: Prepare and submit in accordance with CALGreen requirements.
 - 3. Construction Waste Management Acknowledgment: Prepare and submit in accordance with CALGreen requirements.
- B. Schedule of selective demolition activities indicating the following:
 - 1. Interruption of utility services and security devices.
 - 2. Coordination for shutoff, capping, and continuation of utility services and security devices.
 - 3. Locations of temporary barricades, partitions, and means of egress.
 - 4. Above items shall be shown on Preliminary schedule, Final Schedule, and 3-week look aheads. Final dates of shutdowns are required no less than 10 days prior to activity in a request to Program Manager in writing.
- C. Construction Logistics Plan indicating the following:
 - 1. Barricades and enclosures.
 - 2. Laydown and staging area.
- D. Inventory of items to be removed and salvaged.

- E. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.
- F. Record Drawings at Project Closeout: Identify and accurately locate capped utilities and other subsurface structural, electrical, plumbing, mechanical and security devices.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements
 - 1. Comply with governing EPA notification regulations before beginning selective demolition.
 - 2. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.
- C. Predemolition Conference: Conduct conference at Project site with Owner and Architect.

1.06 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by the Owner as far as practical.
- B. Portions of site immediately adjacent to selective demolition area will be occupied. Conduct selective demolition so Owner's operations will not be disrupted.

1.07 WARRANTIES

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that utilities have been disconnected and capped where indicated.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
 - 1. Notify City of Berkeley and Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

- D. When unanticipated plumbing, mechanical, electrical, security, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Owner and Architect.
- E. Survey the condition of the buildings to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structures during selective demolition.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.02 UTILITY SERVICES

- A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized by the Owner. Provide temporary services during interruptions to existing utilities, as acceptable to the Owner and to governing authorities.
 - a. Provide not less than 10 calendar days' notice to the Owner if shutdown of service is required during changeover.
- B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving portions of the buildings or sitework to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with the Owner.
 - 2. Where utility services are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.
 - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit after bypassing.

3.03 PREPARATION

- A. Conduct demolition operations and remove debris to ensure minimum interference with Corporation Yard activities, adjacent streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the Owner and authorities having jurisdiction.
- B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.
 - 1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by the Owner.

2. Protect existing site improvements, appurtenances, and landscaping to remain.
 3. Provide temporary weather protection, during interval between demolition and removal of existing construction, on exterior surfaces to ensure that no water leakage or damage occurs to structure or interior areas.
 4. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition and construction operations.
- C. Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
1. Construct dustproof partitions of not less than nominal 4-inch studs and 1/2-inch fire retardant plywood on the demolition side; seal joints and perimeter.
 2. Non-plastic sheet materials shall be used to further mitigate dust and shall not trap moisture; seal to prevent dust penetration.
- D. Provide and maintain interior and exterior bracing or structural support to preserve stability and prevent movement, settlement, or collapse of portions of building to be selectively demolished.
1. Strengthen or add new supports when required during progress of selective demolition.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.04 POLLUTANT CONTROLS

- A. CALGreen Requirements:
1. Comply with CALGreen 5.504.3 regarding covering of duct openings and protection of mechanical equipment during construction
- B. Use temporary enclosures and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
- C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
- D. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.05 SELECTIVE DEMOLITION

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
 5. Maintain adequate ventilation when using cutting torches.
 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 10. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- B. Demolish concrete in small sections. Cut concrete at junctures with construction to remain, using power-driven masonry saw or hand tools; do not use power-driven impact tools.

3.06 MANAGEMENT OF DEMOLISHED MATERIALS

- A. Recycle and/or salvage for reuse non-hazardous demolition waste in accordance with City of Berkeley requirements. Remove from site all materials not to be reused on site.
- B. Store items to be salvaged and reinstalled in a secure and protected location until ready for reinstallation.
- C. Burning: Do not burn demolished materials.

3.07 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.
- B. Return adjacent areas to condition existing before selective demolition operations began.
- C. Sweep the building broom clean on completion of selective demolition operation.

END OF SECTION

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SECTION 05 50 00 - NTU METAL FABRICATIONS**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Shop and site fabricated steel gates and accessories.
- B. Expanded metal fabric and hardware.
- C. Miscellaneous Framing and Metal items.
- D. Downspout boots.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 09 90 00 - NTU Painting and Coating: Field-applied paint finishes.

1.03 REFERENCE STANDARDS

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.
- B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2021, with Errata (2022).
- C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2020, with Errata (2022).
- D. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2017.
- E. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- F. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2022.
- G. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2020.
- H. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.
- I. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.
- J. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.
- K. ASTM B210/B210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2019a.

- L. ASTM B211/B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire; 2019.
- M. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- N. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
- O. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2021.
- P. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2020.
- Q. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2021).
- R. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.
- S. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.
- T. SSPC-SP 2 - Hand Tool Cleaning; 2018.

1.04 SUBMITTALS

- A. CALGreen Submittals: Provide the following:
 - 1. Product Data for CALGreen 5.504.4.3 – Finish Material Pollutant Control; Architectural paints and coatings, including printed statement of VOC content and chemical components.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths and weld locations.
- C. Provide templates for anchors and bolts specified for installation under other Sections.
- D. Where concrete inserts are required, show size and locations required.

1.05 QUALITY ASSURANCE

- A. Design Criteria
 - 1. Work shall be designed to support normally imposed loads and conform to AISC requirements.
 - 2. Built-up parts shall not exhibit warp

- B. Welding Standards: Comply with applicable provisions of AWS D1.1 and AWS D1.3.
 - 1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- C. Plates: ASTM A283/A283M.
- D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- E. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.
- F. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.
- G. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.
- H. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- I. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction, including CALGreen.
- J. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction, including CALGreen.

2.02 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Furnish components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

- A. Gates: Angles, tubes, and plate for gate Assemblies: ASTM A36/A36M with anchoring devices and sizes as indicated in drawings for gate assembly, drilled and tapped for fastener types, sizes, and spacing indicated, prime paint finish.
- B. Column, plate, bucket, embed, and bolts for replaced steel HSS column.
- C. Metal Canopy:
 - 1. HSS for outriggers, galvanized, primed and painted, fastened to existing structure.
 - 2. 7/8" corrugated metal roofing panels: Western States Metal Roofing
 - a. 2.67" pitch
 - b. 39" width
 - c. 24-ga thickness
 - d. PVDF paint finish: "Dark Bronze"
 - e. Bead mastic at panel overlaps

2.04 EXPANDED METAL FABRIC

- A. Flattened, galvanized steel, hot-dipped and painted: sizes as indicated on the drawings.
 - 1. Zinc-Coated Steel Fabric: ASTM A392 hot dipped galvanized: 3/4" No. 13 Flattened.
 - 2. Manufacturer: McNichols, Item # 530N341348
 - 3. Expanded Metal Fabric: 0.923" Short Way of Design (SWD), 2.100" Long Way of Design (LWD), Long Way of Opening (LWO) parallel to Length of Sheet, 77% Open Area
 - 4. Provided with anchors, fasteners, hold-down clips, and all accessories needed for a complete and secure installation.
 - 5. Finish: field painted, high-performance coating.

2.05 FINISHES - STEEL

- A. Prime paint steel items.
 - 1. Exceptions: Galvanize items to be embedded in concrete, items to be embedded in masonry, and all exterior items.
 - 2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.

- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
 - 1. Primer for Interior and Exterior Ferrous, Non-Ferrous, Galvanized Metal, and Aluminum Primer: Factory-formulated acrylic water-based rust-inhibitive metal primer. Apply at a dry film thickness of not less than 2.2 mils
 - a. Basis of Design: PPG Paints; 4020 PF Series Pitt-Tech Plus Interior/Exterior DTM Industrial Primer (91 g/L VOC).
 - 2. Primer for Items Indicated to Receive High Performance Coating: Gates, tube-steel canopy supports, others as indicated: Shop-apply.
 - a. Basis of Design: PPG Amercoat 68HS Zinc Rich Epoxy.

2.06 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Furnish setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components as indicated on drawings.
- D. Perform field welding in accordance with AWS D1.1/D1.1M.
- E. Obtain approval prior to site cutting or making adjustments not scheduled.

- F. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 06 20 00 - NTU FINISH CARPENTRY**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Exterior Finish Carpentry

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 09 90 00 - NTU Painting and Coating: Field finishing of finish carpentry items.

1.03 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).
- C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.
- D. AWPA U1 - Use Category System: User Specification for Treated Wood; 2021.
- E. BHMA A156.9 - Cabinet Hardware; 2020.
- F. WI (CCP) - Certified Compliance Program (CCP); Current Edition.
- G. WI (CSIP) - Certified Seismic Installation Program (CSIP); Current Edition.

1.04 SUBMITTALS

- A. CALGreen Submittals: Provide the following:
 - 1. Product Data for CALGreen 5.504.4.1 – Finish Material Pollutant Control; Adhesives, Sealants, and Caulks: For adhesives, sealants, and caulks, including printed statement of VOC content and chemical components.
 - 2. Product Data for CALGreen 5.504.4.3 – Finish Material Pollutant Control; Architectural paints and coatings, including printed statement of VOC content and chemical components.
 - 3. Product Data for CALGreen 5.504.4.5 – Composite Wood Products: For composite-wood products, showing requirements for formaldehyde as specified in Table 5.504.4.
 - 4. Refer to Section 01 81 13 - NTU Sustainable Design Requirements: Requirements for certified wood and low-emitting materials.
- B. Product Data:

1. Provide manufacturer's product data, storage and handling instructions for factory-fabricated units.
 2. Provide data on fire retardant treatment materials and application instructions.
- C. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- D. Manufacturer's Instructions: Provide manufacturer's installation instructions for factory-fabricated units.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with a minimum of five years of documented experience.
- B. Provide labels or certificates indicating that the work complies with AWI/AWMAc/WI (AWS) or AWMAc/WI (NAAWS) requirements for grade or grades specified.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver factory-fabricated units to project site in original packages, containers or bundles bearing brand name and identification.
- B. Store finish carpentry items under cover, elevated above grade, and in a dry, well-ventilated area not exposed to heat or sunlight.
- C. Protect from moisture damage.
- D. Handle materials and products to prevent damage to edges, ends, or surfaces.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAc/WI (AWS) or AWMAc/WI (NAAWS), unless noted otherwise.
- B. Surface Burning Characteristics: Provide materials having fire and smoke properties as required by applicable code.
- C. Exterior Woodwork Items:
1. Soffits, Trim, Mouldings and Fascias: Redwood or Western Red Cedar; prepare for painted finish. Option to use fiber-cement or poly-ash trim in dimensions to match existing wood trim.
- D. Fiber Cement items, Option for Redwood or Cedar trim:
1. Hardie Trim: James Hardie
 2. Poly-Ash Trim: Boral Tru-Xterior trim corresponding to dimensional lumber sizes.

2.02 FASTENINGS

- A. Refer to Section 01 81 13 - NTU Sustainable Design Requirements: Requirements for requirements for low-emitting materials.
- B. Adhesive for all Purposes: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.
- C. Adhesive for factory-fabricated units: Manufacturer's recommended adhesive for application.
- D. Fasteners: Of size and type to suit application; painted finish in concealed locations and exposed locations.
- E. Fasteners for Exterior Applications: Stainless steel; length required to penetrate wood substrate 1-1/2 inch minimum.
- F. Concealed Joint Fasteners: Threaded steel.

2.03 ACCESSORIES

- A. Lumber for Shimming and Blocking: Softwood lumber of redwood or Douglas Fir species.
- B. Primer: For factory-primed units, manufacturer's recommended primer, conforming to specified VOC limits.
- C. Wood Filler: Oil base, tinted to match surface finish color.

2.04 HARDWARE

- A. Hardware: Comply with BHMA A156.9.

2.05 WOOD TREATMENT

- A. Factory-Treated Lumber: Comply with requirements of AWPA U1 - Use Category System for pressure impregnated wood treatments determined by use categories, expected service conditions, and specific applications.
- B. Wood Preservative by Pressure Treatment (PT Type): Provide AWPA U1 treatment using waterborne preservative with 0.25 percent retainage.
- C. Redry wood after pressure treatment to maximum 13 percent moisture content.

2.06 SITE FINISHING MATERIALS

- A. Field Finishing: As specified in Section 09 90 00 - NTU Painting and Coating.

2.07 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. Shop prepare and identify components for book match grain matching during site erection.

- C. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.08 SHOP FINISHING

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.
- D. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
 - 1. Transparent:
 - a. System - 1, Lacquer, Nitrocellulose.
 - b. Stain: As selected by Architect.
 - c. Sheen: Flat.
 - 2. Opaque:
 - a. System - 1, Lacquer, Nitrocellulose.
 - b. Color: As selected by Architect.
 - c. Sheen: Flat.
- E. Back prime woodwork items to be field finished, prior to installation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 INSTALLATION

- A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Install factory-fabricated units in accordance with manufacturer's printed installation instructions.
- C. Set and secure materials and components in place, plumb and level.

- D. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment in accordance with manufacturer's instructions.
- B. Brush apply one coat of preservative treatment on wood in contact with cementitious materials. Treat site-sawn cuts.
- C. Allow preservative to dry prior to erecting members.

3.04 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09 90 00 - NTU Painting and Coating.
- C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.05 TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

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SECTION 07 54 00 - NTU THERMOPLASTIC MEMBRANE ROOFING**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Adhered system with thermoplastic roofing membrane: TPA, chlorinated polyethylene chloride, Dupont Elvaloy.
- B. Cover boards.
- C. Flashings.
- D. Roofing cant strips.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 01 74 19 - NTU Construction Waste Management and Disposal.
- C. Section 07 62 00 - NTU Sheet Metal Flashing and Trim: Counterflashings, reglets.

1.03 REFERENCE STANDARDS

- A. ASTM D4434/D4434M - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing; 2021.
- B. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces; 2011 (Reapproved 2019).
- C. FM (AG) - FM Approval Guide; current edition.
- D. FM DS 1-28 - Wind Design; 2016.
- E. NRCA (RM) - The NRCA Roofing Manual; 2022.
- F. NRCA (WM) - The NRCA Waterproofing Manual; 2021.
- G. UL (FRD) - Fire Resistance Directory; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.
 - 1. Review preparation and installation procedures and coordinating and scheduling required with related work.
 - 2. Meet with Architect, Owner's Project Manager, and City Facilities staff if required by Owner.
 - 3. Review existing roof substrate conditions, curbs, and related features.

4. Review temporary protection requirements for roofing system during and after installation.

1.05 SUBMITTALS

- A. See Division 1 for submittal procedures.
- B. CALGreen Submittals: Provide the following:
 1. Product Data for CALGreen 5.504.4.1 – Finish Material Pollutant Control; Adhesives, Sealants, and Caulks: For adhesives, sealants, and caulks, including printed statement of VOC content and chemical components.
 2. Refer to Section 01 81 13 - NTU Sustainable Design Requirements: Requirements for low-emitting materials.
- C. Product Data: Provide data indicating membrane materials, flashing materials, surfacing, and fasteners.
- D. Shop Drawings: Submit drawings that indicate joint or termination detail conditions, conditions of interface with other materials, and setting plan for tapered insulation.
- E. Samples for Verification: Submit two samples 6 by 6 inches in size illustrating colored coating that will match the existing membrane to remain.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- G. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
- H. Manufacturer's qualification statement.
- I. Installer's qualification statement.
- J. Sustainable Design Documentation: Test report showing solar reflectance index of membrane.
- K. Specimen Warranty: For approval.
- L. Warranty Documentation:
 1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
 2. Submit installer's written verification that installation complies with warranty conditions for waterproof membrane.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 10 years of documented experience.

- B. Installer Qualifications: Company specializing in performing work of this section with at least 5 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact, unless otherwise indicated.
- B. Store materials in weather protected environment, clear of ground and moisture.
- C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.

1.08 FIELD CONDITIONS

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane when ambient temperature is below 40 degrees F.
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- E. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.09 WARRANTY

- A. Material Warranty: Provide membrane manufacturer's warranty agreeing to replace material that shows manufacturing defects within 20 years after installation.
- B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
 - 1. Warranty Term: 20 years.
 - 2. For repair and replacement include costs of both material and labor in warranty.

PART 2 PRODUCTS

2.01 PRODUCT REQUIREMENTS

- A. Refer to Section 1 for City of Berkeley's Requirements for low-emitting materials, Adhesives and Sealants.

2.02 MANUFACTURERS

- A. Thermoplastic Polyolefin (TPA) Membrane Roofing Materials:
 - 1. Basis of Design: Tremco, Inc's "TPA (tri-polymer alloy)" roof membrane and associated products that match existing roof installation.

- a. Tremco Incorporated, 30 Angel Court, Danville, CA 94526,
www.tremcoroofing.com, Richard Egan, regan@tremcoinc.com.
 2. Substitutions: See Section 1 - Product Requirements.
- B. Insulation: if required for crickets.
1. Polyisocyanurate (ISO) Board Insulation, sloped, ASTM C1289, Type II, Class-1-faced with aluminum foil on both major surfaces of the core foam; non-reinforced core foam.

2.03 ROOFING APPLICATIONS

- A. Thermoplastic Membrane Roofing: TPA, one ply membrane, mechanically fastened, over insulation if required for crickets and cover board over plywood sheathing.
- B. Roofing Assembly Requirements:
1. Solar Reflectance Index (SRI): Minimum of 64 based on three-year aged value; if three-year aged data is not available, minimum of 82 initial value.
 - a. Calculate SRI in accordance with ASTM E1980.
 - b. Field applied coating may not be used to achieve specified SRI.
 2. Solar Reflectance Index (SRI): 78, minimum, calculated in accordance with ASTM E1980.
 - a. Field applied coating may not be used to achieve specified SRI.
 3. Roof Covering External Fire Resistance Classification: UL (FRD) Class A.
 4. Factory Mutual Classification: Class 1 and windstorm resistance of 1-90, in accordance with FM DS 1-28.
 5. Insulation Thermal Resistance (R-Value): 6 per inch, minimum; provide insulation of thickness required.
 6. Tapered polyisocyanurate or extruded polystyrene board.

2.04 MEMBRANE ROOFING AND ASSOCIATED MATERIALS

- A. Membrane Roofing Materials:
1. PVC: Polyvinyl chloride (PVC) complying with ASTM D4434/D4434M, Type II, sheet contains reinforcing fibers or reinforcing fabrics.
 - a. Thickness: 60 Mills (0.60 inch), (1.5 mm) minimum.
 2. Sheet Width:
 - a. Adhered Application: Limit width to 120 inches, maximum, when ambient temperatures are less than 40 degrees F for extended period of time during installation.

3. Solar Reflectance: Initial, and 3-year values as specified, certified by Cool Roof Rating Council.
 4. Thermal Emissivity: 0.80, minimum, initial, and 0.79, minimum, 3-year, certified by Cool Roof Rating Council.
 5. Color: White.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Vapor Retarder: Material approved by roof manufacturer complying with requirements of fire rating classification; compatible with roofing and insulation materials.
1. Fire-retardant adhesive.
- D. Flexible Flashing Material: Material recommended by membrane manufacturer.
- E. Base Flashing: Provide waterproof, fully adhered base flashing system at all penetrations, plane transitions, and terminations.

2.05 DECK SHEATHING

- A. Deck Sheathing: Existing plywood to remain. Damaged plywood sheathing if discovered in field to be replaced per Structural Engineer's recommendation.
1. Thickness: to match existing.

2.06 COVER BOARDS

- A. Cover Boards: Glass-mat faced gypsum panels complying with ASTM C1177/C1177M. Installed over sloped insulation.
1. Thickness: 1/4 inch, fire-resistant.
 2. Products:
 - a. Georgia-Pacific; DensDeck: www.densdeck.com/#sle.

2.07 INSULATION

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.
1. Classifications:
 - a. Type II: Faced with either cellulosic facers or glass fiber mat facers on both major surfaces of the core foam.
 - 1) Class 1 - Faced with glass fiber reinforced cellulosic facers on both major surfaces of the core foam.
 - 2) Compressive Strength: Classes 1-2-3, Grade 1, 16 psi (110 kPa), minimum.

- 3) Thermal Resistance, R-value: At 1-1/2 inches thick; Class 1, Grades 1-2-3, 8.4 (1.48), minimum, at 75 degrees F.
2. Board Size: 48 by 96 inches.
3. Board Thickness: 1.5 inches.
4. Tapered Board: Slope as indicated; fabricate of fewest layers possible.
5. Board Edges: Square.
6. Products:
 - a. Dow Chemical Company: www.dowbuildingsolutions.com.
 - b. GAF; EnergyGuard Polyiso Insulation: www.gaf.com/#sle.
 - c. Versico Roofing Systems; SecurShield Insulation: www.versico.com/#sle.

2.08 ACCESSORIES

- A. Cant and Edge Strips: Perlite board, compatible with roofing materials; cants formed to 45 degree angle.
- B. Sheathing Adhesive: Noncombustible type, for adhering gypsum sheathing to metal deck.
- C. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self-adhering.
- D. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
 1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
- E. Membrane Adhesive: As recommended by membrane manufacturer.
- F. Insulation Adhesive: As recommended by insulation manufacturer.
- G. Sealants: As recommended by membrane manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.

- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.02 PREPARATION - WOOD DECK

- A. Verify flatness and tightness of joints in wood decking; fill knot holes with latex filler.
- B. Confirm dry deck by moisture meter with 12 percent moisture maximum.

3.03 INSTALLATION, GENERAL

- A. Perform work in accordance with manufacturer's instructions, NRCA (RM), and NRCA (WM) applicable requirements.
- B. Do not apply roofing membrane during cold or wet weather conditions.
- C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- F. Coordinate this work with installation of associated counterflashings installed by other sections as the work of this section proceeds.

3.04 INSTALLATION - VAPOR RETARDER AND VAPOR RETARDER AND INSULATION, UNDER MEMBRANE

- A. Install vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
 - 1. Extend vapor retarder under cant strips and blocking to deck edge.
 - 2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
- B. Attachment of Insulation:
 - 1. Embed first layer of insulation in full bed of adhesive in accordance with roofing and insulation manufacturers' instructions.
 - 2. Mechanically fasten subsequent layer of insulation to deck in accordance with roofing manufacturer's instructions and FM (AG) Factory Mutual requirements.
- C. Cover Boards: Mechanically fasten cover boards in accordance with roofing manufacturer's instructions and FM (AG) Factory Mutual requirements.
- D. Lay subsequent layers of insulation with joints staggered minimum 6 inches from joints of preceding layer.

- E. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- F. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- G. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.
- H. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches.
- I. Do not install more insulation than can be covered with membrane in same day.

3.05 INSTALLATION - MEMBRANE

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Fully Adhered Application: Apply adhesive to substrate at rate of [____] gallons per square foot. Fully embed membrane in adhesive except in areas directly over or within 3 inches (76 mm) of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.
- D. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.
- E. At intersections with vertical surfaces:
 - 1. Extend membrane over cant strips and up a minimum of 4 inches onto vertical surfaces.
 - 2. Fully adhere flexible flashing over membrane and up to nailing strips.
 - 3. Insert flashing into reglets and secure.
- F. At gravel stops, extend membrane under gravel stop and to the outside face of the wall.
- G. Around roof penetrations, seal flanges and flashings with flexible flashing.
- H. Install roofing expansion joints where indicated. Make joints watertight.
- I. Coordinate installation of roof drains and sumps and related flashings.

3.06 FIELD QUALITY CONTROL

- A. See Section 1 for additional quality requirements.
- B. Refer to Division 1 for general requirements for field quality control and inspection.
- C. Require site attendance of roofing material manufacturers weekly during installation of the work.

3.07 CLEANING

- A. See Section 1 for cleaning and for additional requirements.
- B. Remove markings from finished surfaces.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.

3.08 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

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SECTION 07 62 00 - NTU SHEET METAL FLASHING AND TRIM**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including flashings, counter-flashings, gutters, downspouts, and exterior penetrations.
- B. Sealants for joints within sheet metal fabrications.
- C. Precast concrete splash pads.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 07 54 00 - NTU Thermoplastic Membrane Roofing.
- C. Section 07 92 00 - NTU Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.
- D. Section 09 90 00 - NTU Painting and Coating: Field painting.

1.03 REFERENCE STANDARDS

- A. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2021.
- B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2021, with Errata (2022).
- C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2020, with Errata (2022).
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- E. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- F. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- G. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2021.

- H. ASTM D2178/D2178M - Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing; 2015a (Reapproved 2021).
- I. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).
- J. CDA A4050 - Copper in Architecture - Handbook; current edition.
- K. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

- A. CALGreen Submittals: Provide the following:
 - 1. Product Data for CALGreen 5.504.4.1 – Finish Material Pollutant Control; Adhesives, Sealants, and Caulks: For adhesives, sealants, and caulks, including printed statement of VOC content and chemical components.
 - 2. Product Data for CALGreen 5.504.4.3 – Finish Material Pollutant Control; Architectural paints and coatings, including printed statement of VOC content and chemical components.
 - 3. Refer to Section 01 81 13 - NTU Sustainable Design Requirements: Requirements for low-emitting materials.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.06 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Maintain one copy of each document on site.
- C. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 10 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

- A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) thick base metal.
- B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.
 - 1. Silicone Modified Polyester Coating: Pigmented organic powder coating, AAMA 2603; baked enamel finish system.
 - 2. Polyvinylidene Fluoride (PVDF) Coating: Superior performing organic powder coating, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
 - 3. Color: As indicated on drawings.
- C. Pre-Finished Aluminum: ASTM B209/B209M, 3005 alloy, H12 or H14 temper; 18 gauge, 0.040 inch thick; plain finish shop pre-coated with silicone modified polyester coating.
 - 1. Fluoropolymer Coating: High performance organic powder coating, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
 - 2. Color: to be determined by Owner and Architect.

2.02 FLASHING UNDERLAYMENT

- A. Sheet Membrane Underlayment at Flashings: Self-adhered, cold-applied composite rubberized asphalt sheet membrane consisting of rubberized asphalt bonded to a cross-laminated high-density polyethylene film with primers and seam sealers as required for a complete watertight installation; provide materials compliant with applicable regulations limiting VOCs.
 - 1. Under Sheet Metal and Flashing: Minimum 40-mil thick, high temperature self-adhering, polymer-modified, bituminous sheet membrane, complying with ASTM D1970/D1970M, manufacturers and types as follows:
 - a. Basis-of-Design Product: The design for the system is based on the manufacturer identified below. Subject to compliance with requirements, provide the named product or a comparable product by the following:
 - b. Basis-of-Design Product: GCP Applied Technologies; Grace Ice and Water Shield HT.
 - c. Ensure named product is compatible with fluid-applied membrane air barrier material for a complete weathertight system.

2.03 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

- B. Match existing flashing profiles, unless noted otherwise.
- C. Fabricate cleats of same material as sheet, minimum 6 inches wide, interlocking with sheet.
- D. Form pieces in longest possible lengths.
- E. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- F. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- G. Tin edges of copper sheet to be soldered; solder shop formed metal joints, and after soldering, remove flux, wipe and wash solder joints clean; provide weathertight joints.
- H. Fabricate corners from one piece with minimum 18-inch long legs; seam for rigidity, seal with sealant.
- I. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

2.04 GUTTER AND DOWNSPOUT FABRICATION

- A. Gutters: Profile as indicated or to match existing.
- B. Downspouts: Profile as indicated or to match existing.
- C. Gutters and Downspouts: Size indicated or to match existing.
- D. Accessories: Profiled to suit gutters and downspouts.
 - 1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
 - 2. Gutter Supports: Brackets.
 - 3. Downspout Supports: Brackets.
- E. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3,000 psi at 28 days, with minimum 5 percent air entrainment.
 - 1. NuCast; 3 x 11 x 30 inches, solid concrete.
- F. Seal metal joints.

2.05 EXTERIOR PENETRATION FLASHING PANELS

- A. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.

2.06 ACCESSORIES

- A. Fasteners: Stainless steel, with soft neoprene washers.

- B. Underlayment: ASTM D2178/D2178M, glass fiber roofing felt.
- C. Slip Sheet: Rosin sized building paper.
- D. Primer: Zinc chromate type.
- E. Concealed Sealants: Non-curing butyl sealant.
- F. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
 - 1. Products:
 - a. Franklin International, Inc; Titebond WeatherMaster Metal Roof Sealant: www.titebond.com/#sle.
- G. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.
- H. Reglets: Surface-mounted type, galvanized steel; face and ends covered with plastic tape.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil, 0.015 inch.

3.03 UNDERLAYMENT

- A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Apply primer if required by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.

3.04 INSTALLATION

- A. Comply with drawing details.

- B. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted.
- C. Apply plastic cement compound between metal flashings and felt flashings.
- D. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- E. Seal metal joints watertight.
- F. Secure gutters and downspouts in place with concealed fasteners.
- G. Set splash pads under downspouts.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 for City of Berkeley Quality Requirements for field inspection requirements.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION

SECTION 07 92 00 - NTU JOINT SEALANTS**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.
- D. Field quality control

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 01 for Sustainable Design and material requirements and additional requirements for sealants and primers. Requirements for low-emitting materials.

1.03 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).
- B. ASTM C834 - Standard Specification for Latex Sealants; 2017.
- C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2022.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- E. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- F. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2018.
- G. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2018.
- H. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2016 (Reapproved 2021).
- I. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
- J. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2017).

1.04 ACTION SUBMITTALS

- A. CALGreen Submittals: Provide product data to demonstrate that adhesives, sealants, and caulks, including all system components such as primers, adhesives, and coatings meet the requirements of the following standards:
 - 1. TABLE 5.504.4.1 - ADHESIVE VOC LIMIT; TABLE 5.504.4.2 - SEALANT VOC LIMIT as listed in Section 01 81 13 - NTU Sustainable Design Requirements.
- B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
 - 5. Substrates for which use of primer is required.
 - 6. Substrates for which laboratory adhesion and/or compatibility testing is required.
 - 7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
 - 8. Sample product warranty.
 - 9. Certification by manufacturer indicating that product complies with specification requirements.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Drawings or catalog illustrations in sufficient detail to show installation and interface of the work of this Section with the work of adjacent trades.
- E. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

1.05 INFORMATIONAL SUBMITTALS

- A. Certification by joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds (VOCs).
- B. Submit manufacturer's letter of certification that products comply with specified requirements and are suitable for the uses intended.

C. Product Test Reports:

1. Certified test results of elastomeric sealants showing compliance with specified requirements. Include results of aged performances including hardness, stain-resistance, adhesion and cohesion under cyclic movement, low temperature flexibility, modulus of elasticity at 100-percent strain, effects of heat and aging, and effects of accelerated weathering.
2. Preconstruction field test results indicating which products and joint preparation methods demonstrated acceptable adhesion to joint substrates.

D. Installer Qualifications:

1. Written documentation of applicator's qualifications, including reference projects of similar scope and complexity, with current phone contacts of architects and owners for verification.

1.06 CLOSEOUT SUBMITTALS

- A. Sustainable Design Documentation: For sealants and primers, submit VOC content and emissions documentation; see Section 01 81 13 - NTU Sustainable Design Requirements.
- B. Field Quality Control Log: Submit filled-out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.
- C. Manufacturer's qualification statement.
- D. Installer's qualification statement.

1.07 QUALITY ASSURANCE

- A. Single Source Responsibility for Joint Sealants: Obtain joint sealants of each type from a single manufacturer.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company shall be approved by the sealant manufacturer and shall demonstrate at least three years of documented experience in installing materials of types specified.
 1. Provide list of at least three projects of similar scope and complexity.
 2. Installer shall designate a single individual as project foreman who shall be on site at all times during installation.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in the manufacturer's unopened containers with all labels intact and legible at time of use. Handle and store materials in accordance with

manufacturer's recommendations with proper precautions to ensure fitness of material when installed.

1.09 WARRANTY

- A. **Manufacturer Warranty:** Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.
- B. **Extended Correction Period:** Correct defective work within 2-year period commencing on Date of Substantial Completion.
- C. **Warranty:** Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.
- D. **Special Installer's Warranty:** Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. **Warranty Period:** Two years from date of Substantial Completion.
- E. **Exterior Sealants:** Furnish a written warranty against leaks or other defects of materials and workmanship. Defects include but are not limited to changes in the structural, physical or chemical properties of the sealant materials that impair function or require abnormal maintenance, changes in surface finish, color or texture, failure in adhesion, weather resistance or durability, failure to prevent entry of water, or failure to comply with specified requirements.
 - 1. This warranty shall not cover formation of cracks or defects in substrate materials adjacent to the seal, joint movement in excess of movement rating of sealant, or physical damage caused by others.
 - 2. Repair or replace defective materials and workmanship during warranty period without expense to Owner, including removal and replacement of other items as required.
 - 3. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.
 - 4. **Warranty Period:** Ten years from date of Substantial Completion.
- F. **Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:**
 - 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 - 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 - 3. Mechanical damage caused by individuals, tools, or other outside agents.

4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 PRODUCTS

2.01 SUSTAINABLE MATERIAL REQUIREMENTS, GENERAL

- A. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene), except for aerosol products as specified in subsection 2, below.
- B. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

2.02 MANUFACTURERS

2.03 JOINT SEALANT APPLICATIONS

- A. Scope:
 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to:
 - a. Wall expansion and control joints.
 - b. Joints between door, window, and other frames and adjacent construction.
 - c. Joints between different exposed materials.
 - d. Openings below ledge angles in masonry.
 - e. Other joints indicated below.
 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
 - c. Other joints indicated below.

3. Do not seal the following types of joints:
 - a. Intentional weep holes in masonry.
 - b. Joints indicated to be treated with manufactured expansion joint cover, or some other type of sealing device.
 - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - d. Joints where installation of sealant is specified in another section.

2.04 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products with acceptable levels of volatile organic compound (VOC) content; see Section 01 City of Berkeley Sustainable Design Requirements.
- B. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.05 ELASTOMERIC JOINT SEALANTS

- A. Sealant Type A: Low-modulus, non-sag sealant; comply with ASTM C920, Type S or M, Grade NS, Class 25, Class 35, Class +50/-50, Class +100/-50 as applicable.
 1. Applications: For **exterior joints in vertical surfaces and non-traffic horizontal surfaces** including, but not limited to, the following:
 - a. Control and expansion joints in cast-in-place concrete.
 - b. Joints between architectural pre-cast concrete units.
 - c. Control and expansion joints in unit masonry.
 - d. Butt joints between metal panels.
 - e. Joints between marble and granite.
 - f. Joints between different materials listed above.
 - g. Perimeter joints between materials listed above and frames of doors, windows, storefronts, louvers and similar openings.
 - h. Control and expansion joints in ceiling and overhead surfaces.
 2. Single-Component Urethanes and Silyl-Terminated Polymers:
 - a. Sikaflex-1a (13)
 - b. Sikaflex Textured Sealant (40)
 - c. Sikaflex-15 LM (33)

- d. SikaHyflex 150 LM (18)
 3. Multiple-Component Urethanes and Silyl-Terminated Polymers:
 - a. Sikaflex-2c NS EZ mix (63)
 4. Single-Component Silicones:
 - a. Sikasil WS 290 (29)
 - b. Sikasil WS 295 (37)
 - c. Sika Silbridge 300 (?)
 - d. Sikasil 728NS (21)
 - e. Sikasil N Plus (37)
- B. Sealant Type B: Low-modulus, non-sag sealant; comply with ASTM C920, Type S or M, Grade NS, Class 25, Class 35, Class +50/-50, Class +100/-50 as applicable.
1. Applications: For **interior** joints in **vertical surfaces and non-traffic horizontal surfaces** including, but not limited to, the following:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints on exposed interior surfaces of exterior openings.
 - c. Joints on pre-cast beams and planks.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors, windows, storefronts, louvers, elevator entrances and similar openings.
 - e. Trim or finish joints subject to movement.
 2. Single-Component Urethanes and Silyl-Terminated Polymers:
 - a. Sikaflex-1a (13)
 - b. Sikaflex Textured Sealant (40)
 - c. Sikaflex-15 LM (33)
 - d. SikaHyflex 150LM (18)
 3. Multiple-Component Urethanes and Silyl-Terminated Polymers:
 - a. Sikaflex-2c NS EZ mix (63)
 4. Single-Component Silicones:
 - a. Sikasil WS-290 (29)
 - b. Sikasil WS-295 (37)

- c. Sika Silbridge 300 (?)
- C. Sealant Type C: Polyurethane complying with ASTM C920, Type S or M, Grade P, Class 25 or silicone sealant complying with ASTM C920, Type S or M, Grade P or NS, Class 100/50 as applicable.
1. Applications: For **exterior and interior** joints in **horizontal and sloped traffic surfaces** including, but not limited to, the following:
 - a. Control expansion and isolation joints in cast-in-place concrete.
 - b. Control expansion and isolation joints in structural pre-cast concrete units.
 - c. Joints between architectural pre-cast concrete paving units.
 - d. Tile control and expansion joints.
 - e. Joints between different materials listed above.
 2. Single Component Urethane.
 - a. Sikaflex-1c SL (40)
 3. Multiple-Component Urethane.
 - a. Sikaflex-2c SL (38)
 4. Single Component Silicone:
 - a. Sikasil 728 SL (29)
 5. Multiple-Component Silicone:
 - a. Sikasil 728 RCS (30)
- D. Sealant Type D: Single-component or multi-component polyurethane sealant certified by National Sanitation Foundation as conforming to the requirements of NSF Standard 61- Drinking Water System Components-Health Effects; comply with ASTM C920, Type S or M, Grade P or NS, Class 25; select color from the NSF listing.
1. Applications: For **exterior and interior** joints in vertical and horizontal surfaces of **potable water storage areas**.
 2. Single Component Urethane:
 - a. Sikaflex-1a (13)
 3. Multiple-Component Urethane:
 - a. Sikaflex-2c NS EZ mix (63)
- E. Sealant Type E: Single-component or multi-component polyurethane sealant complying United States Department of Agriculture (USDA) guidelines for incidental food contact with

the cured sealant; comply with ASTM C920, Type S or M, Grade P or NS, Class 25; select color from listing of those approved.

1. Applications: For **interior joints** in **vertical and horizontal surfaces where incidental food contact** may occur.
 2. Single Component Urethane:
 - a. Sikaflex-1a (13)
 3. Multiple-Component Urethane:
 - a. Sikaflex-2c NS EZ Mix (63)
- F. Sealant Type F: Single-component urethanes and silyl-terminated polymers.
1. Applications: For interior or exterior joints in vertical surfaces between laps in fabrications of sheet metal.
 2. Single Component Urethane; Sikaflex-1a, Sikaflex Textured Sealant, SikaHyflex 150LM.
 - a. Sikaflex-1a (13)
 - b. Sikaflex Textured Sealant (63)
 - c. SikaHyflex 150LM (18)
- G. Sealant Type G: Single-component urethanes and silicones.
1. Applications: For **exterior vertical joints under metal thresholds and saddles or as bedding sealant for sheet metal flashing and frames of metal or wood.**
 2. Single Component Urethane:
 - a. Sikaflex-1a (13)
 - b. Sikaflex Textured Sealant (40)
 3. Single Component Silicone:
 - a. Sikasil WS 295 (37)

2.06 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.

2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
 3. Open Cell: 40 to 50 percent larger in diameter than joint width.
 4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Outlet Box Sealant: Resilient sealer pads; use to seal back and sides of all junction boxes recessed in acoustically-rated partitions.
1. Fire-Rated Partitions: Hevi-Duty Nelson FSP Firestop Putty Pads, or equal (no known equal)
 2. Non-Fire-Rated Partitions: Lowry's Outlet Box Pad, or equal (no known equal).
- E. Compressible Tape: 1/4-inch-thick, double-sided, closed-cell foam tape; use to seal interior partitions to window mullions.
1. Norseal V988, 3M 4992, or equal
- F. Foam Sealing Tape:
1. General: Open-cell, flexible, polyurethane foam impregnated with synthetic resin and developed to expand into openings and create seals which are airtight, thermally efficient, and vapor permeable.
 2. Applications: Door and window shim spaces at heads and jambs, and elsewhere as indicated.
 3. Basis-of-Design Product: Tremco Incorporated; ExoAir Trio.
 4. Tape Width: As required for intended applications.
- G. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- H. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
 - 1. Remove paints from joint surfaces except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
 - 2. Remove wax, oil, grease, dirt film residues, temporary protective coatings and other residues by wiping with cleaner recommended for that purpose.
 - 3. Remove dust by blowing clean with oil-free, compressed air.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.
- E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in an inconspicuous area to verify that it does not stain or discolor slab.
- F. For previously sealed joints, remove all traces of previous sealant and joint backer by mechanical methods, such as by cutting, grinding and wire brushing, in manner not damaging to surrounding surfaces.

3.03 INSTALLATION

- A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Provide joint sealant installations complying with ASTM C1193.
- C. Install acoustical sealant application work in accordance with ASTM C919.
- D. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
 - 1. Width/depth ratio of 2:1.
 - 2. Neck dimension no greater than 1/3 of the joint width.
 - 3. Surface bond area on each side not less than 75 percent of joint width.
- E. Fit joint backer securely by compressing backer material 25 percent to 40 percent so no displacement occurs during tooling. Avoid stretching or twisting joint backer.
- F. Install bond breaker backing tape where backer rod cannot be used, adhering strictly to the manufacturers installation requirements.

- G. Prime joint substrates where required. Use and apply primer according to sealant manufacturers recommendations. Confine primers to sealant bond surfaces; do not allow spillage or migration onto adjoining surfaces.
- H. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- I. Install sealants to uniform cross-sectional shapes with depths relative to joint widths that allow optimum sealant movement capability as recommended by sealant manufacturer.
- J. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- K. Tool sealants in manner that forces sealant against back of joint, ensures firm, full contact at joint interfaces and leaves a finish that is smooth, uniform and free of ridges, wrinkles, sags, air pockets and embedded impurities.
- L. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
- M. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - NTU Quality Requirements for additional requirements.
- B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.
- C. Non-Destructive Adhesion Testing: If there are any failures in first 100 linear feet, notify Architect immediately.
- D. Destructive Adhesion Testing: If there are any failures in first 1,000 linear feet, notify Architect immediately.
- E. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.
- F. Repair destructive test location damage immediately after evaluation and recording of results.

3.05 PROTECTION

- A. Protect sealants from contact with contaminating substances and from damage from construction operations. Cut out, remove and replace contaminated or damaged sealants immediately, so that they are without contamination or damage at time of Substantial Completion.

3.06 CLEANING

- A. Construction Waste Management: Manage construction waste in accordance with provisions of Section 01 74 19 - NTU Construction Waste Management and Disposal. Submit documentation for CALGreen compliance in accordance with Division 1 Sustainable Design Requirements.

3.07 POST-OCCUPANCY

- A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width, i.e., at low temperature in thermal cycle. Report failures immediately and repair them.

END OF SECTION

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SECTION 09 90 00 - NTU PAINTING AND COATING**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Surface preparation and field painting of exposed exterior items and surfaces.
- B. Surface preparation and field application of exterior high-performance coating systems to items and surfaces scheduled.
- C. Painting of exposed bare and covered pipes and ducts, hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
- D. Surface preparation and field application of existing brick masonry.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 05 50 00 - NTU Metal Fabrications: Shop finishing of metal fabrications.
- C. Section 06 10 00 – Rough Carpentry.
- D. Section 06 20 00 - NTU Finish Carpentry: Shop priming architectural woodwork.
- E. Section 07 92 00 - NTU Joint Sealants.

1.03 DEFINITIONS

- A. General: Paint includes coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats. Standard coating terms are defined in ASTM D16.
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85 degree meter.
 - 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60 degree meter.
 - 3. Semi-Gloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60 degree meter.
 - 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60 degree meter.
- B. Environments: The following terms distinguish between different corrosive exposures:
 - 1. "Severe environments" are highly corrosive industrial atmospheres with sustained exposure to high humidity and condensation and with frequent cleaning using strong

chemicals. Environments with heavy concentrations of strong chemical fumes and frequent splashing and spilling of harsh chemical products are severe environments.

2. "Moderate environments" are corrosive industrial atmospheres with intermittent exposure to high humidity and condensation, occasional mold and mildew development, and regular cleaning with strong chemicals. Environments with exposure to heavy concentrations of chemical fumes and occasional splashing and spilling of chemical products are moderate environments.
3. "Mild environments" are industrial atmospheres with normal exposure to moderate humidity and condensation, occasional mold and mildew development, and infrequent cleaning with strong chemicals. Environments with low levels of mild chemical fumes and occasional splashing and spilling of chemical products are mild environments. Normal outdoor weathering is also considered a mild environment.

1.04 REFERENCE STANDARDS

1.05 SYSTEM DESCRIPTION

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2019.
- B. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers; 2017, v1.2.
- C. EN 15804 - Sustainability of Construction Works - Environmental Product Declarations - Core Rules for the Product Category of Construction Products; 2022 (Corrigendum 2021).
- D. ISO 14025 - Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures; 2006.
- E. ISO 14040 - Environmental Management - Life Cycle Assessment - Principles and Framework; 2006, with Amendment (2020).
- F. ISO 14044 - Environmental Management - Life Cycle Assessment - Requirements and Guidelines; 2006, with Amendment (2020).
- G. ISO 21930 - Sustainability in Buildings and Civil Engineering Works — Core Rules for Environmental Product Declarations of Construction Products and Services; 2017.
- H. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.06 SUBMITTALS

- A. CALGreen Submittals:
 1. Product Data for CALGreen 5.504.4.3 - Finish Material Pollutant Control, Paints and Coatings: Product data and material safety data sheets (MSDS) for coatings, including printed statement of chemical composition and VOC content of each product used.

2. Aerosol paints and coatings. Aerosol paints and coatings shall meet the PWMIR Limits for VOC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.
 3. Field Verification of on-site product containers: If required by Authority Having Jurisdiction.
- B. Product Data: For each paint system indicated, including:
1. Material List: An inclusive list of required coating materials. Indicate each material and cross reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 2. Preparation instructions and recommendations.
 3. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- C. Verification Samples: For each finish product specified, two samples, minimum size 8 inch square, representing actual product, color, and patterns.
1. Step coats on Samples to show each coat required for system.
 2. Label each coat of each Sample.
 3. Label each Sample for location and application area.

1.07 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this project, whose work has resulted in applications with a record of successful in-service performance.
- B. Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Paint exposed surfaces. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
- D. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.

- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 degrees F. Maintain storage containers in a clean condition, free of foreign materials and residue.

1.09 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside the manufacturer's absolute limits.
- B. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 degrees F and 90 degrees F.
- C. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 degrees F and 95 degrees F.
- D. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.10 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
- B. Quantity: Furnish Owner with an additional three percent, but not less than 1 gallon or 1 case, as appropriate, of each material and color applied.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design Manufacturer: PPG Paints, 400 Bertha Lamme Drive Cranberry, PA 16066. Toll Free Tel: 888-PPG-IDEA. Web: www.ppgpaints.com/#sle.
- B. Other Acceptable Manufacturers:
 - 1. Dunn-Edwards.
 - 2. Benjamin Moore
 - 3. Sherwin Williams.
 - 4. Tnemec

2.02 PAINT MATERIALS - GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. VOC Classification: Provide high-performance coating materials, including primers, undercoats, and finish-coat materials, that meet the applicable local, state or federal VOC requirements.
- C. CalGreen Coating VOC Limits: Refer to Section 01 81 13 - NTU Sustainable Design Requirements.
- D. Color: Refer to Drawings for paint sheen and color.

2.03 EXTERIOR PRIMERS

- A. Exterior Wood Primer for Acrylic Enamels: Factory-formulated acrylic wood primer for exterior application.
 - 1. PPG Paints; 17-921XI Series Seal Grip Acrylic Universal Primer (84 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.6 mils.
- B. Exterior Ferrous, Non-Ferrous, Galvanized Metal, and Aluminum Primer: Factory-formulated waterborne acrylic rust-inhibitive metal primer.
 - 1. PPG Paints; 4020 PF Series Pitt-Tech Plus Interior/Exterior DTM Industrial Primer (91 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.2 mils.
- C. Exterior Brick and C.M.U.,
 - 1. Tnemec Prime Coat: Series 151-1051 "Elasto-Grip FC"
 - a. Applied at a dry film thickness of not less than .7 or more than 1.5 mils DFT.
 - 2. Tnemec Intermediate Coat: Series 156 "Enviro-Crete"
 - a. Applied to a dry film thickness of not less than 4.0 or more than 8.0 mils DFT.

2.04 EXTERIOR FINISH COATS

- A. Exterior Flat Acrylic Paint: Factory-formulated flat 100% acrylic latex paint for exterior application.
 - 1. PPG Paints; 6-610XI Series Speedhide Exterior 100 percent Acrylic Latex Flat (less than 50 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.5 mils.

- B. Exterior Satin Acrylic Paint: Factory-formulated satin waterborne acrylic paint for exterior application.
1. PPG Paints; V51-410 Series Break-Through Interior/Exterior Water-Borne Acrylic Satin (less than 50 g/L VOC).
 - a. Applied at a dry film thickness of not less than 1.3 mils.
- Metal Substrates**
2. PPG Paints; 90-1110 Pitt-Tech Plus Interior/Exterior DTM Industrial Enamel Satin (85 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.0 mils.
- C. Exterior Semi-Gloss Acrylic Paint: Factory-formulated semi-gloss waterborne acrylic enamel for exterior application.
- Metal Substrates**
1. PPG Paints; 4216 HP Series Pitt-Tech Plus Interior/Exterior DTM Industrial Enamel Semi-Gloss (90 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.0 mils.
- D. Exterior Full-Gloss Acrylic Enamel: Factory-formulated full-gloss waterborne acrylic-latex enamel for exterior application.
1. PPG Paints; 90-1310 Pitt-Tech Plus Interior/Exterior DTM Industrial Enamel Gloss (90 g/L VOC).
 - a. Applied at a dry film thickness of not less than 2.0 mils.
- E. Exterior High Performance Low-VOC Polyester Acrylic Polyurethane Coating
1. Intermediate Coat: PPG Paints; Amerlock 400 or Amerlock 2 400 epoxy high solids intermediate coat as recommended by manufacturer for intended applications. (<100g/L).
 - a. Applied at a dry film thickness of not less than 2.0 mils.
 2. Topcoat: PPG Paints; PMC Amersfield VOC, Low-VOC Polyester Acrylic Polyurethane Coating (<85 g/L VOC).
 - a. Applied at a dry film thickness of not less than 3.0 mils.
- F. Exterior High Performance Low-VOC for brick and C.M.U.,
1. Finish Coat: Series 1029 "Enduratone" (semi-gloss)
 - a. Applied to a minimum of 4.0 to maximum 8.0 mils DFT. Applied over intermediate coat and primer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.
 - 2. If a potential incompatibility of primers applied by others exists, obtain the following from the primer applicator before proceeding:
 - a. Confirmation of primer's suitability for expected service conditions.
 - b. Confirmation of primer's ability to be top coated with materials specified.

3.02 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Substrates: Prepare concrete, brick, concrete masonry block, and cement plaster surfaces to be coated. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods to prepare surfaces.
 - a. Use abrasive blast-cleaning methods if recommended by coating manufacturer.

- b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not coat surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
3. Wood Substrates: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Smoothly sand surfaces exposed to view and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer, before applying primer.
 - b. Immediately on delivery, prime edges, ends, faces, undersides, and backsides of wood to be coated.
 - c. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
4. Ferrous Metal Substrates: Clean ungalvanized ferrous metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC recommendations.
 - a. Blast-clean steel surfaces as recommended by coating manufacturer and according to SSPC-SP 6.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire brush, solvent clean, and touch up with same primer as the shop coat.
5. Non-Ferrous Metal Substrates: Clean non-ferrous and galvanized surfaces according to manufacturer's written instructions for the type of service, metal substrate, and application required.
 - a. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
6. Brick and C.M.U. Substrates: Power-wash surfaces to remove all dirt, oil, and other surface contaminants and loose coatings. Remove any remaining foreign substances with scrapers, mineral spirits, and sandpaper, if required. Smoothly sand surfaces exposed to view and dust off.
 - a. All surfaces should be clean and free of all surface contaminants including passivated surfaces, loose material, and should be dry and shall be uniformly roughened to exhibit a dense and uniform anchor surface profile of 1.0 mils minimum.
 - b. Contact: Paul R. Oswald, Coatings Consultant, Amos and Associates, Inc, (866) 317-3206.

- D. Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.
 2. Stir materials before applying to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain coating material before using.
 3. Use only the type of thinners approved by manufacturer and only within recommended limits.
 4. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.03 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
- B. General: Apply high-performance coatings according to manufacturer's written instructions.
1. Use applicators and techniques best suited for the material being applied.
 2. Do not apply high-performance coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
 3. Coating surface treatments and finishes are indicated in the coating system descriptions.
 4. Provide finish coats compatible with primers used.
 5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, grilles, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
- C. Application Procedures: Apply coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. The number of coats and film thickness required is the same regardless of application method.
 2. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or recoat work that does not comply with specified requirements.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 45 23 - NTU Testing and Inspecting Services, for general requirements for field inspection and testing.
- B. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:
 - 1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to project will be taken, identified, sealed, and certified in the presence of Contractor.
 - 2. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.05 CLEANING

- A. After completing painting, clean glass and paint spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.06 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
- C. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces.

3.07 EXTERIOR PAINT SCHEDULE

- A. Concrete Unit Masonry:
 - 1. General: Two finish coats over a primer.
 - 2. Primer: Concrete masonry unit **latex** block filler.
 - 3. Finish Coats: Exterior flat **acrylic latex** paint.
- B. Cement Plaster: Refer to Section 09 24 00 - NTU Cement Plastering for finish coat system.
- C. Metal Doors and Frames, and Other Non-Prefinished Miscellaneous Metal:
 - 1. Ferrous Metal:

- a. General: Two finish coats over primer.
 - b. Primer: Exterior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).
 - c. Finish Coats: Exterior semi-gloss **waterborne acrylic** enamel.
2. Zinc-Coated Metal:
- a. General: Two finish coats over primer.
 - b. Primer: Exterior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).
 - c. Finish Coats: Exterior semi-gloss **waterborne acrylic** enamel.
- D. Aluminum:
1. General: Two finish coats over primer.
 2. Primer: Exterior **waterborne acrylic** primer as specified for substrate indicated (not required on shop-primed items).
 3. Finish Coats: Exterior semi-gloss **waterborne acrylic** enamel.
- E. Selected Exposed Steel Items indicated to be Painted with Exterior High Performance Topcoats including exposed structural steel, architecturally exposed structural steel, metal stairs, pipe and tube railings, and decorative metal.
1. General: One topcoat over one intermediate coat and shop primer.
 2. Primer: Shop-applied in applicable Division 05 Section.
 3. Intermediate Coat: **Epoxy high-solids** intermediate coat as recommended by manufacturer of high-performance topcoat for intended application.
 4. Topcoat: Exterior semi-gloss **Polyester Acrylic Polurethane** Coating
- OR POLYSILOXANE SYSTEM** Selected Exposed Steel Items indicated to be Painted with Exterior High Performance Topcoats including exposed structural steel, architecturally exposed structural steel, metal stairs, pipe and tube railings, and decorative metal.
5. General: One topcoat over shop primer.
 6. Primer: Shop-applied in applicable Division 5 Section.
 7. Intermediate Coat: Not Required.
 8. Topcoat: PSX-805 Satin Polysiloxane.

END OF SECTION

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