MILITARY DEPARTMENT
OFFICE OF THE ADJUTANT GENERAL
10601 Bear Hollow Drive
Rancho Cordova, California 95670

Invitation for Bid (IFB)
Notice to Prospective Bidders
IFB No. 130887 - Building 4207 (Base Bid) & Building 4208 (Bid Alternate) Renovation
Camp Roberts - San Miguel, CA

7/13/2026

You are invited to review and respond to this IFB. In submitting your bid, you must comply with these instructions. In addition to those programs and preferences that are specified in this solicitation, Prospective Contractors are encouraged to consider programs and preferences that are available, such as those for the use of small businesses, disadvantaged businesses, disabled veteran businesses, and other businesses covered by State and Federal programs and preferences.

The DVBE Participation Program applies, and a five percent (5%) goal is required for this IFB. The DVBE Incentive Program may also apply to this IFB. See **Section 4, Special Programs, Disabled Veteran Business Enterprise (DVBE) Program Requirement**, in this IFB for requirements.

As required by Government Code 14838, the California Military Department (CMD) is committed to meeting the State's 25 percent (25%) Small Business (SB) participation goal. Certified SBs, Micro Businesses (MB), and contractors willing to commit to subcontracting a minimum of 25 percent (25%) of their net bid price to certified SBs or MBs are encouraged to submit bids. See **Section 4**, **Special Programs, Small Business (SB) or Microbusiness (MB) Preference**, in this IFB for requirements.

In the opinion of CMD, this IFB is complete and without need of explanation. However, if you have questions, or should you need any clarifying information, the contact person for this IFB is:

Robert Hawkins
California Military Department
10601 Bear Hollow Drive
Rancho Cordova, CA 95670
Robert.Hawkins@cmd.ca.gov

Please note that no *verbal* information given will be binding upon the State unless such information is issued in writing as an official addendum.

Technical questions regarding this solicitation will be addressed, in writing, and in accordance with the Questions and Answers portion of this IFB. See **Section 3**, **Key Actions Dates** for more details.

Robert Hawkins
Contracting Administrator

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1. Purpose and Description of Services

a. Contractor agrees to provide to CMD **Building 4207 (Base Bid) & Building 4208 (Bid Alternate) Renovation** services, as described herein:

Contractor shall provide all materials, labor, bonds, licenses, insurance, equipment, tools, permits, taxes, transportation, and fees for an all-inclusive interior and exterior renovation of Barracks Building 4207, with Building 4208 as a bid alternate. The final delivery must be a fully functional, modernized facility that flawlessly integrates all new systems.

Contractor shall have **365** calendar days to complete the Work.

2. Bidder Minimum Qualifications

a. The Prime Bidder must be either an individual or firm currently licensed to do business in California and provide proof of such as required in **Attachment 1 – Required Attachment Checklist**.

b. The Prime Bidder must have a business license or incorporation papers for their respective State showing that their company is in good standing in that state, if the Prime Bidder's base of operation is located outside the State of California and provide proof of such as required in **Attachment 1 – Required Attachment Checklist**.

c. Pursuant to Public Contract Code section 2010, a person that submits a bid or proposal to […] a state agency with respect to any contract in the amount of $100,000.00 shall complete the **Attachment 10 – California Civil Rights Laws**.

d. The Prime Contractor shall possess a **B - General Building Contractor and a C-22 - Asbestos Abatement Contractor** license issued by the California Contractors State Licensing Board (CSLB). If the Prime Contractor does not possess a C-22 license, then they shall hire a subcontractor with a C-22 license.

e. Failure of Bidder to sufficiently provide any or all of the minimum qualifications, in the opinion of CMD, will result in the Bidder's bid deemed non-responsive.

f. By submitting its bid, Bidder certifies, under penalty of perjury, that its Contractors State License Board (CSLB) license is in a classification appropriate to the work to be undertaken as identified in the **Attachment 12 – Sample Standard Agreement, Exhibit A, Scope of Work**. This requirement has also been added in the **Attachment 12 – Sample Standard Agreement, Exhibit E**. Refer to **Section 3, Bid Requirements and Information, Contractor's License**, for submittal requirements.

g. Failure of Bidder to sufficiently provide any or all of the minimum qualifications, in the opinion of CMD, will result in the Bidder's bid deemed non-responsive.

3. Bid Requirements and Information

a. Key Action Dates

It is recognized that time is of the essence. All bidders are hereby advised of the following schedule and will be expected to adhere to the required dates and times.

Event	Date	Time (PST)
IFB published on Cal eProcure	7/13/2026	2:00 PM
Mandatory Pre-Bid Job Walk	7/22/2026	10:00 AM
Request for Information (RFI) Submission Deadline	8/5/2026	5:00 PM
Bid Submission Deadline	9/3/2026	2:00 PM
Public Bid Opening	9/3/2026	2:15 PM

b. Mandatory Pre-Bid Job Walk

i. A mandatory pre-bid job walk is scheduled at 10:00 AM on 7/22/2026 for the purpose of viewing the site. Arrive at least 15 minutes early and bring business cards.

ii. Designated Meeting Location:

1. Camp Roberts – Highway 101, San Miguel, CA 93451

a. After obtaining the required security clearance, prospective bidders shall proceed to the main gate, park in the designated dirt lot located to the left of the entrance, and await further instructions from authorized contracting or delegated personnel.

iii. Failure to arrive at the designated meeting location by the scheduled start time may result in disqualification from submitting a bid. All prospective bidders must comply with current federal requirements, such as the acceptable identification, vehicle registration and insurance, when accessing federal facilities.

iv. In the event a potential prime contractor is unable to attend the mandatory pre-bid walk-through, an authorized representative may attend on their behalf. The representative may only sign-in for one (1) company. Subcontractors may not represent a potential prime contractor at a mandatory pre-bid walkthrough. No bid will be accepted unless the bidder or their authorized representative was in attendance.

c. Request for Information (RFI) Period

i. Potential Bidders who attended the mandatory pre-bid job walk may submit written questions regarding the project by 8/5/2026. All questions should be emailed in writing to Robert.Hawkins@cmd.ca.gov. NO QUESTIONS will be entertained after 8/5/2026.

ii. Written questions must include: the individual's name, firm name, complete address and must reference **IFB No. 130887**.

iii. Written responses to all questions will be collectively compiled and posted to the Cal eProcure website (https://caleprocure.com/pages/index.aspx). It is the responsibility of the Bidder to access the website for any changes or addenda that may be posted. Refer to this **IFB, Section 3, A, Key Action Dates**, for the schedule of events and dates/times.

d. Costs Included in Bid Rates

Bid prices/rates shall include the cost of employer payments to or on behalf of employees, subsistence, travel, compensation insurance premiums, unemployment contributions, social security taxes, contract bond premiums, and any other taxes or assessments, including but not limited to, sales and use taxes required by law or otherwise and no additional allowance will be paid unless separate payment provisions in the Agreement should specifically provide otherwise.

e. Employment of undocumented Workers

No State agency or department, as defined in California Public Contract Code Section 10335.7, that is subject to this code, shall award a public works contract to a bidder or contractor, nor shall a bidder or contractor be eligible to bid for or receive a Public Works Agreement, who has, in the preceding five (5) years, been convicted of violating a State or Federal law regarding the employment of undocumented workers (Pub. Cont. Code Section 6101).

f. State General Prevailing Wage Rates

The predetermined general prevailing wage rates published by the Director of Industrial Relations may be obtained via the Internet: https://www.dir.ca.gov/OPRL/DPreWageDetermination.htm. It is the bidder's responsibility to use the correct classification determination published by the Department of Industrial Relations.

g. Postconsumer Content Certification

Your signature affixed hereon and dated on the Bid/Bidder Certification Sheet, Attachment 2 shall signify that you are aware of the recycle materials, goods, and supplies program requirements of Public Contract Code Sections 12200 and 12205, and that the Recycled-Content Certification will be required for the successful contractor. The awarded bidder will be required to complete a Postconsumer-Content Certification (CalRecycle 74) and provide the form with the signed Agreement. An incomplete form or failure to provide a completed form will result in cancellation of the Agreement. The Postconsumer-Content Certification (CalRecycle 74 form) may be downloaded from CalRecycle's website: https://calrecycle.ca.gov/.

h. Mandatory Organic Waste Recycling

The Contractor generating organic waste or commercial solid waste shall arrange for the recycling services required by this section in a manner that is consistent with State and local laws and requirements, including a local ordinance or local jurisdiction's franchise agreement, applicable to the collection, handling, or recycling of organic waste and commercial solid waste. This requirement does not modify, limit or abrogate the Contractors right to sell or donate its recyclable organic waste materials consistent with the requirements of Public Resources Code Sections 42649.8 et seq.

i. Motor Carrier Permit Requirements

i. Contractor is responsible for determining whether California Vehicle Code Sections 34601 and 34620 require Contractor to have a valid Motor Carrier Permit (MCP) issued by the Department of Motor Vehicles (DMV) in order for Contractor to lawfully perform any part or aspect of the work described in Exhibit A, Scope of Work, and, if California Vehicle Code Sections 34601 and 34620 do require same for any part or aspect of such work, Contractor must have a valid MCP(s) issued from the DMV for its services as a Motor Carrier of Property under this Agreement. Contractor shall pay any required fees necessary to obtain and maintain in good standing during the entire term of this Agreement the any such required MCP(s).

ii. The MCP(s), if any, required for the Contractor's Motor Carriers of Property under California Vehicle Code Sections 34601 and 34620 shall be on file with the Contractor for the duration of this Agreement. Upon request of CMD, the Contractor must immediately provide to CMD a copy of the required MCP(s), if any.

j. Contractor Registration Program

i. No Contractor or Subcontractor may be listed on a bid proposal for a public works contract unless registered with the Department of Industrial Relations (DIR), pursuant to Labor Code Section 1725.5 with limited exceptions from this requirement for bid purposes only under LC Section 1771.1(a)).

ii. No Contractor or Subcontractor may be awarded a public works contract or commercial service contract requiring prevailing wages, unless registered with DIR pursuant to Labor Code Section 1725.5.

iii. CMD will verify each of the registration numbers prior to contract award. Bidders that do not possess the required DIR registration will be deemed non-responsive and rejected from further consideration in the solicitation process.

k. Contractor’s License

Bidder must have, at time of bid submittal and for the duration of the contract, a valid, current B - General Building Contractor and a C-22 - Asbestos Abatement Contractor license issued by the Contractors State License Board (CSLB), for the type of work to be performed. Bidder shall obtain, pay for and maintain, in good standing, all necessary licenses and permits to accomplish the work. If the bidder does not have a C-22 license, then they shall hire a subcontractor with a C-22 license. Bidders will be considered non-responsive unless proper licensing requirements are met. An invalid license will result in rejection of the bid. Positive verification of a valid license issued by the CSLB will be performed by CMD (reference Business and Professions Code Section 7028.15).

l. Subcontractors

Bidder may subcontract portions of the work as defined in the attached Sample Standard Agreement. Bidder shall perform on the site, and with its own organization, work equivalent to at least twenty percent (20%) of the total amount of work to be performed under the contract If subcontractors are used, complete the Bidder Declaration (GSPD–05-105), Attachment 5. Bidder must ensure that the subcontractor(s) will have all necessary licenses, permits, and/or

certifications to accomplish its portion of the work. Failure of a subcontractor(s) to have the proper licenses, permits, and/or certifications, shall be cause for rejection of bid. The Bidder Declaration can also be downloaded at which can be downloaded at https://www.documents.dgs.ca.gov/dgs/fmc/GS/PD/GSPD05-105.pdf.

m. Non-Collusion Declaration for Public Works

Bidder must submit, as described herein, a non-collusion declaration for Public Works. The non-collusion declaration is attached to this IFB as Attachment 11. Failure to submit a complete declaration shall result in rejection of the bid.

n. Bonds

i. If the proposed bid amount exceeds $24,999.99, the contractor must submit a bid bond in the amount of at least 10% of the bid amount with the bid packet utilizing a bond form provided by the Surety.

ii. The bid bond must include the IFB No.130887 and must identify the owner as:

California Military Department
IFB No. 130887
10601 Bear Hollow Drive
Rancho Cordova, California 95670-6350

iii. Prior to the commencement of performance, the contractor must obtain and provide to the State, a payment bond, on Standard Form 807, when the contract involves a public works expenditure (labor/installation costs) in excess of $24,999.99. Such bond shall be in a sum not less than one hundred percent (100%) of the contract price. Forms shall be provided to the contractor. The contractor shall ensure the payment bond remains in full force and effect during execution of the contracted work, the guarantee period and through such time that all subcontractors and suppliers are paid in full by the contractor.

iv. If the contract amount is less than $25,000.00, and a subsequent change order or contract amendment causes the total amount of the contract to exceed $24,999.99, then a payment bond will be required in the amount of one hundred percent (100%) of the new contract total amount.

v. If the contract amount exceeds $9,999.99 and progress payments will be made, a performance bond in the amount of 100% of the contract amount must be submitted by the successful bidder at the time signed contracts are returned to the California Military Department. The contractor shall ensure the performance bond remains in full force and effect during execution of the contracted work and guarantee period.

vi. Bonds must be issued by a California-admitted surety (CCP § 995.311.).

o. Insurance

i. The bidder, who receives the Agreement award, must provide a Certificate of Insurance providing proof of insurance to the California Military Department within ten (10) working days from the date of notification of award. Refer to the Sample Standard

Agreement Exhibit F for the applicable and specific Insurance requirements and coverage limits.

ii. The insurance carrier shall provide an endorsement for the additional insured statement as follows:

CMD, State of California, its officers, agents, and employees shall be included as additional insured, but only with respect to work performed for the State of California under this Agreement.

iii. The additional insured endorsement must accompany the certificate of insurance.

iv. Available Coverages/Limits

v. In the event the insurance coverages obtained by the Contractor is broader in scope than, and/or the limits are higher than, those required under the contract, all such broader coverage and/or higher limits available to the Contractor shall also be available and applicable to the State.

vi. In the case of Contractor and/or Permittee's utilization of subcontractors to complete the contracted scope of work, contractor and/or Permittee shall include all subcontractors as insured under Contractor and/or Permittee's insurance or supply evidence of insurance to The State equal to policies, coverages and limits required of Contractor and/or Permittee.

p. California Civil Rights Laws

Any person that submits a bid or proposal to, or otherwise proposes to enter into or renew a contract with, a state agency with respect to any contract in the amount of one hundred thousand dollars ($100,000.00) or more shall certify, under penalty of perjury, at the time the bid or proposal is submitted or the contract is renewed, that they satisfy all of the conditions set forth in California Public Contract Code Section 2010 and they shall execute the California Civil Rights Laws Certification, as Attachment 10, completed, signed, and returned with its bid or proposal.

q. Darfur Contracting Act

i. The Darfur Contracting Act, Public Contract Code Section 10475-10481, applies to any company that currently or within the previous three (3) years has had business activities or other operations outside of the United States. The Act was passed by the California Legislature and signed into law by the Governor to preclude State agencies generally from contracting with "scrutinized" companies that do business in the African nation of Sudan (of which the Darfur region is a part), for the reasons described in Public Contract Code Section 10475. All bidders shall complete the Darfur Contracting Act Certification, Attachment 6, and submit with the proposal.

ii. If your company has not, within the previous three (3) years, had any business activities or other operations outside of the United States, complete Option 1 on the Darfur Contracting Act Certification form.

iii. A scrutinized company is a company doing business in Sudan as defined in Public Contract Code Section 10476. Scrutinized companies are ineligible to, and cannot bid on, or submit a bid or proposal for an Agreement with a State agency for goods or services. (Pub. Cont. Code Section 10477(a)).

iv. Therefore, Public Contract Code Section 10478(a) requires a company that currently has (or within the previous three (3) years has had business activities or other operations outside of the United States to certify that it is not a "scrutinized" company when it submits a bid or proposal to a State agency.

v. A scrutinized company may still; however, submit a bid or proposal for an Agreement with a State agency for goods or services if the company first obtains permission from the Department of General Services according to the criteria set forth in Public Contract Code Section 10477(b).

r. Iran Contracting Act

i. Pursuant to the Iran Contracting Act of 2010 (Pub. Cont. Code Sections 2200 et seq., hereinafter "the Act"), persons identified on the list established under Public Contract Code Section 2202.5 (hereinafter "List") are ineligible to bid on, submit a proposal for, enter into, or renew any contract with the State for goods or services of one million dollars or more.

ii. Any person who submits a bid or proposal must complete and submit to CMD with its bid proposal, the Iran Contracting Act Verification Form, Attachment 7, certifying that it is not on the most current List unless the person is exempted from the certification requirement by Public Contract Code Section 2203(c) or (d). If claiming an exemption, the person shall provide written evidence that supports an exemption under Public Contract Code Section 2203(c) or (d) with its bid or proposal. The Iran Contracting Act Verification Form can also be downloaded at https://www.dgs.ca.gov//-/media/Divisions/PD/PTCS/OPPL/SCM/SCM-Link-Docs/Iran-Contracting-Act.pdf.

iii. Any person, for a contract that is exempt from bidding or is renewed, or for whom a contract is otherwise awarded by the State, must complete and submit to CMD the Iran Contracting Act Verification Form, certifying that it is not on the most current List, before the contract has been executed by the parties, unless the person is exempted from the certification requirement by Public Contract Code Section 2205(c) or (d). If claiming an exemption, the person shall provide written evidence that supports an exemption under Public Contract Code Section 2203(c) or (d), before execution of the contract.

s. Submission of Bid

i. All bids must be submitted to CMD by date and time shown in Section 3, Bid Requirements and Information, Item a) Key Action Dates.

ii. Bids **MUST** be submitted electronically.

iii. Electronic Submissions

1. Electronic bid submittals shall be sent to PWC@cmd.ca.gov and shall include Robert Hawkins at Robert.Hawkins@cmd.ca.gov as a copied recipient.

2. All bid documents will be in an attachment (as one PDF). If any bid information is in the body of the email, it shall be rejected. Bids submitted via links to cloud storage services or file-sharing drives will not be accepted.

3. Subject line must include the IFB No. 130887, Building 4207 (Base Bid) & Building 4208 (Bid Alternate) Renovation and Contractor Business Name.

4. The bid submission email inbox is ONLY for bid submissions, contact the Contracting Administrator directly with contract questions and/or to receive confirmation that their bid was received.

iv. **Late bids will not be considered.**

v. All bids shall include the documents identified in Required Attachment Checklist, Attachment 1. Bids with incomplete documents or not including the proper "required attachments" shall be deemed non-responsive. A non-responsive bid is one that does not meet the basic bid requirements.

vi. All documents requiring a signature must bear an original signature of a person authorized to bind the bidding firm.

vii. Bids must be submitted for the performance of all the services described herein. Any deviation from the work specifications will not be considered and will cause a bid to be rejected.

viii. A bid may be rejected if it is conditional or incomplete, or if it contains any alterations of form or other irregularities of any kind. The State may reject any or all bids and may waive an immaterial deviation in a bid. The State's waiver of immaterial deviation shall in no way modify the IFB document or excuse the bidder from full compliance with all requirements if awarded the agreement.

ix. Costs for developing bids and in anticipation of award of the agreement are entirely the responsibility of the bidder and shall not be charged to the State of California.

x. An individual who is authorized to bind the bidder contractually shall sign Bid/Bidder Certification Sheet, Attachment 2. The signature should indicate the title or position that the individual holds in the firm. An unsigned bid may be rejected.

xi. A bidder may modify a bid after its submission by withdrawing its original bid and resubmitting a new bid prior to the bid submission deadline. Bidder modifications offered in any other manner, oral or written, will not be considered.

xii. A bidder may withdraw its bid by submitting a written withdrawal request to the State, signed by the bidder or an authorized agent. A bidder may thereafter submit a new bid prior to the bid submission deadline. Bids may not be withdrawn without cause subsequent to bid submission deadline.

xiii. The awarding agency may modify the IFB prior to the date fixed for submission of bids by the issuance of an addendum to all parties who received a bid package.

xiv. The awarding agency reserves the right to reject all bids. The agency is not required to award an agreement.

xv. Before submitting a response to this solicitation, bidders should review, correct all errors and confirm compliance with the IFB requirements.

xvi. Where applicable, bidder should carefully examine work sites and specifications. Bidder shall investigate conditions, character, and quality of surface or subsurface materials or obstacles that might be encountered. No additions or increases to the agreement amount will be made due to a lack of careful examination of work sites and specifications.

xvii. The State does not accept alternate contract language from a prospective Contractor. A bid with such language will be considered a counter proposal and will be rejected. The State's General Terms and Conditions (GTC) are not negotiable. The GTC may be viewed at Internet site https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language.

xviii. No oral understanding or agreement shall be binding on either party.

xix. Bidder must complete and submit to the awarding agency Payee Data Record, STD 204, Attachment 8, to determine if the Contractor is subject to state income tax withholding pursuant to California Revenue and Taxation Code Sections 18662 and 26131. This form can be found on the Internet at https://www.documents.dgs.ca.gov/dgs/FMC/PDF/Std204.pdf. No payment shall be made unless a completed STD 204 has been returned to the awarding agency.

xx. Bidder must sign and submit to the awarding agency, Contractor Certification Clauses (CCC), Attachment 9, which can be found on the Internet at: https://www.dgs.ca.gov/-/media/Divisions/OLS/Resources/CCC-042017.pdf.

t. Bid Opening

i. Bid openings will be held virtually on Microsoft Teams.

ii. To attend the bid opening, contact Robert Hawkins at Robert.Hawkins@cmd.ca.gov in advance to request a Microsoft Teams meeting invitation. Requests submitted on the day of the bid opening may not be received or processed in time to allow participation.

u. Evaluation and Selection

i. After the time of bid opening, each bid will be checked for the presence or absence of required information in conformance with the submission requirements of this IFB.

ii. The State will evaluate each bid to determine its responsiveness to the published requirements.

iii. Bids that contain false or misleading statements, or which provide references, which do not support an attribute or condition claimed by the bidder, may be rejected.

iv. Award if made, will be to the lowest responsive responsible bidder.

v. The State reserves the right to require the apparent lowest responsive and responsible bidder to participate in a bid verification meeting prior to award of the contract. The purpose of this meeting is to review and confirm the bidder's pricing, scope understanding, and compliance with all bid requirements. Failure or refusal to participate in the bid verification meeting, or inability to satisfactorily verify the bid, may result in the bid being deemed non-responsive and rejected.

vi. In the event of a tie bids, the award will be determined by a coin toss. The coin toss will be held in the State Agency's headquarters area office. This is a public event, which the bidders will be invited to attend. The selection of the Contractor will be at the sole discretion of the State.

v. Award and Protest

i. When the evaluation has been completed and a contractor has been selected, the awarding agency shall post a notice of intent to award in a place accessible by the general public, including any Internet site identified in the IFB within 5 to 10 business days after the bid opening date.

ii. State Contracting Manual Volume 1, 6.03 Protest Exclusions: F - The contract award is for a type of contract not subject to the protest procedures. This category includes public works contracts awarded under the State Contract Act (PCC §10100 et seq.); contracts for professional architecture or engineering services under GC § 4525; contracts awarded under GC §§ 14838.5 and 14838.7.

w. Disposition of Bids

i. Upon bid opening, all documents submitted in response to this IFB will become the property of the State of California and will be regarded as public records under the California Public Records Act (Government Code Section 6250 et seq.) and subject to review by the public.

x. Standard Conditions of Service

i. After award of the Agreement and execution of the Agreement, should the Contractor fail to commence work within five (5) working days after notification of the starting date, or suspend work for a period of five (5) continuous working days after work has begun, CMD may provide five (5) calendar days written notice, posted at the job site or mailed to the Contractor, to timely prosecute and complete the work or the Agreement may be terminated and liquidated damages assessed for administrative costs for re-bidding the work or awarding the work to another Contractor. In addition, that Contractor shall be liable to CMD for the difference between the Contractor's bid price and the actual cost of performing the work by the second low bidder or by another Contractor.

ii. All performance under the Agreement shall be completed on or before the termination date of the Agreement.

y. Antitrust Provisions

i. The Contractor offers and agrees and will require all of his other subcontractors and suppliers to agree to assign to the awarding body all rights, title, and interest in and to all causes of action they may have under Section 4 of the Clayton Act (15 USC section 15) or under the Cartwright Act [Chapter 2, commencing with section 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 subcontract. The assignment made by the contractor and all additional assignments made by the subcontractors and suppliers shall be deemed to have been made and will become effective at the time the awarding body tenders final payment to the Contractor without further acknowledgment or the necessity of tendering to the awarding body any written assignments.

ii. If an awarding body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Government Code Sections 4550-4554, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, on demand, recover from the public body any portion of the recovery, including treble damages, and attributable overcharges that were paid by the assignor but were not paid by the public body as a part of the bid price, less the expenses incurred in obtaining that portion of the recovery. On demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under Government Code Sections 4550-4554 if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

z. If the bidder is awarded the Agreement and refuses to sign the Agreement presented for signature within 10 business days of receipt, (not including Saturdays, Sundays, and legal holidays) and manner required, the bidder will be liable to CMD for actual damages resulting to CMD therefrom or 10 percent (10%) of the amount bid, whichever is less.

aa. Loss Leader usage is prohibited in this solicitation: It is unlawful for any person engaged in business within this State to sell or use any article or product as a "loss leader" as defined in California Business and Professions Code Section 17030. "Loss Leader" means any article or product sold at less than cost: a) where the purpose is to induce, promote or encourage the purchase of other merchandise; or b) where the effect is a tendency or capacity to mislead or deceive purchasers of prospective purchasers; or c) where the effect is to divert trade from or otherwise injure competitors.

bb. No oral understanding or agreement shall be binding on either party.

4. Special Programs

a. Disabled Veteran Business Enterprise (DVBE) Program Requirement

i. DVBE Participation Program with Goals:

1. The required DVBE participation goal for this IFB is five percent (5%). The resultant Agreement is financed with State funds and subject to Public Contract Code Section 10115 et seq., Military and Veterans Code Section 999 et seq., and Title 2, California Code of Regulations, Sections 1896.60 (2 CCR Section 1896.60) et seq., that provides contracting opportunities for qualified DVBEs certified by the DGS. The DVBE Incentive Program may also apply.

2. Bidder shall complete and submit the Bid/Bidder Certification Sheet Attachment 2; Bidder Declaration (GSPD-05-105), Attachment 5, and, as applicable, the Disabled Veteran Business Enterprise Declarations (DGS PD 843), Attachment 4. Bidder shall complete or collect DGS PD 843(s) when the following situations occur:

   a. Bidder is DVBE (prime) Contractor.

   b. Bidder subcontracts with any DVBE firm. Bidder collects and submits with its bid package a completed and signed DGS PD 843 from each of the DVBE subcontractor(s) listed on the GSPD-05-105.

3. Failure to provide required DVBE information will result in the bid being rejected as non-responsive. For each certified DVBE subcontractor listed on the Bidder Declaration, GSPD-05-105, the bidder may submit a copy of the quotes from each DVBE as Attachment 5, “Quotes from SB/DVBE Subcontractors”, as proof of commitment.

4. Additional references: https://www.dgs.ca.gov/PD-OSDS.

ii. DVBE Incentive Program

1. The DVBE Incentive Program applies to this solicitation. It is separate from the DVBE Participation Program and was established in Military and Veterans Code Sections 999 et seq., and Title 2, California of Regulations, Sections 1896.99 (2 CCR Section1896.99) et seq., to encourage bidders to partner with DVBE subcontractors. A dollar cap of $100,000 is set for all combined incentives and preferences. The incentive is used only for evaluation purposes to arrive at the successful bidder and does not alter the amounts of the actual bid. Any responsive and responsible bidder with the confirmed DVBE participation per the Tables in paragraph 3 below is eligible to receive the incentive. Bidders who are not responsive and responsible regardless of the amount of DVBE participation are not eligible to receive the incentive.

2. CMD will apply an incentive to bids proposing the utilization of DGS certified DVBE firms identified on the Bidder Declaration (GSPD-05-105). Information provided on the GSPD-05-105 shall be verified by CMD prior to the award of the Agreement. The incentive amount is equal to a percentage of the lowest responsive and responsible bid based on the amount of DVBE participation in the bid being evaluated per the Tables below.

3. Tables for IFB (Low Price Method)

Required 5%Goal

Verified DVBE Participation	DVBE Incentive Amount
7.00% or more	5%
6.50% - 6.99%	4%
6.00% - 6.49%	3%
5.50% - 5.99%	2%
5.01% - 5.49%	1%

4. When applying the DVBE Incentive, an NSB shall not displace an award to a DGS Certified Small Business.

5. Additional information: https://www.dgs.ca.gov/PD-OSDS.

b. Small Business (SB) or Microbusiness (MB) Preference

i. Government Code Section 14835 et seq. requires that a five percent (5%) preference be given to contractors who qualify as a certified SB or MB. References to a SB shall also include MB. The rules and regulations of this law, including the definition of a SB for the delivery of services, are contained in Title 2, California Code of Regulations, Section 1896 (2 CCR Section 1896) et seq.

ii. To claim the SB preference, your firm must have its principal place of business located in California and be certified by the California Department of General Services (DGS), Office of Small Business and DVBE Services (OSDS). The preference amount may not exceed fifty thousand dollars ($50,000) for any bid. If prospective Contractor is claiming the five percent (5%) SB preference, complete Section 14 of the Bid/Bidder Certification Sheet Attachment 2.

iii. Pursuant to Government Code Section 14838 and 2 CCR Section 1896, if a bidder is not a certified SB, but wishes to be eligible for the five percent (5%) non-small business (NSB) preference, the bidder must subcontract at least twenty five percent (25%) of its net bid price to one or more certified SBs. If bidder is claiming the five percent (5%) NSB preference, complete the Bidder Declaration, GSPD-05-105, which can be downloaded at https://www.documents.dgs.ca.gov/dgs/fmc/GS/PD/GSPD05-105.pdf. Bidder shall list the names of all certified SB firms being claimed for credit on the GSPD-05-105 form. For each certified SB subcontractor listed, the bidder shall submit a copy of the quotes from each SB (on the SB's company letterhead) as Attachment 5, "Quotes from SB/ DVBE Subcontractors."

1. This preference shall not be awarded to a noncompliant bidder and shall not be used to achieve any applicable minimum requirements.

2. Certified SB bidder(s) shall have precedence over NSB bidders in the application of SB preference(s).

3. SB preferences may not be applied to any bid deemed non-responsive with the solicitation instructions or from a non-responsible bidder.

4. Questions regarding the certification approval process or SB program should be directed to OSDS at the contact information found on their website.

5. Additional references are at https://www.dgs.ca.gov/PD-OSDS.

c. Commercially Useful Function

i. It is the law. All California-certified Small Businesses (SB) and Disabled Veteran Business Enterprise (DVBEs) doing business with the state must perform a Commercially Useful Function (CUF). Performing CUF is a critical requirement for all California-certified firms - SB and DVBE - that do business with the state (Government Code Section 14837 and Military and Veterans Code Section 999).

ii. More information can be found on Department of General Services website: https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Commercially-Useful-Function-for-Certified-Firms.

d. CMD Advocates

CMD Small Business and Disabled Veteran Business Enterprise Advocates are available to answer questions regarding the SB/DVBE Programs and Incentives and to help identify possible SB/DVBE vendors. CMD ADVOCATES: Advocate@cmd.ca.gov.

5. Executive Order N-6-22 – Russia Sanctions

On March 4, 2022, Governor Gavin Newsom issued Executive Order N-6-22 (the EO) regarding Economic Sanctions against Russia and Russian entities and individuals. “Economic Sanctions” refers to sanctions imposed by the U.S. government in response to Russia’s actions in Ukraine, as well as any sanctions imposed under state law. By submitting a bid or proposal, Contractor represents that it is not a target of Economic Sanctions. Should the State determine Contractor is a target of Economic Sanctions or is conducting prohibited transactions with sanctioned individuals or entities, that shall be grounds for rejection of the Contractor’s bid/proposal any time prior to contract execution, or, if determined after contract execution, shall be grounds for termination by the State.

6. Required Attachments (Attachments 1 – 12):

Attachment 1 – Required Attachment Check List

Bidder's Company Name:

_____

A complete bid or bid package will consist of the items identified below.

	Attachment	Attachment Name/Description
_____	Attachment 1	Required Attachment Checklist
_____	Attachment 2	Bid/Bidder Certification Sheet
_____	Attachment 3	Rate Sheet
_____	Attachment 4	Disabled Veteran Business Enterprise Declarations (DGS PD 843) * https://www.documents.dgs.ca.gov/dgs/fmc/gs/pd/pd_843.pdf
	Attachment 5	Bidder Declaration (GSPD-05-105) * https://www.documents.dgs.ca.gov/dgs/fmc/GS/PD/GSPD05-105.pdf
_____	Attachment 6	Darfur Contracting Act Certification
_____	Attachment 7	Iran Contracting Act Verification Form * https://www.dgs.ca.gov//-/media/Divisions/PD/PTCS/OPPL/SCM/SCM-Link-Docs/Iran-Contracting-Act.pdf
_____	Attachment 8	Payee Data Record (STD 204) https://www.documents.dgs.ca.gov/dgs/FMC/PDF/Std204.pdf
_____	Attachment 9	Contractor Certification Clauses (CCC 04/2017) https://www.dgs.ca.gov/-/media/Divisions/OLS/Resources/CCC-042017.pdf
	Attachment 10	California Civil Rights Laws Attachment * https://www.documents.dgs.ca.gov/dgs/FMC/DGS/OLS004.pdf
_____	Attachment 11	Non-Collusion Affidavit
_____	Additional Required Information:	The Prime Bidder must be either an individual or firm currently licensed to do business in California. 1. The Prime Bidder has a business license or incorporation papers for their respective State showing that their company is in good standing in that state, if the Prime Bidder's base of operation is located outside the State of California. 2. The Prime Bidder and their subcontractors shall possess required license(s) issued by the California Contractors State Licensing Board (CSLB) and be registered with the Department of Industrial Relations (DIR). 3. Prime Bidder shall provide a bid bond with their bid packet.*

* If applicable

Attachment 2 – Bid/Bidder Certification Sheet

This Bid/Bidder Certification Sheet must be signed and returned along with all the "required attachments" as an entire package in duplicate with original signatures/electronic signature. The bid must be transmitted in accordance with IFB instructions.

A. Our all-inclusive bid is submitted as detailed in **Attachment 3, Rate Sheet.**
B. All required attachments are included with this certification sheet.
C. I have read and understand the DVBE participation requirements and have included documentation demonstrating that I have met the participation goals.
D. The signature affixed hereon and dated certifies compliance with all the requirements of this bid document. The signature below authorizes the verification of this certification.

An Unsigned Bid/Bidder Certification Sheet May Be Cause for Rejection

<table>
<tr><td colspan="2">1. Company Name</td><td colspan="2">2. Telephone Number
( )</td><td colspan="2">2a. Fax Number
( )</td></tr>
<tr><td colspan="6">3. Address

Email Address</td></tr>
<tr><td colspan="6">Indicate your organization type:</td></tr>
<tr><td>4. ☐ Sole Proprietorship</td><td>5. ☐ Partnership</td><td>6. ☐ Corporation</td><td colspan="2">6a. ☐ L.L.C. Limited Liability Corporation</td><td></td></tr>
<tr><td colspan="6">Indicate the applicable employee and/or corporation number:</td></tr>
<tr><td colspan="3">7. Federal Employee ID No. (FEIN)</td><td colspan="3">8. California Corporation No.</td></tr>
<tr><td colspan="6">9. Indicate applicable license and/or certification information:</td></tr>
<tr><td colspan="3">10. Bidder’s Name (Print)</td><td colspan="3">11. Title</td></tr>
<tr><td colspan="3">12. Signature</td><td colspan="3">13. Date:</td></tr>
<tr><td colspan="6">14. Are you certified with the Department of General Services, Office of Small Business and DVBE Certification as:</td></tr>
<tr><td colspan="3">California Small Business Enterprise

Yes ☐ No ☐

If yes, enter certification number:</td><td colspan="3">Disabled Veteran Business Enterprise

Yes ☐ No ☐

If yes, enter certification number:</td></tr>
<tr><td colspan="6">**NOTE**: A copy of your Certification is required to be included if either of the above items is checked **“Yes”**. Date application was submitted to OSBCR, if an application is pending:</td></tr>
</table>

Attachment 2 – Completion Instructions for Bid/Bidder Certification Sheet

Complete the numbered items on the Bid/Bidder Certification Sheet by following the instructions below.

Item Numbers	Instructions
1, 2, 2a, 3	Must be completed. These items are self-explanatory.
4	Check if your firm is a sole proprietorship. A sole proprietorship is a form of business in which one (1) person owns all the assets of the business in contrast to a partnership and corporation. The sole proprietor is solely liable for all the debts of the business.
5	Check if your firm is a partnership. A partnership is a voluntary agreement between two (2) or more competent persons to place their money, effects, labor, and skill, or some or all of them in lawful commerce or business, with the understanding that there shall be a proportional sharing of the profits and losses between them. An association of two (2) or more persons to carry on, as co-owners, a business for profit.
6, 6a	Check if your firm is a corporation. A corporation is an artificial person or legal entity created by or under the authority of the laws of a state or nation, composed, in some rare instances, of a single person and his successors, being the incumbents of a particular office, but ordinarily consisting of an association of numerous individuals. Or a Limited Liability Corporation.
7	Enter your federal employee tax identification number.
8	Enter your corporation number assigned by the California Secretary of State's Office. This information is used for checking if a corporation is in good standing and qualified to conduct business in California.
9	Complete, if applicable, by indicating the type of license and/or certification that your firm possesses and that is required for the type of services being procured.
10, 11, 12, 13	Must be completed. These items are self-explanatory.
14	If certified as a California Small Business, place a check in the "Yes" box, and enter your certification number on the line. If certified as a Disabled Veterans Business Enterprise, place a check in the "Yes" box and enter your service code on the line. If you are not certified to one (1) or both, place a check in the "No" box. If your certification is pending, enter the date your application was submitted to OSBCR.

.

Attachment 3 – Rate Sheet

Contractor agrees to provide to CMD **Building 4207 (Base Bid) & Building 4208 (Bid Alternate) Renovation** services, as described herein:

Contractor shall provide all materials, labor, bonds, licenses, insurance, equipment, tools, permits, taxes, transportation, and fees for an all-inclusive interior and exterior renovation of Barracks Building 4207, with Building 4208 as a bid alternate. The final delivery must be a fully functional, modernized facility that flawlessly integrates all new systems.

BASE BID: BARRACKS BUILDING 4207

	Total
Total Lump Sum (Numeric Amount)	$
Total Lump Sum (Written Amount)	

The lowest responsive, responsible contractor with the lowest base bid price shall be awarded the contract. Based on the availability of funds, Alternative Bid Item shall be awarded. The Alternative Bid Item to be awarded shall be determined by the Contracting Officer.

ALTERNATIVE BID ITEM: BARRACKS BUILDING 4208

	Total
Total Lump Sum (Numeric Amount)	$
Total Lump Sum (Written Amount)	

In the event of a discrepancy between the written bid amount and the numerical (dollar) bid amount, the written amount shall govern and be considered the official bid amount.

Submitted by: _____ Date: _____

Contact Name / Title:	
Company Name:	
Company Address:	
Telephone Number:	
Fax Number:	
E-Mail Address:	

The total costs indicated above will be used solely for computing the cost as a fair and equitable formula to determine the low bidder and is not binding on the contracting agency. However, the actual costs quoted above by the bidder shall be binding for the term of the Agreement. Small Business and Disabled Veteran Business Enterprise incentives will also be applied to determine the lowest bid.

Addendum Acknowledgement (Please initial for Addenda published on Cal eProcure)

Addendum #1 _____	Addendum #4 _____	Addendum #7 _____
Addendum #2 _____	Addendum #5 _____	Addendum #8 _____
Addendum #3 _____	Addendum #6 _____	Addendum #9 _____

Failure to acknowledge the published addendum on Cal eProcure may result in the bid being deemed non-responsive.

Attachment 4 – Disabled Veteran Business Enterprise Declarations (DGS PD 843)

Bidders who are disabled veteran (DV) owner(s) and DV manager(s) of a Disabled Veteran Business Enterprise must complete Disabled Veteran Business Enterprise Declarations (DGS PD 843) when a DVBE Contractor or subcontractor will provide materials, supplies, services or equipment and include it with the bid response.

The DGS PD 843 Disabled Veteran Business Enterprise Declarations form can be found at:
https://www.documents.dgs.ca.gov/dgs/fmc/gs/pd/pd_843.pdf

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Attachment 5 – Bidder Declaration Form (GSPD-05-105)

All bidders must complete the Bidder Declaration Form (GSPD-05-105) and include it with the bid response.

The Bidder Declaration Form can be found at:
https://www.documents.dgs.ca.gov/dgs/fmc/GS/PD/GSPD05-105.pdf

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Attachment 6 – Darfur Contracting Act Certification

Pursuant to Public Contract Code section 10478, if a bidder or proposer currently or within the previous three years has had business activities or other operations outside of the United States, it must certify that it is not a "scrutinized" company as defined in Public Contract Code section 10476.

Therefore, to be eligible to submit a bid or proposal, please complete only **one** of the following three paragraphs (via initials for Paragraph # 1 or Paragraph # 2, or via initials and certification for Paragraph # 3):

1. _____ Initials — We do not currently have, or we have not had within the previous three years, business activities or other operations outside of the United States.

OR

2. _____ Initials — We are a scrutinized company as defined in Public Contract Code section 10476, but we have received written permission from the Department of General Services (DGS) to submit a bid or proposal pursuant to Public Contract Code section 10477(b). A copy of the written permission from DGS is included with our bid or proposal.

OR

3. _____ Initials + certification below — We currently have, or we have had within the previous three years, business activities or other operations outside of the United States, but we certify below that we are not a scrutinized company as defined in Public Contract Code section 10476.

CERTIFICATION For# 3.

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY that I am duly authorized to legally bind the prospective proposer/bidder to the clause listed above in # 3. This certification is made under the laws of the State of California.

Proposer/Bidder Firm Name (Printed)	*Federal ID Number*
By (Authorized Signature)	
Printed Name and Title of Person Signing	
Date Executed	*Executed in the County and State of*

YOUR BID OR PROPOSAL WILL BE DISQUALIFIED UNLESS YOUR BID OR PROPOSAL INCLUDES THIS FORM WITH EITHER PARAGRAPH # 1 OR# 2 INITIALED OR PARAGRAPH# 3 INITIALED AND CERTIFIED.

Attachment 7 – Iran Contracting Act Verification Form

Bidders must complete the Iran Contracting Act Verification Form Attachment and include it with the bid response.

The Iran Contracting Act Verification Form Attachment is available at the following website:
https://www.dgs.ca.gov//-/media/Divisions/PD/PTCS/OPPL/SCM/SCM-Link-Docs/Iran-Contracting-Act.pdf

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Attachment 8 – Payee Data Record (STD 204)

All bidders must complete the Payee Data Record (STD 204) and include it with the bid response.

The Payee Data Record (STD 204) is available at the following website:
https://www.documents.dgs.ca.gov/dgs/FMC/PDF/Std204.pdf

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Attachment 9 – Contractor Certification Clauses (CCC 04/2017)

All bidders must complete the Contractor Certification Clauses form (CCC 04/2017) and include it with the bid response.

The Contractor Certification Clauses Form (CCC 04/2017) is available at the following website:
https://www.dgs.ca.gov/-/media/Divisions/OLS/Resources/CCC-042017.pdf

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Attachment 10 – California Civil Rights Laws Attachment

All bidders must complete the California Civil Rights Laws Attachment and include it with the bid response.

The California Civil Rights Laws Attachment is available at the following website:
https://www.documents.dgs.ca.gov/dgs/FMC/DGS/OLS004.pdf

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Attachment 11 – Non-Collusion Affidavit

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS

STATE OF CALIFORNIA

County of_____

The undersigned declares:

I am the _____of_____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the 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. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____, at _____, ____.
Date City State

_____
Signature of Bidder

Attachment 12 – Sample Standard Agreement

Reset Form | Print Form | **SCO ID:** 8940-XXXXX

STATE OF CALIFORNIA - DEPARTMENT OF GENERAL SERVICES
STANDARD AGREEMENT
STD 213 (Rev. 04/2020)

AGREEMENT NUMBER	PURCHASING AUTHORITY NUMBER (If Applicable)
XXXXX	MIL - 8940

1. This Agreement is entered into between the Contracting Agency and the Contractor named below:

CONTRACTING AGENCY NAME
California Military Department

CONTRACTOR NAME

2. The term of this Agreement is:

START DATE
Month XX, 20XX

THROUGH END DATE
Month XX, 20XX

3. The maximum amount of this Agreement is:
Written Amount ($XXX,XXX.XX)

4. The parties agree to comply with the terms and conditions of the following exhibits, which are by this reference made a part of the Agreement.

Exhibits	Title	Pages
Exhibit A	Scope of Work	XX
Exhibit B	Budget Detail and Payment Provisions	XX
Exhibit C *	General Terms and Conditions (02/2025)	*
+ - Exhibit D	General Conditions of Public Works Contract	XX
+ - Exhibit E	Special Contract Provisions	XX
+ - Exhibit F	Insurance Liability Section	XX
+ - Attachment 1	Project Manual	XX
+ - Attachment 2	Plans/Drawings	XX
+ - Attachment 3	Rate Sheet	XX
+ - Attachment 4	Bidder Declaration Form (GSPD-05-105)	XX

Items shown with an asterisk (*), are hereby incorporated by reference and made part of this agreement as if attached hereto.
These documents can be viewed at https://www.dgs.ca.gov/OLS/Resources

IN WITNESS WHEREOF, THIS AGREEMENT HAS BEEN EXECUTED BY THE PARTIES HERETO.

CONTRACTOR

CONTRACTOR NAME (if other than an individual, state whether a corporation, partnership, etc.)

CONTRACTOR BUSINESS ADDRESS	CITY	STATE	ZIP

PRINTED NAME OF PERSON SIGNING	TITLE
CONTRACTOR AUTHORIZED SIGNATURE	DATE SIGNED

MILITARY DEPARTMENT
OFFICE OF THE ADJUTANT GENERAL
10601 Bear Hollow Drive
Rancho Cordova, California 95670

SCOPE OF WORK
BLDG 4207 (Base Bid) **& BLDG 4208** (Bid Alternate) **RENOVATION**
CAMP ROBERTS, CA
DATE: 02 JULY 2026

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1. PROJECT BACKGROUND & LOCATION

- **Installation:** Camp Roberts is an active, operating military installation and airfield meeting Department of War standards. It provides support and training facilities for military units, national, state, and local organizations, and emergency operations.
- **Site Location:** Building 4207 (Base Bid) & Building 4208 (Bid Alternate), Camp Roberts, San Luis Obispo, CA 93451.

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2. GENERAL SCOPE OF WORK

The Contractor shall provide all necessary labor, materials, equipment, and services for an all-inclusive interior and exterior renovation of Barracks Building 4207, with Building 4208 as a bid alternate. The final delivery must be a fully functional, modernized facility that flawlessly integrates all new systems.

2.1 Component Inclusions

Work includes, but is not limited to, the demolition, replacement, and installation of:

- Hazardous materials abatement (Lead, Asbestos, Mold)
- Complete electrical, lighting, and fire protection systems
- Latrine plumbing, fixtures, and partitions
- Water heating and HVAC systems, including new ductwork
- Interior and exterior doors, frames, and hardware
- Select windows and associated flashing and trim
- Wall and ceiling insulation and finishes (gypsum board, paint)
- Flooring systems (Polyurea/Polyaspartic finish)
- Structural repairs to framing, posts, and stairs as needed

2.2 Period of Performance & Project Timeline

- **Contract Duration:** The Contractor has **365 Calendar Days** from the Notice to Proceed (NTP) to complete the entire project.
- **Mobilization:** Physical site work must commence within **10 calendar days** of receiving the NTP.

- **Operational Interferences:** All work shall be performed to ensure minimum interruption or interference with the proper execution of government business and facility operations.

2.3 Governing Drawings & Manuals

All work must comply strictly with this Scope of Work and the following project documentation from the previous barracks renovation project. The work called out in this Scope of Work and the Referenced Plans and Specifications has been performed on barracks previously renovated. It is the intent to have a finished product that is comparable in fit and finish. A previously renovated Barracks, as an example of the finished product, is available for inspection at the Job Walk and can be made available for inspection during the project. Each building has differing existing conditions. It is the contractor's responsibility to assess the amount of effort to demolish existing finishes, wall covering, ceiling material, flooring, and framing to prepare for repair and to include these costs in their proposals. The amount of effort and materials to build back may vary due to existing conditions and costs will be included in the proposal.

- **Project Drawings:** Fire Protection Drawings, Collins & Associates (Dated: 02 April 2020); Fire Alarm Drawings, Yamabe & Horn (Dated 09 March 2020); California Military Department Drawings (Dated 11 April 2019).
- **Project Manual:** Project Manual, California Military Department (Dated: MAY 2019)

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3. REGULATORY, CODE, AND LICENSING REQUIREMENTS

3.1 Compliance Standards

Per "The Federal Facilities Act 1992," all work shall conform to trade standards, local building codes, ordinances, and regulations listed in the project specifications or construction documents. This includes the Uniform Building Code (UBC), California Building Code (CBC), and Department of Defense Instructions (DOD INST 6055.1).

- **Conflict Resolution:** The Contractor shall report any inconsistencies, conflicts, or omissions in "The Codes" or design documents to the Project Manager (PM) for interpretation prior to performing the affected work.

3.2 Unified Facilities Criteria (UFC) & Guide Specifications (UFGS)

All work shall conform to federal regulations as required in the UFC and UFGS where applicable for this project. If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement.

3.3 Contractor Licensing Requirements

- **Prime License:** Current and in good standing California Contractors State License Board (CSLB) **Class B** (General Building) license issued by the Department of Consumer Affairs.
- **Abatement License:** The contractor must possess a **C-22** (Asbestos Abatement) license or subcontract to a C-22 licensed contractor for all asbestos abatement work.

3.4 Labor & Security Standards

- **Site Access:** All contractors, employees, and subcontractors must comply with the **REAL ID Act** and base security regulations for gate access.
- **Certified Payroll:** Contractor must be registered and participate with the California Department of Industrial Relations (DIR) electronic certified payroll reporting (**eCPR**) for contracts exceeding $1,000.
- **Wages:** This project is performed on federal government property; prevailing wages strictly apply.

3.5 Environmental Conditions

- **Kit Fox Survey:** A survey for potential kit fox dens will need to take place before the project can begin. Please contact Chelsea Fetcher, 805-238-8548, at least 2 weeks before project start to coordinate a survey. If dens are found they will be marked with pink pin flags and will not be disturbed. If these dens cannot be avoided, the Environmental Office will be contacted to schedule 3 consecutive nights of den dusting. (CR INRMP, BO# 2022-0079826 (2023), CR Reg. 350-1)
- **Nesting Bird Survey:** A nesting bird survey will be conducted within two weeks from the start of construction/training. Please contact Chelsea Fetcher, 805-238-8548, at least 2 weeks before project start to coordinate a survey. If nesting bird(s) are found, an appropriate setback buffer will be determined and no construction activities will occur in this setback area until the birds have fledged and are no longer reliant on the nest.

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4. ADMINISTRATIVE & SUBMITTAL REQUIREMENTS

4.1 Safety & Personnel Submittals

Prior to beginning work, the Contractor must submit and receive approval for:

- **Safety & Abatement Plan:** Fully compliant with CAL-OSHA standards.
- **Appointment Letters:** Formal designations for the Site Superintendent, Quality Control (QC) Officer, and Site Safety Officer.

- **On-Site Supervision:** The Site Superintendent and Safety Officer (can be the same individual) or an approved alternate must be present on-site at all times when work is being performed.
- **Superintendent & Subcontractor List:** Provide the named Field Superintendent and a complete list of subcontractors to the PM within **10 working days** of contract award. The assigned Superintendent must be present whenever work occurs. The Contracting Officer is the sole authority permitted to approve changes to subcontractors.

4.2 Material & Product Submittals

- **Product Data:** Submit product data for all materials used in this project **30 working days** prior to mobilization.
- **Equipment Submittals:** Submit for approval all necessary residual equipment documentation for the operation of the completed project, including manufacturer catalogs and specifications, to the PM after contract award.
- **Bid & Quantity Confirmation:** By submitting a bid, the contractor confirms all quantities have been field-verified and that the bid reflects actual work parameters.

4.3 Scheduling, Mobilization, and Logistics Notices

- **Mobilization Notice:** Notify the PM in writing **10 working days** in advance of mobilization. Provide a prospective construction schedule highlighting keystone events and the critical path.
- **Temporary Services:** Coordinate the installation and use of any required temporary services (barricades, power, lighting, telephone) with the PM **10 working days** prior to installation. Remove all temporary services and clean the space upon project completion.
- **Final Inspection Notice:** Notify the PM in writing of the anticipated final inspection date **5 working days** in advance.

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5. HAZARDOUS MATERIAL TESTING & ABATEMENT

5.1 Asbestos & Lead-Based Paint (LBP) Testing

- **Pre-Work Testing:** The contractor shall provide a report to identify LBP, ACM, and other hazardous materials such as mold before any work starts.
- **Reporting:** The final testing report must be submitted to the Government prior to work commencement.

5.2 Hazardous Material Abatement & Oversight

- **Third-Party Inspector:** Contractor shall employ an independent, third-party organization to oversee, monitor, and certify the abatement completion and provide a clearance closeout package.
- **Agency Access:** Camp Roberts DPW, the PM, and the Inspector of Record (IOR) shall have direct contact with this third party and open access to reports at all times.

5.3 Waste Profiling & Sample Analysis

- **Composite Sampling:** Contractor shall collect a representative composite sample of all wood and metal across all paint colors, ensuring proportional representation of all building components.
- **Analysis Parameters:** Samples must undergo hazardous waste profiling, including **TTLC, STLC, and TCLP (lead only)**, matching the explicit needs of the disposal facility.

5.4 Suspected Asbestos-Containing Materials (ACM)

The following materials found throughout the structure are assumed or known to be ACM or LBP and must be handled and disposed of IAW applicable regulations:

- TSI pipe insulation, mud elbows, and fibrous jacketing on pipes, boilers, or furnaces
- 9-inch vinyl composition floor tile and black floor mastics
- Window glazing, gypsum wallboard, wall plaster, and interior/exterior painted surfaces
- Fibrous woven wire insulation
- Cementitious-transite paneling and transite pipes
- Roofing mastic, including material on vents and ducting
- Any unforeseen piping, vents, or gaskets inside pipeline flanges, sprinkler systems, and toilets

5.5 Demolition & Waste Management

- **Waste Plans:** Contractor shall prepare a Construction Waste Management Plan (CWMP) addressing hazardous and non-hazardous waste. The Military Department’s Contracting Officer must approve this plan before work starts.
- **Abatement & Removal:** Contractor is responsible for the removal of all Live Bats in coordination with Camp Roberts Environmental, abatement of Termite Infestation, and repair of all associated damage.
- **Interior Demolition:** Clear the entire interior of the building of all obstructions, debris, and specified components (drywall, fixtures, flooring, etc.) to create a smooth surface for build-back.

5.6 Disposal Logistics & Reporting

- **Facility Delivery:** All demolition and construction waste must be transported off post to a certified 50% recycling waste facility or a licensed Hazmat facility.
- **Closeout Documentation:** Deliver waste manifests and weight receipts to the PM before final payment authorization. Manifests must be signed by John Morrow or the post environmental representative.
- **Reporting Timeline:** Submit recycle weight tickets via email within **10 business days** of contract closure. If multiple shipments are made, provide a tracking spreadsheet (Date, Weight, Facility Name, Cost, Total Weight, Total Cost).
    - **Solid Waste Manager:** Brian Pierskalla (brian.a.pierskalla.nfg@army.mil)
    - **Senior Environmental Scientist:** John Morrow (john.a.morrow12.nfg@army.mil)

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6. DETAILED CONSTRUCTION & BUILD-BACK SPECIFCATIONS

6.1 Furniture Handling:

- The work shall include removal, inventory, safe storage in Contractor-provided non-stackable, lockable, weatherproof containers (e.g., Sea-Train, 20'-40' type), and reinstallation of all interior furniture upon project completion. The Contractor is responsible for cleaning and adjusting furniture as needed upon reinstallation and replacing any items damaged during storage.

6.2 Demolition

- **Concrete:** Concrete material is to be removed as noted in the contract documents or wherever the concrete interferes with new work.
- **Heating, Ventilation, Air-Conditioning (HVAC):** Remove all existing HVAC and metal ducts from the building.
- **Plumbing:** Remove all plumbing fixtures, pipes, waste drains, and shower enclosures in the latrine. Remove and dispose of clay vent pipe, metal vent pipe, framing and hangers, from the mechanical room, vent chase, and roof jack if existing. The clay pipe has been tested and, in the past, has NOT tested positive for asbestos containing material. It is the Contractor’s responsibility to ensure all materials that contain hazardous materials are abated properly.
- **Electrical:** Remove all existing electrical back to the main electrical panel. Leave existing gutter boxes in the mechanical room for future use.

- **Wall Coverings:** Remove all drywall, acoustic board, and wall coverings other than lumber, down to the wood framing members on the walls and ceilings.
- **Fasteners:** Remove all nails, screws, and fasteners from demolished areas to provide a smooth surface to build back upon.
- **Insulation:** Remove all types of insulation within walls and ceiling. Ceiling insulation is typically blow-in.
- **Ship Lap:** Remove ship lap or tongue and groove board as necessary for access to insulation, rough plumbing and electrical. It is not necessary to remove all the wood ship lap or tongue and groove lumber from all of the walls.
- **Flooring:** Mastic, tile and flooring are assumed to contain asbestos. The contractor is responsible for testing and disposal in accordance with applicable regulations. Existing painted surfaces may contain LBP. The contractor is responsible for testing and disposal in accordance with applicable regulations. Remove only VCT and one layer of underlayment down to original linoleum flooring. Do not remove existing flooring past original strip flooring.
- **Doors:** Remove all interior and exterior doors, jambs, casing, and thresholds. Remove the latrine door and framing to prepare for build back remove knee braces from latrine.
- **Windows Trim:** Remove required windows, casing, and interior window trim.

6.3 Doors and Windows

- **Windows:** Infill all latrine windows and windows on the fire escape side; match siding
- **Doors:** Replace all exterior doors with new 3’-0” x 6’-8” metal doors and frames. Contractor to verify size of new exterior doors. Doors and frames installed are to include panic hardware, lock sets, closure, kick plate, vision panel with glazing, hold open device, threshold with sweep and flashing, and weather stripping. Replace with all new exterior metal door trim, flash and seal. Provide a shop drawing detailing trim, flashing and weather seal of frame to existing metal siding.
- **Door Hardware:** All new hardware will be installed using Best core. Exterior exit doors shall have: 6”x24”x¼” flush vision lites, 180 degree swing closers (Norton Model 8301T or approved equal) with hold open, exit panic hardware with lever exterior handle (Von Duprin Model XP99 US26D or approved equal) with IC core 7pin; 4” barrel hinges, stainless steel kick plate 10”x34”, heavy duty floor stop (Brand: Trimco Model: 1231 or approved equal), threshold, sweep, drip cap, screw on jamb weather-stripping. Exterior utility door shall have:

Vented louvers top and bottom, Best 9K series locksets, 2-¾” backset, 626 finish, 15 handle, D rose, ASA strike and IC core 7pin, 4” barrel hinges, heavy duty floor stop (Brand: Trimco Model: 1231 or approved equal), threshold, sweep, drip cap, screw on jamb weather-stripping.

- **Awnings:** All awnings over exterior doors get metal soffit material added to match roof.

6.4 Interior Build-Back

- **Latrines:** Work described within the plans and specifications addresses the renovation of the latrine area. Remove and replace latrine concrete floor to include shower area. Poly to be wrapped up the wall to create a 6” coved base. FRP to be held up 6” off finished floor.
- **Plumbing:** Vent pipe in latrine will need to be re-routed in the attic to tie new vent into the existing roof penetration. New penetration should not be made. Pipe to be wrapped with drywall and finished to match. Frame in exposed plumbing to create surfaces that can be finished to match similar latrine surfaces. Valves shall be framed in with an access panel. It is acceptable to create benches or shelves in the frame in locations where it makes sense.
- **Coat Hooks:** Toilet partition doors shall have 2 coat hooks installed on the interior similar to the hooks installed elsewhere in the latrine.
- **Latrine Accessory Mounting Height:** Mounting heights for accessories shall be as follows.
    - SS Shelf: 42” AFF
    - Waste Basket 24" AFF
    - Soap Dispensers 42"AFF
    - Washer Boxes 48 AFF
    - Lower clothes hooks 48" AFF
    - Exhaust Fan 78" AFF
    - Higher clothes hooks 72"
    - AFF Wall Hydrant 12" AFF
    - Shower Head 72" AFF
    - Paper Towel Dispenser 48" AFF
- **Floors:** Encapsulate existing linoleum with plywood underlayment. Plywood is to be 5/8” thick, Sturd-i-floor underlayment rated and is to be tongue and groove. Prepare surface of underlayment to receive Polyurea/Polyaspartic flooring by a combination of filling, floating, and tape. Cove horizontal to vertical transition using a ¼’ bead of tooled caulk. Apply Polyurea/Polyaspartic in

accordance with specifications. Polyurea is to wrap up baseboard on walls and post on both floors and stairs.

- **Finishes:** Prep all paintable surfaces by removing splinters and old hardware. Wrap exposed beams with sheetrock (do not remove diagonal bracing). Grind and sack concrete before applying Polyurea/Polyaspartic floor coating. Finish the gypsum board to a level 4 finish, spray texture and paint to match existing wall finish.
    - Paint new exterior metal doors & frames with:
        Prime coat: Devoe Bar-Rust 235V or equal
        Second coat: Devoe 4216 or equal
        Finish coat: Devoe 1407 or equal
    - Paint any wood trim with:
        Prime coat: Glidden Professional 3210 Gripper or equal
        Second and third coats: Glidden Professional Ultra 1407 or equal
- **Stairs:** Damaged stringers and stairway framing will be replaced or repaired. Repair will include, stair stringers, blocking for stair treads, upstairs 4X4 post, wall studs, king studs, threshold repair and top and bottom plate replacement. When replacing major sections of plate, ensure proper shoring is utilized to minimize stress and further damage to building. Install two rows of 2X10 blocking w/L90 Simpson clips. Install girder supports, Install new kicker bracing.
- **HVAC Thermostat:** Thermostat will be placed in the mechanical room.
- **HVAC Occupancy Sensor:** Contractor is to remove existing sensor and reinstall the sensor similar to installation in existing barracks.
- **Return Air Grille:** The return air grille size will be 30”x18”.
- **HVAC Shaft:** On the HVAC shaft to the second floor install 1 layer of 5/8" type X gyp on each side of the partition. Contractor shall add additional framing as required to support the gypsum if necessary.
- **Braces:** Replace all damaged Knee Braces and Support Braces with like Material. They are not to be removed. Trim knee braces at support posts that interfere with gypsum board landing against the support beams. Cut and install blocking from dimensional lumber to provide complete perimeter nailing of the gypsum board. Caulk or otherwise seal where gypsum board butts against structural beams that project beneath the ceiling line.
- **Dryer Receptacles:** Contractor will provide one duplex receptacle for both dryers to include ¾” conduit.
- **Drinking Fountain:** The receptacle at the drinking fountain will be a GFCI outlet.

- **Corner Guards:** Install corner guards on outside corners over plywood and FRP wainscoting on first and second floor. Corner guards are to be like those used on previous barracks interior renovations and are available for inspection.
- **Attic Access:** In the second-floor ceiling at the ends of the buildings install 2 each standard size (approximately 24” x 36”) attic access metal frame and door panel, lockable. Paint to match the ceiling. Include all framing, blocking and fasteners recommended by the manufacture of the new panels.
- **Handrail:** Fabricate and install a metal handrail on the stairwell. Handrails are to be like those used on previous barracks interior renovations and are available for inspection. Metal handrail shall be fabricated in one piece from 1-1/4 inch diameter, schedule 40 pipe. The lower end shall have a return to the wall to prevent straps from catching the rail. The upper end shall wrap around the wall and have a return to the wall. There shall be 5 integral mounting points welded to the rail for installation. The rail shall be mounted 3’-0” above the stair tread. There shall be a 1-1/2-inch clearance between the rail and the wall. Provide and install blocking for rail mounting points. The mounting points shall be firmly fastened to the wall with 3/8” x 3-inch lag bolts. The railing shall have a powder coat finish. All welds shall be ground smooth.
- **Mechanical Room:** The Contractor will install a 3-way switch at the interior door to the mechanical room to control the lighting.
- **Fire Extinguisher:** Frame for and install 2 each one per floor an “Ambassador” steel fire extinguisher (FEC) cabinet or equal, locate one at the double doors on first floor and one next to the fire escape door on the second floor. Fire extinguisher cabinets are to be like those used on previous barracks interior renovations and are available for inspection. The FEC shall be steel construction, full flat glass door, pull handle with standard lock, able to hold up-to a 20-pound extinguisher. Trim and paint, to match finished schedule. The extinguishers are to be provided. Contractor to provide extinguisher.
- **Vent Restoration:** Provide all labor and materials to repair or replace existing plumbing vents, HVAC/water heater exhaust vents, intake vents, and electrical conduits/weather heads disturbed during construction or demolition.
- **EPDM Sealing:** Install high-grade EPDM flashing with an integrated lead ring and a stainless-steel clamping ring around all pipes and conduits. Split EPDM flashing with a lead ring may be utilized at the weather head location. Seal thoroughly under and around all EPDM flashings using EPDM lap caulk and EPDM sealing mastic.

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7. SITE EXECUTION, UTILITIES, AND CONDITIONS

7.1 Site Verification & Damage Liability

- **Pre-Work Inspection:** The Contractor shall verify that surfaces and site conditions are ready to receive work before installation begins. Field verify all dimensions and conditions, reporting discrepancies to the PM before finalizing bids or starting construction.
- **Utility Awareness:** The Contractor is responsible for identifying and familiarizing themselves with all surface utilities, pipes, and structures within the Limits of Construction. Any damage to existing utilities or adjacent structures caused during execution must be repaired or restored to original condition at the Contractor’s sole expense.
- **Obstruction Discovery:** The Contractor must not willfully proceed with construction when unknown physical obstructions or design differences are discovered. Bring these conditions to the PM's attention immediately. Failure to notify the PM transfers full financial responsibility for subsequent revisions to the Contractor.

7.2 Electrical & Inspection Coordination

- **Electrical Clearance:** Coordinate with the DPW Electrical Department prior to executing any electrical clearances to minimize utility interruptions to base customers.
- **Inspection Milestones:** Schedule and coordinate progress inspections with the PM at the following critical milestones:
    1. Commencement of work (Work-in-progress inspection)
    2. 50% project completion
    3. Final completion (To certify that materials and installation comply in all respects with specifications, manufacturer instructions, and Federal, State, and Local regulations).

7.3 Workmanship & Supervision Quality

- **Crew Competency:** All work shall be accomplished with a foreman, journeymen, and laborers who are thoroughly skilled in the application of specified materials, fulfilling all requirements of the drawings and specifications.
- **Site Supervision:** The Contractor must maintain an English-speaking, competent foreman on-site continuously to supervise the work. This individual must possess direct authority to discard unsuitable materials and remove unsatisfactory personnel from the project. This requirement must be certified to the Officer Representative in writing.

- **Design Intent Modifications:** Minor field modifications to details may be required to suit actual dimensions or field conditions. These modifications are considered a basic part of the contract scope but require immediate notification to all parties.

7.4 Materials Delivery, Storage, and Handling

- **Delivery Standards:** Deliver all materials to the job site in the manufacturer's original, unopened containers with seals and labels intact. Labels must clearly indicate the catalog number, product description, and approved inspection agency markings. Delivery in quantities sufficient to ensure uninterrupted workflow.
- **Storage Environment:** Keep materials clean and protected from excessive heat, cold, and moisture. Store all materials within an enclosed area maintained between **50°F and 90°F**, unless otherwise specified by the manufacturer. Do not tear off protective coverings or labels until materials are ready for application and have been inspected by the PM.
- **Ground Isolation:** Materials shall not be stored directly on the ground or on improved, uninsulated bare surfaces.
- **Weather Restrictions:** Do not apply materials during unsuitable weather or outside the ambient temperature window mandated by the manufacturer. Do not expose water- or sun-vulnerable materials in quantities greater than can be completely weatherproofed within the same workday.
- **Material Sourcing:** All materials and equipment must be new and must strictly comply with the **Buy American Act** (Made in America Act) unless otherwise noted.

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8. QUALITY ASSURANCE & DEFICIENCY TRACKING

8.1 Regulatory Requirements & Technical Precedence

- **Stringency Clause:** Where the cited references, technical specifications, or drawings contain more than one detail for a specific purpose, the most stringent condition shall govern.
- **Inspection Emphasis:** Field inspections will be performed regularly, with strict emphasis placed on verifying adherence to the manufacturer’s installation requirements.

8.2 Deficiency Correction Timeline

- **Remediation:** Deficiencies identified during field inspections shall be corrected by the Contractor within **two (2) working days** of notification. All corrected actions will be re-evaluated and verified during the Final Inspection.
- **Attendance Notice:** Formal notification to all concerned parties must be received not less than **one (1) business day** prior to any required on-site attendance or milestone inspection.

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9. DAILY CLEANUP & DISPOSITION OF MATERIALS

9.1 End-of-Day Site Cleanliness

- **Daily Clean Up:** The Contractor shall clean up all debris and discarded materials resulting from daily construction operations prior to the completion of each workday.
- **Broom Clean Standards:** Progress paths, walkways, and exterior surfaces adjacent to the premises used during construction must be left broom clean daily.
- **Adhesive Removal:** Remove all product stickers, manufacturing glues, and protective adhesives, and clean all surfaces completely prior to final project acceptance.

9.2 Material Disposition and Handling

- **Regulatory Handling:** All construction debris and hazardous waste must be handled, transported, and disposed of in accordance with all applicable Federal, State, and Local regulations. Materials must be placed in proper containers and trucked off-site to an approved landfill or processing facility.
- **Prohibitions:** No open burning of waste materials is permitted anywhere on the installation.
- **Logistics Costs:** The Contractor shall make their own financial and logistical arrangements for the disposal of debris away from Camp Roberts at their own expense, assuming total responsibility for proper disposal.
- **Thoroughfare Clearance:** Debris must be removed from the project site daily. At no time shall construction waste be allowed to block or restrict any thoroughfare. The premises must be cleaned to the complete satisfaction of the PM.

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10. BASE LOGISTICS, HOURS, AND SECURITY REGULATIONS

10.1 Hours of Operation

- **Standard Shift:** All on-site contract work must be performed between **7:00 AM and 3:30 PM, Monday through Friday**, excluding federal and state holidays. Any work outside these hours requires explicit, advance approval from the PM.

10.2 Pre-Construction Conference

- **Timing:** A mandatory pre-construction conference must convene at least **5 working days** prior to the commencement of work.
- **Agenda:** The meeting will review preparation requirements, installation procedures, coordination schedules, potential interference conditions, and finalize all base personnel security clearance issues.

10.3 Base Access & Gate Clearance

- **Clearance Submission:** The Contractor, employees, and subcontractors must be vetted and cleared prior to base entry. Provide the PM with the legal names of all personnel requiring entry at least **3 days** prior to arrival for security clearance and approval.
- **Gate Delays:** Delays at vehicle or pedestrian check-in gates are common due to strict security procedures. Any loss of time resulting from gate checks shall be borne entirely by the Contractor.
- **Main Entrance:** All personnel and vehicles must enter through the main facility entrance unless directed otherwise by the entrance gate officer or Contract Manager.
- **Vehicle & ID Requirements:** To obtain entry, personnel must present a current vehicle registration, proof of valid vehicle insurance, and one of the approved forms of identification listed below:

Approved Federal Identifications:

- U.S. Passport or U.S. Passport Card
- PIV or Federally issued Personal Identification Verification-Interoperable (PIV-I) Cards
- Driver’s License issued by the U.S. Department of State
- Border Crossing Card (Form DSP-150)
- DHS “Trusted Traveler” Cards (Global Entry, NEXUS, SENTRI, FAST)
- U.S. Military ID (Active duty, National Guard, Reserve, Retirees, and Dependents)
- Veterans’ Health Identification Card (VHIC) issued by the U.S. Dept. of Veterans Affairs
- U.S. Permanent Resident Card (Form I-551)
- U.S. Certificate of Naturalization or Certificate of Citizenship (Form N-550)

- Employment Authorization Document issued by DHS (Form I-766)
- U.S. Refugee Travel Document or other DHS-issued photo travel document (Form I-327 or Form I-571)
- Transportation Worker Identification Credential (TWIC)
- Merchant Mariner Card issued by DHS/USCG

Approved State-Issued Identifications:

- A **REAL ID** Driver's License matching federal standards
- Interim Driver's License issued by a state meeting REAL ID standards or holding an active extension
- State prisoner identification cards
- Native American Tribal Photo ID
- Foreign government-issued passport
- PIV-I cards issued by non-Federal government entities

10.4 Site Security & Searches

- **Searches & Access:** To maintain base safety and security, periodic fire prevention inspections and site searches may be executed. The Contractor must furnish facility authorities with keys to access all locked areas within the worksite.
- **Loss Liability:** The State and the Government shall not be held responsible for any losses incurred by the Contractor due to fire or security inspections. All personnel must strictly observe base security rules and comply immediately with instructions from facility authorities.

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11. SAFETY & ENVIRONMENTAL REQUIREMENTS

11.1 Accident Prevention & Records

- **Safety Controls:** To provide safety controls for the protection of life and health of employees and the public, for the prevention of damage to property and equipment, and to avoid work interruptions, the Contractor shall comply with all applicable OSHA laws.
- **Record Keeping:** The Contractor shall maintain an accurate record of exposure data and all accidents resulting in death, traumatic injury, occupational disease, and property/equipment damage incident to work performed under this contract.
- **Record Sharing:** Provide an exact copy of these records to the PM within **24 hours of request** at any time during the contract duration and its subsequent warranty period.

- **Accident Reporting:** Complete **Form 3394** and submit it to the PM within **three (3) calendar days** of any accident involving personal injury or property damage.

11.2 Industry Safety Compliance

- **OSHA Standards:** Safety standards set forth by OSHA and CAL-OSHA shall be stringently maintained and followed by the Contractor, subcontractors, and work crews always.
- **Fire Prevention:** The Contractor shall comply with all provisions of the **California Fire Code (Current Edition)**.
- **Responsibility:** The Contractor maintains sole and complete responsibility for safety precautions and procedures during construction. Report any non-compliance within these specifications or manufacturing installation procedures to the PM prior to beginning work.

11.3 Pollution Abatement

- **Environmental Laws:** The Contractor shall comply with all Federal, State, and Local environmental laws and regulations.
- **Government Protection:** The Contractor shall strictly avoid any disposal or deployment practices that will place the Government or Military Department in a controversial position with Local, State, or Federal environmental regulatory agencies.

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12. PROJECT CLOSEOUT, WARRANTIES, & INVOICING

12.1 Comprehensive Warranties

- **Contractor Labor & Material Warranty:** Provide a **two (2) year** combined labor and material warranty. This covers all workmanship, materials, and installer labor required to repair or replace any failing or defective components at zero cost to the Government.
- **Material Warranty:** Provide the standard manufacturer's product warranty certificates as outlined in the system specifications (including the **35-year** color warranty on the standing seam metal roof panels).

12.2 Closeout Packet Delivery

Upon successful project completion, the Contractor must turn over an organized closeout packet to the PM before final acceptance. This packet must include:

- Certificate of Occupancy (if applicable)
- Completed lien waivers
- Handbooks, operating manuals, keys, and up-to-date construction logs

- Third-party clearance certifications confirming the facility is 100% free of lead and asbestos materials
- Signed hazardous waste disposal manifests and weigh master receipts

12.3 Invoicing & Billing Terms

- **Submission Protocol:** All invoices must be submitted directly to the Project Manager and the Contract Manager for verification before they can be processed for payment by the Military Department.
- **Billing Frequency:** Invoices may only be submitted **once a month**.
- **Completion Milestone:** The Contractor is only permitted to bill for work that is fully completed and verified at the time of invoice submission. No advanced billing for uncompleted milestones is permitted.

END OF SCOPE OF WORK

EXHIBIT B
(Budget Detail and Payment Provisions)

1. INVOICING AND PAYMENT

a. For services satisfactorily completed in accordance with the terms and conditions stated herein, and upon receipt and approval of the invoice(s), the State agrees to compensate the Contractor for actual expenditures incurred in accordance with the specified as follows: attached hereto as Attachment 3 – Rate Sheet and made a part of this Agreement.

b. Contractor shall submit, in arrears, not more frequently than once a month, and no less than quarterly, an invoice to CMD for cost incurred pursuant to the agreement. In addition, each invoice shall contain the following information:

c. Each Invoice shall include:
   i. The agreement number 130887
   ii. The dates or time-period which the invoiced costs were incurred.
   iii. Description of service, quantity, rate, and total for the current invoice.
   iv. Certified Small Business or DVBE #, if applicable.

d. Invoice(s) shall be submitted electronically to J8-PWR@cmd.ca.gov.

e. Contractor shall submit a copy of the Prime Contractor's **DVBE Subcontracting Report form (STD 817)** for verification by CMD Project Manager with final invoice.

f. Contractor agrees to certify on Prime Contractor's Certification DVBE Subcontractor Report, Form STD 817, that DVBE subcontractor participation under this agreement is in compliance with the goals specified at the time of award of contract or with any subsequent amendment. If for this Contract the Contractor made a commitment to achieve the DVBE participation goal, the Department will withhold $10,000.00 from the final payment, or the full final payment if less than $10,000.00, until the Contractor complies with the certification requirements of Military and Veterans Code Section 999.5. A Contractor that fails to comply with the certification requirement shall, after notice, be allowed to cure the defect. Notwithstanding any other law, if, after at least 15 calendar days but not more than 30 calendar days from the date of notice, the prime contractor refuses to comply with the certification requirements, the department shall permanently deduct $10,000.00 from the final payment, or the full payment if less than $10,000.00. The Contractor shall provide proof of payment for the work performed by the DVBE subcontractor(s) upon Department's request.

2. BUDGET CONTINGENCY CLAUSE

a. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, the State shall have no liability to pay any funds whatsoever to Contractor or to furnish any other considerations under this Agreement and Contractor shall not be obligated to perform any provisions of this Agreement.

b. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the State shall have the option to either cancel this Agreement with no liability occurring to the State or offer an agreement amendment to Contractor to reflect the reduced amount.

3. CONTRACTS FUNDED IN WHOLE/IN PART BY THE FEDERAL GOVERNMENT

a. It is mutually understood between the parties that this contract may have been written before ascertaining the availability of congressional appropriation of funds, for the mutual benefit of both parties, in order to avoid program and fiscal delays which would occur if the contract were executed after that determination was made.

b. This contract is valid and enforceable only if sufficient funds are made available to the State by the United Stated Government for each Fiscal Year of the agreement for the purposes of this program. In addition, this contract is subject to any additional restrictions, limitations, or conditions enacted by the Congress or any statute enacted by the Congress which may affect the provisions, terms, or funding of this contract in any manner.

c. It is mutually agreed that if the Congress does not appropriate sufficient funds for the program, this contract shall be amended to reflect any reduction in funds.

d. The department has the option to void the contract under the 30-day cancellation clause or to amend the contract to reflect any reduction of funds.

4. PROMPT PAYMENT CLAUSE

a. Payment will be made in accordance with, and within the time specified in, Government Code Chapter 4.5, commencing with Section 927.

b. Pursuant to Public Contract Code Section 10262, Contractor shall pay its Subcontractor(s) within seven (7) calendar days from receipt of each payment made to Contractor by CMD.

c. Failure of Contractor adhering to Public Contract Code Section 10262 may result in termination of this Agreement per Public Contract Code Section 10253 and disciplinary action by the Contractors State License Board may be implemented.

d. Any subcontract entered into as a result of this Agreement shall contain all the provisions of this clause.

END OF EXHIBIT B

EXHIBIT D
(General Conditions of Public Works Contract)

1. GENERAL

The following general conditions apply to Standard Agreements and informal Contracts alike. They refer briefly to provisions of the State of California Labor Code, Business and Professions Code, and the State Contract Act, all provisions of which are applicable in full.

2. BIDDING REQUIREMENTS AND CONDITIONS

a. Examination of Plans, Specifications and Site of the Work:

   i. Contractor's Responsibility: The bidder shall carefully examine the work site and the plans and specifications. The bidder shall investigate and become satisfied with the site conditions to be encountered, the character, quality and quantity of surface, and subsurface materials or other obstacles to be overcome, the work to be performed, materials to be furnished, and as to all requirements of the proposal, plans, and specifications of the contract hereinafter referred to as the "Work".

   ii. Responsibility for Utilities: The Contractor shall be responsible for payment of all costs of the work required by the existence or proximity of utilities encountered in performing the work, including without limitation, repair of any damage hand or exploratory excavation required. If during the course of the work the Contractor encounters utility installations which are not shown or indicated in the plans or in the specifications, or which are found in a location substantially different from that shown in the contract documents, the contractor must promptly notify the State in writing.

b. Discrepancies or Errors: If omissions or discrepancies are found in the plan and specifications prior to the date of bid opening, bidders are required to submit a written request for clarification to the State. Any clarification will be given in the form of addendum to all bidders if time permits. Otherwise, in figuring the work, bidders shall consider that any discrepancies or conflict between drawings and specifications shall be governed by Article 5-E.

c. Proposal Forms: The Military Department will furnish to each bidder a standard proposal form (rate sheet) which, when filled out and executed, shall be submitted as the bid. Bids not presented on forms so furnished may be disregarded. All proposals shall give the prices proposed, both in writing and figures, and shall be signed by the bidder or a duly authorized representative, with his address. Proposals made by an individual, shall include the bidder's name and post office/mailing address; if made by partnership, the name and post office/mailing address of the partnership, and the signature of one or more partners must be shown: if made by a corporation, the proposal shall show the name of the state of incorporation, the name of the corporation and the title of the person who signs on behalf of the corporation along with evidence of authority to sign.

d. List of Subcontractors: Each bid shall have listed therein the name and address of each subcontractor to whom the bidder proposes to subcontract portions of the work in an amount in excess of one-half of one percent (1/2 of 1%) of the total bid, in accordance with Chapter 2, Division 5, Title 1, of the Government Code.

e. Rejection of Irregular Proposals: Proposals may be rejected if they show any alterations of form, additions not called for, conditional bids, incomplete bids, erasures, or irregularities of any kind.

f. Withdrawal of Proposals: Any bid may be withdrawn at any time prior to the time fixed in the public notice for the opening of bids, provided that a request in writing, executed by the bidder or his

duly authorized representative, for the withdrawal of such bid is filed with the Military Department by e-mail. The withdrawal of a bid shall not prejudice the right of a bidder to file a new bid within the time specified. This article does not authorize the withdrawal of any bid after the time fixed in the public notice for the opening of bids.

g. Public Opening of Proposals: Proposals will be opened publicly and read at the time and place indicated in the Invitation for Bidders. Bidders or their authorized agents and the general public are invited to be present.

h. Competitive Bidding:

   i. If more than one proposal is offered by an individual, partnership, corporation, association, or any combination thereof, under the same or different names, all such proposals may be rejected. A party who has quoted prices on materials or work to a bidder as a supplier or subcontractor is not thereby disqualified from quoting prices to other bidders.

   ii. All bidders are put on notice that any collusive agreement fixing the prices to be bid so as to control or affect the awarding of this contract is in violation of the competitive bidding requirements of the State Contract Act and may render void any contract let under such circumstances.

3. AWARDS AND EXECUTION OF CONTRACT

a. Award of Contract: The right is reserved to reject any and all proposals. The award of the contract, if awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed. If the lowest responsible bidder refuses or fails to execute the contract, the Military Department may award the contract to the second lowest responsible bidder. If the second lowest responsible bidder refuses or fails to execute the contract, the Military Department may award the contract to the third lowest responsible bidder and so on and so forth. The Military Department will make the award of the contract on the date of the determination of the successful bidder.

b. Contract Bonds:

   i. Prior to the commencement of performance, the contractor must obtain and provide to the State, a payment bond, on Standard Form 807, when the contract involves a public works expenditure (labor/installation costs) in excess of $24,999.99. Such bond shall be in a sum not less than one hundred percent (100%) of the contract price. Forms shall be provided to the contractor. The contractor shall ensure the payment bond remains in full force and effect during execution of the contracted work, the guarantee period and through such time that all subcontractors and suppliers are paid in full by the contractor.

   ii. If the contract amount is less than $25,000.00, and a subsequent change order or contract amendment causes the total amount of the contract to exceed $24,999.99 then a payment bond will be required in the amount of one hundred percent (100%) of the new contract total amount.

   iii. If the contract amount exceeds $9,999.99 and progress payments will be made, a performance bond in the amount of 100% of the contract amount must be submitted by the successful bidder at the time signed contracts are returned to the Military Department. The contractor shall ensure the performance bond remains in full force and effect during execution of the contracted work and guarantee period.

iv. If the proposed bid amount exceeds $24,999.99, the contractor must submit a bid bond in the amount of at least 10% of the bid amount with the Proposal Form utilizing a bond form provided by the Surety.

v. Bonds must be issued by a California-admitted surety. (CCP § 995.311.)

c. Execution of Contract:

i. The contract shall be signed by the successful bidder and returned within 10 business days of receipt, not including Saturdays, Sundays, and legal holidays, together with the contract bonds. No contract shall be binding upon the State until the contractor receives a fully executed contract signed and approved by the Military Department.

ii. Contractor shall not begin work without the Notice to Proceed. If the contractor begins work prior to contract approval and receipt of the "Notice to Proceed", the contractor's sole remedy shall be to seek payment by filing with the Victim Compensation Board. The state has no legal obligation to the contractor until the contract is approved and "Notice to Proceed" has been issued.

d. Failure to Execute Contract: Failure to sign a contract and file acceptable bonds as provided herein within the required time mentioned above in paragraph C-1, shall be just cause for the annulment of the award. If the successful bidder refuses or fails to sign the contract, the Military Department may award the contract to second lowest responsible bidder. If the second lowest responsible bidder refuses or fails to execute the contract, the Military Department may award the contract to the third lowest bidder. Bidder who refuses to execute the contract may be held liable for additional costs to the State and/or claims against any bid bond.

e. When submittals are required for a project, the Government shall absorb the cost of review for the original submittal request and one re-submission for each submittal. For any additional reviews the contractor will be charged for the Project Manager's and Architect/Engineer's review time at a cost of $100.00 per hour. Payment will be due as determined in the sole discretion by the Procurement and Contracting Officer and will not be prorated in less than one-hour increments.

f. When Request for Information (RFI)s are submitted on a project, the Government shall absorb the cost of review for the original RFI and one clarification. For any additional RFIs regarding the same or similar issue, the contractor will be charged for the Project Manager's and Architect/Engineer's review time at a cost of $100.00 per hour. Payment will be due as determined in the sole discretion by the Procurement and Contracting Officer and will not be prorated in less than one-hour increments.

g. Americans With Disabilities Act (ADA): By signing the contract, the Contractor assures the State that it complies with the Americans with Disabilities Act (ADA) of 1990, (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

4. LEGAL, RELATIONS, AND RESPONSIBILITY

a. Regulations and Protection:

i. The contractor shall keep informed of and comply with and cause all of his agents and employees to observe and comply with all prevailing Federal and State laws, and all rules and regulations issued made pursuant to said Federal and State laws, which in any way affect the conduct of the work of this contract.

ii. The contractor shall obtain and pay for all permits and licenses required for excavating or other work on or in public streets, road or sidewalks, and shall comply with all laws in connection therewith. If any conflict arises between provisions of the plans and specifications and any such law the contractor shall notify the State at once in writing. The contractor shall protect and indemnity and defend the State or any of its officers, agents, and servants against any claim or liability arising from or based on the violation of any such law or regulation by the contractor or its agents or employees.

iii. Neither the State nor the contractor is subject to municipal, county, or district laws, rules or regulations pertaining to building permits or regulating the design or construction of buildings upon State property.

iv. The contractor shall be responsible for and provide and maintain all proper temporary walks, roads, guards, railings, lights, warning signs, and take precaution at all times to avoid injury or damage to any person or any property, and upon completion of the work, or at proper times as directed by the PM, shall restore the premises and adjacent property to proper condition.

v. The contractor shall protect adjoining property and nearby buildings, including State buildings, State roads, and public streets or roads, from dust, dirt, debris, or other nuisance arising out of the contractor's operations or storage practices. Sprinkling or other effective methods acceptable to the State shall control dust.

vi. No advertising by the contractor will be permitted in or about the work except by written order of the State.

b. Laws to be Observed:

i. Labor Discrimination: Attention is directed to Section 1735 of the Labor Code, which reads as follows: "No discrimination shall be made in the employment of persons upon public works because of race, color, or religion of such persons and every contractor for public works violating this section is subject to all the penalties for violation of this chapter".

ii. Labor Code Certifications:

1. The contractor certifies "I am 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 I will comply with such provisions before commencing the performance of the work of this contract."

2. It is hereby mutually agreed that the contractor shall forfeit to the state a penalty of fifty dollars for each calendar day, or portion thereof, for each worker paid by him or her, or subcontractor under him or her, less than the prevailing wage so stipulated and in addition the contractor further agree to pay to each worker the difference between the actual amount paid for each calendar day, or portion thereof, and the stipulated prevailing wage rate for the same. This provision shall not apply to properly, registered apprentices.

3. It is further agreed that the maximum hours a worker is to be employed is limited to eight hours a day and 40 hours a week and the contractor shall forfeit, as a penalty to the state, twenty-five dollars for each worker employed in the execution of the contract for each calendar day during which a worker is required or permitted

to labor more than eight hours in any calendar day or more than 40 hours in any calendar week, in violation of Labor Code Sections 1810-1815, inclusive. Work performed by employees of contractors 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 one and one-half times the basic rate of pay, as provided in Labor Code Section 1815.

4. The wage rates set forth are the minimum that may be paid by the contractor. Nothing herein contained shall be construed as preventing the contractor from paying more than the minimum rates set forth. No extra compensation whatsoever will be allowed by the State due to inability of the contractor to hire labor at the minimum rates, nor for any necessity for payment by the contractor of subsistence, travel time, overtime, or other added compensations, all of which possibilities are elements to be considered and ascertained to the contractor's own satisfaction in preparing his bid.

5. Travel and subsistence payments shall be paid to each worker needed to execute the work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Labor Code Section 1773.8.

6. Each contractor and subcontractor shall comply with the Labor Code section 1776 regarding record keeping.

7. In accordance with the provisions of Section 1773 of the Labor Code, the Director of the Department of Industrial Relations has ascertained the generally prevailing rate of wages applicable to the County in which the work is to be done on this contract. Included therein are employer payments for health and welfare, vacation, pension, apprenticeship or other authorized training programs, and similar purposes. Holidays shall be as defined in the collective bargaining agreement applicable to the classification(s) employed on the project.

8. Copies of the General Prevailing Wage rate for the applicable labor classification(s) are available at the web site for the State of California, Department of Industrial Relations-Division of Labor Statistics and Research at www.dir.ca.gov/DLSR.

9. By signing the contract, the contractor swears under penalty of perjury that no more than one final un-appealable finding of contempt of court by a federal court has been issued against the contractor with the immediately preceding two-year period because of the contractor’s failure to comply with an order of a federal court which orders the contractor to comply with an order of the Nation Labor Relations Board.

10. Properly registered apprentices may be employed in the prosecution of the work. Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he or she is employed and shall be employed only at the work of the craft or trade to which he or she is registered. The contractor and each subcontractor must comply with the requirements of Labor Code Section 1777.5 and any related regulations regarding the employment of registered apprentices.

iii. Registration of Contractors: All businesses or individuals, who construct, offer to construct, or alter any building, highway, road, parking facility, railroad, excavation, or other structure

in California must be licensed by the California Contractors State License Board (CSLB) if the total cost (labor and materials) of one or more contracts on the project is $1,000.00 or more. Contractors, including subcontractors, specialty contractors, and persons engaged in the business of home improvement must be licensed before submitting bids. Licenses may be issued to individuals, partnerships, corporations, or joint ventures.

iv. Responsibility for Damage: Neither the State of California, The Adjutant General, nor any officer or employee of the Military Department shall be accountable in any manner, for any loss or damage that may happen to the work or any part thereof, or for any of the materials or other things used or employed in performing the work, or for injury to any person or persons, either worker or the public, for damage to property from any cause which might have been prevented by the contractor, or any contractor's employee against all of which injuries or damages to persons and property the contractor having control over such work must properly guard. The contractor shall be responsible for any liability imposed by law for any damage to any person or property resulting from defects or obstructions or from any cause whatsoever during the progress of the work or at any time before the completion and final acceptance. The contractor shall indemnity and save harmless the State of California, the Adjutant General, and all officers and employees of the Military Department from all units or actions of every name, kind and description, brought for, or on account of any injuries or damages received or sustained by any person or persons, by or from the contractor, or any contractor's employee or agents, in the construction of the work or by or in consequence of any negligence in guarding the same, in improper materials used in its construction, or by or on account of any act or omission of the contractor or contractor's agents.

v. Occupancy by the State Prior to Acceptance:

    1. The State reserves the right to occupy all or any part of the project prior to completion of the entire contract, upon written notice to the contractor. In such event, the contractor will be relieved of responsibility for any injury or damage to such part as may result from such occupancy and use by the State.

    2. Such occupancy does not constitute waiver of any rights or acceptance by the State either of the complete work or of any portion thereof, nor will it relieve the contractor of full responsibility for correcting defective work or materials found at any time before the formal written acceptance of the entire contract or during the full guaranty period after such acceptance, as specified in Article 7C.

vi. Contractor's Responsibility for Work:

    1. Until the written acceptance of the Work, the contractor shall have the charge and care thereof and shall bear the risk of injury or damage to any part of the work by the action of the elements or from any other cause whether arising from execution or from the non-execution of the work.

    2. The contractor shall immediately rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance and shall bear the expense thereof. In case of suspension of work any cause whatsoever, the contractor shall be responsible for the work as above specified and shall also be responsible for all materials, and shall properly store them if necessary, and shall provide suitable drainage and erect temporary structures when necessary.

vii. No Personal Liability: Neither the Adjutant General, nor any other officer or authorized employees of the Military Department shall be personally responsible as an individual for any liability arising under the contract.

viii. Fair Employment Practices:

1. The contractor will not willfully discriminate against any employee or applicant for employment because of race, color, religion, ancestry, sex, age, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color religion, ancestry, sex, age, or national origin. Such action shall include, but not be limited to, the following: Employment upgrading, transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation, and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the awarding authority setting forth the provisions of this Fair Employment Practices Section.

2. The contractor will send to each labor union or representative of workers with which there is an existing collective bargaining agreement or other contract. A Notice to Labor Unions, to be provided by the awarding authority, advising the said labor union or worker's representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

3. The contractor will permit access to its record of employment, employment advertisements, application forms, and other pertinent data and records by the Fair Employment Practices Commission, the awarding authority or any other appropriate agency of the State of California designated by the awarding authority, for the purposes of investigation to ascertain compliance with the Fair Employment Practices section of this contract.

4. A finding of willful violation of the Fair Employment Practices section of this contract or of the Fair Employment Practices Act shall be regarded by the awarding authority as a basis for determining that the contractor is not a "responsible bidder" as to any future contracts for which such contractor may submit bids for revoking the con-tractor's pre-qualification rating, if any, and for refusing to establish, re-establish or renew a prequalification rating for the contractor.

5. The awarding authority shall deem a finding of willful violation of the Fair Employment Practices Act to have occurred upon receipt of written notice from the Fair Employment Practice Commission that it has investigated and determined that the contractor has violated the Fair Employment Practices Act and has issued an order under Labor Code Section 1426 or obtained an injunction under Labor Code Section 1429.

6. Upon receipt of such written notice from the Fair Employment Practices Commission, the awarding authority shall notify the contractor that unless they demonstrate to the satisfaction of the awarding authority within a stated period of time that the violation has been corrected, the contractor's pre-qualification rating will be revoked at the expiration of such period.

7. The contractor agrees, that should the awarding authority determine that the contractor has not complied with the Fair Employment Practices section of this

contract, then pursuant to Labor Code Section 1735 and 1775, the contractor shall, as a penalty to the awarding authority, forfeit, for each calendar day or portion thereof, for each person who was denied employment as a result of such noncompliance, the penalties provided in the Labor Code for violation of prevailing wage rates. Such monies may be recovered from the contractor. The awarding authority may deduct any such damages from any monies due the contractor from the State of California.

8. Nothing contained in this Fair Employment Practices Section shall be construed in any manner or fashion so as to prevent the awarding authority of the State of California from pursuing any other remedies that may be available at law.

9. Nothing contained in this Fair Employment Practices Section shall be construed in any manner or fashion so as to require or permit the hiring of an employee not permitted by the National Labor Relations Act.

10. Standards for Affirmative Compliance:

    a. Prior to award of the contract, the contractor shall certify to the awarding authority that the contractor has or will meet the following standards for affirmative compliance, which shall be evaluated in each case by the-awarding authority.

    b. The contractor shall provide evidence, as required by the awarding authority, that the contractor has notified all supervisors, foremen and other personnel officers in writing of the content of the anti-discrimination clause and their responsibilities under it.

    c. The contractor shall provide evidence, as required by the awarding authority, that he/she has notified all sources of employee referrals (including unions, employment agencies, advertisements, Department of Employment) of content of the anti-discrimination clause.

    d. Personally, or through an authorized representative(s), the contractor shall, through negotiations with the unions with whom he/she has agreements, attempt to develop an agreement, which will:

        i. Spell out responsibilities for non-discrimination in hiring, referral, upgrading and training.

        ii. Otherwise implement an affirmative anti-discrimination program in terms of the union's specific areas of skill and geography, to the end that qualified minority workers will be available and given an equal opportunity for employment.

    e. The contractor shall notify the contracting agency of opposition to the anti-discrimination clause by individuals, firms or organizations during the period of its pre-qualification.

11. Employment of undocumented aliens: No state agency or department, as defined in Public Contract Code § 10357, that is subject to this code, shall award a public works contract to a bidder or contractor, nor shall a bidder or contractor be eligible to bid for or receive a public works contract, who has, in the preceding five years,

been convicted of violating a state or federal law regarding the employment of undocumented aliens. See Public Contract Code § 6101.

12. Antitrust Claims: The contractor offers and agrees and will of his/her other subcontractors and suppliers to agree to assign to the awarding body all rights, title, and interest in and to all causes of action they may have under Section 4 of the Clayton Act (15 USC § 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 subcontract. The assignment made by the contractor and all additional assignments made by the subcontractors or suppliers shall be deemed to have been made and will become effective at the time the awarding body tenders final payment to the contractor without further acknowledgment or the necessity of tendering to the awarding body any written assignments.

13. If an awarding body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Government Code sections 4550-4554, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, on demand, recover from the public body any portion of the recovery, including treble damages and attributable overcharges that were paid by the assignor but were not paid by the public body as a part of the bid price, less the expenses incurred on obtaining that portion of the recovery. On demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under Government sections 4550-4554 if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action

14. The contractor will include the provisions of the foregoing paragraphs 1 through 13 in every subcontract, so that such provisions will be binding upon each subcontractor.

ix. Workers Compensation

1. The contractor will be required to secure the payment of compensation to his employees in accordance with provisions of Labor Code Section 3700.

2. Travel and subsistence payments shall be paid to each worker needed to execute the work, as such travel and subsistence payments as defined in the applicable collective bargaining agreements tiled in accordance with Labor Code Section 1773.8.

3. Patents: The contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnity and save harmless the State of California, The Adjutant General, and all duly authorized representatives, from all suits at law, or actions of every nature for, or on account of the use of any patented materials, equipment, devices, or processes.

x. CONFLICT OF INTEREST

1. Current State Employees:

a. No State officer or employee shall engage in any employment, activity, or enterprise from which the officer or employee receives compensation or has a financial interest, and which is sponsored or funded by any State Agency, unless the employment, activity, or enterprise is required as a condition of regular State employment.

b. No State officer or employee shall contract on his or her own behalf as an independent contractor with any State Agency to provide goods or services.

2. Former State employees:

a. For the two-year period from the date, he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements, or any part of the decision-making process relevant to the contract while employed in any capacity by any State Agency.

b. For twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service. (PCC 10410 and 10411 et seq.)

5. PERFORMANCE, PROSECUTION AND PROGRESS OF WORK

a. The Prime Contractor shall perform on the site, and with its own organization, work equivalent to at least twenty percent (20%) of the total amount of work to be performed under the contract. The Prime Contractor shall provide at all times sufficient competent labor, materials, and equipment to properly carry on the work and to ensure completion within the time agreed.

b. Limitation on Work Site and Premises:

i. The "work site" or "job site" is defined as the area of actual construction and the areas immediately adjacent thereto, as shown on the plans or as specified. The "Premises" is defined as the area of State-owned property which surrounds the job site, limited by the property lines thereat. In some cases, the premises may coincide with the job site.

ii. The contractor shall limit construction operations to the work site unless otherwise shown on the plans or specifications. The contractor shall perform no operations of any nature over or on the premises except such operations as are specifically authorized in the plans or specifications, or as otherwise authorized in writing by the Military Department.

c. Accident Prevention: Precautions shall be exercised at all times for the protection of per-sons (including employees) and property. The contractor shall install adequate safety guards and protective devices for any and all equipment and machinery, whether used in the work or permanently installed as part of the work. The contractor shall comply with all applicable laws relating to safety precautions, including the safety regulations of the Division of Industrial Safety, Department of Industrial Relations, of the State of California.

d. Interpretation of Contract Requirements: The contract documents are intended to be consistent, and to describe and to provide for a complete scope of work. Any requirement occurring in one

document is binding as though occurring in all the contract documents. However, in the event of conflict or discrepancies therein, then the priorities stated below shall govern:

i. Addendum: An Addendum shall govern over all other contract documents. Subsequent addendum's issued shall govern over prior addendum's only to the extent specified.

e. Specifications and Drawings: The contractor shall keep on the work site a copy of the drawings, specifications and any amendments and/or RFI responses and shall at all times give the Procurement and Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of differences between drawings and specifications, the specifications shall govern. In any case of difference in the figures, in the drawings, or in specifications, the matter shall be promptly submitted to the Procurement and Contracting Officer who shall promptly make a determination in writing. Any adjustment by the contractor without this determination shall be at the contractor’s sole risk and expense. The Procurement and Contracting Officer shall furnish from time to time such detail drawing and other information, as he/she may consider necessary, unless otherwise provided.

f. Clarification and Additional Instructions: Should any discrepancies, omission or apparent errors, be found in the contract documents, or should any question arise concerning interpretation or clarification of the contract documents, or if it appears that the work to be done or any matters relative thereto are not sufficiently detailed or explained in the contract documents, then, before proceeding with the work affected, the contractor shall immediately notify the Military Department in writing through the Project Manager and request interpretation, clarification or furnishing of additional detailed instructions concerning the work. All such questions shall be resolved within a reasonable time by the Military Department, whose decision thereon shall become final. Should the contractor proceed with the work affected without giving such notice and time for Military Department response, the contractor may be required by the Military Department to then remove and replace or adjust said work at the contractor's sole cost and expense. The contractor shall be responsible for any damage, defect or added cost resulting from this action.

g. Product and Standards:

i. Product Designation: When descriptive catalogue designations, including product brand name, or model number are referred to in the contract documents, such designations shall be considered as being those found in industry publications of current issue at date of first IFB.

ii. Standards Incorporated by Reference: When standards of the State or Federal Government, trade societies, or trade associations are referred to in the contract documents by specific date of issue, these shall be considered a part of this contract. When such references do not bear a date of issue, the current published edition at date of first invitation to bid shall be considered as part of this contract.

h. Materials, Articles, and Equipment: Materials, articles and equipment furnished shall be new. When the contract documents indicate or require that materials, articles, or equipment are to be furnished but the quality or kind thereof is not specified, shown or indicated, the contractor shall furnish materials, article, or equipment at least equal to the class or quality of similar materials, articles, and equipment which are specified, shown or otherwise indicated. No-claim for additional compensation based on the State's failure to specify or indicate the class, type or quality of materials, articles or equipment will be recognized in any event, unless the contractor makes a clear showing that the contractor could not determine the class, type or quality of materials, articles, and/or equipment.

i. Socio-Economic Programs: (Buy Clean California Act (MM19-01)

   i. Beginning January 1, 2019, awarding authorities will request successful bidders for public works contracts to submit current facility-specific Environmental Product Declarations (EPDs) for all eligible materials.
   ii. Awarding authorities are those identified in PCC § 3501 (a) and state agencies granted authority to work on public works projects under MM 18-01. Eligible materials subject to the EPD requirement are structural steel, carbon steel rebar, flat glass, and mineral wool board insulation.

   iii. Project bid specifications must require that facility specific EPDs are compliant to ISO 14025 and applicable Product Category Rules located on the Department of General Services (DGS) Buy Clean California Act website.

j. Submittal of Shop Drawings and Product Data: The contractor shall submit to the State one (1) electronic and one (1) hard copy of shop drawings and product data for all work for which submittals are specifically required, an electronic copy will be returned to the contractor. All submittals shall be fully identified as to project, agency, locations, work order, contract numbers, and the contractor's firm name. Shop drawings for construction means drawings, submitted to the State by the construction contractor, subcontractor, or any lower tier subcontractor pursuant to a construct, showing in detail (i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment. The State may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

k. Brand or Trade Names and Alternatives: For convenience in designation on the plans or in the specifications, certain materials, articles, or equipment may be designated by a brand or a trade name of the manufacturer together with catalogue designation or other identifying information. Such designation is for descriptive purposes only and does not mean that a particular product has any preference, or that an approved alternative product may not be used. The use of an alternative material, article, or equipment, which is of equal quality and of the required characteristics for the purpose intended, will be permitted if approved by the State in writing. Contractor shall be allowed a period of 35 days after award of the contract in which to submit data substantiating a request for substitution of an equal item, which determination will be by the sole discretion of the Procurement and Contracting Officer.

l. Conduct of Work:

   i. The State reserves the right to do other work in connection with the project or adjacent thereto by contract or otherwise, and the contractor shall at all times conduct its work so as to impose no hardship on the State or others engaged in the work, nor to cause any unreasonable delay or hindrance thereto.

   ii. The contractor shall indemnify, defend, and hold the State harmless for any claims against the State arising from the Contractor's failure to conduct adjust, correct, and coordinate its work with the work of others engaged in the work.

   iii. All construction equipment, including tools, plant, temporary construction elevators, hoist, scaffolding, false work, forms, and centering required for prosecution of the work of this contract, and all labor, power, and signals required for the installation, operation, and maintenance of such equipment shall be provided by the contractor. The contractor shall obtain all necessary measurements for the work and shall check dimensions, levels, and construction lay out and supervise the construction, for correctness of all of which he shall be responsible. Where work of one trade joins or is on other work, there shall be no

discrepancy when same is completed. In engaging work with other materials, marring or damaging some will not be permitted. Should improper work of any trade be covered by another and such improper work results in damage or defects, the whole work affected shall be made good without additional cost to the State. The contractor must anticipate relation of all parts of the work and at the proper time furnish and set anchorage, blocking, or bedding as required.

iv. Materials, articles, and equipment shall be furnished in ample quantities and at such times as to insure uninterrupted progress of the work. They shall be so stored and protected to ensure the preservation of their quality, appearance, and suitability for the work. When stored they shall be so located as to facilitate prompt inspection, and so as to avoid interference with the work of others. The CMD may accommodate the storage of material, but in no event shall the CMD have an obligation to do so. In the event material are stored on site it shall be the contractor's sole responsibility for security of said materials and contractor shall not be compensated for materials except as provided below.

m. Inspection of Records: The contractor agrees that the California Military Department, or the Bureau of Audits or its designated representative, shall have an absolute right of access to all of the contractor's records, files, documents, accounts, and financial affairs as deemed necessary for the purposes of conducting an audit to determine compliance with terms and conditions of this contract. The contractor shall provide the auditor(s) with any relevant information requested without unnecessary delay and, on reasonable notice, permit access to its premises during normal business hours for the purpose of interviewing staff and inspecting and copying such books, records, accounts, and other material as warranted to conduct the audit. The contractor further agrees to maintain such records for a period of three years after final payment is made on this contract or three years after resolution of all issues that may arise as a result of any litigation, claim, negotiation, or audit related to the contract, whichever is later. The state agrees to treat as confidential any proprietary information obtained as a part of any such audit.

n. Samples and Tests:

i. Whenever the contract documents require tests of materials, articles, equipment or other work, the contractor at its expense shall perform all such tests under the supervision of and provide the results to the Military Department. However, the State may test any portion of the work, at its option, any time during the progress of the work, and shall pay the cost thereof. Unless otherwise directed, all samples for testing will be taken by the Project Manager from the material, articles or equipment delivered, or from work performed, and test will be under the supervision of, or directed by, and at such places as may be convenient to the State.

ii. Materials, articles, and equipment requiring tests shall be delivered in ample time before intended use to allow for testing, and none may be used/installed before receipt of written approval by the State. Samples that are of value after testing or review shall remain the property of the State.

o. Rejection: Should any portion of the work done, or any materials delivered fail to comply with requirements of the contract, such work or materials shall be rejected and shall immediately be made satisfactory to the State by the contractor, at no additional expense to the State. Any materials that are rejected shall immediately be removed from the premises at the contractor's expense.

p. Preservation and Cleaning: The contractor having control of the work site shall clean up the work at the end of each day as it progresses. At frequent intervals and at all times when directed, the contractor shall remove and dispose of accumulations of old forms, rubbish, and debris of all

kinds. At the completion of the project, the entire work site including the surrounding premises shall be cleared of tools, false work, equipment, rubbish, etc., and ready for acceptance.

q. Labor:

   i. The contractor shall observe strictly that each and every kind of work shall be per-formed by worker, laborers, or mechanics specially skilled in the class of work required and that workmanship shall be of the best, regardless of the quality of material. Prior to commencement of any work, contractor shall furnish as photographic identification of all staff proposed to work on the site, organized by company or as directed by the Project Manager. Identification shall be provided in electronic copy with a hard copy in a binder for retainage on the site by the appropriate on-site POC. As directed by the Project Manager at the job start meeting on a daily basis the contractor shall make available to the on-site POC a list of staff working on any given day.

   ii. Any agent or employee of the contractor who the State deems incompetent or disorderly shall be promptly removed from the work by the contractor upon written notice from the State and shall not be re-employed on the contract worker premises.

r. Subcontracting:

   i. This contract is subject to the provisions of Chapter 2, Division 5, Title 1, commencing with Section 4100 of the Government Code, which prohibits the subcontracting of the whole or any part of this contract to subcontractors other than those named in the contractor's original proposal.

   ii. The contractor shall be responsible for all work performed under this contract, and no subcontractor will be recognized as such. All persons engaged in the work will be considered as employees of the contractor.

   iii. The contractor shall give personal attention to the fulfillment of this contract and shall keep the work under its control. When any subcontractor fails to prosecute a portion of the work in a manner satisfactory to the State, the contractor shall remove such subcontractor immediately upon written request of the State and shall not thereafter be employed on the work.

   iv. Although the specification sections of this contract may be arranged according to various trades general grouping of work, the contractor is not obligated to sublet the work in such manner. The State will not arbitrate disputes among subcontractors or between the contractor and one or more subcontractors concerning responsibility for performing any part of the work.

      1. Substitutions of SBs and DVBEs

         a. DVBE Subcontractors shall be used per the California Code of Regulations (CCR), Title 2, Section 1896.70 unless a substitution is approved in writing by CMD. A DVBE Subcontractor shall be replaced by another DVBE to perform the work originally stated. The substitution shall maintain, at minimum, the level of participation goal stated in the bid. CCR Title 2, Section 1896.73.

         b. SB Subcontractor shall be replaced per regulations set by CCR Title 2, Section 1896.10.

c. Contractor shall simultaneously notify the CMD SB/DVBE Advocate at Advocate@cmd.ca.gov.

s. Time of Work and Damage:

i. The State will designate the starting day of the contract on which the contractor shall immediately begin and diligently coordinate the work to completion. The period of performance start date will be the job start meeting date which the Contractor and the Project Manager shall conduct within 7 days after receipt of the fully executed contract.

ii. By signing the job start letter, the contractor obligates himself to perform the work completely and satisfactorily on or before the expiration date to be determined from the number of working days stated in the agreement or by stipulated date of completion, plus such days as may be subsequently allowed by the State through amendments.

iii. The contractor shall not be assessed with liquidated damages nor the cost of engineering the inspection during any delay in the completion of the work caused by acts of God, fire, flood, epidemics, quarantine restrictions, freight embargo. Contractor shall notify the State in writing of the causes of delay within five (5) days from the beginning of any such delay.

t. Project Management

i. Contractors may be required to fully participate in the utilization of the CMD Project Management Software commonly referred to as Procore, which specific requirements are further outlined in the contract. This participation shall include but is not limited to Submittals, Daily Logs, Contract Management, RFI's, Drawings, Addenda's, Bulletins, ASI's, Transmittals, Inspections, Inspection Requests, Observations, Punch Lists, As-Builts, Photos, Specifications and any Other Documents that are necessary and pertinent to the efficient and complete performance of the proposed project.

6. CHANGES IN THE WORK

a. Requests for Changes:

i. The State reserves the right to order in writing, changes, alterations, omissions, or additions in the plans and specifications, at any time prior to the formal completion and acceptance of the work without in any way voiding the contract, and the contractor must comply with such order. The contractor may also request changes in the work.

ii. Any change or deviation from the contract plans and specifications made without authority in writing from the Military Department's Procurement and Contracting Officer in the form of an amendment to the original contract will be the sole responsibility of the contractor. Except where otherwise expressly provided in these articles, no such changes shall be made nor adjustment in compensation recognized unless the contractor receives an executed contract amendment prior to making the changes. In cases whereby State property will be damaged during the stoppage of work, the contractor may proceed on a written commitment by the Military Department's Procurement and Contracting Officer.

iii. The contractor shall be entitled to additional compensation for any change requiring labor, materials, or equipment over and above that originally required for the contract work, while any such change resulting in lesser quantities thereof shall entitle the State to a reduction in the contract price.

iv. Changed work shall be performed completely and in accordance with the original contract drawings and specifications except for the deviations specifically called for by the change order. Materials used on changed work shall be as specified in the original contract documents insofar as they do not conflict with the conditions set forth in the change order. All changed work will be prosecuted by the contractor with due diligence, and with an efficiency of labor and equipment at least equal to that exercised as to the rest of the work of the contract. All changed work shall be warrantied as stipulated in 7D.

b. Changed Work, Time Adjustments:

i. For any change in the work, the contractor shall be entitled only to such adjustment in time for which completion of the entire work is delayed due to performance of the changed work. Each estimate for a change in the work submitted by the contractor shall state the amount of extra time that he considers should be allowed for making the requested change. Failure to request extra time when submitting such estimates shall constitute a waiver of the right to subsequently claim any adjustment in the time for final completion based upon such changed work.

ii. If agreement is reached as to the adjustment in compensation for the performance of changed work, but agreement is not reached as to the time adjustment for such work, then the contractor shall proceed with the work at the agreed price, reserving to the contractor the right to further pursue his claim for the time adjustment.

iii. Contractor hereby agrees that compensation for any change work shall be marked up by the Prime contractor no more than 5% for any subcontractor work and no more than 15% for any self-performed work.

c. Supplementary Agreements: As to certain changes in the basic scope of the work, a supplementary agreement shall be executed at the option of the State, such agreement to be executed in the manner of the original agreement, to which the change shall be attached and become a part. The bonds required by Article 3B shall be furnished with such supplementary agreement, covering any increased amount of the contract due to the change.

7. ACCEPTANCE AND PAYMENTS

a. Acceptance: The contracted work shall be accepted by the Military Department when the project is completed in accordance with the contract documents, to the full satisfaction of the California Military Department.

b. Progress Payments: Military Department policy provides that public works projects which allow the contractor 30 working days or more to complete and are estimated to exceed $30,000.00 in value are eligible for progress payments. The contractor may request progress payments during performance of the contracted work. If authorized by the Military Department Procurement and Contracting Officer, progress payments shall not exceed 95% of the value of the completed work unless otherwise stipulated in 23B.

c. Final Payment: Final payment will not be made to the contractor until such time as all punch list items have been completed and the Military Department is in receipt of all expressed manufacturer’s warranties compliance with section 23 and the Project Manager has accepted all required administrative documents. Upon written acceptance of the contractor’s work by the Military Department, the Project Manager shall complete a Contract/Contractor Evaluation Form (Office of Adjutant General Form 4) and forward to the Military Department Contracting Section for final review and approval. Approved Contract/Contractor Evaluation Forms shall be forwarded

to the Military Department Accounts Payable Section where the Contract/Contractor Evaluation Form and the contractor's invoice shall be processed for payment.

d. Guarantee:

i. The contractor hereby unconditionally guarantees that the Work will be done in accordance with the requirements of the contract, and further guarantees the work of the contract to be and remain free of defects in workmanship and materials for a minimum period of one year from the date of acceptance of the contract, unless a longer guarantee period is specifically called for elsewhere in the contract documents. The date of the completed Work shall be defined as the date said Work is accepted in writing by the PM and this date shall be the start of the contractor's warranty period. The contractor hereby agrees to repair or replace any and all work, together with any other adjacent work which may be displaced in so doing, that may prove to be not in accordance with the requirements of the contract or that may be defective in its workmanship or material within the guarantee period specified, without any expense or obligation whatsoever to the State of California, ordinary wear and tear and unusual abuse or neglect excepted.

ii. Contract bonds will remain in full force and effect during the guarantee period. Contractor shall not be relieved of this bond requirement whatsoever.

8. LIQUIDATED DAMAGES

a. The Military Department will designate the starting date of the contract on which the contractor shall immediately begin and thereafter diligently prosecute the work to completion. The Contractor obligates himself/herself to complete the work within the number of working days or on the fixed date established by the Military Department.

b. The parties agree that if the work is not completed and accepted by the Military Department within the time established by the contract document and mutually agreed to by the contractor and the Project Manager prior to the start of work and any time extension agreed to in writing by the Military Department, additional costs will be incurred by the Military Department. These costs include the hourly time spent each day by the Project Manager, Project Engineer, Procurement and Contracting Officer, and the Judge Advocate General.

c. The contractor agrees to compensate the Military Department $1,360.00 per calendar day for each and every day's delay in finishing the work beyond the time prescribed. If the contractor fails to pay such liquidated damage the Military Department shall have the unilateral authority to and will deduct the amount thereof from any money due or that may become due the contractor under this contract.

9. WORKING HOURS

a. The work site shall be available for contractor's activities for 8 hours per day Monday through Friday, work hours shall be 8 am to 4 pm, however at the sole discretion of the Project Manager actual work schedule may be adjusted. The site will not be available for contractor's activities on weekends, or on State or Federal holidays.

10. CONTRACTS FUNDED IN WHOLE/IN PART BY FEDERAL GOVERNMENT

a. It is mutually understood between the parties that this contract may have been executed before ascertaining the availability of congressional appropriation of funds, for the mutual benefit of both parties, in order to avoid program and fiscal delays which would occur if the contract were executed after that determination was made.

b. This contract is valid and enforceable only if the United Stated Government makes sufficient funds available to the State for each fiscal year of the contract. In addition, this contract is subject to any additional restrictions, limitations, or conditions enacted by the Congress or any statute enacted by the Congress, which may affect the provisions, terms or funding of this contract in any manner.

c. It is mutually agreed that if the Congress does not appropriate sufficient funds for the program, this contract shall be amended to reflect any reduction in funds.

d. The department has the option to void the contract under the "30-day" cancellation clause or to amend the contract to reflect any reduction of funds.

11. STANDARD CALIFORNIA NON-DISCRIMINTATION CLAUSE-CONSTURCTION CONTRACT SPECIFICATIONS (Government Code, Section 12990): See the last two pages of this Section.

12. FORCED, CONVICT, AND INDENTURED LABOR

Contractor certifies, by submitting a bid, that no foreign-made equipment, materials, or supplies furnished to the State pursuant to the contract/agreement will be produced in whole or in part by forced labor, convict labor, or indentured labor. The contractor agrees to comply with the requirements of Public Contract Code, Section 6108.

PART 11 FEDERAL STATUTES, RULES, AND REGULATIONS

13. RELATIONSHIP OF THE FEDERAL GOVERNMENT

This contract may be funded in part by the Federal Government. The Federal Government is not a party to this contract, as a condition to receiving and expending Federal funds, there are certain rights of Federal inspection, Federal approval of contract changes and modifications, and Federal approval of settlements or dispute actions that the Federal Government will exercise prior to authorization of Federal funds. Therefore, no inspection or acceptance, change, modification, settlement, dispute claim payment, or dispute action will be considered binding until the required Federal approval is obtained. The chief, National Guard Bureau, or its designated representative, is the approval authority. This paragraph does not abrogate any rights conferred on the Federal Government by law or other clause required due to the use of Federal funding.

14. CHANGES AND EXTRAS

The Procurement and Contracting Officer may at any time, in writing and without notice to the sureties; order extras or make changes in the drawings and/or specifications of this contract, providing such extras or changes are within the general scope thereof. If any such extra or change causes an increase or decrease in the amount due under this contract, or in the time required for its performance, an equitable adjustment shall be made, and the contract shall be modified in writing. Federal Funding support for any change or extra is subject to prior approval by the Chief, National Guard Bureau, or his duly authorized representative. Any claim of the contractor for adjustment under this clause must be asserted in writing within 30 days after the date of receipt by the contractor of the notification extra or change Provided, however, that the Procurement and Contracting Officer, decides that the facts justify such action, may receive and act upon any such claim asserted at any time prior to the date of the final settlement of the contract. If the parties fail to agree upon the adjustment to be made, the dispute shall be determined as provided in the Clause 19 hereof entitled DISPUTES. Nothing provided in this clause, however, shall excuse the contractor from diligently proceeding with the prosecution of the work as changed. Except as otherwise herein provided, no charge for any extra work or material will be allowed.

15. CHANGED CONDITIONS

The Contractor shall promptly, and before such conditions are disturbed, notify the Procurement and Contracting Officer in writing of (1) subsurface or latent physical conditions at the site differing materially from those indicated in this contract, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in this contract. The Procurement and Contracting Officer shall promptly investigate the conditions, and if he/she finds that such conditions do so materially differ and cause an increase or decrease in the cost of (or the time required for), performance of this contract, an equitable adjustment shall be made, and the contract modified in writing. Federal funding support to any change or extra is subject prior approval by the chief, National Guard Bureau, or his duly authorized representative. Any claim of the contractor for adjustment hereunder shall not be allowed unless he has given notice as required above. The Procurement and Contracting Officer, however, may if he determines the facts so justify, consider and adjust any such claim asserted before the date of final settlement of the contract. If the parties fail to agree upon the adjustment to be made, the dispute shall be determined as provided in Clause 19 hereof entitled Disputes.

16. SUPSENSION OF WORK

a. The Procurement and Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Procurement and Contracting Officer determines appropriate for the convenience of the Government.

b. If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted

    i. by an act of the Procurement and Contracting Officer in the administration of this contract, or

    ii. by the Procurement and Contracting Officer's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract.

c. A claim under this clause shall not be allowed

    i. for any costs incurred more than 20 days before the Contractor shall have notified the Procurement and Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and

    ii. unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

17. STOP WORK ORDER

a. The Procurement and Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the

parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work order is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Procurement and Contracting Officer shall either—

i. Cancel the stop-work order; or

ii. Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

b. If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Procurement and Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if—

i. The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

ii. The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage; provided, that, if the Procurement and Contracting Officer decides the facts justify the action, the Procurement and Contracting Officer may receive and act upon a proposal submitted at any time before final payment under this contract.

c. If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Procurement and Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

d. If a stop-work order is not canceled and the work covered by the order is terminated for default, the Procurement and Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop work order.

18. CHANGES

(a) The Procurement and Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes— (1) In the specifications (including drawings and designs); (2) In the method or manner of performance of the work; (3) In the Government-furnished facilities, equipment, materials, services, or site; or (4) Directing acceleration in the performance of the work. (b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Procurement and Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Procurement and Contracting Officer written notice stating (1) the date, circumstances, and source of the order and (2) that the Contractor regards the order as a change order. (c) Except as provided in this clause, no order, statement, or conduct of the Procurement and Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment. (d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Procurement and Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the

Contractor in attempting to comply with the defective specifications. (e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Procurement and Contracting Officer a written statement describing the general nature and amount of proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above. (f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

19. DISPUTES

Except as otherwise specifically provided in this contract, any dispute concerning a question of fact arising under this contract, which is not disposed of by mutual agreement, shall be decided by the California Military Department Procurement and Contracting Officer (PCO), who shall reduce any decision to writing and send a copy to the contractor by certified mail-return receipt requested, to the address shown herein. The contractor shall have the right to appeal the PCO's decision, which must be exercised within thirty (30) days of service of the PCO's written decision. The contractor's appeal must be in writing to the California Military Department Director, The Adjutant General of California (TAG). TAG, at their discretion, may grant the appeal and conduct a hearing pursuant to the Administrative Procedures Act or refer the appeal to the Office of Administrative Hearings (OAH). If a decision is made to use the services of OAH, each side shall equally share OAH costs. If TAG denies the appeal or if no action is taken on the appeal within thirty (30) days of CMD's receipt of the appeal, CMD shall issue a Notice of Right to Sue to contractor. An individual at the rank of Colonel (0-6) or above may be designated by TAG to resolve appeals under this contract. Pending final decision of a dispute hereunder, the contractor shall proceed diligently with the performance of the contract and in accordance with the Procurement and Contracting Officer's decision.

20. TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

(a) The Government may terminate performance of work under this contract in whole or, from time to time, in part if the Procurement and Contracting Officer determines that a termination is in the Government's interest. The Procurement and Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.
(b) After receipt of a Notice of Termination, and except as directed by the Procurement and Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:
(1) Stop work as specified in the notice.
(2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.
(3) Terminate all subcontracts to the extent they relate to the work terminated.
(4) Assign to the Government, as directed by the Procurement and Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Government shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.
(5) With approval or ratification to the extent required by the Procurement and Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.
(6) As directed by the Procurement and Contracting Officer, transfer title and deliver to the Government (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Government.
(7) Complete performance of the work not terminated.

(8) Take any action that may be necessary, or that the Procurement and Contracting Officer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Government has or may acquire an interest.
(9) Use its best efforts to sell, as directed or authorized by the Procurement and Contracting Officer, any property of the types referred to in subparagraph (6) above; provided, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Procurement and Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Government under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Procurement and Contracting Officer.
(c) After expiration of the plant clearance period which means the period beginning on the effective date of contract completion or termination and ending 90 days (or such longer period as may be agreed to) after receipt by the Procurement and Contracting Officer of acceptable inventory schedules for each property classification. The Contractor may submit to the Procurement and Contracting Officer a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the Procurement and Contracting Officer. The Contractor may request the Government to remove those items or enter into an agreement for their storage. Within 15 days, the Government will accept title to those items and remove them or enter into a storage agreement. The Procurement and Contracting Officer may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.
(d) After termination, the Contractor shall submit a final termination settlement proposal to the Procurement and Contracting Officer in the form and with the certification prescribed by the Procurement and Contracting Officer. The Contractor shall submit the proposal promptly, but no later than 1 year from the effective date of termination, unless extended in writing by the Procurement and Contracting Officer upon written request of the Contractor within this 1-year period. However, if the Procurement and Contracting Officer determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Procurement and Contracting Officer may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.
(e) Subject to paragraph (d) above, the Contractor and the Procurement and Contracting Officer may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (e) or paragraph (f) below, exclusive of costs shown in subparagraph (f)(3) below, may not exceed the total contract price as reduced by (a) the number of payments previously made and (2) the contract price of work not terminated. The contract shall be amended, and the Contractor paid the agreed amount. Paragraph (f) below shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.
(f) If the Contractor and the Procurement and Contracting Officer fail to agree on the whole amount to be paid because of the termination of work, the Procurement and Contracting Officer shall pay the Contractor the amounts determined by the Procurement and Contracting Officer as follows, but without duplication of any amounts agreed on under paragraph (e) above:
(1) The contract price for completed supplies or services accepted by the Government (or sold or acquired under subparagraph (b)(9) above) not previously paid for, adjusted for any saving of freight and other charges.
(2) The total of—
(i) The costs incurred in the performance of the work terminated, including initial costs and preparatory expense allocable thereto, but excluding any costs attributable to supplies or services paid or to be paid under subparagraph (f)(1) above;
(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (i) above; and
(iii) A sum, as profit on subdivision (i) above, determined by the Procurement and Contracting Officer is in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Procurement and

Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.
(3) The reasonable costs of settlement of the work terminated, including—
(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;
(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and
(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition or the termination inventory.
(g) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Procurement and Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (f) above, the fair value, as determined by the Procurement and Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer. (h) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Procurement and Contracting Officer under paragraph (d), (f), or (k), except that if the Contractor failed to submit the termination settlement proposal within the time provided in paragraph (d) or (k), and failed to request a time extension, there is no right of appeal. If the Procurement and Contracting Officer has made a determination of the amount due under paragraph (d), (f), or (k), the Government shall pay the Contractor (1) the amount determined by the Procurement and Contracting Officer if there is no right of appeal or if no timely appeal has been taken, or (2) the amount finally determined on an appeal.
(i) In arriving at the amount due the Contractor under this clause, there shall be deducted—
(1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract.
(2) Any claim which the Government has against the Contractor under this contract; and
(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.
(k) If the termination is partial, the Contractor may file a proposal with the Procurement and Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Procurement and Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Procurement and Contracting Officer.
(l) (1) The Government may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract if the Procurement and Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.
(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the State of California. Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Procurement and Contracting Officer because of the circumstances.
(m) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Procurement and Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

21. DEFAULT FIXED-PRICE CONSTRUCTION

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to

complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.
(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if-
(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include-
(i) Acts of God or of the public enemy,
(ii) Acts of the Government in either its sovereign or contractual capacity,
(iii) Acts of another Contractor in the performance of a contract with the Government,
(iv) Fires,
(v) Floods,
(vi) Epidemics,
(vii) Quarantine restrictions,
(viii) Strikes,
(ix) Freight embargoes,
(x) Unusually severe weather, or
(xi) Delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and
(2) The Contractor, within 10 days from the beginning of any delay (unless extended by the Procurement and Contracting Officer), notifies the Procurement and Contracting Officer in writing of the causes of delay. The Procurement and Contracting Officer shall ascertain the facts and the extent of delay. If, in the judgment of the Procurement and Contracting Officer, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Procurement and Contracting Officer shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.
(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Government.
(d) The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

22. TERMINATION FOR DEFAULT-DAMAGES OR DELAY-TIME EXTENSIONS

a. If the contractor refuses or fails to prosecute the work, or any separable part thereof, with such diligence as will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within such time, the State may, by written notice to the contractor, terminate his right to proceed with the work or such part of the work as to which there has been delay. In such event the State may take over the work and prosecute the same to completion, by contract or otherwise, and the contractor and his sureties shall be liable to the State for any excess cost occasioned the State thereby, and for liquidated damages for delay, as fixed in the specifications or accompanying papers, until such reasonable time as may be required for final completion of the work; or if liquidated damages are not so fixed, any actual damages occasioned by such delay. If the contractor's right to proceed is so terminated, the State may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and therefore necessary.

b. If the State does not terminate the right of the contractor to proceed, as provided in subparagraph (A) hereof, the contractor shall continue the work, in which event he and his sureties shall be liable to the State, in the amount set forth in the specifications or accompanying papers, for the

fixed, agreed, liquidated damages for each calendar day of delay until the work is completed or accepted: or if liquidated damages are not so fixed, any actual damages occasioned by such delay.

c. The right of the contractor to proceed shall not be terminated, as provided in subparagraph (A) hereof, not the contractor charged with liquidated or actual damages, as provided in subparagraph (B), because of any delays in the completion of the work due to causes beyond his control which could not reasonably have been anticipated and were without his fault or negligence, including, but not restricted to, acts of God, acts of the public enemy, acts of the Government or the State (either in its sovereign or contractual capacity), acts of another contractor in the performance of a contract with the State quarantine restrictions, strikes, freight embargoes, or unusually severe weather; or, delays of subcontractors or suppliers due to such unforeseeable causes beyond the control and without the fault or negligence of both the contractor and such subcontractors or suppliers at any tier; provided, that the contractor shall, within 10 days after the beginning of any such delay, unless the Procurement and Contracting Officer shall grant a further period of time prior to the date of final settlement of the contract, notify the Procurement and Contracting Officer in writing of the causes of delay. The Procurement and Contracting Officer shall ascertain the facts as to the extent of the delay and decide whether or not to extend the time for completing the work. When in the Procurement and Contracting Officer's judgment, the findings of fact justify such an extension, and Procurement and Contracting Officer's findings of fact thereon shall be final and conclusive on the parties hereto, subject only to appeal as provided in the DISPUTES clause hereof.

23. PAYMENTS TO CONTRACTORS

a. Unless otherwise provided in the specifications, partial payments may be made as the work progresses at the end of each calendar month, or as soon thereafter as practicable, on work completed and approved by the Procurement and Contracting Officer. The Military Department shall make partial payments on materials only once they have been installed not just delivered to the work site.

b. In making such partial payments there shall be retained five (5) percent on the estimated amount until final completion and acceptance of all work covered by the contract. Provided, however that on completion and acceptance of any separated building, public work, or other division of the contract on which the price is stated separately in the contract, payment may be made in full, including the retained percentage therein, less authorized deductions. The retainage on partial payments of Federal funds shall be determined by the United States Property and Fiscal Officer (USPFO) of the State in conformance with the Defense Acquisition Regulations (DAR).

c. All material and work covered by partial payments made shall thereupon become the sole property of the State, but this provision shall not be construed as relieving the contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work, nor as a waiver of the right of the State to require the fulfillment of all of the terms or the contract or such time as the Military Department accepts the entire Work as defined in the contract.

d. Upon completion and acceptance of all Work required hereunder, and after the contractor shall have furnished the State with a release of all claims against the State arising under and by virtue of this contract, other than such claims, if any, as may be specifically excepted by the contractor from the operation of the release, in stated amount to be set forth therein, the amount due the contractor under this contract will be paid upon the presentation of a properly executed and duly certified voucher. If the contractor's claim to amounts payable under the contract has been assigned under the Assignment of Claims Act of 1940, as amended (41 U.S.C, 15), a release

may also be required of the assignee at the option of the Procurement and Contracting Officer or USPFO of the State.

24. MATERIAL AND WORKMANSHIP

Unless otherwise specifically provided for in the specification, all equipment, materials, and articles incorporated in the work covered by this contract are to be new and of the most suitable grade of their respective kinds for the purpose intended and all workmanship shall be first class. Where equipment, materials, or articles are referred to in the specifications as "equal to" any particular standard, the Procurement and Contracting Officer shall solely decide the question of equality. The contractor shall furnish to the Procurement and Contracting Officer for approval the name of the manufacturer of machinery, mechanical and other equipment, which is contemplated to be incorporated in the work, together with the performance capacities and other pertinent information. When required by the specifications, or when called for by the Procurement and Contracting Officer, the contractor shall furnish to the Procurement and Contracting Officer for approval full information concerning the materials or articles, which is contemplated for incorporation in the work. Samples of materials shall be submitted for approval when so directed. Machinery, equipment, materials, and articles installed or used without such approval shall be at the risk of subsequent rejection. The Procurement and Contracting Officer may in writing require the contractor to remove from the work site such employee as the Procurement and Contracting Officer deems incompetent, careless, insubordinate, or otherwise objectionable, or whose continued employment on the work site is deemed by the Procurement and Contracting Officer to be contrary to the public interest.

25. INSPECTION

a. Except as otherwise provided in subparagraph (D) hereof, all material and workmanship shall be subject to inspection, examination, and testing by representatives of the Procurement and Contracting Officer at any and all times during manufacture and/or construction (and at any and all places where such manufacture and/or construction are carried on). The State shall have the right to reject defective material and workmanship or require its correction. Rejected workmanship shall be satisfactorily corrected and rejected material shall be replaced with proper material without charge and the contractor shall promptly segregate and remove rejected material from the premises. No extension of the contract will be granted for rejected work. If the contractor fails to proceed at once with the replacement of rejected material and/or the correction of defective workmanship, the State may, by contract or otherwise, replace such material and/or correct such workmanship and charge the cost thereof to the contractor, or the State may terminate the right of the contractor to proceed as provided in Clause 17 of this contract, the contractor and surety being liable for any damage to the same extent as provided in said Clause 17 for termination.

b. The contractor shall furnish promptly, without additional charge, all reasonable facilities, labor and materials necessary for the safe and convenient inspections and tests that may be required by the Procurement and Contracting Officer or by the USPFO of the State. All inspections and tests by the State shall be performed in such manner as not unnecessarily to delay the work. Special, full size, and performance tests shall be as described in the specifications. The contractor will be charged with any additional cost of the inspection when material and workmanship is not ready at the time inspection is requested by the contractor. Compensation shall be in full day increments and no less than that stipulated in 8 C above.

c. Should it be considered necessary or advisable by the State, or by the representatives of the Chief, National Guard Bureau, at any time before final acceptance of the entire work to make an examination of the work already completed, by removing or tearing out same, the contractor shall on request promptly furnish all necessary facilities, labor, and material to accomplish such inspection. If such work is found to be defective or non-conforming in any material respect due to the fault of the contractor or a subcontractor, the contractor shall bear all the expenses of such

examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, an equitable adjustment shall be made in the contract price to compensate the contractor for the additional services involved in such examination and reconstruction: and, if completion of the work has been delayed thereby, the contractor shall, in addition, be granted a suitable extension of time. Federal funding support of the cost for examination and replacement of satisfactorily completed work that requires removal or that is damaged due to inspection requirements is subject to prior approval by the Chief, National Guard Bureau, or a duly authorized representative.

d. In the sole discretion of the Military Department inspection of material and finished articles to be incorporated in the work at the site shall be made at the place of production, manufacture, or shipment, whenever the quantity justifies it, unless otherwise stated in the specifications; and such inspection and acceptance shall be in writing, and unless otherwise stated in the specifications, shall be final, except as regards latent defects, departures from specific requirements of the contract and the specifications and drawings made a part thereof, damage or loss in transit, fraud, or such gross mistakes as amount to fraud. Subject to the requirement contained in the preceding sentence, the inspection of material and workmanship for final acceptance as a whole or in part, shall be made at the site. Nothing contained in this paragraph (D) shall in any way restrict the State's rights under any warranty or guarantee.

26. SUPERINTENDENT BY CONTRACTOR

The Job Superintendent must be present anytime work is being performed on the job site. The Job Site Superintendent must be appointed in writing and must have full authority to act on behalf of the prime contractor.

27. UTILITY PERMITS AND RESPONSIBILITY FOR WORK

The contractor shall, without additional expense to the State, obtain all licenses and permits required for the prosecution of the work and pay all charges related to the connection of utility services to existing systems. The contractor shall be responsible for all damages to persons or property that occurs as a result of his/her fault or negligence in connection with the prosecution of the work. The contractor shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The contractor shall also be responsible for all materials delivered and work performed until completion and final acceptance, except for any completed unit thereof which therefore may have been finally accepted.

28. OTHER CONTRACTS

The State may undertake or award other contracts for additional work in or around the work areas and the contractor shall fully cooperate with such other contractors and State employees and carefully fit its own work to such additional work as may be directed by the Procurement and Contracting Officer. The contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by State employees.

29. ADDITIONAL BOND SECURITY

If any surety upon any bond furnished in connection with this contract becomes unacceptable to the State, or if any such surety shall fail to furnish reports as to the contractor's financial condition from time to time as requested by the State, the contractor shall promptly furnish such additional security as may be required from time to time to protect the interests of the State or of persons supplying labor or materials in the prosecution of the work contemplated by the contract.

30. COVENANT AGAINST CONTINGENT FEES

The contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the contractor for the purpose of securing business. For breach or violation of this warranty the State shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration the full amount of such commission, percentage, brokerage, or contingent fee.

31. OFFICIALS TO BENEFIT

No member of or delegate to Congress, State Legislation or resident commissioner or State official or employee shall be admitted to any share or part of this contract, or to any benefit that may arise from it; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

32. CONVICT LABOR

In connection with the performance of work under this contract, the contractor agrees not to employ any person undergoing sentence of imprisonment, as provided by Public Law 89-176, September 10, 1965 (18 USC 4082 (c) (2)) and executive order 11755, December 29, 1973.

33. GRATUITIES

a. The State may, by written notice to the contractor, terminate the right of the contractor to proceed under this contract if it is found, after notice and hearing, by the Secretary or Governor or the duly authorized representative of either, that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the contractor, or any agent or representative of the contractor, to any officer or employee of the State with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performance, of such contract: Provided, that the existence of the facts upon which the Secretary or Governor or the duly authorized representative of either makes such findings shall be in issue and may be reviewed in any competent court.

b. In the event this contract is terminated as provided in paragraph (A) hereof, the State shall be entitled (1) to pursue the same remedies against the contractor as it could pursue in the event of breach of the contract by the contractor, and (2) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the Secretary or Governor or the duly authorized representative of either) which shall be not less than 3 nor more than 10 times the costs incurred by the contractor in providing any such gratuities to any such officer or employee.

c. The rights and remedies of the State provided in this Clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

34. COPELAND ("ANTI-KICKBACK") ACT NON-REBATE OF WAGES

The regulations of the Secretary of Labor applicable to contractors and subcontractors (29 CFR, Part 3), made pursuant to the Copeland Act, as amended (40 U.S.C. 276c) and to aide in the enforcement of the Anti-Kickback Act (18 U.S.C. 874) are made a part of this contract by reference. The contractor will comply with these regulations and any amendments or modifications thereof and the prime contractor will be responsible for the submission of affidavits required of subcontractors. The foregoing shall apply except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances, and exemptions.

35. WITHHOLDING OF FUNDS

a. The Procurement and Contracting Officer may withhold or cause to be withheld from the State prime contractor so much of the accrued payment or advances as may be considered necessary (i) to pay laborers and mechanics, including apprentices, trainees, watchmen, and guards, employed by the contractor or any subcontractor on the work the full amount of wages required by the contract, and (ii) to satisfy any liability of the contractor and any subcontractor for liquidated damages under paragraph (B) of the Clause entitled Contract Work Hours and Safety Standards Act - Overtime Compensation.

b. If the contractor or any subcontractor fails to pay any laborer, mechanic, apprentice, trainee, watchman, or guard employed or working on the site of the work, all or part of the wages required by the contract, the Procurement and Contracting Officer may, after written notice to the State prime contractor, take such action as may be necessary to cause suspension of any further payments or advances until such violations have ceased.

36. DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of the labor standards provisions of this contract shall be subject to the Disputes Clause except to the extent such disputes involve the meaning of classification or wage rates contained in the wage determination decision of the Secretary of Labor or the applicability of the labor provisions of this contract which questions shall be referred to the Secretary of Labor in accordance with the procedures of the Department of Labor.

37. SUBCONTRACTS-TERMINATION

The contractor agrees to insert the clauses hereof entitled Prevailing Wage - Labor Code Sections 1775 to 1780 inclusive, provide access to the Payrolls and Basic Records by the Fair Employment Practice Commission, Copeland ("Anti-Kickback") Act-Non-Rebate of Wages, Withholding of Funds and Subcontracts-Termination physically in all subcontracts and the contractor further agrees that a breach of any of the requirements of these Clauses may be grounds for termination of this contract. The term "contractor" as used in such clauses in any subcontract shall be deemed to refer to the subcontractor except in the phrase "prime contractor."

38. EQUAL OPPORTUNITY (See paragraphs 4, B 2 and G 1 through 13; Standard California Nondiscrimination Construction Contract Specifications (GOV. Code Section 12990))

39. CERTIFICATION OF NON-SEGREGATED FACILITIES

(Applicable to contracts, subcontracts, and to agreements with applicants who are themselves performing Federally assisted construction contracts, exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause). By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in the Contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis

of race, color, religion or national origin, because of habit, local custom or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause: that he will retain such certifications in his files" and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSE¬GREGATED FACILITIES: A certification of Non-segregated Facilities must be submitted prior to award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

40. CLEAN AIR AND WATER

(Applicable only it the contract exceeds $100,000, or the Procurement and Contracting Officer has determined that orders under an indefinite quantity contract in any one year will exceed $100,000, or a facility to be used has been the subject of a conviction under the Clean Air Act (42 U.S.C. 1 857c-8(c)(1)) or the Federal Water Pollution Control Act (33 U.S.C 1 31 9(c)) and is listed by EPA, or the contract is not otherwise exempt.)

a. The bidder or offeror certifies as follows:

   i. Any facility to be utilized in the performance of this proposed contract is ( ), is not ( ), listed on the Environmental Protection Agency List of Violating Facilities:

   ii. The bidder/offeror will promptly notify the Procurement and Contracting Officer, prior to award, or the receipt of any communication from the Director, Office of Federal Activities, U.S. Environment Protection Agency, indicating that any facility which is proposes for use for during the performance of the contract is under consideration to be listed on the EPA List Violating Facilities: and

   iii. The bidder/offeror will include substantially this solicitation certification, including this paragraph (iii), in every nonexempt subcontract.

b. The terms used in this clause have the following meanings:

   i. The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Public Law 91-604).

   ii. The Term "Water Act" means the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Public Law 92-500).

   iii. The term "clean air standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive order 11738, an applicable implementation plan as described in section 110(d) of the Clean Air Act (42 U.S.C. 1875c-5(d)), an approved implementation procedure or plan under section 111(c) or section 111(d), respectively, of the Air Act 942 U.S.C. 1 875c-6(c) or (d)), or an approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 1875c-7(d)).

iv. The term "clean water standards" means any enforceable limitation, control, condition, prohibition, standard or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharge by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by a local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).

v. The term "compliance" means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency or an air or water pollution control agency in accordance with the requirement of the Air Act or Water Act and regulations issued pursuant thereto.

vi. The term "facility" means any building, plant, installation, structure, mine, vessel or other floating craft location, or site of operations, owned, leased, or supervised by a contractor, subcontractor, to be utilized in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be facility except where the Director, Office of Federal Activities, environmental Protection Agency, determines that independent facilities are co-located in one geographical area.

vii. The term "nonexempt contract or subcontract" means a contract or subcontract of more than $100,000 which is not otherwise exempted pursuant to the EPA regulations implementing the Air Act and Water Act (40 CFR 15.5), as further implemented in ASP R 1 -2302.4 or in FPR 1-1.230204 (whichever is applicable) and the procedures of the Department awarding the contract.

41. AUDIT BY DEPARTMENT OF DEFENSE

a. The contractor will permit access to the contractor's records of employment, employment advertisements, application forms, and other pertinent data and records by the National Guard Bureau Representative, the awarding authority or any other appropriate agency of the State of California designated by the awarding authority, for the purposes of investigation to ascertain compliance with the Fair Employment Practices section of this contract. In additional to employment records, the Contractor will permit access to the following documentation:

b. Examination of Cost: If this is a cost reimbursement type, incentive, time and materials, labor hour, or price re-determinable contract, or any combination thereof, the contractor shall maintain, and the Procurement and Contracting Officer or his representatives shall have the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of this contract. Such right of examination shall include inspection at all reasonable times of the contractor's plants, or such parts thereof, as may be engaged in the performance of this contract.

c. Cost and Pricing Data. If the contractor submitted cost or pricing data in connection with the pricing of this contract or any change or modification thereto, unless such pricing was based on adequate price competition, established catalog of market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation, the Procurement and Contracting Officer or his representatives who are employees of the State of California (or representatives listed above) shall have the right to examine all books, records, documents and other data of the contractor related to the negotiation, pricing or performance of such contract,

change or modification, for the purpose of evaluating the accuracy, completeness and currency of the cost or pricing data submitted

d. Reports. If the contractor is required to furnish Contractor Cost Data Reports (CCDR) Contract Fund Status Reports (CFSR), or Cost Performance Reports (CPR) the Procurement and Contracting Officer or his representatives shall have the right to examine books, records, other documents, and supporting materials, for the purpose of evaluating (i) the effectiveness of the contractor's policies and procedures to produce data compatible with the objectives of these reports, and (ii) the data reported.

e. Availability. The materials described in (B), and (C) above shall be made available at the office of the contractor, at all reasonable times, for inspection, audit, or reproduction, until the expiration of three (3) years from the date of final payment under this contract.

f. The contractor shall insert a clause containing all the provisions of this Clause, including this paragraph (D), in all subcontracts hereunder, except altered as necessary for proper identification of the contracting parties and the Procurement and Contracting Officer under the State prime contract.

42. SUBCONTRACTOR COST OR PRICING DATA-PRICE ADJUSTMENT

The contractor shall require subcontractors to certify that to the best of their knowledge and belief the cost and pricing data submitted is accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract change of modification.

43. BUY AMERICAN ACT

a. Agreement: In accordance with the Buy American Act (41 U.S.C. 1Oa-10d) the contractor agrees that only domestic construction material will be used (by the contractor, subcontractor, and suppliers) in the performance of this contract, except for non-domestic construction material listed in the "Non-domestic Construction Materials" clause, if any, of this contract.

b. Domestic Construction Material: "Construction material" means any article, material, or supply brought to the construction site for incorporation in the building or work. A non-manufactured construction material is a "domestic construction material" if it has been mined or produced in the United States. A manufactured construction material is a "domestic construction material" if it has been manufactured in the United States and if the cost of its components which have been mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. "Component" means any article, material, or supply directly incorporated in a construction material.

c. Domestic Component: A component shall be considered to have been "mined, produced, or manufactured in the United States" (regardless of its source in fact) if the article, material, or supply in which it is incorporated was manufactured in the United States and the component is of a class or kind determined by the government to be not mined, produced, or manufactured in the United States in sufficient and reasonable available commercial quantities and of satisfactory quality.

d. Submittals that are not in compliance with the Buy American Act and provided to the government for approval are invalid and hereby rejected. If the government or its representative inadvertently approves a submittal and materials are installed and finished, the contractor is still “At Fault”. Contractors may not be paid for work, rework or material acquisition for materials installed that do not comply with the Buy American Act, even if they were approved by the government. *Exception: The government may issue an exception however that exception must specifically address this

paragraph and release the specified unauthorized material into the contract on a case-by-case basis. An exception will be granted for each piece of material not by phase, trade or the entire project itself.

44. BUY CLEAN CALIFORNIA ACT

In accordance with the Buy Clean California Act, Contractors shall submit current facility-specific Environmental Product Declarations (EPDs) for all eligible materials and ensure EPDs are compliant to ISO 14025 and applicable Product Category Rules located on the Department of General Services (DGS) Buy Clean California Act website located at: https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Buy-Clean-California-Act. Contractors shall collect the data on all structural steel (hot-rolled sections, hollow structural sections, and plate), carbon steel rebar, flat glass, and mineral wool board insulation. The data will be submitted using the attached form the excel sheet you attached, name it and attach it and required as part of the projects close out documents.

45. DEFINITIONS

As used throughout this contract, the following terms shall have the meaning set forth below:

a. The term "Procurement and Contracting Officer" means the person executing this contract on behalf of the State and any other officer or civilian employee who is properly designated Procurement and Contracting Officer (PCO) and the term includes, except as otherwise provided in this contract, the authorized representative of a Procurement and Contracting Officer acting within the limits of his authority.

b. The term "Government" means the United States and any Department head thereof,

c. The term "State" means the State, Commonwealth, or Territory, which is the party to this contract.

d. The term "Governor" means the Governor of the State or a duly appointed representative (other than the Procurement and Contracting Officer).

e. The term "USPFO" means the United States Property and Fiscal Officer assigned to the State

46. SITE INVESTIGATION

The contractor acknowledges that the contractor has investigated and is satisfied as to the conditions affecting the work, including but not restricted to not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, river stages, tides, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecution of the work. The contractor further acknowledges that it is satisfied as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the State, as well as from information presented by the drawings and specifications made a part of this contract. Any failure by the contractor be acquainted with the available information will not relieve the contractor from responsibility for estimating properly the difficulty of cost of successfully performing the work. The State assumes no responsibility for any conclusions or interpretations made by the contractor on the basis of the information made available by the State.

47. PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, AND IMPROVEMENTS

a. The contractor will preserve and protect all existing vegetation such as trees, shrubs, and grass on or adjacent to the site of work which is not to be removed and which does not unreasonably interfere with the construction work. Care will be taken in removing trees authorized for removal to avoid damage to vegetation to remain in place. Any limbs or branches of trees broken during such operations or by the careless operation of equipment, or by workmen, shall be trimmed with a clean cut and painted with an approved tree pruning compound as directed by the Procurement and Contracting Officer.

b. The contractor will protect from damage all existing improvements or utilities at or near the site of the work, the location of which to be made known to him/her and will repair or restore any damage to such facilities resulting from failure to comply with the requirements of this contract or the failure to exercise reasonable care in the performance of the work. If the contractor fails or refuses to repair any such damage promptly, the Procurement and Contracting Officer may have the necessary work performed and charge the cost thereof to the contractor.

48. OPERATIONS AND STORAGE AREAS

a. All operations of the contractor (including storage of materials) upon State premises shall be confined to areas authorized or approved by the Procurement and Contracting Officer. The contractor shall hold and save the State, its officers, and agents free and harmless from liability of any nature occasioned by his operations.

b. Temporary building (storage sheds, shops, offices, etc.) may be erected by the contractor only with the approval of the Procurement and Contracting Officer and shall be bunt with labor and materials furnished by the contractor without expense to the State. Such temporary buildings and utilities shall remain the property of the contractor and shall be removed by the contractor at the contractor's expense upon the completion of work. With the written consent of the Procurement and Contracting Officer, such buildings and utilities may be abandoned and need not be removed.

c. The contractor shall, under regulations prescribed by the Procurement and Contracting Officer, use only established roadways or construct and use such temporary roadways as may be authorized by the Procurement and Contracting Officer. Where materials are transported in the prosecution of the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State or local law or regulation. When it is necessary to cross curbing or sidewalks, the contractor shall provide protection against damage and any damaged roads, curbing, or sidewalks shall be repaired by or at the expense of the contractor.

49. MODIFICATION PROPOSALS-PRICE BREAKDOWN

The contractor, in connection with any proposal he/she makes for a contract modification, shall furnish a price breakdown, itemized as required by the Procurement and Contracting Officer. Unless otherwise directed, the breakdown shall be in sufficient detail to permit an analysis of all material, labor equipment, subcontract, and overhead cost, as well as profit, and shall cover all work involved in the modification, whether such work was deleted, added or changed. Any amount claimed for subcontracts shall be supported by a similar price breakdown. In addition, if the proposal includes a time extension, a justification shall also be furnished. The proposal, together with the price breakdown and time extension Justification, shall be furnished by the date specified by the Procurement and Contracting Officer.

50. CLEANING UP

The contractor shall at all times keep the construction area, including storage areas used by him, free from accumulations of waste material or rubbish and prior to completion of the work remove any rubbish from the premises and all tools, scaffolding, equipment, and materials not the property of the State. Upon

completion of the construction the contractor shall leave the work and premises in a clean, neat, and workmanlike condition satisfactory to the Procurement and Contracting Officer.

51. INSPECTIONS

The work will be conducted under the general direction of the Procurement and Contracting Officer and is subject to inspection by his appointed inspectors to ensure strict compliance with the terms of the contract. No inspector is authorized to change any provision of the specifications without written authorization of the Procurement and Contracting Officer, nor shall the presence or absence of an inspector relieve the contractor from any requirement of the contract.

52. RECYCLING CERTIFICATION

The Contractor shall certify in writing under penalty of perjury, the minimum, if not exact, percentage of recycled content, both post-consumer waste and secondary waste as defined in the Public Contract Code, Sections 12161 and 12200, in materials, goods, or supplies offered or products used in the performance of this Agreement, regardless of whether the product meets the required recycled product percentage as defined in the Public Contract Code, Sections 12161 and 12200. Contractor may certify that the product contains zero recycled content (PCC 10233, 10308.5, 10354).

53. CHILD SUPPORT COMPLIANCE ACT

For any contract in excess of $100,000.00, the contractor acknowledges in accordance with, that:

a. The contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with Section 5200) of Part 5 of Division 9 of the Family Code; and

b. The contractor, to the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

54. BIOBASED PRODUCT CERTIFICATION

As required by the Farm Security and Rural Investment Act of 2002 and the Energy Policy Act of 2005 (7 U.S.C.8102(c)(3)), the offeror certifies, by signing this offer, that biobased products (within categories of products listed by the United States Department of Agriculture in 7 CFR part 3201,subpart B) to be used or delivered in the performance of the contract, other than biobased products that are not purchased by the offeror as a direct result of this contract, will comply with the applicable specifications or other contractual requirements.

55. AFFIRMATIVE PROCUREMENT OF BIOBASED PRODUCTS UNDER SERVICE AND CONSTRUCTION CONTRACTS

(a) In the performance of this contract, the contractor shall make maximum use of biobased products that are United States Department of Agriculture (USDA)-designated items unless— (1) The product cannot be acquired (i) Competitively within a time frame providing for compliance with the contract performance schedule; (ii) Meeting contract performance requirements; or (iii) At a reasonable price. (2) The product is to be used in an application covered by a USDA categorical exemption (see 7 CFR 3201.3(e)). For example, all USDA-designated items are exempt from the preferred procurement requirement for the following: (i) Spacecraft system and launch support equipment. (ii) Military equipment, i.e., a product or system designed or procured for combat or combat-related missions. (b) Information about this

requirement and these products is available at http://www.biopreferred.gov. (c) In the performance of this contract, the Contractor shall— (1) Report to http://www.sam.gov, with a copy to the Procurement and Contracting Officer, on the product types and dollar value of any USDA-designated biobased products purchased by the Contractor during the previous Government fiscal year, between October 1 and September 30; and (2) Submit this report no later than— (i) October 31 of each year during contract performance and (ii) At the end of contract performance.

56. HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA

(a) "Hazardous material," as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).
(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.
(c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous. (d) The apparently successful offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered non-responsible and ineligible for award. (e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall promptly notify the Procurement and Contracting Officer and resubmit the data. (f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property. (g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material. (h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows: (1) To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to— (i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials; (ii) Obtain medical treatment for those affected by the material; and (iii) Have others use, duplicate, and disclose the data for the Government for these purposes. (2) To use, duplicate, and disclose data furnished under this clause, in accordance with paragraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data. (3) The Government is not precluded from using similar or identical data acquired from other sources.

57. RECOVERED MATERIAL CERTIFICATION

As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6962(c)(3)(A)(i)), the offeror certifies, by signing this offer, that the percentage of recovered materials content for EPA-designated items to be delivered or used in the performance of the contract will be at least the amount required by the applicable contract specifications or other contractual requirements.

58. POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION

a. Definitions. As used in this clause— "Toxic chemical" means a chemical or chemical category listed in 40 CFR 372.65.

b. Federal facilities are required to comply with the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11001-11050), and the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13101-13109).

c. The Contractor shall provide all information needed by the Federal facility to comply with the following:

   i. The emergency planning reporting requirements of Section 302 of EPCRA.

   ii. The emergency notice requirements of Section 304 of EPCRA.

   iii. The list of Material Safety Data Sheets, required by Section 311 of EPCRA.

   iv. The emergency and hazardous chemical inventory forms of Section 312 of EPCRA.

   v. The toxic chemical release inventory of Section 313 of EPCRA, which includes the reduction and recycling information required by Section 6607 of PPA.

   vi. The toxic chemical and hazardous substance release and use reduction goals of section 2(e) of Executive Order 13423 and of Executive Order 13514.

59. ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA-ESIGNATED ITEMS

"Postconsumer material" means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of "recovered material." "Recovered material" means waste materials and by-products recovered or diverted from solid waste, but the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process. (b) The Contractor, on completion of this contract, shall— (1) Estimate the percentage of the total recovered material content for EPA-designated item(s) delivered and/or used in contract performance, including, if applicable, the percentage of post-consumer material and (2) Submit this estimate to the Project Manager.

60. WASTE REDUCTION PROGRAM

"Recycling" means the series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of products other than fuel for producing heat or power by combustion. "Waste prevention" means any change in the design, manufacturing, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they are discarded. Waste prevention also refers to the reuse of products or materials. "Waste reduction" means preventing or decreasing the amount of waste being generated through waste prevention, recycling, or purchasing recycled and environmentally preferable products. (b) Consistent with the requirements of section 3(e) of Executive Order 13423, the Contractor shall establish a program to promote cost-effective waste reduction in all operations and facilities covered by this contract. The Contractor's programs shall comply with applicable Federal, State, and local requirements, specifically including Section 6002 of the Resource Conservation and Recovery Act (42 U.S.C. 6962, et seq.) and implementing regulations (40 CFR Part 247).

61. OZONE-DEPLETING SUBSTANCES

"Ozone-depleting substance," as used in this clause, means any substance the Environmental Protection Agency designates in 40 CFR Part 82 as— (1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or (2) Class II, including, but not limited to,

hydrochlorofluorocarbons. (b) The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U.S.C. 7671j (b), (c), and (d) and 40 CFR Part 82, Subpart E, as follows:

WARNING:
Contains (or manufactured with, if applicable) *_____, a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere. * The Contractor shall insert the name of the substance(s).

62. REFRIGERATION EQUIPMENT AND AIR CONDITIONERS

The Contractor shall comply with the applicable requirements of Sections 608 and 609 of the Clean Air Act (42 U.S.C. 7671g and 7671h) as each or both apply to this contract.

63. ENERGY EFFICIENCY IN ENERGY-CONSUMING PRODUCTS

As used in this clause— "Energy-efficient product"— (1) Means a product that— (i) Meets Department of Energy and Environmental Protection Agency criteria for use of the Energy Star trademark label; or (ii) Is in the upper 25 percent of efficiency for all similar products as designated by the Department of Energy's Federal Energy Management Program. (2) The term "product" does not include any energy consuming product or system designed or procured for combat or combat-related missions (42 U.S.C. 8259b). (b) The Contractor shall ensure that energy-consuming products are energy efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are— (1) Delivered; (2) Acquired by the Contractor for use in performing services at a Federally-controlled facility; (3) Furnished by the Contractor for use by the Government; or (4) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance. (c) The requirements of paragraph (b) apply to the Contractor (including any subcontractor) unless— (1) The energy-consuming product is not listed in the ENERGY STAR® Program or FEMP; or (2) Otherwise approved in writing by the Procurement and Contracting Officer. (d) Information about these products is available for— (1) ENERGY STAR® at http://www.energystar.gov/products; and (2) FEMP at http://www1.eere.energy.gov/femp/procurement/eep_requirements.html.

64. IEEE 1680 STANDARD FOR THE ENVIRONMENTAL ASSESSMENTAL ASSESSMENT OF PERSONAL COMPUTER PRODUCTS

"Computer monitor" means a video display unit used with a computer. "Desktop computer" means a computer designed for use on a desk or table. "Notebook computer" means a portable-style or lap top style computer system. "Personal computer product" means a notebook computer, a desktop computer, or a computer monitor, and any peripheral equipment that is integral to the operation of such items. For example, the desktop computer together with the keyboard, the mouse, and the power cord would be a personal computer product. Printers, copiers, and fax machines are not included in peripheral equipment, as used in this definition. (b) Under this contract, the Contractor shall deliver, furnish for Government use, or furnish for contractor use at a Government-owned facility, only personal computer products that at the time of submission of proposals were EPEAT Bronze registered or higher. Bronze is the first level discussed in Clause 1.4 of the IEEE 1680 Standard for the Environmental Assessment of Personal Computer Products. (c) For information about the standard, see www.epeat.net.

65. AFFIRMATIVE PROCUREMENT OF EPA-DESIGNATED ITEMS IN SERVICE AND CONSTRUCTION CONTRACTS

(a) In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired; (1) Competitively within a timeframe providing for compliance with the contract performance schedule; (2) Meeting contract performance requirements; or (3) At a reasonable price. (b) Information about this

requirement is available at EPA's Comprehensive Procurement Guidelines web site http://www.epa.gov/cpg/. The list of EPA-designated items is available at http://www.epa.gov/cpg/products.htm.

66. COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT SYSTEMS

a. The Contractor's work under this contract shall conform with all operational controls identified in the applicable agency or facility Environmental Management Systems and provide monitoring and measurement information necessary for the Government to address environmental performance relative to the goals of the Environmental Management Systems.

b. Bidders must comply with the Buy Clean California Act (BCCA) (Public Contract Code Sections 3500-3505), which states the Department of General Services (DGS), in consultation with the California Air Resources Board (CARB), is required to establish and publish the maximum acceptable Global Warming Potential (GWP) limit for four eligible materials. The BCCA targets carbon emissions associated with the production of structural steel (hot-rolled sections, hollow structural sections, and plate), concrete reinforcing steel, flat glass, and mineral wool board insulation. When used in public works projects, these eligible materials must have a GWP that does not exceed the limit set by DGS.

c. Contractor agrees to recognize the mandatory standards and policies relating to BCCA and will provide GWP limit compliance of eligible materials using Environmental Products Declarations (EPDs). Maximum acceptable GWP limits were established on January 1, 2022 and can be found in the GWP Limits section Buy Clean California Act.

67. SUSPENSION AND DISBARMENT

By entering in this contract your firm and its principals certifies that it has not been suspended or disbarred from any Federal contracts and does not appear on the Excluded Parties List System (EPLS). In addition, your company certifies that all your organization's subcontractors and its principals have not been suspended or disbarred from any Federal contracts and does not appear on the Excluded Parties List System (EPLS).

68. EXPATRIATE CORPORATIONS

Contractor hereby declares that it is not an expatriate corporation or subsidiary of an expatriate corporation within the meaning of PCC Section 10286 and 10286.1 and is eligible to contract with the State.

69. EXECUTIVE ORDER N-6-22 – RUSSIA SANCTIONS

On March 4, 2022, Governor Gavin Newsom issued Executive Order N-6-22 (the EO) regarding Economic Sanctions against Russia and Russian entities and individuals. "Economic Sanctions" refers to sanctions imposed by the U.S. government in response to Russia's actions in Ukraine, as well as any sanctions imposed under state law. The EO directs state agencies to terminate contracts with, and to refrain from entering any new contracts with, individuals or entities that are determined to be a target of Economic Sanctions. Accordingly, should the State determine Contractor is a target of Economic Sanctions or is conducting prohibited transactions with sanctioned individuals or entities, that shall be grounds for termination of this agreement. The State shall provide Contractor advance written notice of such termination, allowing Contractor at least 30 calendar days to provide a written response. Termination shall be at the sole discretion of the State.

END OF EXHIBIT D

EXHIBIT E
(Special Contract Provisions)

1. Prior to any performance by the Contractor, evidence of insurance must be returned to the California Military Department with the signed contracts. Refer to Exhibit F, for further information regarding State of California insurance requirements.

2. Contractor acknowledges the contract will be signed and returned within 10 business days. No contract will be binding upon the State until the Contractor receives a fully executed contract that is signed and approved by the Military Department.

3. Contractor shall contact the Project Manager (PM) to schedule the job start meeting. The period of performance start date will be the job start meeting date in which the Contractor and the PM shall conduct within 7 days after receipt of the fully executed contract and issuance of the Notice to Proceed.

4. When required, the Contractor shall furnish the California Military Department with a payment bond in the full amount of the agreement, executed by a California-admitted surety (CCP § 995.311.) insurer utilizing the bond form provided by the State. Form can be downloaded here: https://www.documents.dgs.ca.gov/dgs/fmc/pdf/std807.pdf.

   Payment Bond can be emailed to: PWC@cmd.ca.gov
   Subject Line = 130887 | Payment Bond

5. When required, the Contractor shall furnish the California Military Department with a performance bond in the full amount of the agreement, executed by a California-admitted surety (CCP § 995.311.) insurer utilizing a bond form provided by the surety.

   Performance Bond can be emailed to: PWC@cmd.ca.gov
   Subject Line = 130887 | Performance Bond

   a. Bonds must identify the owner as:
      California Military Department
      10601 Bear Hollow Drive
      Rancho Cordova, California 95670-6350

6. Contractor shall provide the California Military Department with all material submittals specified in the Technical Specifications of this contract within ten (10) working days after the job start meeting date. Thirty-five (35) days will be allowed for submission of data substantiating a request for substitution of an “equal” item.

CONTRACTOR QUALIFICATIONS

The Contractor is licensed by the California Contractors State License Board to perform this type of work. The Contractor possesses the B - General Building Contractor and a C-22 - Asbestos Abatement Contractor license. Subcontractor(s) may not be added or substituted without the California Military Department Procurement and Contracting Officer (PCO) approval.

END OF EXHIBIT E

EXHIBIT F
(Insurance Liability Section)

Basic Insurance Requirement:

1. General Provisions Applying to All Policies

   a. Coverage term – Coverage needs to be in force for the complete term of the contract. If insurance expires during the term of the contract, a new certificate must be received by the State at least ten (10) days prior to the expiration of this insurance. Any new insurance must still comply with the original terms of the contract.

   b. Policy Cancellation of Termination and Notice of Non-Renewal – Contractor shall provide to the State within five (5) business days following receipt by contractor a copy of any cancellation or non-renewal of insurance required by this contract. In the event the contractor fails to keep in effect at all times the specified insurance coverage, the State may, in addition to any other remedies it may have, terminate this contract upon the occurrence of such event, subject to the provisions of this Contract.

   c. Deductible – Contractor is responsible for any deductible or self-insured retention contained within their insurance program.

   d. Primary Clause – Any required insurance contained in the Contract shall be primary, and not excess or contributory to any other insurance carried by the State.

   e. Insurance Carrier Required Rating – All insurance companies must carry a rating acceptable to the Office of Risk and Insurance Management. If the contractor is self-insured for a portion or all of its insurance, review of financial information including a letter of credit may be required.

   f. Endorsements – Any required endorsement must be physically attached to all requested certificates of insurance and not substituted by referring to such coverage on the certificate of insurance.

   g. Inadequate Insurance – Inadequate of lack of insurance does not negate the contractor's obligations under the Contract.

2. Insurance Requirements

   a. Commercial General Liability – Contractor shall maintain general liability on an occurrence form with limits not less than $1,000,000 per occurrence and $2,000,000 aggregate for bodily injury and property damage liability. The policy must include coverage for liabilities arising out of premises operations, independent contractors, products/completed operations, personal & advertising injury, and liability assumed under an insured contract. This insurance shall apply separately to each insured against whom claim is made or suit is brought subject to the Contractor's limit of liability. The policy must include:

      Military Department, State of California, its officers, agents, and employees are included as additional insured, but only with respect to work performed under this contract.

      This endorsement must be supplied under form acceptable to the Office of Risk and Insurance Management.

In the case of Contractor's utilization of subcontractors to complete the contracted scope of work, contractors shall include all subcontractors as insureds under Contractor's insurance or supply evidence of insurance to the State equal to policies, coverage and limits required of Contractor.

b. Automobile Liability - Contractor shall maintain motor vehicle liability with limits not less than $1,000,000 combined single limit per accident.

The same additional insured designation and endorsement required for general liability is to be provided for this coverage.

c. Workers' Compensation and Employers' Liability – Contractor shall maintain statutory workers' compensation and employers' liability for all its employees who will be engaged in the performance of the contract. Employers' liability limits of $1,000,000 are required.

When is performed on State owned or controlled property the workers' compensation policy shall contain a waiver of subrogation in favor of the State. The waiver of subrogation endorsement shall be provided.

3. Terms of Policy (breakdown in accordance with the above requirements):

a. Minimum limit of coverage of the policy shall be:

(1) Vehicle Liability (BI & PD): $1,000,000 per occurrence
(2) Public Liability: $1,000,000 per occurrence / $2,000,000 Aggregate
(3) Workers Compensation: Statutory

b. State shall not be responsible for premiums or assessments on the policy.

c. The Military Department, The State of California, its officers, agents, and employees are included as additional insured, but only with respect to work performed under this contract.

d. The Certificate Holder section of the COI shall include the following language:

California Military Department
10601 Bear Hollow Drive
Rancho Cordova, California 95670-6350
Reference: Agreement Number 130887

NOTE: THE ENDORSEMENT SHEET MUST INCLUDE THE LANGUAGE AS WRITTEN IN PARAGRAPH c. ABOVE.

Certificate of Insurance can be emailed to: PWC@cmd.ca.gov
Subject Line = 130887 | Insurance Certificate

The above certifications must be provided to the Military Department upon request of the Military Department's Procurement and Contracting Officer and emailed to the address above.

END OF EXHIBIT F



CALIFORNIA MILITARY DEPARTMENT
CA Facilities Engineering

CAMP ROBERTS
BARRACKS RENOVATION
for 4209, 5006, and 6108

CAMP ROBERTS
Highway 101
Camp Roberts
San Miguel, California 93451

PROJECT MANUAL

MAY 2019

DOCUMENT 00 01 15

SEALS PAGE

ARCHITECT
Nick Giannini, Licensed Architect
California Military Department
9800 Goethe Road
Sacramento, Ca 95827

MECHANICAL ENGINEER
Mike Slavensky, Licensed Mechanical Engineer
California Military Department
9800 Goethe Road
Sacramento, Ca 95827

Electrical Engineer
Parviz Karami, Unlicensed
California Military Department
9800 Goethe Road
Sacramento, Ca 95827

END OF DOCUMENT

DOCUMENT 00 01 10

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END OF DOCUMENT

SECTION 01_10_00

SUMMARY

PART 1 GENERAL

1. SCOPE

   A. The work consists of furnishing all equipment, materials, plant and labor necessary to accomplish the following:

      1. Furnish and install all materials and labor required to renovate the existing barracks at the Camp Roberts, replace the interior and exterior doors, siding, HVAC, renovate restrooms, install new laundry room, lighting and install a fire alarm system at Camp Roberts located in San Miguel, California as shown on these plans and as described in the specifications.

      2. Any materials that are suitable for recycling shall be recycled**.**

   B. Accomplish all work in accordance with the drawings and specifications contained herein.

   C. Accomplish all work in accordance with International Building Code (2015 Edition).

   D. Perform the above-mentioned work at the Camp Roberts, 11200 Highway 1, San Miguel, California, 90720.

   E. For additional general requirements, please refer to Appendix D of the Executed Contract in place of this section in the specifications.

2. CONTRACTING OFFICER'S REPRESENTATIVE

   A. Wherever in these specifications the abbreviation COR is referenced, it shall be the same as if the term Contracting Officer's Representative is referenced.

3. ENGINEER/CONSTRUCTION INSPECTOR

   A. Wherever the specifications direct the Contractor to the ENGINEER/CONSTRUCTION INSPECTOR (ECI) for appropriate determination, the Contractor will direct his inquiries to the State Military Department, 9800 Goethe Road, P.O. Box 269101, Sacramento, California 95826, ATTN: CAFE-EN Quality Control. Phone: (916) 854-3546.

4. CONTRACTOR'S RESPONSIBILITY

   A. Nothing contained in these specifications shall relieve the contractor from the responsibility of visiting the site, accurately measuring the work or otherwise insuring that the quantities used in preparing his bid are the actual quantities of the work to be accomplished under the contract. By submitting a bid the contractor confirms that he has visited the aforementioned site and verifies that the quantities used in preparing his bid are the actual quantities of the work to be accomplished under the contract.

B. The Contractor shall maintain a competent foreman, English speaking, to continuously supervise the work, with authority to discard unsuitable materials and remove unsatisfactory workmen from the project.

5. VEHICLE MOVEMENT

A. The following applies to all vehicles, except emergency vehicles responding to an emergency:

1. Vehicles shall observe posted speed limits on post at all times. Vehicles operated when in close proximity to military vehicles or buildings shall not exceed 5 MPH maximum.

2. Vehicles will not be backed without a ground guide.

3. All vehicles which do not require the engine to be running for contract purposes will have the ignition turned off and the parking brake set and the vehicle's transmission placed in park.

6. CONTRACTOR'S STORAGE AREA AND PERSONNEL

A. The COR will designate an area that the contractor may use as a storage area. The contractor shall contact the COR for information regarding parking areas to be used for contractors equipment and by contractor personnel and any restrictions that will be placed on contractor personnel while on the job site.

7. TEMPORARY FACILITIES

A. Water and electric power are available free of charge at the site. Contractor shall make arrangements with the COR for providing separate portable toilets for staff and construction workers per OHSA standard 1926.51 and any additional requirements shall be identified at the time of the construction start meeting.

8. MATERIAL SUBMITTALS

A. Contractor shall submit to the Project Manager for approval, one (1) copy in writing, of a complete list of material submittals and equipment to accomplish the work specified.

B. Submittals shall comply with Section 01 33 00 of these specifications. Transmit submittals (from Submittal List) on Submittal Log (the list and a blank log is provided after Section 01 33 00).

C. Project Manager must receive submittals for Specification identified materials (no substitutions permitted) within ten (10) working days after receiving the "Proposed Contract" for signature.

D. Receipt of Submittals that substitute an "or equal" are required within fifteen (15) days after date of Contract Agreement.

E. Do not start work until Project Manager approves all project submittals, issues special instructions, and a "Notice of Award" is received from the Contracting Officer.

9. APPROVAL OF PROCEDURES

A. The manufacturer's recommended installation procedures and these specifications, will serve as a basis for inspection and acceptance or rejection of actual installation procedures used on the work.

B. Project Drawings are valid for construction only when stamped, signed and approved for construction by the Architect/Engineer(s) of Record.

i. Project Specifications are valid for construction when:

1. The cover sheet is dated and signed by the engineer of record, and

2. ALL included Sections bear dates on or before that shown on the signed cover sheet.

a. ORDINANCES AND REGULATIONS

All work shall be accomplished in accordance with all local, State and Federal regulations. Permits and fees shall be the responsibility of the contractor at no additional cost to the Government.

b. WORKING HOURS

i. The work site will be available for contractor's activities from 8:00 a.m. until 4:30 p.m. Monday through Friday. The site will not be available for contractor's activities on weekends and State or Federal holidays.

ii. The Contractor shall receive written approval from the Project Manager before implementing any form of compressed or alternative work schedule.

iii. Contractor shall schedule operations so as not to conflict with airfield operations.

c. SCHEDULING AND INSPECTION

i. Within fifteen (15) calendar days after receipt of Notice to Proceed, and before commencing work, the contractor shall submit in writing to the Project Manager for approval, the complete scope of work and the procedures and sequence required to complete the work.

ii. The contractor shall work directly with the COR and ECI on work scheduling and inspection procedures prior to starting any work.

d. AS-BUILT DRAWINGS

The contractor shall provide one (1) electronic set and two (2) full and accurate hardcopy sets of as-built drawings per Specification Sections 01 33 00 and 01 70 00, for the work accomplished by all trades for this contract marked up in a neat and understandable manner, submitted to the COR upon completion of the work and prior to issuance of a Certificate of Completion.

PART 2 PRODUCTS

e. MATERIALS

All materials for use under this project shall meet or exceed the standards of quality hereinafter set forth.

PART 3 EXECUTION

f. QUALITY CONTROL

To insure proper project quality control and required record keeping, contractor shall comply with Section 01 45 00.

g. CONTRACT CLOSEOUT

Contract closeout requires contractor compliance with Section 01 70 00.

END OF SECTION

SECTION 01 26 13
REQUESTS FOR INFORMATION (RFI)

PART 1 - GENERAL

1.1 SUMMARY

A. Section specifies administrative and procedural requirements for handling and processing Requests for Information (RFI).

B. RFI is intended for requesting clarifications and interpretations of Contract Documents due to apparent inconsistencies, errors or omissions in Contract Documents, and due to unanticipated existing conditions.

C. RFI is not intended for requesting substitutions, Contractor's proposed changes, resolution of nonconforming work or for general questions not related to Contract Documents.

D. RFI process is intended to be a cooperative effort between Architect and Contractor to expedite responses to RFIs and maintain progress of Work without utilizing other lengthy procedures.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REQUESTS FOR INFORMATION

A. Review of Contract Documents and Field Conditions:
   1. Contract Documents are complementary; therefore, before starting each portion of Work, carefully study and compare various Drawings, Specifications and any other Contract Documents, coordination drawings, shop drawings, prior correspondence or documentation relative to that portion of Work, as well as information furnished by CMD.
   2. Contractor and Subcontractors shall evaluate and take field measurements of any existing conditions related to that portion of Work and shall observe any conditions at site affecting Work.
   3. Contractor and subcontractors acknowledge that all documents pertaining to Work has been examined, have examined character of site and any existing conditions, and are satisfied with nature of Work, and all other matters which can in any way affect Work.
   4. In event of inconsistency between portions of Contract Documents or within Contract Documents; provide better quality or greater quantity of Work, and comply with more stringent requirement, either or both in accordance with Architect's interpretation.
   5. Any errors, inconsistencies or omissions discovered in Contract Documents shall be reported promptly to Architect as a properly prepared and timely RFI.

6. Contractor and Subcontractors are not required to ascertain Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, and rules and regulations, unless they bear upon construction means, methods, techniques or safety and health precautions, but any nonconformity discovered by or made known shall be reported promptly as a RFI.
7. If Contractor or Subcontractor fail to give such notice, and knowingly proceeds with Work affected by errors or omissions in Contract Documents, Contractor shall correct any such errors, inconsistencies, or omissions at no additional cost.

B. Contractor's and Subcontractor's Responsibilities:
1. When interpretation, clarification or explanation of portion of Construction Documents is needed by Contractor, Subcontractor, Vendor or Supplier, the request shall be processed through Contractor:
   a. Review request for completeness, quality, proper referencing to drawing or specification section and reason submitted.
   b. If request is not acceptable it shall be sent back to submitter with comments regarding reason for being returned.
   c. Make every attempt to validate, resolve or respond to RFI by thoroughly researching and reviewing Contract Documents and field conditions.
   d. Respond to RFI accordingly if review of RFI discloses a response or is related to coordination of construction or other issue not related to Contract Documents.
   e. If unable to respond to request, it shall be restated in clear, concise, correct, complete and easily understood manner, and rewritten if necessary, additional information included if necessary, and only then submitted to Architect for response.
2. Request for interpretation, clarification or explanation of Contract Documents shall be submitted to CMD in writing:
   a. List specific Contract Documents reviewed when seeking information being requested.
   b. Reference all applicable Contract Drawings by sheet number, section, detail, room number, door number, etc., Specifications by section and paragraph number, and reference any other relevant documents.
   c. The field titled "Regarding" on attached RFI form must be clear for future reference in reports or correspondence.
   d. Clearly state request and provide Contract Document references and any additional information needed so request can be fully understood, including sketches, photos or other reference material.
   e. Fully assess issues, suggest any reasonable solutions and include various factors, including potential costs, schedule impacts, if any, and recommendations which will aid in determining a solution or response. If a reasonable solution cannot be suggested, a statement to that effect should be so stated.
   f. Indicate reason request is being submitted.
   g. Any critical RFI's requiring a rapid response shall clearly indicate such with an explanation as to why RFI is critical.
   h. Priority for responses shall be indicated when multiple RFI's are submitted within short period of time.
3. Copies of responses to RFI's shall be distributed to all parties affected.
4. A response to RFI shall not be considered a notice to proceed with a change that may revise the Contract Sum or Contract Time, unless authorized by CMD in writing.
5. If response to RFI is determined incomplete, it shall be resubmitted with reason response is unacceptable and any necessary additional information within five (5) days of time of receipt of response to RFI.

6. If determined or believed that additional cost or time is involved because of clarifications, interpretations or instructions issued by Architect in response to a RFI, resubmit RFI within five (5) days of receipt of response with reason and alternate solution or suggestion for performing work at no additional cost. If no other solution is possible or desirable, submit Claim in accordance with the Contract Documents with in twenty-one (21) days of receipt of response to the RFI.

C. RFI Submittal Format:
   1. Request for information shall be submitted to Architect on RFI form provided at end of this section, or form provided by Architect in electronic text file format, or in similar format acceptable to Architect:
      a. RFI's shall be assigned unique numbers in sequential order (1, 2, 3, 4, etc.).
      b. A resubmitted RFI or a previously answered RFI requiring revising or further clarification shall be submitted using original RFI number proceeded by ".1" to indicate revision one of RFI (i.e.: RFI No. 34.1 for revision 1 to RFI No. 34).
      c. RFI form shall be electronically filled out and emailed to Architect's designated representative in text file format. Attachments shall be in electronic text or PDF file format. Photo attachments may be in JPG format.

D. Architect's Response to Request for Information (RFI):
   1. Clarifications, interpretations and decisions of Architect in response to RFI will be consistent with intent of and reasonably inferable from Contract Documents, and will be in writing, and if determined to be necessary by Architect, will be provided in form of drawings and other attachments or both.
   2. When making such interpretations and initial decisions, Architect will endeavor to secure faithful performance by both CMD and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.
   3. Architect's decisions on matters related to aesthetic effects will be final if consistent with intent expressed in Contract Documents.
   4. Architect will not undertake to settle differences between Contractor, Subcontractors, trades suppliers, fabricator or manufacturer, or act as arbiter as to which Subcontractor, trade, supplier or manufacturer is to furnish or install various items indicated or required.
   5. Architect shall provide responses to RFI's with reasonable promptness, but will endeavor to respond within twenty-one (21) days from date of receipt:
      a. If multiple RFI's are submitted on same day or within a five (5) day period, review time may be extended by mutual agreement of parties
      b. Architect will provide a written response to RFI if Architect believes response only involves an interpretation, clarification, supplemental information or orders a minor change in Work not involving an adjustment in Contract Sum or extension of Contract Time, and is not inconsistent with intent of Contract Documents, and shall be binding.
      c. If Architect believes response may result in a change to Contract Sum or Contract Time, response will indicate that a change document will be issued for the response, and appropriate change document will be issued indicating changes to Contract Documents.
      d. Architect will provide any additional or supplemental drawings, specifications or other information as Architect may deem necessary to facilitate response.

6. Architect may return RFI without response for following reasons:
    a. Unclear.
    b. Incomplete.
    c. Detailed information not provided.
    d. Is related to construction means, methods or techniques.
    e. Is related to health or safety measures.
    f. Is due to Contractor's lack of adequate coordination.
    g. Is considered a "Substitution Request."
    h. Is due to non-conformance.
    i. Response is required by another party.

E. If requested information is available from careful study and comparison of Contract Documents, field conditions, other CMD-provided information, coordination drawings, or prior Project correspondence or documentation, Architect may invoice CMD as a change in services for costs involved in Architect's review, analysis, responding and processing of such RFI:
    1. Contractor shall reimburse CMD for such costs.

END OF SECTION

SECTION 01 30 00

ADMISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination and Project conditions.

B. Site mobilization meeting.

C. Closeout meeting.

D. Alteration procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of various Sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify that utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.

C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit as closely as practical; place runs parallel with lines of building. Use spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
   1. Coordination Drawings: Prepare as required to coordinate all portions of Work. Show relationship and integration of different construction elements that require coordination during fabrication or installation to fit in space provided or to function as intended. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are important.

D. Coordination Meetings: In addition to other meetings specified in this Section, hold coordination meetings with personnel and Subcontractors to ensure coordination of Work.

E. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owner's occupancy.

G. After Owner's occupancy of premises, coordinate access to Site for correction of defective Work and Work not complying with Contract Documents, to minimize disruption of Owner's activities.

1.3 SITE MOBILIZATION MEETING

A. Project Manager will schedule and preside over meeting at Project Site prior to Contractor occupancy.

B. Attendance Required: Project Manager, Architect/Engineer, Contractor, major Subcontractors, and Inspector of Record.

C. Minimum Agenda:
1. Use of premises by Owner and Contractor.
2. Owner's requirements for occupancy.
3. Construction facilities and controls provided by Owner.
4. Temporary utilities provided by Contractor.
5. Security and housekeeping procedures.
6. Schedules.
7. Procedures for testing.
8. Procedures for maintaining record documents.
9. Requirements for startup of equipment.
10. Inspection and acceptance of equipment put into service during construction period.

D. Project Manager: Record minutes and distribute copies to participants within two days after meeting, with one copies each to Architect/Engineer, and those affected by decisions made.

1.4 CLOSEOUT MEETING

A. Schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion. Preside over meeting and be responsible for minutes.

B. Attendance Required: Contractor, Project Manager, Inspector of Record and Architect/Engineer, and others appropriate to agenda.

C. Notify Facility Representative five days in advance of meeting date.

D. Minimum Agenda:
1. Start-up of facilities and systems.
2. Operations and maintenance manuals.
3. Testing, adjusting, and balancing.
4. System demonstration and observation.
5. Operation and maintenance instructions for Owner's personnel.
6. Contractor's inspection of Work.
7. Contractor's preparation of an initial "punch list."
8. Procedure to request Architect/Engineer inspection to determine date of Substantial Completion.
9. Completion time for correcting deficiencies.

10. Inspections by authorities having jurisdiction.
11. Certificate of Occupancy and transfer of insurance responsibilities.
12. Partial release of retainage.
13. Final cleaning.
14. Preparation for final inspection.
15. Closeout Submittals:
    a. Project record documents.
    b. Operating and maintenance documents.
    c. Operating and maintenance materials.
    d. Affidavits.
16. Final Application for Payment.
17. Contractor's demobilization of Site.
18. Maintenance.

E. Record minutes and distribute copies to participants within two days after meeting, with one copy each to Architect/Engineer, and those affected by decisions made.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 ALTERATION PROCEDURES

A. Employ skilled and experienced installer to perform alteration and renovation Work.

B. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surface and remove surface finishes to permit installation of new Work and finishes.

E. Close openings in exterior surfaces to protect existing Work from weather and extremes of temperature and humidity.

F. Where new Work abuts or aligns with existing Work, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

G. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing other imperfections.

END OF SECTION

SECTION 01 31 19

PROJECT MEETINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Preconstruction conference.
   2. Weekly Contractor meetings.
   3. Weekly coordination meetings.
   4. Preinstallation conferences.

1.2 PRECONSTRUCTION CONFERENCE

A. Location
   1. A preconstruction conference will be held at the Work Site.
   2. Location, time, and date will be set by Project Manager.

B. Contractor and major subcontractors shall attend the conference.

C. The meeting will be chaired by the Project Manager and minutes taken by the Contractor or their Representative.

D. The subjects to be reviewed include, but are not limited to:
   1. Introduction.
   2. Construction Coordination.
   3. Correspondence.
   4. Submittals.
   5. Permits.
   6. Dust Control.
   7. Schedule.
   8. Survey Control.
   9. Contractor's Representative.
   10. Testing and Inspection.
   11. Contractor Reporting Requirements.
   12. Changes and Clarifications.
   13. Clean-up.
   14. As-Built Documents.
   15. Prevailing Wage Requirements.
   16. Environmental Protection, Plan and Procedures.
   17. Temporary Facilities Construction.
   18. Notice of Labor Disputes.
   19. Progress Payments.
   20. Site Regulations.
   21. Security.
   22. Operation and Maintenance Data.
   23. Training Requirements.
   24. General Discussion.

1.3 WEEKLY CONTRACTOR MEETINGS

A. Once a week during the Contract period, Contractor shall meet at the Work Site with the Project Manager.

B. Time and location of the meeting will be determined during the Preconstruction Conference.

C. The Project Manager will serve as chairman and take minutes of meetings.

D. Topics for discussion will include schedule, requests for information, disputed items, Potential Change Order (PCO) and Change Order (CO) status, Quality control, submittals, exception notices, and other topics as required.

1.4 WEEKLY COORDINATION MEETINGS

A. Once a week during the Contract period, the Contractor along with the contractors for other Bid Packages shall meet at the Work Site with the Project Manager.

B. Time and location of the meetings will be determined by the Project Manager.

C. The Project Manager will serve as chairman and take minutes of meetings.

D. Topics for discussion will include upcoming closures, coordination of construction activities, and other topics of interest to all parties.

1.5 PREINSTALLATION CONFERENCES

A. Convene a preinstallation conference for items of Work contained in each Division of the Specifications, each trade within the Division, and each subcontractor within the Division.
   1. Convene a preinstallation conference prior to commencing the Work of the Section, trade, or subcontractor.
   2. Require attendance of each subcontractor and each trade directly affecting or affected by the Work within the Division.
   3. Convene additional conferences when required by individual Section.
   4. Prepare an agenda, preside over the conference, and record minutes, and distribute copies within two days after the conference to participants, with two copies to the Project Manager.
   5. Review conditions of installation, coordination, preparation, approved submittals, Contract Documents, and means and methods planned to be used to perform the Work.

B. Within 45 days after Notice to Proceed, submit a proposed list of preinstallation conferences, and items of Work to be covered, for approval by the Project Manager.

END OF SECTION

SECTION 01 32 00

SCHEDULING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
      a. Submittals.
      b. Quality Assurance.
      c. General Scheduling Requirements.
      d. Preliminary Contract Schedule.
      e. Contract Schedule.
      f. Technical Requirements.
      g. Update of Accepted Contract Schedule.
      h. Revised Contract Schedule.
      i. Recovery Schedule.
      j. Short Interval Schedule.
      k. Time Impact Analysis.
      l. As-Built Schedule.

B. Related Sections:
   1. Section 01 33 00 - Submittal Procedures
   2. Section 01 45 00 – Quality Assurance

1.2 SUBMITTALS

A. Preliminary Contract Schedule.

B. Contract Schedule.

C. Schedule Updates.

D. As-built Schedule.

E. Schedule Revisions.

F. Resume of Project Scheduler.

G. Other Schedules as may be required.

1.3 QUALITY ASSURANCE

A. Pre-scheduling Conference:
   1. Convene a Pre-Schedule Meeting with the CMD Representative to review methods and procedures related to the Preliminary Contract and Contract Schedules, including, but not limited to, the following:

a. Provide verification that the personnel planned to develop and update the Schedule have proper qualifications.
b. Review dates established in the Contract Documents and other Milestones of important events.
c. Discuss constraints, access issues, Work restrictions, and security procedures.
d. Discuss sequencing, phasing, Work stages, area separations, interim Milestones, and CMD's requirements for activation activities and use prior to acceptance, if any.
e. Review timeline of mobilization activities on the Project Site, including notices, permits and time to acquire, set up and occupy the field office(s).
f. Review Schedule general and technical requirements.
g. Review Schedule for Work of CMD's separate contracts and interface points with other contracts.
h. Review processes and procedures for updating of Schedule and progress evaluation.
i. Review delivery durations and dates for CMD-furnished products.
j. Review procedures and durations for commissioning, startup and close-out.
k. Review procedures for assessing Schedule impacts, Schedule delays, and time extensions.
l. Data exchange and communications.

2. The Pre-scheduling conference must be attended by all of the Contractor's key Project personnel, listed Subcontractors and accepted Project Scheduler.

1.4 GENERAL SCHEDULING REQUIREMENTS

A. The term "Schedule(s)" refers to the Preliminary Contract, Contract Schedule and any variations, revisions or updates thereof.

B. The Contractor will develop and maintain the Schedule for the scope of Work contained in the Contract Documents. The Schedule will be used to:
1. Assure adequate planning, scheduling, and reporting during execution of the construction and related activities so they may be prosecuted in an orderly and expeditious manner, within the Contract Time and the Milestones stipulated by the Contract Documents;
2. Assure coordination of the Work of the Contractor and the various Subcontractors and suppliers at all tiers;
3. Form the basis of preparation and evaluation of the Contractor's monthly progress payments;
4. Monitor the progress of the Work and evaluate potential schedule impacts of proposed changes to the Contract Documents; and,
5. Assist in detecting problems for the purpose of taking corrective action and to provide a mechanism or tool for determining and monitoring such corrective actions.

C. In developing the Schedule, the Contractor will be responsible for assuring that Subcontractor Work at all tiers, as well as Contractor's own Work, is included in the Schedule and well coordinated in a logical and reasonable plan of the Work.

D. Time is of the essence. The Work will be prosecuted such that it will ensure meeting the specified Contract Time. By execution of the Agreement, the Contractor represents that he has analyzed the Work, the materials and methods involved, the systems of the building, availability of qualified labor, restrictions of the Project Site, constraints imposed, their own workload and capacity to perform the Work, and agrees that the specified times are reasonable considering the existing conditions prevailing in the locality of the Work, including weather conditions, and other factors, with reasonable allowance for variations from average or ideal conditions.

E. The Preliminary Contract and Contract Schedules must be developed utilizing the Precedence Diagramming Method. The Contractor must use the latest version of MS Microsoft Project for scheduling the Work.

F. Milestones
   1. The Milestone completion dates indicated are considered essential to the satisfactory performance of this Project and to the coordination of all Work therein.
   2. Milestone dates will not be changed by submission of a Schedule that shows earlier or later completion dates, unless specifically authorized by a Change Order.

G. Float Time
   1. Total Float is the number of days by which an activity may be delayed without adversely affecting the Milestone completion date(s). Total Float is measured in reference to the Milestone date(s), and not the latest calculated Schedule finish date.
   2. Longest Critical Path is the longest series of dependent activities within the Schedule that determines when the Work of a Milestone or the entire Work of the Project is complete.
   3. A Critical Activity is one whose Total Float is equal to or less than zero, and whose Early Finish dates are equal to or later than the Late Finish dates by which it must be performed for the Project to complete by the Milestone date(s). A Critical Activity may or may not be on the Longest Critical Path.
   4. Project Float is the number of Days between the Contractor's Scheduled date for completion of the Work as indicated by its Longest Critical Path, and the Contract Time specified for the completion date of the Milestone.
   5. Float is not for the exclusive use or benefit of either the Contractor or CMD. Float time will be apportioned according to the needs of the Project and as accepted by CMD.
   6. An Early Completion Schedule is one that reflects earlier completion than the Contract final milestone completion date. In the event the Contractor submits an Early Completion Schedule, the difference between the Schedule's calculated completion and the final Milestone completion date will be considered part of the available Project float and will be subject to the float sharing requirements set forth herein. The Contractor will not be entitled to any Contract Time extensions, or extended jobsite expenses on account of any delays to the Schedule early completion dates unless all Project float has been consumed and performance of the Work extends beyond the Milestone dates.
   7. CMD reserves the right to issue a Change Order revising the Contract Time and associated Milestones to those indicated in the Contractor's Early Completion Schedule.

8. The use of float suppression techniques such as preferential sequencing, special lead/lag logic restraints, unjustifiably extended activity durations, or constrained dates is not allowed and will be grounds for rejection of the Contract Schedule or any revisions or updates thereto.

H. The Contractor must engage its major Subcontractors in the development and updating of all submitted Schedules and receive their buy-in on the Schedule prior to submittal.

I. The Contractor must submit, for CMD's approval, the resume of their proposed Project Scheduler who will be responsible for developing, maintaining and providing Time Impact Analyses of the Schedules. The Project Scheduler must be proficient in CPM scheduling using Primavera P6 software, have demonstrated experience in Projects with similar scheduling complexity and requirements, and be capable of fulfilling the requirements of this Section.

J. Acceptance by CMD of the Contractor's Schedule does not relieve the Contractor of any responsibility whatsoever for the accuracy or feasibility of the Schedule, or of the Contractor's ability to meet the Contract Time or Milestone dates, nor does such acceptance acknowledge or admit the reasonableness of the activities, logic, durations, manpower, or cost-loading of the Contractor's Schedule.

K. Failure by the Contractor to include any element of Work required for performance of the Work or failure to properly sequence the Work will not excuse the Contractor from completing all Work within the Contract Time, regardless of CMD's Acceptance of the Contract Schedule.

1.5 PRELIMINARY CONTRACT SCHEDULE

A. Within fourteen (14) Days after the date of the NTP, the Contractor must submit, for CMD's review, a Preliminary Contract Schedule. This Schedule must show detailed activities for Work to be completed in the first ninety (90) Days of the Project. All Work planned to be performed during the remainder of the Project performance period may be represented by summary activities.

B. The Preliminary Contract Schedule must indicate Milestones for the Project and define the following:
   1. Proposed procurement activities to be accomplished during the first ninety (90) Days of the Project. Procurement activities must include product data and/or shop drawing submittals, submittals review and approval as well as fabrication and delivery of key and long lead procurement elements.
   2. Proposed construction activities to be accomplished during the first ninety (90) Days of the Project. For those activities, activity durations must be in units of whole working days and must be limited to a maximum of fifteen (15) working days for each activity, unless otherwise specified herein.
   3. Summary activities not included above, which are necessary to properly indicate the approach to scheduling the remaining Work areas or phases of the Work. The Work for each phase or area must be represented by at least one summary activity such that they cumulatively indicate the entire Work. The approximate cost and duration for each summary activity must be shown on the Preliminary Contract Schedule.

C. The Preliminary Contract Schedule must conform to the requirements in Paragraph 1.7 of this Section.

D. The cost-loaded Preliminary Contract Schedule accepted by CMD must be used as the Accepted Schedule of Values for progress payments during the first sixty (60) Days of the Project while the Contract Schedule (discussed hereafter) is being developed and accepted.

E. The Preliminary Contract Schedule must be updated on a monthly basis while the Contract Schedule is being developed. The monthly updating of the Preliminary Contract Schedule must be consistent with the procedures and requirements described in Paragraph 1.8 of this Section.

F. The Accepted Preliminary Contract Schedule must be used for the review of time extension request(s) during the first ninety (90) Days of the Project while the Contract Schedule is being developed.

G. Within seven (7) Days after receipt by CMD of the Preliminary Contract Schedule, CMD will make recommendations to the Contractor as to adjustments to the Preliminary Contract Schedule. These recommendations, if accepted by both CMD and Contractor, will be incorporated into the development of the Contract Schedule. The Contractor must provide a response to the concerns of CMD, to its satisfaction, before the submittal of the Contract Schedule.

H. Once accepted by CMD, the Preliminary Contract Schedule will form the basis of the initial Accepted Contract Schedule.

1.6 CONTRACT SCHEDULE

A. Within forty five (45) Days following Notice to Proceed, Contractor must submit to CMD a proposed Contract Schedule in CPM format.

B. The proposed Contract Schedule must conform to the requirements in Paragraph 1.7 of this Section. The Contractor must use the Accepted Preliminary Contract Schedule and CMD comments thereon as the basis for the Contract Schedule.

C. The proposed Contract Schedule will be reviewed in the following manner:
   1. Within fourteen (14) Days after receipt by CMD of the proposed Contract Schedule, CMD will notify the Contractor of any concerns it may have in regard to the Schedule.
   2. If CMD questions the Contractor's proposed activities, logic, durations, manpower, or cost loading, the Contractor must, within seven (7) Days after receipt of CMD's request, provide a satisfactory revision to, or adequate justification for, these activities, logic, durations, manpower, or cost-loading to the satisfaction of CMD.
   3. Upon the Contractor addressing the comments and Contract Schedule requirements to the satisfaction of CMD, the CMD will accept the proposed Contract Schedule and it will then be considered the Accepted Contract Schedule.

4. In the event the Contractor fails to define any element of Work, activity or logic and CMD's review does not note this omission or error, such omission or error, when discovered by the Contractor or CMD, must be corrected by the Contractor and immediately submitted to CMD as a schedule revision request (see Paragraph 1.9) and will not affect the Contract Time.

D. Accepted Contract Schedule
   1. The Accepted Contract Schedule will be used as the baseline to evaluate all Work yet to be performed and subsequent updates to the Contract Schedule.
   2. No activity is to be deleted from the initial Accepted Contract Schedule. In the event that an activity is no longer appropriate to the plan, either by change order or otherwise, it must be statused with "zero duration" as of the date such determination is made and offsetting cost adjustment made as required to balance within the activity's cost account.
   3. Redistribution of costs between activities will not be allowed, except after submission of a schedule revision request and with the written approval of CMD.
   4. Acceptance by CMD of the Contractor's Contract Schedule will be a condition precedent to the making of any progress payments after the first ninety (90) Days of the Contract.
   5. Upon Acceptance of the Contract Schedule by CMD, the cost-loaded values of the Schedule will be used as the Accepted Schedule of Values for determining progress payments. Monthly progress payments will be based upon information developed during the monthly Schedule Update progress. The computer-produced cost report must be structured to directly roll up to the accepted billing summary and will be utilized by CMD for verification of the progress payment request submitted by the Contractor.
   6. The cost-loaded values for detailed activities planned to be performed during the first ninety (90) Days after the NTP, as reflected by the CMD accepted Preliminary Contract Schedule, must remain unchanged in the Contract Schedule. Cost-loaded values for summary activities occurring thereafter must be further detailed in the Contract Schedule.

E. The initial Contract Schedule submission must reflect the Contractor's initial "plan of execution" as contemplated at the date of the Notice to Proceed, with no regard for actual progress or conditions encountered through the preparation time for its submittal.

F. If requested by CMD, the Contractor must furnish a written narrative of the Contractor's determination of durations and or sequence of Critical Activities. Such explanation must include the number of crews, crew composition, number of shifts per day, number of hours in a shift and the number of work days per week.

1.7 TECHNICAL REQUIREMENTS

A. General:
   1. Milestone dates must be adhered to and must be clearly identified on the Schedule.
   2. Milestone dates must not be changed without the written consent of CMD via an executed Change Order
   3. Agreement Start Milestones must be constrained by "Start On or Before", or "Start No Earlier Than" constraints.

4. Agreement Completion Milestones must be constrained by “Finish On or Before” constraints.
5. “Mandatory”, “Start On”, and “Finish On” constraints will not be allowed.
6. All other phasing & sequencing requirements prescribed in the Contract Documents must be represented by the use of appropriate constraints, as agreed to by CMD.

B. Scope Definition:
1. Activities scheduled to occur in the first ninety (90) Days in the Preliminary Contract Schedule and the entire Contract Schedule must be developed to an acceptable level of detail that is adequate for progress monitoring and payment evaluation, as determined by CMD. The level of detail of the Contractor’s Schedule will be a function of the complexity of the Work involved. Construction activities must represent the continuous work of a single crew in a defined Work area or location and have duration of no longer than fifteen (15) work days, unless otherwise accepted by CMD. Non-construction activities (such as procurement, fabrication, etc.) may have durations in excess of fifteen (15) work days.
2. Activity descriptions must be unique, full, clear and readily identifiable from Construction Documents.
3. Activity IDs must be alpha-numeric, indicating the activity’s building, area and location.
4. Indicate a responsibility code for each activity. Responsibility for each activity must be identified with a single performing organization, typically the Subcontractor name.
5. If requested by CMD Representative, the Schedule activities must also be assigned a code indicating the relevant Specification Section or drawing number.
6. The Schedule must be organized in a Work Breakdown Structure as agreed by CMD to assist in understanding work flow and sequencing.
7. The Schedule must reflect the entire scope of Work required by the Contract Documents, including but not limited to:
    a. Submittal & Procurement activities as set out under Paragraph C below.
    b. Field testing of equipment and materials.
    c. Detailed activities for mobilization, all temporary and preparatory Work necessary before the commencement of construction activities.
    d. A finish milestone type activity denoting the “dry-in’ of each building.
    e. All construction of mock-ups, and prototypes and/or samples.
    f. Work by CMD: Include a separate activity for each portion of Work performed by CMD.
    g. Separate activities for CMD furnished products.
    h. Separate activities for submittals, fabrication & delivery and installation of Contractor-Furnished-Contractor-Installed (CFCI) and Owner-Furnished-Contractor-Installed (OFCI) items.
    i. Activities for Furnishings, Fixtures & Equipment (FFE) installation, whether performed by the Contractor or CMD.
    j. Complete startup, testing and commissioning sequence at each building / major area, including but not limited to: final utility connections, start-up & pre-functional testing of equipment/system, testing & balancing for water / air system, functional performance testing and building flush-out. The schedule must include all testing activities conducted by or authorities

having jurisdiction. Allow a minimum of fifteen (15) working days for startup, testing and commissioning at each building / major area.

k. All close-out activities including:
   1) Preparation and submittal of operations and maintenance manuals and as-built documents;
   2) Demonstration and training;
   3) Final cleanup;
   4) CMD pre-final inspection, Contractor certification of Milestone Completion Date, punch list development, Contractor's correction of punch list, CMD final inspection at each building / major area as may be applicable. Activity duration for punch list development and punch list correction must be no less than fourteen (14) Days and twenty one (21) Days, respectively.

C. Submittals:
   1. The Schedule must identify detailed activities for the following:
      a. Preparation, review and approval of all Submittals which are key to timely and orderly completion of Work or as required by CMD's representative.
      b. Procurement Activities: for all long lead items and / or major items requiring a total duration for all tasks below of more than sixty (60) Days, the Schedule must show a sequence of activities, including:
         1) Preparation of shop drawings and sample submissions.
         2) Review and approval of shop drawings and samples: Include review and
            re-submittal times specified in Section 01 33 00, Submittal Procedures, in the Schedule. Coordinate submittal review dates and durations in the Schedule with the Submittal Log.
         3) All involved State or regulatory agency document reviews (deferred reviews) times and permits required for the performance of the Work.
         4) Anticipated execution date of purchase order.
         5) Shop fabrication time.
         6) Delivery time.

D. Durations:
   1. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the Schedule as a calendar. Calendars should account for all work hour restrictions, institutional holidays and security access requirements set forth under Section 01 35 53.
   2. All activities whose durations are stipulated by the Contract Documents, as well as Milestones, must be Scheduled on a 7-day work week calendar
   3. Proposed durations assigned to each activity will be the Contractor's best estimate of time required to complete the activity considering the scope and resources planned for the activity. However, activity durations and / or dates must not be resource driven.

E. Logic Network:
   1. Include all constraints, phasing or Work restrictions indicated in the Contract Documents.

2. All activity start and finish ends must be tied into the Schedule by logical restraints. The Schedule must only contain two (2) open ended activities: NTP with no predecessor relationship, and the latest completion Milestone with no successor relationship.
3. All activities requiring time to complete must be included in the Schedule as an activity (Cure time, etc.).
4. The Schedule must not include any Start-to-Finish relationships.
5. The Schedule must not include any negative lags or finish-to-start relationships with positive lag. Lags in Start-to-Start or Finish-to-Finish relationships must not exceed the duration of the predecessor or successor activity, respectively.
6. The Schedule's Longest Critical Path must be comprised of the anticipated controlling operations, which are most significant in nature and are key for completing the Work per the Milestone dates.
7. The number of critical and near critical activities must be kept to a minimum and must not exceed twenty (20) percent. A near Critical Activity is one who's Total Float value is less than twenty (20) working days.
8. With the exception of Milestones, the use of constraints that override Schedule calculated early or late dates will not be allowed.
9. Acceptance of the Schedule will not preclude CMD from later rejecting what it deems to be float suppression. Correction of float suppression must be a prerequisite for consideration of any Milestone adjustment.

F. Weather:
1. Normal inclement weather conditions, also referred to as anticipated weather days, will be considered and included in the planning and scheduling of all Work influenced by high or low ambient temperatures, wind, and / or precipitation to ensure completion of all Work within the Contract Time.
2. Normal inclement weather conditions have been determined by an assessment of average historical climatic conditions using the preceding ten (10) year records published by the National Ocean and Atmospheric Administration (NOAA). All weather-sensitive activities must be assigned a Calendar that incorporates anticipated weather days as non-work days, in accordance with the Rain Days per month provided in the Supplementary Conditions.
3. A "Rain Day" will only be a day where rain precipitation is greater than 0.10" within a 24-hour period as measured at the weather station identified in Section 00 73 00 Supplementary Conditions.
4. No time extensions will be allowed due to precipitation unless Rain Days occurring during a month exceed the average number of Rain Days provided in the Supplementary Conditions.
5. No time extensions will be allowed due to inclement weather unless it impacts the Contract Time as demonstrated by a Time Impact Analysis prepared in accordance with Paragraph 1.12 of this Section.
6. Work must be planned to minimize the impact of rain and include the grading of the Work area, installation of dewatering pumps and provision of covers.
7. Keep drainage and dewatering systems operable 24 hours per Day and 7 Days each week throughout construction.

G. Cost Loading:
   1. Schedule activities must be cost-loaded in whole dollars and the assigned dollar value of the Schedule activities must cumulatively equal the total Contract Price. The tasks and amounts in the cost-loaded Schedule will be utilized as the Accepted Schedule of Values for progress payment purposes.
   2. Payment for Mobilization is governed by Public Contract Code 10264. Insurance and Bonds must be listed separately. Copies of paid invoices for bonds and insurance must be submitted with the Preliminary Contract Schedule for reimbursement.
   3. Activities must only be assigned their respective direct costs and must not include any Contractor overhead and / or markups. The Schedule must identify a separate activity running throughout the Project duration with the budgeted cost of all of the Contractor's time-related overhead including, but not limited to jobsite expenses and indirect cost, home office overhead, profit and contingency.
   4. Payment for overhead costs will be made on a time-related basis, where the percent earned through each Schedule Update's Data Date will equal the percent of time lapsed from the NTP with respect to the Final Completion Milestone.
   5. Schedule procurement activities must not be cost-loaded. Material and equipment costs must be included in their respective installation activity(s) and identified separately as a Material type resource. Assigned Material and Equipment costs must not include any indirect costs. Any reimbursement of materials and equipment prior to their installation will be subject to the requirements of Section 00 72 08, Payments and Retention.
   6. With the exception of Milestones and Submittal activities, any and all activities performed by the Contractor or any of its Subcontractors must be cost-loaded.
   7. Excluding Material and Equipment costs, Schedule activities must not have individual dollar values in excess of $100,000.
   8. The cost-loading of activities must be commensurate with the true value of labor, equipment and material. Unbalanced, inconsistent, or front-end loaded cost allocation is prohibited and will be grounds for rejection of the Contractor's Schedule.
   9. The sum of all assigned costs for each Subcontractor must be equal to the value of their Subcontract with the Contractor.

H. Resource Loading:
   1. Contractor will assign manpower-loading for each construction activity in the Schedule. Activities' resource loading must be based on the Contractor's estimate used in pricing the Work.
   2. Resources and labor (man-hours) allocated to each activity must be consistent with activity duration as well as scope and supported by the Contractor's estimate and industry standard estimating / productivity guides such as "Means" and/or "Walker's".
   3. The Schedule activities must not be resource leveled or resource constrained.

I. Reports: for the Preliminary Contract and Contract Schedules, provide:
   1. An electronic copy of Schedule in MS Project, and labeled to comply with requirements for submittals. Include type of Schedule (Preliminary Contract, Contract Schedule, Update or Revision), revision number and date on label.

2. Narrative explaining:
    a. The Schedule's general plan, sequencing and major crew rotation.
    b. Work restrictions and / or constraints accounted for in the Schedule.
    c. Adequate substantiation of critical and near-critical activities, identifying those to be performed by CMD.
    d. The anticipated impact of weather delays on and how it has been accounted for in the Schedule.
    e. Assumptions used for activity durations, assumptions regarding crew sizes, equipment requirements and production rates.
    f. Any potential areas of concern or specific areas requiring coordination it may have identified.
    g. Any long-lead time materials or equipment in the Work.
    h. Major construction equipment intended for use on this Project's operations including types, number of units, unit capacities and the proposed time each piece of equipment will be on the job, keyed to the activities on which the equipment will be used
    i. Any proposed deviations from the Contract scheduling requirements with adequate justification.
3. Activity Table grouped by WBS and sorted by Early Finish, including Activity ID, Activity Name, Original Duration, Early & Late dates, Total Float, Calendar together with a color coded Gantt Chart (Red being Longest Critical Path, Green Being non-critical) showing logic links. Activity Table must show subtotals per major area and Schedule Grand Totals.
4. Same report as described above, filtered for the Longest Critical Path activities only.
5. Activity Table listing Activity ID, Activity Name, Original Duration, Start & Finish dates, Total Float, Predecessors and Successors, together with a color coded Gantt Chart showing logic links.
6. Activity Table including Activity ID, Activity Name, Original Duration, Start & Finish dates, Total Float, Activity Budgeted Cost, Activity Budgeted Labor Units, and Responsibility Code together with a color coded Gantt Chart. Activity Table must show subtotals per major area and Schedule Grand Totals.
7. Manpower curve and histogram of Budgeted Labor hours per major Subcontractor per Month (Initial Submittal and when revised).

1.8 UPDATE OF SCHEDULE

A. Update pertains to, and is limited to, the posting of actual progress of all activities.

B. Logic changes, Schedule of Values adjustments, addition or deletion of activities, modifications to activity original durations are all considered Schedule revisions and must be submitted separately in a Schedule Revision request.

C. On a monthly basis, the Contractor must meet with CMD for the purpose of updating the Schedule. This updating process will be performed by CMD and Contractor making an assessment of Schedule activity progress during a joint Project Site walkthrough with CMD's representative.

D. Consistent with information recorded during the joint Project Site walkthrough, the Schedule must be updated with:
   1. Actual Start and Actual Finish dates, consistent with dates provided by the Contractor's Daily Report.
   2. Actual Start & Finish dates inserted into the Schedule must only be based on the activity's physical progress, irrespective of the dollar amount earned. Billing for stored materials and / or equipment does not constitute an Actual Start of an activity.
   3. Activity Physical Percent Complete, based on the actual progress of the activity through the update Data Date.
   4. Activity Remaining Duration and Duration Percent Complete.
   5. Dollar amounts earned for each activity during the update period, which must be the product of the activity's budgeted cost and the Physical Percent complete through the update Data Date.

E. Once this information has been recorded, this data will be processed by computer by the Contractor, and will be used as the basis for the Contractor's monthly progress payment.

F. In addition to these monthly updates, interim updates may be performed on the Contract Schedule at the discretion of CMD. While these interim updates will not be for payment purposes, the Contractor must provide such update data to CMD as required to complete these updates.

G. Logical relationships between activities performed out of sequence during the month of the schedule update, must be adjusted after their completion to reflect the actual sequence and must be identified in the accompanying narrative report. Sequence revisions occurring beyond the Update's data date must be submitted to CMD Representative per 1.9 C.

H. All executed Proposed Change Orders must be added to the Schedule Updates at an appropriate level of detail, including responsible Subcontractor, activity value and manpower, consistent with the executed Proposed Change Order

I. The Schedule update calculations must:
   1. Retain the existing logic relationships when activities start or finish out-of-sequence. The use of "Progress Override" is prohibited;
   2. Not be resource leveled. Activity dates and durations must not be driven by assigned resources;
   3. Dissociate remaining duration from activity's Physical Percent Complete.

J. Neither acceptance, nor lack of CMD's comment on a Schedule Update that shows late completion will modify the Contract Time or Milestones.

K. Approved schedule revision requests and comments provided by CMD representative on the preceding month's update must be incorporated into the schedule.

L. Upon finalization of the computerized Schedule update, the Contractor must submit the following reports for the processing of the Contractor's payment application:
   1. An electronic copy of the Schedule Update in P6 format.

2. Activity Table including Activity ID, Activity Name, Original Duration, Remaining Duration, Physical Percent Complete, Start (Early or Actual Start), Finish (Early or Actual Finish), Total Float, Activity Budgeted Total Cost, Actual Period Cost, Actual Total Cost, Cost to Complete, together with a color coded Gantt Chart showing logic links. Activity Table must show subtotals per major area and Grand Totals.
3. Activity Table and Gantt Chart including Activity ID, Activity Name, Original Duration, Remaining Duration, latest Accepted Contract Schedule Start / Finish Dates & Total Float, current update Start / Finish dates & Total Float, and Finish Variance. Activity Table must show subtotals per major area and Grand Totals.
4. Narrative report describing:
    a. Actual Work performed during the reporting period.
    b. Any areas of concern, current or anticipated Schedule impacts and proposed corrective actions to mitigate those impacts.
    c. Corrected out-of-sequence occurrences in addition to any changes or deviations from the planned sequence as reflected in the Accepted Contract Schedule.
    d. Proposed revisions, including added or deleted Work that will be submitted before the next schedule update via a schedule revision request.
    e. The current Schedule's critical path Work and any changes thereto from the previous update. Review of Contractor's interface and coordination with other Work on the Project.
    f. A list of major construction equipment used on the Work during the reporting period and any construction equipment idle during the reporting period.
    g. A total number of labor by craft actually engaged on the Work during the reporting period, with such total stated separately as to office, supervisory, and direct labor per Subcontractor.
5. The current status of long lead items and equipment and critical material deliveries.

M. Progress Payments:
1. The submission and acceptance of progress updates and the cost reports calculating the value of Work done for any given pay period for each activity, based on the percentage complete for that activity, will be the basis for monthly progress payments.
2. The monthly updating of the Contract Schedule must be an integral part and basic element of the estimate upon which progress payments will be made. If, in the judgment of CMD, the Contractor fails or refuses to provide information required to accomplish a complete Contract Schedule update, or has included unapproved revisions in the Schedule update, the Contractor will be deemed to have not provided the required estimate upon which progress payments may be made, and will not be entitled to progress payments until all necessary information has been provided to the satisfaction of CMD.

1.9 REVISED CONTRACT SCHEDULE

A. Updating the Contract Schedule to reflect actual progress will not be considered revisions to the Contract Schedule.

B. If, as a result of the monthly Schedule Update, the Contract Schedule no longer represents the actual prosecution and progress of the Work, or if CMD believes further Schedule detailing is necessary, upon CMD's request, the Contractor must propose a Revised Contract Schedule, within ten (10) Days.

C. The Contractor may also request revisions to the Accepted Contract Schedule in the event the Contractor's planned performance methods are revised. If revisions to the Accepted Contract Schedule are contemplated, the Contractor must submit the proposed changes along with a written narrative of the proposed changes. If accepted by CMD, these changes will be incorporated into the Contract Schedule.

D. Schedule revisions must be submitted utilizing a copy of the most recent Accepted Contract Schedule update as modified with proposed changes; a narrative explanation of the change(s); and a copy of a detailed comparison with the most recent CMD Accepted Contract Schedule update detailing all proposed changes.

E. Upon acceptance, the revised Contract Schedule becomes the Accepted Contract Schedule and the basis for evaluating future progress payments, status, impacts, and / or changes.

1.10 RECOVERY SCHEDULE

A. If CMD Representative determines that Contractor's progress is not sufficient to achieve completion of Work within the Milestone dates or any adjustments thereof, CMD Representative may order the Contractor to do any or all of the following, at no cost to CMD:
   1. Furnish a plan and / or recovery Schedule, in Contract Schedule format, for improving progress and recovering the Contractor delays.
   2. Take steps as necessary to improve progress and advise CMD Representative thereof in writing.
   3. Increase the personnel employed, add overtime operations, increase the number of shifts per Day, increase the capacity of construction equipment and plants, change sequence of operations, change methods of operation, or take other steps to improve progress and recover the Contractor's delays.

B. An order pursuant to the above will not be considered an order for Acceleration per Section 00 72 05.

1.11 SHORT INTERVAL SCHEDULE:

A. The Contractor must submit, on a weekly basis, a progress Schedule, hereinafter referred to as Short Interval Schedule, listing the activities in progress or completed during the previous week and the activities Scheduled for the succeeding two (2) weeks.

B. The Short Interval Schedule must be generated out of the Contract Schedule and include further details to provide a day-to-day plan of upcoming Work. All activities shown in this short interval Schedule must be identified by a corresponding Activity ID and Activity Description as shown in the Accepted Contract Schedule.

1.12 TIME IMPACT ANALYSIS

A. In the event the Contractor encounters an excusable delay and intends to submit a request for time extension, the Contractor must furnish a Time Impact Analysis illustrating the impact of the change or delay on the Milestone durations. The Time Impact Analysis must be prepared in accordance with the requirements set forth below:
   1. The impact must be represented by a sub-network of activities, hereinafter referred to as the Impact Fragnet that represents the scope of the change or delay.
   2. The impact fragnet will be inserted into a copy of the latest Accepted Contract Schedule update prior to the onset of the impact's effect on the schedule. Said copy is defined as the "Impacted Schedule".
   3. The impact fragnet must tie into the existing schedule activities that are immediately impacted by the change or delay. Every reasonable effort to mitigate the potential delay by either isolating its impact or planning "work-around" approaches to the Work must be considered and incorporated where deemed effective.
   4. The Impacted Schedule must be calculated compared to the original Accepted Contract Schedule update used for the analysis to quantify the extent of the time adjustment due the Contractor.
   5. The delay demonstrated by the Impacted Schedule must not exceed actual delay when the analysis is performed after the fact. The Impact Schedule must incorporate all actual dates and durations known as at the time of its submittal.
   6. Correction of float suppression in the Impacted Schedule, as may be determined by CMD, may be a condition precedent to any time adjustment determination. No time extension will be awarded unless the delay: 1) impacts the Longest Critical Path, 2) consumes all available Total Float of the Longest Critical Path whether expressly indicated by the Schedule or embedded in the remaining activity durations and / or sequence, and 3) extends the remaining performance period beyond the Project Milestone date(s).
   7. The Contractor must provide adequate justification for the Impact Fragnet durations and linkages to the schedule activities. The Impacted Schedule, along with a narrative describing the foregoing must be submitted to CMD for review.
   8. If approved, the impact fragnet will become a permanent part of the Accepted Contract Schedule. The Contractor will not unilaterally make changes to the Accepted Contract Schedule to justify impacts without the approval of CMD.
   9. CMD will not have any obligation to consider any time extension request unless the requirements of Section 00 72 05 and of this Section are met. CMD will not be responsible or liable to Contractor for any constructive acceleration due to failure of CMD to grant time extensions should Contractor fail to substantially comply with the submission requirements and the justification requirements of this Contract for time extension requests.
   10. If the Contractor is requesting compensation for the delay, the TIA must demonstrate lack of concurrency with other non-excusable or non-compensable critical delays. To establish entitlement to compensation, all activity paths and their respective float must be examined. The Contractor must clearly demonstrate that but-for the CMD caused delay, the Contractor could have finished the Work in accordance with the approved Contract Time.

1.13 AS-BUILT SCHEDULE

A. As a condition precedent to the release of retention and making final payment, submit an "As-Built Schedule," as the last Schedule update showing all activities at 100 percent completion and indicating Actual Start and Finish Dates. This Schedule must reflect the sequence in which the Project was actually constructed.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 32 23

CONSTRUCTION PROGRESS REPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

A. Construction progress reports.

1.3 RELATED SECTIONS
Not Used

1.4 CONSTRUCTION PROGRESS REPORTS

A. Daily Log: Contractor shall maintain a written daily log at the job site with the following information as a minimum:

1. Date.

2. Weather conditions.

3. Subcontractors and trades performing Work under the Agreement on the Site, and number of workers each and number of hours worked by each worker.

4. List of visitors to site, giving name, company or agency affiliation and telephone number.

5. Descriptions of situations and circumstances which could delay normal progress of Work or which could be basis of claim for change in Contract Time or Contract Sum.

6. Changes to Work and who authorized changes.

7. Comments, as Contractor determines are appropriate for Project record.

B. Submission of Logs: Submit one copy of daily logs to CMD Representative at weekly intervals, for review at Construction Progress Meetings.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Contracting Officer's and Program Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.

B. Informational Submittals: Written and graphic information and physical samples that do not require Contracting Officer's and Program Manager's responsive action. Submittals maybe rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.

C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals in accordance with the Submittal Register provided by Architect of Record, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates.

B. Include additional time required for making corrections or modifications to submittals noted by the Contracting Officer and Program Manager and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

2. Initial Submittal: Provide the submittal schedule in sufficient time so it can be accepted for use no later than 15 days after date established for Notice to Proceed.
3. Submittal for each division shall be complete and submitted at the same time.
4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action, informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Contracting Officer's and Program Manager's final release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled dates for installation.
    i. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Contracting Officer's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Contracting Officer for Contractor's use in preparing submittals.
1. Contracting Officer will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
    a. Contracting Officer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    b. Digital Drawing Software Program: The Contract Drawings are available in AutoCAD 2012.
    c. Contractor shall execute a data licensing agreement in the form of an Agreement form acceptable to the Government and Contracting Officer.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    a. Contracting Officer and Program Manager reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Contracting Officer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Contracting Officer will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Re-submittal Review: Allow 15 days for review of each re-submittal.
4. Sequential Review: Where sequential review of submittals by Contracting Officer's consultants, Government, or other parties is indicated, allow 21 days for initial review of each submittal.
5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Contracting Officer and to Contracting Officer's consultants, allow 15 days for review of each submittal. Submittal will be returned to Contracting Officer before being returned to Contractor.

D. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Contracting Officer and Program Manager.
3. Include the following information for processing and recording action taken:
    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Program Manager.
    e. Name of Contractor.
    f. Name of subcontractor.
    g. Name of supplier.
    h. Name of manufacturer.
    i. Submittal number or other unique identifier, including revision identifier.
        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
    j. Number and title of appropriate Specification Section.
    k. Drawing number and detail references, as appropriate.
    l. Location(s) where product is to be installed, as appropriate.
    m. Other necessary identification.

E. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

    a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Contracting Officer and Program Manager.
4. Include the following information on an inserted cover sheet:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name of Program Manager.
    e. Name of Contractor.
    f. Name of firm or entity that prepared submittal.
    g. Name of subcontractor.
    h. Name of supplier.
    i. Name of manufacturer.
    j. Number and title of appropriate Specification Section.
    k. Drawing number and detail references, as appropriate.
    l. Location(s) where product is to be installed, as appropriate.
    m. Related physical samples submitted directly.
    n. Other necessary identification.

5. Include the following information as keywords in the electronic file metadata:

    a. Project name.
    b. Number and title of appropriate Specification Section.
    c. Manufacturer name.
    d. Product name.

F. Options: Identify options requiring selection by the Contracting Officer.

G. Deviations: Identify deviations from the Contract Documents on submittals.

H. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Contracting Officer or Program Manager observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Contracting Officer and Program Manager.

I. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Contracting Officer and Program Manager will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Provide locations on form for the following information:

a. Project name.
b. Date.
c. Destination (To:).
d. Source (From:).
e. Names of subcontractor, manufacturer, and supplier.
f. Category and type of submittal.
g. Submittal purpose and description.
h. Specification Section number and title.
i. Indication of full or partial submittal.
j. Drawing number and detail references, as appropriate.
k. Transmittal number, numbered consecutively.
l. Submittal and transmittal distribution record.
m. Remarks.
n. Signature of transmitter.

2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Contracting Officer and Program Manager on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

J. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Contracting Officer's action stamp.
4. Contractor shall be charged a set review fee of **$250** for each submittal that must be reviewed more than three times.

K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

L. Use for Construction: Use only final submittals that are marked with approval notation from Contracting Officer's action stamp.

1.6 SUBMITTAL REQUIREMENTS FOR COMMISSIONING

A. Normal Submittals.

1. The Commissioning Authority will receive a copy of the normal submittals for equipment to be commissioned.
2. The Commissioning Authority will review and approve normal Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the A/E reviews.

B. Data for Commissioning.

1. The Contractor will receive a written request from the Commissioning Authority requesting specific information needed about each piece of commissioned equipment or system.
2. Typically this will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, full details of any owner-contracted tests, fan and pump curves, full factory testing reports, if any, and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition, the installation and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning Authority.
3. The Commissioning Authority may request further documentation necessary for the commissioning process.
4. This data request may be made prior to normal submittals.
5. Much of this information is contained in the regular O&M manual submittals normally submitted in the project. Typically, this information is required prior to the regular formal O&M manual submittals.

C. Contractor's responsibility for deviations in submittals from requirements of the Contract Documents is not relieved by the Commissioning Authority's review.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections. Format of submittals, whether electronic- or hard-copies, will be discussed at the Construction Kick-Off Conference.

1. Action Submittals: Submit six paper copies of each submittal, unless otherwise indicated. Contracting Officer will return 3 copies to the Contractor; 1 copy sent to inspector and 1 copy to the Project Manager.
2. Informational Submittals: Submit two paper copies of each submittal, unless otherwise indicated. Contracting Officer and Program Manager will not return copies.
3. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."

4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

    a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
    b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

5. Test and Inspection Report Submittals: Comply with requirements specified in Section 01 40 00 - Quality Requirements.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.
    e. Testing by recognized testing agency.
    f. Application of testing agency labels and seals.
    g. Notation of coordination requirements.
    h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

    a. Wiring diagrams showing factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the format determined at the Construction Kick-Off Conference.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Identification of products.
    b. Schedules.

c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
3. Submit Shop Drawings in the following format:

a. Four opaque (bond) copies of each submittal. Contracting Officer will return one copy to the Program Manager; and one copy to inspector.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality- control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.

b. Samples not incorporated into the Work, or otherwise designated as Government's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Contracting Officer will return submittal with options selected.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.
5. Submit product schedule in the format determined at the Construction Kick-Off Conference.

F. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Submit subcontract list in the format determined at the Construction Kick-Off Conference.

J. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and Governments, and other information specified.

L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.

M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

R. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

T. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

W. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

X. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Y. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Contracting Officer.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally-signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Contracting Officer.

B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Section 01 70 00 - Contract Closeout.

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 CONTRACTING OFFICER'S ACTION

A. General: Contracting Officer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Contracting Officer will review each submittal, make marks to indicate corrections or modifications required, and return it. Contracting Officer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

C. Informational Submittals: Contracting Officer will review each submittal and will not return it, or will return it if it does not comply with requirements. Contracting Officer will forward each submittal to appropriate party.

D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Contracting Officer.

E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

F. Submittals not required by the Contract Documents may not be reviewed and maybe discarded.

3.3 SUBMITTAL REGISTER

A. At the final submission, a complete submittal register will be provided behind this Section.

END OF SECTION

SECTION 01 33 23

PRODUCT DATA AND SAMPLES

PART 1 GENERAL

1. SUMMARY

   A. Section Includes
      1. Submittal Requirements.

   B. Related Sections and Documents

2. DEFINITIONS

   A. Manufactured: Standard units, usually mass-produced.

   B. Fabricated: Specifically assembled or made out of selected materials to meet design requirements.

   C. Shop Drawings: Documents establishing the actual detail of manufactured or fabricated items, indicating relation to adjoining work, and amplifying design details of mechanical and electrical equipment in proper relation to physical spaces in the structure.

   D. Product Data: Manufacturer's standard drawings, descriptive literature, catalogs, brochures, performance and test data, wiring and control diagrams, other drawings and descriptive data pertaining to specified products.

3. PRODUCT DATA

   A. Clearly mark each copy to identify pertinent products and models.
      1. Modify to delete inapplicable information.
      2. Supplement standard information as required.

   B. Indicate performance characteristics and capacities.

   C. Show dimensions and clearances required.

   D. Show wiring, piping diagrams, controls.

4. SAMPLES

   A. Submit the number of samples indicated in each Section. Where no number is indicated, submit 4 samples.

B. Submit samples of sufficient size to illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

C. Submit samples of finishes from the full range of manufacturer's standard colors, custom colors when specified, textures and patterns for selection.

D. Include identification on each sample, with full project information.

E. Reviewed samples which may be used in the work are indicated in individual specification Sections.
   1. Only samples marked "No Exception Taken" may be incorporated in the work.
   2. Samples that were intended to be incorporated in the work will be returned, together with a written notice designating the sample with the appropriate review status and indicating errors discovered on review.
   3. Other samples will not be returned, but the same notice will be given, and such notice shall be considered a return of the sample.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 35 43

ENVIRONMENTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Potential Pollutants.
   2. Storm water pollution protection plans.
   3. Spill prevention and control.
   4. Temporary containment removal.
   5. Non-storm water management.
   6. Cultural Resources

B. Related Sections
   1. Refer to requirements of Division 0.
   2. Section 01 31 19 - Project Meetings.
   3. Section 01 74 19 - Construction Waste Management and Disposal.
   4. Other Sections: Equipment and materials that may contain potential site pollutants.

1.2 POTENTIAL POLLUTANTS

A. Identify potential pollutants that are used in the Work.

B. Certain potential pollutants are identified in Attachment A, immediately following this Section.

1.3 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Hazardous Material Clean Up and Solid Waste Management Data: List the employees trained in emergency spill cleanup procedures and indicate the training procedures for employees and subcontractors in spill prevention and cleanup and solid waste management.

C. Concrete Waste Management Data: Indicate concrete washout areas and the procedures to train employees and subcontractors in proper concrete waste management.

1.4 PRECONSTRUCTION CONFERENCE

A. In accordance with Section 01 31 19.

B. Review delivery routes, storage areas, spill prevention and clean up procedures, and training procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Keep an accurate, current inventory of materials containing potential pollutants, delivered and stored onsite.

B. Use personnel trained in spill prevention and emergency spill clean up procedures to unload and store materials containing potential pollutants.

C. Store construction raw materials containing potential pollutants off the ground in designated areas in secondary containment structures or surrounded by earth berms away from storm drain inlets, waterways, and drainage paths. Store chemicals in their original labelled containers. Cover the materials with plastic tarps when not in use.
   1. Store hazardous waste and materials in sealed containers; protect from vandalism. Place in areas that will be paved and surround the areas with earth berms.
   2. Store reactive, ignitable, or flammable liquids in accordance with fire codes.
   3. Store materials in a covered area during wet weather.
   4. Small amounts of material may be secondarily contained in “bus boy” trays or concrete mixing trays.

D. Remove and dispose of residual materials and contaminated soil after construction is complete.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 STORM WATER POLLUTION PROTECTION PLAN (SWPPP)

A. It is incumbent upon the Contractor to prepare a Storm Water Pollution Protection Plan to implement for the project and comply with the National Pollutant Discharge Elimination System (NPDES) General Permit.

B. The Contractor and its subcontractors shall perform all necessary pollution prevention work to comply with the SWPPP and the Permits for any Work performed on the Project Site. Any person or group who violates any condition of the Permits may be subject to substantial penalties in accordance with State and Federal law. The Contractor is encouraged to advise each of its employees and subcontractors working on this Project of the requirements of the Permits and SWPPP. A copy of the Permits and SWPPP will be available for review during the bidding period and the Facility Representative’s site office during construction.

3.2 SPILL PREVENTION AND CONTROL

A. Use secondary containment devices such as drain pans or drop cloths at all areas when fueling, removing, or changing fluids.

B. Place a stockpile of spill cleanup materials where it will be readily accessible.

C. Use personnel trained in emergency spill clean up procedures.

D. Clean up leaks and spills immediately, in accordance with waste management regulations.

E. Clean up spills on paved surfaces with minimal water usage. Clean small spills with cloths and larger spills with absorbent material. Immediately send used hazardous cleanup cloth material to a certified laundry or remove and dispose as hazardous waste, in accordance with waste management regulations.

F. Do not hose down or bury dry material spills.

3.3 TEMPORARY CONTAINMENT REMOVAL

A. Remove all temporary containment structures, devices and equipment when directed by Facility Representative. Clean and repair damage caused by installation and use of temporary work.

3.4 NON-STORM WATER MANAGEMENT

A. Minimize the use of water sprayed for dust control and irrigation, to avoid causing runoff and erosion.

B. Remove sediment from dewatering operations using sediment basins. Filter sediment from sediment basins with a sump pit and perforated standpipe, wrapped in filter fabric, or a floating suction hose.

3.5 DISCHARGE WATER, USED FOR FLUSHING AND DISINFECTION, INTO ONSITE DETENTION BASINS OR TEMPORARY EARTHEN BASINS. INADVERTENT DISCOVERY OF CULTURAL OR ARCHAEOLOGICAL OR HUMAN REMAINS

A. In accordance with Standard Operating Procedures (SOP) 4 and 11 of the CAARNG Integrated Cultural Resources Management Plan, workers/soldiers shall monitor their ground disturbing activities (all activities that alter the existing state of the ground surface) for the unearthing of previously unknown items of archaeological, historic, or cultural interest (e.g. human remains, artifacts, fossils, etc.). If any such items are unearthed or exhumed, all ground disturbing activities shall cease and the Environmental Office contacted immediately (Camp Roberts: 805-238-8332, Camp San Luis Obispo: 805-594-6537, all other sites 916-854-1474). No further ground disturbance shall proceed without prior authorization from the Environmental Office that the CAARNG has complied with all regulatory requirements pertaining to the resources discovered. (National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), California Health and Safety Code Section 7050.5[b]).

B. If any such items are discovered at other CMD locations, all ground disturbing activities shall cease. Notify the Facility Representative immediately. No further ground disturbance shall proceed without prior authorization from the Facility Representative when it is determined that the CAARNG has complied with all regulatory requirements pertaining to the discovered resources.

END OF SECTION

SECTION 01 35 43 - ATTACHMENT A

PARTIAL LIST OF POTENTIAL POLLUTANTS

1.1 Contractor shall identify the pollutants present during construction and take the necessary measures to restrict their entry into the natural drainage system, based on the National Pollutant Discharge Elimination System (NPDES) applicable laws, codes and regulations.

1.2 Potential pollutants that may be used at the site and that have the potential to enter the storm water drainage system are included in the list below. This is not intended to be a complete list of categories, products and pollutants.

1.3 CONSTRUCTION SITE POTENTIAL POLLUTANTS

CATEGORY	PRODUCT, ACTIVITY	POLLUTANTS
Adhesives	Adhesives, Glues Resins, Epoxy Synthetics Calks, Sealers, Putty, Sealing Agents Coal Tars (Naptha, Pitch)	Phenolics, Formaldehydes Phenolics, Formaldehydes Asbestos, Phenolics, Formaldehydes Benzene, Phenols, Naphthalene
Cleaners	Polishes, (Metal, Ceramic, Tile) Etching Agents Cleaners, Ammonia, Lye, Caustic Sodas Bleaching Agents Chromate Salts	Metals Metals Acidity/Alkalinity Acidity/Alkalinity Chromium
Plumbing	Solder (Lead, Tin), Flux (Zinc Chloride) Pipe Fitting (Cut Shavings) Galvanized Metals	Lead, Copper, Zinc, Tin Copper Zinc
Electrical	Wiring	Copper, Lead
Painting	Paint Thinner, Acetone, MEK, Stripper Paints, Lacquers, Varnish, Enamels Turpentine, Gum Spirit, Solvents Sanding, Stripping Paints (Pigments), Dyes	VOC's Metals, Phenolics, Mineral Spirits VOC's Metals Metals
Woods	Sawdust Particle Board Dusts Treated Woods	BOD Formaldehyde Copper, Creosote
Floors & Walls	Flashing Drywall Tile Cutting (Ceramic Dusts)	Copper, Aluminum Dusts Minerals
Remodeling & Demolition	Insulation Venting Systems	Asbestos Aluminum, Zinc

CATEGORY	PRODUCT, ACTIVITY	POLLUTANTS
Air Conditioning & Heating	Insulation Coolant Reservoirs	Asbestos Freon
Yard O&M	Vehicle and Machinery Maintenance Gasoline, Oils, Additives Marking Paints (Sprays) Grading, Earth Moving Portable Toilets Fire Hazard Control (Herbicides) Wash Waters	Oils and grease, Coolants Benzene & Derivatives, Oils & Grease Vinyl Chloride, Metals Erosion (Sediments) BOD, Disinfectants (Spills) Sodium Arsenite, Dinitro Rodenticides, Insecticides, Herbicides, Concrete, Oils, Greases
Landscaping & Earthmoving	Planting, Plant Maintenance Excavation, Tilling Solid Wastes (Trees, Shrubs) Exposing Natural Lime or Other Mineral Deposits Soils Additives Revegetation of Graded Areas	Pesticides, Herbicides, Nutrients Erosion (Sediments) BOD Acidity/Alkalinity, Metals Aluminum Sulfate, Sulfur Fertilizers
Materials Storage	Waste Storage (Used Oils, Solvents, Etc.) Hazardous Waste Containment Raw Material Piles	Spills, Leaks Spills, Leaks Dusts, Sediments

Note: VOC = Volatile Organic Compounds.
BOD = Biochemical Oxygen Demand due to the use of oxygen by decomposing materials.

END OF SECTION 01 35 43 - ATTACHMENT A

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality- assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Contracting Officer, Government, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Contracting Officer or Construction Manager.

C. Mockups: Full size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances.

Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on the project site, consisting of multiple products, assemblies and subassemblies.

D. Preconstruction Testing: Tests and inspections performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade or trades.

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement.

Refer conflicting requirements that are different, but apparently equal, to Contracting Officer for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits.
To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Contracting Officer for a decision before proceeding.

1.5 ACTION SUBMITTALS

A. Shop Drawings: For integrated exterior mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.

1. Indicate manufacturer and model number of individual components.
2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Contractor's Quality-Control Manager Qualifications: For supervisory personnel.

C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 15 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Contracting Officer. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities.

Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager shall not have other Project responsibilities.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: Include in quality-control plan a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by the Commissioning Authority.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Contracting Officer has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.

10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. Permits, Licenses, and Certificates: For Government's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.

b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
f. When testing is complete, remove test specimens, assemblies, mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Contracting Officer, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. 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 Contracting Officer or Construction Manager.
2. Notify Contracting Officer seven days in advance of dates and times when mockups will be constructed.
3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at the Project.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain Contracting Officer approval of mockups before starting work, fabrication, or construction.
6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
7. Demolish and remove mockups when directed, unless otherwise indicated.

L. Integrated Exterior Mockups: Construct integrated exterior mockup in accordance with approved Shop Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual specification sections, along with supporting materials.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Government.

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.

2. Submitting a certified written report of each test, inspection, and similar quality-control service to Contracting Officer, with copy to Contractor and to authorities having jurisdiction.
3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
5. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

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

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

B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Contracting Officer's reference during normal working hours.

3.2 REPAIR AND PROTECTION

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

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
1. Submittals.
2. Quality assurance.
3. Regulatory requirements.
4. Field quality control.

B. Related Sections
1. Section 01 33 23 - Product Data and Samples.

1.2 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Submit certification of inspection confirming approval by authority having jurisdiction when required by individual Section.

C. Submit the following directly to enforcing authorities when required by individual Section:

1. Product data.
2. Design data.
3. Test reports.
4. Certificates.
5. Manufacturer's Instructions.
6. Manufacturer's Field Reports.
7. Operation and Maintenance Data.
8. Guarantee.
9. Other items indicated.

1.3 QUALITY ASSURANCE

A. Perform work in accordance with specific standards indicated. Maintain one copy of each document on site.

1.4 REGULATORY REQUIREMENTS

A. Conform to applicable codes, except conform to more stringent requirements of the Drawings and Specifications.

B. Applicable codes include, but are not limited to:

1. The International Building Standards Code.
   a. IBC - 2015 International Building Code: (IBC).
   b. IMC-2015 International Mechanical Code: (IMC).
   c. IPC-2015 International Plumbing Code: (IPC)
   d. NEC - 2015 National Electrical Code: (NEC).
   e. For copies of the International Building Standards Code contact Building News Inc. (BNI) at (310) 202-7775, or International Code Council (ICC) at (800) 786-4452 or (888) 422-7233.

2. ANSI/ASHRAE/IES Standard Regulations 90.1 2016.

3. Unified Facilities Code 04 -010-01 DOD Minimum Antiterrorism Standards for Buildings February 9, 2012 with Change 1 October 1, 2013.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 FIELD QUALITY CONTROL

A. When required by individual Section, arrange for enforcing authority to witness indicated Observations, Testing and Inspections.

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Field samples.
   2. Manufacturers' field services and reports.

B. Related Sections
   1. Section 01 33 23 – Product Data and Samples

1.2 FIELD SAMPLES

A. When Field Sample is required, perform no installation or application until Field Sample is approved.

B. Submit schedule for Field Sample construction; show date and relationship to Approved Contract Schedule.

C. Construct Field Samples required by individual specifications Sections in location as approved.

D. Facility Representative will review Field Sample for conformance with the drawings and specifications.

E. Modify or replace Field Sample until Field Sample is approved.

F. Approved Field Samples
   1. Shall remain until the remainder of the work of the Section requiring Field Sample is complete.
   2. Will be used as the standard of acceptable quality for the remainder of the project.
   3. May be incorporated into the work at the discretion of the Facility Representative.
   4. Shall be removed at completion of the work of that Section when required by Section or when not incorporated into the work.

1.3 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. Observers' Qualifications:
   1. Submit qualifications of observer to Facility Representative 10 days in advance of required observations.
   2. Observer subject to approval of Facility Representative.

B. Observer to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

Section Includes
1. Dust Control.
2. Temporary Construction Fences.
3. Security.
4. Progress/Work Area Cleaning.
5. Project Signage.
6. Removal.

Related Sections
7. Refer to requirements of Division 0.
8. Section 01 35 43 - Environmental Procedures.

1.2 DUST CONTROL

Control dust migration from the work and staging areas. COR/PM reserves the right at its sole discretion to direct the Contractor to perform specific maintenance and/or dust control of its work and laydown areas at no additional cost to the State.

1.3 SITE DRAINAGE

Maintain the Work and staging areas in constant repair to maintain the grades and contours to provide free flow drainage. All watersheds and avenues of the work and staging area drainage shall be maintained, clean of debris, hazardous material, and dammed to prevent erosion of soil and silt. COR/PM reserves the right at its sole discretion to direct the Contractor to perform specific maintenance to control site drainage of its work and laydown areas at no additional cost to the State.

1.4 TEMPORARY CONSTRUCTION FENCES

Contractor may, upon approval, install temporary fences, barricades, or other suitable means to protect property and prevent damage and injury. Such fences shall not interfere with armory operations.

1.5 TEMPORARY PORTABLE TOILETS

Contractor shall provide temporary portable toilets during the construction period per California Occupational Safety and Health Administration standard 1926.51. There shall be separate portable facilities for Armory staff and construction staff.

1.6 SECURITY

If Contractor deems it necessary, Contractor may provide watchmen and security equipment to protect Contractor's site office, equipment, material, construction equipment, or other portions of the Work.

On-site security firms and their personnel shall be subject to approval by the COR/PM.

Contractors are responsible for ensuring that all site property gates are locked and secured when opened by their personnel.

1.7 PROGRESS/WORK AREA CLEANING

Maintain staging and work areas in a clean and orderly condition free from trash. "Trash" shall include all: food scraps, office garbage, construction rubbish/debris, waste/excess materials, shipping/packing materials, and wind blown trash. Trash shall be collected and placed into containers daily at designated waste storage areas in locations approved by the COR/PM, and removed periodically for offsite disposal at Contractor's expense.

Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed spaces and remote spaces, prior to enclosing the space.

Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

1.8 PROJECT SIGNAGE

Allow no other signs, except those required by law, without approval of the COR/PM.

1.9 REMOVAL

Remove temporary equipment, facilities, and materials prior to request for final inspection.

Clean and repair damage caused by installation and use of temporary work.

Remove all temporary site improvements. All materials removed shall be disposed of off-site and the area shall be returned to the design as set forth in Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 55 00

FINAL FACILITY CLEANING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Contract closeout requirements including:
   1. Final cleaning,

B. Related Sections:
   1. Section 01 40 00 – Quality Control.

1.02 FINAL CLEANING

A. Perform final cleaning prior to inspections for final acceptance.

B. Use cleaning materials which are recommended by manufacturers of surfaces to be cleaned.

C. Prevent scratching or otherwise damaging surfaces being cleaned.

D. Broom clean exterior paved surfaces and rake clean other surfaces of site work.
   1. Armory yards and grounds to be kept clean.

E. Clean grease, mastic, adhesives, dust, dirt, stains, fingerprints, paint, blemishes, sealants, plaster, concrete, and other foreign materials from sight-exposed surfaces, and fixtures and equipment.

F. Remove non-permanent protection and labels.

1.03 WASTE DISPOSAL

A. Arrange for and dispose of surplus materials, waste products, and debris off-site.
   1. Prior to making disposal on private property, obtain written permission from Facility Representative of such property.

B. Do not create unsightly or unsanitary nuisances during disposal operations.

C. Maintain disposal site in safe condition and good appearance.

D. Complete leveling and cleanup prior to final acceptance of the Work.

1.04 TOUCH-UP AND REPAIR

A. Touch-up or repair finished surfaces on equipment, fixtures, and installations that have been damaged prior to inspection for final acceptance.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

.1 SECTION INCLUDES

A. Products.

B. Transportation and handling.

C. Storage and protection.

D. Product options.

E. Substitutions.

.2 RELATED SECTIONS

A. Document - Instructions to Bidders: Product options and substitution procedures.

B. Section 01 10 00 - Summary.

C. Section 01 33 00 - Submittals.

D. Section 01 65 00 – Product Delivery Requirements for Substitution Provisions.

.3 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Products do not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

C. Provide interchangeable components of the same manufacturer for similar components or details.

D. All products shall comply with the Buy America Act. Federal Acquisition Regulation Title 48 Section 52-225-11.

E. All products and materials shall be delivered to job-site in new, dry, unopened containers, clearly showing catalog number, product description, where and by whom manufactured, in quantities sufficient to assure continuous work.

.4 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

.5 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

B. Assure that materials are kept clean, and away from excessive heat and cold; do not remove labels or tear off protective covering until ready for application; store in an enclosed area where temperature is above 50 degrees and below 90 degrees Fahrenheit, securely tied with rope. Material shall not be stored directly on the ground.

C. For exterior storage of fabricated products, place on sloped supports, above ground.

D. Provide off-site storage and protection when site does not permit on-site storage or protection.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

H. Maintain aisle space between stacks to facilitate fire suppression if necessary.

I.6 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

I.7 SUBSTITUTIONS

A. Instructions to Bidders specify time restrictions for submitting requests for Substitutions during the bidding period.

B. Project Manager will consider requests for Substitutions only within 15 days after date of Contract Agreement.

C. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

D. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

E. A request constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Will provide the same warranty for the Substitution as for the specified product.

3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to the Government.

4. Waives claims for additional costs or time extension which may subsequently become apparent.

F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

G. Substitution Submittal Procedure:

1. Submit three copies of request for Substitution for consideration. Refer to 01 65 00 for substitution procedures.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 65 00

PRODUCT DELIVERY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. A.Section Includes
1. Products.
2. Transportation and Handling.
3. Product Options.
4. Substitutions.

B. Related Sections
1. Refer to requirements of Division 0.
2. Section 01 10 00 - Summary of Work.

1.2 PRODUCTS

A. Products: For the purpose of this Section, products mean new material, machinery, components, equipment, fixtures, and systems forming the Work. It does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

1.3 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions; provide equipment and personnel to handle products by methods to preserve quality, appearance, and suitability for the project.

1.4 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, or accepted substitutes. [Provide minimum of three selections.]

1.5 SUBSTITUTIONS

A. Submit in writing, within time limit set forth in General Conditions, on form provided as 01 65 00 - Attachment A, Notice of Request for Substitution. Notice of Request for Substitution shall include complete data substantiating compliance of proposed substitution with Contract.

B. A request constitutes a representation that the Contractor:
1. Has investigated proposed substitution and determined that it meets or exceeds the quality level required to achieve operating efficiency and effectiveness of the specified material, product, thing, or service.

2. Will provide the same warranty for the substitution as for the specified material, product, thing, or service.
3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to State.
4. Waives claims for additional costs or time extension which may subsequently become apparent.
5. Will reimburse State for review or redesign services associated with proposed substitutions.

C. Substitution Submittal Procedure:
1. Limit each request to one proposed substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed equivalence.
3. Facility Representative will notify Contractor, in writing, of decision to approve or reject request.

D. After approval of Notice of Request for Substitution, submit required submittals under provisions of Sections 01 33 00 and 01 33 23.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 65 00 - ATTACHMENT A

NOTICE OF REQUEST FOR SUBSTITUTION

Substitution Request: _____

In accordance with the Conditions of the Contract and the provisions of Section 01 65 00, we hereby submit for consideration, this Notice of Request for Substitution for the following material, product, thing, or service:

_____ _____ _____
Section Paragraph Specified Item

Proposed Substitution: _____

The following supporting information is attached:
[ ] Product Data including model numbers and descriptions.
[ ] Certified test results attesting to equivalence.
[ ] Product/material samples.
[ ] Other: _____

Reason for proposed substitution:
[ ] Specified or indicated item is unavailable.
[ ] Significant cost reduction. Amount to be credited to the Department: $ _____
[ ] Significant quality difference without cost change.
[ ] Other: _____

Submitted and Certified By:

CONTRACTOR:

_____ _____
Signature Date

_____ _____
Name (Print) Title

_____
Firm Name

_____ _____
Address Phone

_____ _____
City, State, Zip FAX

Received: _____ _____
Date CMD Representative

[ ] Approved: _____ _____
[ ] Rejected: Date CMD Representative

END OF SECTION 01 65 00 - ATTACHMENT A

SECTION 01 70 00

CONTRACT CLOSEOUT

PART 1 GENERAL

1 SECTION INCLUDES

A. Closeout procedures.

B. Final cleaning.

C. Adjusting.

D. Project record documents.

2 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected and accepted, and that Work is complete in accordance with Contract Documents and ready for inspection.

B. Comply with requirements of specification sections 01 10 00 and 01 33 00.

C. Provide warranty certificates to Project Manager.

D. Submit final Application for Payment to Contracting Officer identifying total adjusted Contract Sum, previous payments, and sum remaining due.

E. The Project Manager and/or their representatives shall conduct a final inspection within 14 days of receipt of a written request from the Contractor for final inspection.

F. A corrective notice (i.e. punch list) will be developed during the final inspection. All items noted on the corrective must be complete prior to the job being accepted by the project manager.

3 ADJUSTING

Adjust operating Products and equipment to ensure smooth, proper operation.

4 PROJECT RECORD DOCUMENTS

A. Maintain on site, one set of the following record documents; record actual revisions to the Work:

1. Project Drawings.

2. Specifications.

3. Change Orders and other Modifications to the Contract.

4. Reviewed shop drawings, product data, and samples.

5. Manufacturer’s Warranty Certificate(s).

B. Store Record Documents separate from documents used for construction.

C. Record information concurrent with construction progress.

D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:

1. Manufacturer's name and product model and number.

2. Product substitutions or alternates utilized.

3. Changes made by Addenda and Modifications.

E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:

1. Field changes of dimension and detail.

2. Details not on original Contract Drawings.

3. Submit prior to final inspection, one (1) set bound in 8-1/2 x 11 inch text pages, 3-D side ring binder and one (1) set of identical documentation in electronic (.pdf) format.

4. Internally subdivide the binder contents with page dividers, logically organized, and tabbed to identify contents of binder.

5. Part 1: Directory, listing names, addresses, and telephone numbers of Contractor, and Subcontractors.

6. Part 2: Project documents and certificates, including the following:

7. Part 3: Requests for Information (RFI) log and copies of all signed RFIs

8. Part 4: Submittal log and copies all approved submittals.

9. Warranty certificates.

F. Submit one hard copy and one electronic copy of completed volume in final form seven (7) days prior to final inspection. Revise as required prior to final contract close out per COR directions.

G. Submit final revised hardcopy and electronic volumes within ten (10) days after final inspection and prior to release of final payment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Administrative and procedural requirements for cutting and patching.

B. Related Sections
   1. Section 03 30 00 - Cast-In-Place Concrete.

1.2 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in any manner that would reduce their load-carrying capacity.

B. Operational and Safety Limitations: Do not cut and patch operating element or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

C. Visual Requirements: Do not cut or patch construction in a manner that would, in the Facility Representative's opinion, reduce the structure's aesthetic qualities, or result in evidence of cutting and patching. Work cut and patched in a visually unsatisfactory manner must be removed and replaced.

PART 2 PRODUCTS

2.1 MATERIALS

A. Unless specified otherwise, use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use material that match existing adjacent surfaces to the fullest extent possible with regard to visual effects. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 EXECUTION

3.1 INSPECTION

A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding if unsafe or unsatisfactory conditions are encountered.

B. Before proceeding, meet at the site with parties involved in cutting and patching and Facility Representative. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection:
   1. Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
   2. Avoid interference with use of adjoining areas or interruption of free passage to adjoining area.
   3. Take all precautions necessary to avoid cutting existing pipe or conduit providing utility service to building site.

3.3 PERFORMANCE

A. Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut existing construction to provide for installation of the other components, or performance of other construction activities, and the subsequent fitting and patching required to restore surfaces to their original condition.

C. Cutting:
   1. Cut existing construction using methods least likely to damage elements to be retained, or adjoining construction.
   2. Comply with requirements of applicable Specification Sections of Division 3 where cutting and patching requires excavating and backfilling.

D. Patching:
   1. Restore work which has been cut or removed; install new products to provide completed Work in accordance with the requirements of the Contract Documents.
   2. Install patch products in compliance with tolerances as specified in applicable sections of the Contract Documents.
   3. Refinish affected areas in a manner that will eliminate evidence of patching and refinishing.

3.4 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed, by completely removing paint, oils, putty and other items of similar nature, before paint or other finish is applied.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1 SUMMARY

A. Section includes
   1. Administrative and procedural requirements for the following:
      a. Salvaging nonhazardous demolition and construction waste.
      b. Recycling nonhazardous demolition and construction waste.
      c. Disposing of nonhazardous demolition and construction waste.

B. Related Sections
   1. Section 01 31 19 - Project Meetings.
   2. Section 02 41 00 - Demolition.

1.2 REFERENCES

A. ASTM E1609- 2010 - Standard Guide for Development and Implementation of a Pollution Prevention Program.

1.3 DEFINITIONS

A. Class III Landfill: A landfill that accepts non-hazardous waste such as household, commercial, and industrial waste, including construction, remodeling, repair, and demolition operations.

B. Chemical Waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals and inorganic wastes, and other similar materials.

C. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or similar.

D. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

E. Debris: Includes both combustible and noncombustible wastes, such as leaves and tree trimmings that result from construction or maintenance and repair work, and other similar materials.

F. Deconstruction: The process of removing existing building materials from renovation and demolition projects for the purposes of reuse and recycling in as an efficient and safe manner as possible.

G. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

H. 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.

I. Divert: Using material for any purpose other than disposal in a landfill.

J. Inert Fill: A permitted facility that accepts inert waste such as asphalt and concrete exclusively.

K. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

L. Rubbish: Includes both combustible and noncombustible wastes, such as paper, boxes, glass, crockery, metal and lumber scrap, tin cans, bones, and other similar materials.

M. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

N. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

O. Sanitary Wastes
   1. Garbage: Refuse and scraps resulting from preparation, cooking, distribution, or consumption of food, or other similar materials.
   2. Sewage: Domestic sanitary sewage.

1.4 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling of a minimum of 75 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials. Materials, including the following:
   1. Demolition Waste
      a. Wood studs.
      b. Wood joists.
      c. Plywood and oriented strand board.
      d. Wood trim.
      e. Structural and miscellaneous steel.
      f. Rough hardware.
      g. Roofing.
      h. Insulation (including fiberglass, rigid polystyrene but excluding polyisocyanurate).
      i. Metal studs.
      j. Gypsum board.
      k. Acoustical tile and panels.

2. Construction Waste
    a. Untreated lumber.
    b. Wood sheet materials (plywood, oriented strand board, and medium density fiberboard).
    c. Wood trim.
    d. Metals.
    e. Roofing.
    f. Insulation (including fiberglass, rigid polystyrene but excluding polyisocyanurate).
    g. 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 and pallets.
        7) Plastic pails.
        8) Beverage containers.

1.5 ACTION SUBMITTALS

A. Construction Waste Management Plan (CWMP): Submit 1 copy of plan within 30 calendar days of date of the Notice to Proceed and prior to any waste removal.

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1.6 INFORMATIONAL SUBMITTALS

A. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

B. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

C. 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.

D. 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.

E. Qualification Data: For waste management coordinator.

1.7 QUALITY ASSURANCE

A. Facility representative will act waste coordinator.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Waste Management Review: Conduct review at Project Site in accordance with Section 01 31 19"". Review methods and procedures related to waste management including, but not limited to, the following:
   1. Review and discuss CWMP including responsibilities of waste management coordinator.
   2. Review requirements for documenting quantities of each type of waste and its disposition.
   3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
   4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
   5. Review waste management requirements for each trade.

1.8 CONSTRUCTION WASTE MANAGEMENT PLAN (CWMP)

A. General: Develop a CWMP according to ASTM E1609 and requirements of this Section. Plan shall consist of waste identification, waste reduction work plan. Distinguish between demolition and construction waste.

B. Waste Identification: Indicate anticipated types and quantities of demolition construction waste generated by the Work. Use 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, telephone number, and a copy of the permit or license of each landfill and incinerator facility. The permit or license shall indicate the type or class of waste accepted.
   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.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement the approved CWMP. Provide handling, containers, storage, signage, transportation, and other items as required to implement the CWMP during the entire duration of the Contract.
   1. Comply with Section 01 50 00 “”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 the CWMP.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures as appropriate for the Work occurring at Project site.
   1. Distribute the CWMP to Project Manager within 10 working days of submittal return.
   2. Distribute the CWMP to entities when they first begin work on site. Review the CWMP procedures and locations established for salvage, recycling, and disposal.
   3. Provide information and training updates throughout the construction process as needed to facilitate understanding and participation.

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 Section 01 50 00 “”for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
   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 Sale and Donation: Not permitted on Project Site.

C. Salvaged Items for Facility'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 Facility.
   4. Transport items to Facility's storage area on-site designated by Facility Representative.
   5. Protect items from damage during transport and storage.

3.3 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:
   1. <Insert names and telephone numbers of local recycling receivers and processors of recyclable materials.>

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

D. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

E. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Locate containers and/or bins in areas designated in the CWMP. Separate recyclable waste by type at Project site to the maximum extent practical according to the approved CWMP.
   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 Facility property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

A. Wood Materials: Sort and stack members according to type. Separate lumber, engineered wood products, panel products, and treated wood materials.

B. 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.

C. Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.

D. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location if quantity warrants it..

3.5 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. Wood Materials
   1. Clean Cut-Offs of Lumber: Stack by size.
   2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

3.6 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 Facility property and legally dispose of them.

END OF SECTION

SECTION 01 78 00

CLOSE-OUT SUBMITTALS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes
1. Close-out submittals, including as-builts; record drawings, specifications, and product data; and warranties.

B. Related Sections
1. 01 33 00 - Submittals
2. 01 33 23 - Shop Drawings, Product Data, and Samples
3. Divisions 2 through 44 Sections for specific requirements of the Work in those Sections.

1.2 ITEMS PROVIDED TO CONTRACTOR:

A. Subject to completion of the “Electronic Data Transfer Agreement”, Architect will provide electronic data to the Contractor for use in preparation of Final Submittals and Record Documents.

1.3 ITEMS SUBMITTED TO ARCHITECT FOR REVIEW PRIOR TO DISTRIBUTION TO FACILITY REPRESENTATIVE:

A. Marked-up copies of Contract Drawings.

B. Newly prepared Drawings.

C. Marked-up copies of Specifications, addenda and Change Orders.

D. Record information on Work that is recorded only schematically, when part of record documents.

E. Complete set of RFI’s.

1.4 ITEMS DELIVERED DIRECTLY TO FACILITY REPRESENTATIVE:

A. Orders (Construction Change Directives).

B. Marked-up copies of Shop Drawings.

C. Marked-up Product Data submittals.

D. Record Samples.

E. Field records for variable and concealed conditions.

F. Copies of change orders, submittal, substitutions, warranties and other forms that are part of this Project.

1.5 SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Review required content with CA Military Dept. prior to submittal.
   2. Completed Submittal: Submit one set of marked-up Record Prints

B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one copy of each Product Data submittal. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Submit properly executed warranties within [15] days of completion of designated portions of the Work that are completed and occupied or used by CA Military Dept. during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of the project manual.
   1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 x 11-inch documents.
   2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   3. Identify each binder on the front and spine with the type or printed title "WARRANTIES", Project name, and name of Contractor.

PART 2 PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
   1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Accurately record information in an understandable drawing technique.
      c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:
    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Changes made by Change Order or Construction Change Directive.
    d. Changes made following Architect's written orders.
    e. Details not on the original Contract Drawings.
    f. Field records for variable and concealed conditions.
    g. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
7. Accompany submittal with certification that each document as submitted is complete and accurate.

B. Record Prints: Provide one set of Drawings.

C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where A/E determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
2. Consult A/E for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

D. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:
    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect and Construction Manager.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. Information shall be sufficient for Owner's personnel to maintain facility.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
   3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's and Construction Project Manager's reference during normal working hours.

END OF SECTION

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Operation and maintenance data.

B. Related Sections
   1. Section 01 78 00 – Close-Out Submittals.

1.2 FORMAT

A. Prepare operation and maintenance manual in the form of an instruction manual for use by operating and maintenance personnel.

B. Organize into binders of manageable size.

1.3 CONTENT

A. Include title page, table of contents, general information, and information on equipment, systems, and products specified in individual Sections including product data, written text, drawings and warranties.

B. Provide master index with page numbers.
   1. Include references to manufacturers' printed data.
   2. Include references to as-built drawings by sheet number, title, and date.

C. Organize manual into separate sections for each piece of equipment, system and material.

D. Architectural Products: Provide manufacturer's data and instructions on care and maintenance of architectural products.

E. Equipment and Systems: Provide the following for each piece of equipment, building operating system, electric system, and electronic system.
   1. Identification of Building Number in which item of equipment is located.
   2. Complete description of each unit and related component parts.
   3. Manufacturer's information.
      a. Include name, address, and voice and fax phone numbers, and e-mail address (if applicable) of factory and local supplier; indicate names of contact persons.
   4. Schematics and wiring diagram of operation.
      a. Include elementary and construction diagrams.
   5. List of special tools required for operation and repair.
   6. Maintenance procedures.
   7. Trouble shooting procedures.
   8. Operating procedures.
   9. Servicing schedule.

10. Equipment Maintenance Data Summary.
    a. Form to be used is bound into Specifications immediately following this Section as 01 78 23 - Attachment.
    b. Fields marked with an asterisk (*) will be completed by CMD Representative.
    c. Complete remainder of form by indicating applicable information.
11. Mechanical Products: Indicate danger warnings.
    a. Include warnings of danger of physical injury on rotating machinery; disconnect switches, unexpected start-up of automatic equipment, and other hazards as appropriate.
12. Electrical Products
    a. Provide separate manuals for electrical power, lighting equipment, and electronic systems.
    b. Include references to “life safety” and reminders of danger of electrocution, burns, and eye injury.
    c. Include riser and wiring diagrams using standard symbols indicated on the Drawings. Where symbols are required, but not used on the Drawings, use standard IEEE and ISA symbols.
    d. Include general explanations and data for replacement of solid-state boxes (such as programmable controllers).

1.4 SUBMITTALS

A. Submit preliminary copy of operation and maintenance data when each item of equipment is delivered to the work site. This copy will not be returned.

B. Upon completion of items requiring operation and maintenance data, submit three copies of operation and maintenance manual for review.

C. CMD Representative will return one copy with comments within 20 days of receipt.

D. Make corrections and modifications to comply with comments.

E. Submit six copies of operation and maintenance manual in final form no later than 15 days prior to final inspection.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 78 23 – ATTACHMENT

EQUIPMENT MAINTENANCE DATA SUMMARY Item No.* _____ / _____ / _____

Item Description _____ Date Installed* _____ Date Started* _____
Item Location _____ Cost _____ Est. Life _____
Item Tag No. _____ Shop Dwg Trans No.* _____ Spec Section _____
Item Mfr. _____ Warranty Start Date* _____ Warranty End Date* _____
Mfr's Address _____ Phone _____
Local Vendor _____
Vendor Address _____ Phone _____

MAINTENANCE REQUIREMENTS	RUN TIME	D	W	M	Q	S	A	HOURS*

LUBRICATION INFORMATION

Type 1 _____ Manufacturer _____ Use _____
Type 2 _____ Manufacturer _____ Use _____
Type 3 _____ Manufacturer _____ Use _____
Type 4 _____ Manufacturer _____ Use _____
Type 5 _____ Manufacturer _____ Use _____

RECOMMENDED SPARE PARTS

Part No.	Part Name	Quantity

ELECTRICAL NAMEPLATE DATA

Equip. _____
Make _____
Serial No. _____ ID No. _____
Model No. _____ Frame No. _____
HP _____ V _____ Amp _____ Hz _____
PH _____ RPM _____ SF _____ Duty _____
Code _____ Ins Cl _____ Des _____ Type _____
NEMA Des ___ C Amb ___ Temp Rise ___ Rating _____
Misc.

MECHANICAL NAMEPLATE DATA

Equip. _____
Make _____
Serial No. _____ ID No. _____
Model No. _____ Frame No. _____
HP _____ RPM _____ CAP _____ Size _____
TDH _____ Imp Sz ___ Belt No. _____ CFM _____
PSI _____ Assy No __ Cast No. _____
Misc.

END OF SECTION 01 78 23 - ATTACHMENT

SECTION 02 41 00

DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. General requirements for utility/site demolition, utility disconnection, salvage/protection of existing utilities.

B. Related Sections
   1. Section 02 82 13 - Asbestos Abatement.
   2. Section 02 83 01 - Lead Abatement.

1.2 ENVIRONMENTAL REQUIREMENTS

A. Burning is not permitted.

B. Refer to Section 31 25 00 for specific erosion and sediment control requirements, including dust control.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and 01 33 23.

B. Submit plan for debris removal and disposal. An approved demolition procedure submittal shall be prepared and available at least 14 days prior to the start of demolition. The procedures shall provide for safe conduct of the Work, careful removal/abandonment/salvage and disposition of materials and equipment, protection of facilities which are to remain undisturbed, coordination with existing facilities to remain in service, and timely disconnection of utility services. The procedures shall include a detailed description of the methods and equipment to be used for each part of the operation, and the sequence of operation.

C. The Contractor shall provide written authorization from disposal site owner where material shall be disposed.

D. Submit plan and certifications for hazardous materials abatement [if required].

E. Submit safety plan.

F. Submit utility disconnect plan. The Contractor shall have an approved utility disconnect plan at least 14 days prior to the start of the disconnect work. The plan shall demonstrate the Contractor’s methods and sequencing to ensure that utilities to each structure or utility have been disconnected as required. The Contractor shall also advise the Facility Representative in writing at least 72 hours in advance of the time of any deactivation of or connection to existing utilities, which are to be removed, abandoned, modified, or connected to the new work. The Contractor shall be responsible for coordinating this work with the appropriate authorities such as but not limited to Camp Roberts Department of Public Works.

G. Submit utility disconnect certifications.

1.4 DEMOLITION, SALVAGE, ABANDONMENT, AND REMOVAL COORDINATION

A. The Contractor shall note that the Contract Documents used to indicate demolition are based on record information. Prior to the submittal of bids the Contractor shall conduct a comprehensive survey of the facilities to verify the scope of the Work, the extent of the utilities, and the physical sequencing constraints.

B. The Contractor shall carefully coordinate the extent of the demolition in areas where existing utilities shall be reconnected to new facilities where existing facilities shall remain operational, and where vegetation/plants/trees and curb/gutter shall be restored.

C. The Contractor shall erect and maintain fence, barricades, other devices, and warning signs around the construction perimeter throughout the construction period. The Contractor shall remove all devices and structures at the completion of the Work.

D. While the Work is being performed, the Contractor shall provide adequate access to all [Site Name] personnel, Facility Representatives, other Contractors, and utility personnel for routine operation and maintenance.

E. The Contractor shall coordinate all demolition, removal, abandonment, and salvage with the Facility Representative.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PREPARATION

A. Determine with the Facility Representative existing vegetation life, utilities, structures, fencing and elements to remain.

B. Protect existing buildings, fencing, utilities, roads, and improvements that are to remain. The Contractor shall provide temporary chain link fencing within 10 feet of the limits of Work.

C. Protect existing trees, shrubbery and other vegetation that is to remain. The Contractor shall provide protective orange fabric fencing around all trees to remain within the limits of Work and up to 50 feet outside of the limits of Work.

D. Before beginning any cutting, trenching or demolition work, the Contractor shall carefully inspect the existing facilities and examine the Contract Documents to determine the extent of the Work. The Contractor shall take all necessary precautions to prevent damage to existing facilities which are to remain in place and/or in operation. The Contractor shall carefully coordinate the Work of this Section with all other work and shall provide shoring, sheeting, bracing, and supports as required.

The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under any part of this Contract. The Contractor shall remove all temporary protection when the Work is complete or when so authorized by the Facility Representative.

E. The Contractor shall carefully consider all bearing loads and capacities for placement of equipment and materials on site. In the event of any questions as to whether an area to be loaded has adequate bearing capacity, the Contractor shall determine the case prior to the placement of such equipment or material.

3.2 DEMOLITION

A. Perform demolition work in accordance with the Site Preparation Plan and the Contract Documents. Disposal of all materials shall be performed in compliance with all applicable Local, State, and Federal codes, regulations, and requirements. [Demolition shall be done in accordance with the requirements of the Lead and Asbestos specifications included herein.]

B. Demolish and remove designated items. Remove all underground utilities. Utility removal shall extend at least 1 foot beyond the interior demolition limit line. All abandoned utilities beyond the removal area shall be capped or plugged with concrete per the Contract Documents.

C. Dispose of designated items at an approved off-site location.

D. Clean up, re-grade and prepare area as required.

E. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways and drainages, according to requirements of authorities having jurisdiction. Install erosion and sediment control measures in accordance with Section 31 25 13.

F. Concrete pavement, asphalt pavement, concrete curb and gutter shall be removed as necessary to perform the specified Work. The limits of removal shall be sawcut prior to breaking the portion to be removed. Care shall be taken not to damage the existing items/ features that are determined to remain.

G. Openings in water-bearing structures such as manholes and concrete boxes shall be made with care not to damage the remaining structure. Edges shall be sawcut prior to breaking the portion to be removed. All gaps shall be sealed with nonshrink grout to be watertight. Reinforcement shall be as required, or as shown in the Contract Documents. In all locations where the surface of the grout will be exposed to view, the nonshrink grout shall be recessed to approximately 1/2 inch back of the exposed surface and the recessed area filled with cement mortar grout.

3.3 UTILITY DISCONNECTION

A. Coordinate with the Facility representative for the isolation of the project site utilities from overall site utilities. Contractor shall coordinate to eliminate the loss of utility service, including gas, electric, telephone, water, sewer or storm drainage, to active areas of the overall site utilities and ancillary facilities.

B. The Contractor is cautioned that the natural gas line removal and purging process is dangerous and precautions shall be exercised. The Contractor is also cautioned that the natural gas line to the facility must stay in operation 24 hours per day and the Contractor shall consider this when preparing their plan.

3.4 GEOPHYSICAL SURVEY

A. The investigation shall identify the location of known and unknown utilities within the project site. All located utilities whether shown on the plans or not shall be potholed to identify the type, location, size and material type

B. Any unknown underground utility located shall be immediately brought to the attention of the Facility representative. The Contractor shall coordinate with Facility to determine if a conflict exists and how it should be resolved. Utility conflicts shall be resolved prior to any work which may be affected by the conflict.

3.5 REPAIR TO DAMAGE

A. Any damage to remaining road improvements, utility poles, building elements to remain, and other existing facilities to remain as caused by the Contractor's operations shall be repaired at the Contractor's expense.

B. Damaged items shall be repaired or replaced with new materials as required to restore damaged items or surfaces, equal or better pre-construction condition, as approved by the Facility Representative.

END OF SECTION

SECTION 02 82 13

ASBESTOS ABATEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Asbestos abatement.

B. Related Sections:
   1. Section 02 83 33 – Removal and Disposal of Material Containing Lead
   2. Appendix 1 –Special Reports

1.2 REFERENCES

A. American National Standards Institute (ANSI)
   1. ANSI WK 4519 - Personal Protective Footwear.
   2. ANSI Z9.2 - Fundamentals Governing the Design and Operation of Local Exhaust and Ventilation Systems.
   3. ANSI Z87.1 - Practice for Occupational and Educational Personal Eye and Face Protection Devices.
   4. ANSI Z88.2 - Practices for Respiratory Protection.
   5. ANSI Z88.6 - Respiratory Protection: Respiratory Use Physical Qualifications for Personnel.
   6. ANSI Z89.1 - Industrial Head Protection.

B. American Society for Testing and Materials (ASTM)
   1. ASTM D1331 - Test Methods for Surface and Interfacial Tension of Solutions of Surface-Active Agents.
   2. ASTM E1494 - Practice for Encapsulants for Spray- or Trowel-Applied Friable Asbestos-Containing Building Materials.

C. Code of Federal Regulations (CFR)
   1. 29 CFR 1926 - Safety and Health Regulations for Construction.
   2. 29 CFR 1910 - Safety and Health Regulations for General Industry.
   3. 29 CFR 1910.1020 - Access to Employee Exposure and Medical Record
   4. 29 CFR 1910.134 - Respiratory Protection.
   5. 29 CFR 1910.145 - Specifications for Accident Prevention Signs and Tags.
   6. 29 CFR 1910.1001 - Asbestos.
   7. 29 CFR 1926.1101 - Safety and Health Regulations for Construction - Asbestos.
   8. 29 CFR 1926.58.
   9. 34 CFR 231 Appendix C - Procedures for Containing and Removing Building Materials Containing Asbestos.
   10. 40 CFR 61 - Subpart A and Subpart M, USEPA, National Emission Standards for Hazardous Air Pollutants (NESHAPS).

D. Compressed Gas Association, Inc.
   1. G-7.1 - Commodity Specification for Air.

PART 2

A. National Fire Protection Association (NFPA)
   1. NFPA 70 - National Electric Code.

B. Underwriters Laboratories, Inc.
   1. UL 586 - Test Performance of High Efficiency Particulate Air Filter Units.

C. National Institute for Occupation Safety and Health (NIOSH)
   1. Method 7400: Asbestos and Fibers by PCM - Manual of Analytical Methods, Volume 1.

D. Environmental Protection Agency Documents
   1. EPA 530-SW-85-007 - Asbestos Waste Management Guidance.
   2. EPA EPA 560/5-85-024 - Fundamentals Governing the Design and Operation of Local Exhaust Systems Asbestos Waste Management Guidance.
   3. EPA 560 OPTS-86.001 - Guide to Respiratory Protection for the Asbestos Abatement Industry.

E. California Code of Regulations (CCR)
   1. Title 8, Section 1230 - Temperature, Illumination, Sanitation and Ventilation.
   2. Title 8, Section 1529 - Asbestos.
   3. Title 8, Section 5144 - Respiratory Protection.
   4. Title 8, Section 1531 - Respiratory Protective Equipment.
   5. Title 8, Section 3204 - Access to Employee Exposure and Medical Records.
   6. Title 8, Section 5194 - Hazard Communication.
   7. Title 8, Section 3203 - Injury and Illness Prevention Program.
   8. Title 8, Article 2.5 - Registration Asbestos-Related Work Section 341.6 through 341.14.
   9. Title 8, Section 5208 - Asbestos.
   10. Title 22, Division 4.5 - Minimum Standards for Management of Hazardous and Extremely Hazardous Waste.
   11. Title 22, Section 67740.

F. Local Air Pollution Control District Regulations
   1. [Local regulation documents and guidelines as applicable.]

G. Other Local Regulations
   1. California Health and Safety Code, Sections 13121 and 13144.1.
   2. California Health and Safety Code, Sections 25249-25249.13 and 25915-25919.7.

2.2 DEFINITIONS

A. Definitions specific to the Work of this Section:
   1. Abatement: Procedures to control fiber release from asbestos containing building materials. Includes removal, repair, encapsulation, and enclosure.
   2. Air Filtration Equipment: A portable air recirculation system equipped with High Efficiency Particulate Air (HEPA) filtration and used to cleanse air of particulate matter within an abatement area. Air filtration equipment is essentially the same as differential pressure equipment except it recirculates air instead of exhausting it.
   3. Airlock: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area.

4. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time.
5. Air Sampling Professional: The professional contracted or employed to conduct air monitoring and analysis schemes. This individual is also responsible for recognition of technical deficiencies in worker protection equipment and procedures during both planning and on-site phases of an abatement project.
6. Amended Water: Water to which a surfactant has been added.
7. Area Monitoring: Sampling of asbestos fiber concentrations within the asbestos Work Area and outside the asbestos Work Area that is representative of the airborne concentrations of asbestos fibers, which may reach the breathing zone.
8. Asbestos: The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.
9. Asbestos-Containing Construction Material (ACCM): Any manufactured construction material that contains more than 1/10 of one (>0.1%) percent asbestos by weight.
10. Asbestos-Containing Material (ACM): Any material containing more than 1 percent (>1.0%) asbestos.
11. Asbestos Fibers: This expression refers to asbestos fibers longer than 5 micrometers with an aspect ratio of 3:1 or larger under PCM analytical procedures.
12. Asbestos Structure: The type of asbestos morphology that is counted during an analysis. The four types of asbestos structures are: Fiber, Bundle, Matrix, and Cluster.
13. Authorized Visitor: The Facility Representative, Facility Representative, or a person of any regulatory or other agency having jurisdiction over the project.
14. Category I Non-Friable Asbestos Containing Material: Asbestos-containing packings, gaskets, resilient floor coverings, mastics, and asphalt roofing products.
15. Category II Non-Friable Asbestos Containing Material: Asbestos-containing material, excluding Category I non-friable asbestos-containing material, that, when dry, and in its present form, cannot be crumbled, pulverized, or reduced to powder by hand pressure. These products include Transite™ board, pipe and asbestos cement products, plaster, stucco, and paint.
16. Ceiling Concentration: An exposure of airborne concentrations of asbestos fibers at any time in excess of 10 fibers per cubic centimeters of air.
17. Class I Asbestos Work: Activities involving the removal of thermal system insulation and surfacing asbestos-containing materials.
18. Class II Asbestos Work: Activities involving the removal of ACM, which is not thermal system insulation, or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
19. Clean Room: An uncontaminated area or room, which is a part of the Worker decontamination enclosure with provisions for storage of Workers' street clothes and personal protective equipment.
20. Critical Barrier: A temporary air tight and impermeable barrier that separates an asbestos Work Area from an adjacent potentially occupied area.
21. Decontamination Enclosure System: A series of connected rooms with airlocks between any two adjacent rooms for the decontamination of workers, materials, and equipment. A decontamination enclosure system always contains at least one chamber.

22. Differential Pressure Equipment: A portable local exhaust system equipped with High Efficiency Particulate Air (HEPA) filtration and capable of maintaining constant, low velocity airflow into contaminated areas from adjacent uncontaminated areas.
23. Encapsulant (sealant): A liquid material which can be applied to asbestos containing material and which controls the possible release of asbestos fiber from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).
24. Encapsulation: Procedures necessary to apply an encapsulant to asbestos containing building materials to control the possible release of asbestos fibers into the ambient air.
25. Enclosure: Procedures necessary to enclose completely asbestos containing material behind airtight, impermeable, permanent barriers.
26. Equipment Room: A contaminated area or room, which is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.
27. Equipment Decontamination Enclosure: That portion of a decontamination enclosure system designed for controlled transfer of materials and equipment typically consisting of an equipment room, a washroom, and a holding area.
28. Excursion Limit: A limit of 1.0 f/cc over a 30 minute sampling period to which employees may not be exposed in excess of, without appropriate respiratory protection.
29. Friable Asbestos-Containing Material: Material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.
30. Fixed Louver: A non-operable type louver equipped with a HEPA filter and mounted in the rigid doors or walls of a decontamination enclosure system.
31. Fixed Object: A unit of equipment or furniture in the Work Area, which cannot be removed from the Work Area.
32. HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
33. HEPA Vacuum Equipment: Vacuuming equipment with a HEPA (UL 586 labeled) filter system.
34. Holding Area: A chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area. The holding area includes an airlock.
35. Movable Object: A unit of equipment or furniture in the Work Area, which can be removed from the Work Area.
36. Non-Friable Asbestos-Containing Material: Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing or disposal.
37. Permissible Exposure Limit: An exposure of airborne concentrations of asbestos fibers in excess of 0.10 fibers per cubic centimeter of air as calculated over an eight-hour time-weight average (TWA).
38. Personnel Monitoring: Sampling of airborne asbestos fiber concentrations within the breathing zone of an asbestos worker.
39. Plasticize: To cover building surfaces with plastic sheeting as herein specified.

40. Removal: Procedures necessary to remove asbestos-containing materials from designated areas and to dispose of these materials at an acceptable waste disposal site or treatment facility.
41. Rigid Doorway: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms. A rigid doorway typically consists of a solid panel door, gasketed to prevent air leakage, attached by hinges to a rigid doorframe. A lockset is required to secure door in the closed position.
42. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold or warm running water and suitably arranged for complete showering during decontamination. The shower room includes an airlock between contaminated and clean areas.
43. Surfactant: A chemical wetting agent added to water to improve penetration and improve control of airborne fiber concentration.
44. Washroom: A room between the Work Area and the holding area in the equipment decontamination enclosure system. The washroom comprises an airlock.
45. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.
46. Work Area: Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained Work Area is a Work Area, which has been sealed and equipped with a decontamination enclosure system. A non-contained Work Area is an isolated or controlled-access Work Area, which has not been sealed nor equipped with a decontamination enclosure system.
47. Worker Decontamination Enclosure System: That portion of a decontamination enclosure system designed for controlled passage of workers, other personnel, and authorized visitors. It typically consisting of a clean room, a shower room, and an equipment room.
48. Work Shift: A crew or crews at a contiguous contained or contiguous demarcated work site performing work items for a continuous period of time excluding work breaks.

2.3 DESCRIPTION

A. The Work includes all Contract Documents and permits for the removal, transportation, storage, sampling, analytical analyses, and disposal of all asbestos containing/contaminated items, articles and building materials as specified, shown or reasonably implied on the Contract Documents or discovered during demolition and renovation activities.

B. Identification of Asbestos-Containing Materials (ACM) and Asbestos-Containing Construction Materials (ACCM) and impacted/contaminated items, articles and building materials. This applies to any previously identified asbestos containing/contaminated materials and those discovered during the project construction phase.

C. Contractor is responsible for reviewing all asbestos survey reports, Contract Documents, and details to determine if they impact potentially asbestos containing/contaminated materials.

2.4 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and 01 33 23.

B. Product data must include manufacturer's product data, specifications, samples and application instructions and other pertinent information as necessary.

C. Quality Assurance Submittals: Refer to Article 1.7.

2.5 QUALITY ASSURANCE

A. Qualification: In accordance with the Contract Time set forth in Section 01 11 00.
   1. Registration: A copy of the registration for Asbestos-Related Work from the Division of Occupational Safety and Health in accordance with Title 8, Article 2.5 of the California Code of Regulations.
   2. Personnel Training for Superintendent and Foreman: A copy of current certificates which verifies that each superintendent and foreman has successfully completed an EPA approved Asbestos Abatement Contractor/Supervisor Course.
   3. Personnel Training for Workers: A copy of the asbestos abatement employee training program, and current certificates which verify that each employee has successfully completed an EPA approved Asbestos Abatement Worker Course.
   4. Respirators: A written standard operating procedure governing selection, fit-testing, and use of respirators in accordance with 29 CFR 1910.134, 29 CFR 1926.1101, CGAI Standard G7.1, ANSI Z88.2, and Z88.6. Also submit manufacturer's certification that the respirators to be used in this project comply with these regulatory requirements.
   5. Medical Examination: Proof that personnel who will be entering contaminated areas have had medical examinations, and furnish the results of said exams to the Facility Representative and signed by the medical examiner. Comply with 29 CFR 1910.1020 for access to employee exposure and medical records, and make available to the Facility Representative upon request.
      a. Before exposure to airborne asbestos, provide each employee with a comprehensive medical exam meeting the general definition outlined in Title 8 CCR Section 1529.
      b. Submit an employee roster to the Facility Representative for each work shift and confirm in writing within 24 hours of commencement of shift.
      c. Submit a signed and notarized "Certificate of Worker's Acknowledgement", for each personnel entering contaminated Work Areas at any time for the duration of the Work.
   6. A detailed plan of the work procedures for abatement of asbestos materials. (Attachment B - Asbestos Work Plan Outline)

B. Notifications, Communications and Postings: Notify the Facility Representative at the same time each notification is issued; properly identify each notification for the Facility Representative.
   1. Submit copies of notifications to all appropriate government agencies, including the following:

a. Division of Occupational Safety and Health
   1) Occupational Carcinogen Control Unit
   2) Notification must be in accordance with CCR, Title 8, Section 341.9.
b. Asbestos NESHAPS Coordinator
   1) Air Management Division, USEPA- Region 9
      75 Hawthorne Street
      San Francisco, CA 94105
   2) Contact the agency for the requirements of notification.
c. Copies of government agency correspondence must be included in the submittals.
d. Secure approval of Local police and fire departments having jurisdiction of the proposed security and safety plans for the Work prior to submittal to the Facility Representative. Contact both departments for the requirements of the approval process.

2. Safety Compliance: In addition to detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of Federal, State, Regional, and Local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials. Comply with applicable requirements of 29 CFR 1910.1101, and 40 CFR 61, Subparts A, & M, 40 CFR 61.152, and CCR Title 8 Section 1529. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the Work. Where requirements of this specification and reference documents vary, the most stringent requirement must apply.
3. The Contractor must have, at his office and also at the jobsite, at least one copy each, of the following codes: 29 CFR 1910, Subpart I, 29 CFR.1910.1101; 40 CFR Part 61, Subparts A & M; and CCR, Title 8, Section 1529.
4. Before the commencement of any Work at the site, post in both English and Spanish, bilingual EPA and CAL/OSHA caution signs in and around the Work area to comply with EPA and OSHA regulations.

C. Field Air Sampling: Personnel monitoring and other monitoring which is required by law or considered necessary by the Contractor for worker protection must be the responsibility of the Contractor and performed by the Contractor's Air Sampling Professional. The Contractor must disclose any interest in the firm or laboratory performing the Field Air Sampling or analysis.

D. Certifications:
1. Equipment Certification: Submit manufacturer's certification that vacuums, differential pressure equipment filters, and other local exhaust ventilation equipment conform to ANSI Z9.2.
2. Rental Equipment: When rental equipment is to be used in removal areas or to transport waste materials, a copy of the written notification provided to the rental company informing them of the nature of use of the rented equipment must be submitted to the Facility Representative Construction Supervisor and signed by the rental company.
3. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to CCR, Title 22, Section 67740 , to the Facility Representative and signed by the author.
4. For HEPA-filtration systems exhausting either internally or externally within 50 feet of the building's air intake or entry, submit the results of on-site DOP or Portacount testing of required efficiency.

PART 3 PRODUCTS

3.1 PROTECTIVE COVERING (PLASTIC)

A. Fire retardant polyethylene sheets 6-mil and 4-mil in sizes to minimize frequency of joints, approved and listed by the State Fire Marshal per Section 13121 and/or 13144.1 of the California Health and Safety Code.

3.2 TAPE, ADHESIVE, AND SEALANTS

A. Duct tape two inches or wider, or equal, capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

B. Spray adhesive for sealing polyethylene to polyethylene must contain no methylene chloride compounds.

C. Fire resistant sealants must be compatible with concrete, metals, wood cable jacketing, etc. Sealant must prevent fire, smoke, water and toxic fumes from penetrating through sealants. Sealant must have a flame spread, smoke and fuel contribution of zero, and must be ASTM and UL rated for three hours for standard method of fire test for Fire Stop Systems.

1. Manufactures
    a. Pipe shields Inc.; Model F1000 Wall Fire Barrier Kit.
    b. 3M; Penetration Sealing Systems Services 7902/7904 with 3M Fire Barrier Caulk and Putty.
    c. Dow Corning; Fire Stop sealant, Fire Stop Foam and Fire Stop Intumescent Wrap Strip.

3.3 PROTECTIVE PACKAGING

A. Appropriately labeled 6-mil (or double 3-mil) sealable polyethylene bags as a minimum.

B. Appropriately labeled, closed, impermeable drum containers.

C. Bilingual labels (English and Spanish) on containment glove bags, waste packages, contaminated material packages and other containers must be in accordance with EPA or OSHA standards.

3.4 WARNING LABELS AND SIGNS

A. As required by CCR, Title 8, Section 1529, 29 CFR 1926.1101, and 29 CFR 1910.145.

3.5 SURFACTANT

A. Surfactant, or wetting agent, for amending water will be 50 percent polyoxyethylene ether and 50 percent polyoxyethylene ester, or [.], at a concentration of one ounce per five gallons of water.

3.6 ENCAPSULANTS

A. For bridging encapsulant use:
   1. [International Protective Coatings Corporation; Serpliflex Concentrate.]
   2. [American Coatings Corporation; Cable Coating 2 B.]
   3. [Stinnes-Western Chemical Corporation; Wedco Wedbestos Acri Seal.]
   4. [Mateson Chemical Corporation; Cover-Up.]

B. After removal use clear encapsulant as follows:
   1. [American Coatings Corporation; Cable Coating 22 P.]
   2. [Better Working Environments; BWE 3000.]
   3. [Mateson Chemical Corporation; Cover-Al.]
   4. [Stinnes-Western Chemical Corporation; Wedco Wedbestos Primer.]

C. At steam piping lagging to be encapsulated in place use penetrating encapsulant as follows:
   1. [American Coatings Corporation; Cable Coating 22 P.]
   2. [Better Working Environments; BWE 3000.]
   3. [Mateson Chemical Corporation; Dust-Set.]
   4. [International Protective Coatings Corporation; Serpiflex.]

D. Protective Coating at Encapsulated Steam, Pipe Lagging: Heavy bodied latex based paint.

3.7 LAGGING ADHESIVE

A. Lagging adhesive must meet NFPA 90A Code:
   1. [Arabol; Childers CP52.]
   2. [Insul-Constic 102.]
   3. [ ].

3.8 VENTILATION EQUIPMENT

A. Provide differential pressure equipment in areas as shown in the Contract Documents. High-efficiency particulate absolute (HEPA) filtration systems must be equipped with filtration equipment in compliance with ANSI Z9.2, local exhaust ventilation. No air movement system or air filtering equipment must discharge unfiltered air outside the Work Area. Differential pressure within the Work Area must be maintained at negative 0.02 inches of water during abatement.

B. Provide air filtration equipment with HEPA filtration system to cleanse air of particulate matter during abatement. Replace HEPA filters when filters become clogged with particulate matter. Provide enough air filtration devices within the Work Area to maintain fiber levels within the protection factors of workers' respirators.

3.9 PERSONAL PROTECTIVE EQUIPMENT

A. Personal Protective Equipment must comply with the requirements of 29 CFR 1910, Subpart I, 8 CCR 1529 and CCR, Title 8, Division 1, Chapter 4.

B. Work clothes must consist of fire retardant, disposable, full-body coveralls, head covers, boots, rubber gloves, and sneakers or equivalent in accordance with 29 CFR 1926.1101, and ANSI WK 4519. Sleeves at wrists and cuffs at ankles must be secure.

C. Eye protection and hard hats must be available as required by applicable safety regulations and be in accordance with ANSI Z87.1 and Z89.1.

D. Provide authorized visitors with suitable protective clothing, headgear, eye protection, and footwear whenever they are required to enter Work Area.

3.10 RESPIRATORS

A. Provide all workers, foremen, superintendents, authorized visitors, and inspectors personally issued and marked respiratory equipment jointly approved by NIOSH/MSHA. When respirators with disposable filters are employed, provide sufficient filters for replacement as recommended by manufacturers or this Specification. Selection of respirators must be made according to the guidance of CCR, Title 8, Section 1529, 29 CFR 1926.1101; ANSI Z88.2; CGAI G7.1; EPA 560 OPTS-86.001; and Table I of this section.

B. When positive pressure supplied air Type “C” equipped with full-face piece respirators are employed, the Air Supply System must provide Grade “D” breathing air in accordance with OSHA 29 CFR 1910.134 and ANSI Z88.2 and CGAI G7.1.

C. The Compressed Air System for Type “C” Respirators must be high pressure (nominal 100 psi), with a compressor capacity to satisfy the respirator manufacturer’s recommendations. The receiver must have sufficient capacity to allow a 15 minute escape time for the respirator wearers in the event of compressor failure or malfunction. Type C supplied air respirators with HEPA filter disconnect may be used as an alternate to the 15 minute escape time required with event of compressor failure for Type “C” respirators. The Compressed Air System must have compressor failure alarm, high temperature alarm, carbon monoxide alarm, and suitable in-line air purifying sorbent beds and filters to assure Grade “D” breathing air.

D. The minimum respiratory protection required for this Project is as follows (See also Table I of this section):

1. Use either full-face or half-face negative pressured air purifying respirators for the following tasks:
    a. Pre-construction sealing of openings and penetrations to the Work Areas with plastic sheeting.
    b. Decontamination of removables.
    c. Loading asbestos-containing drums on truck for transportation and unloading bags at approved landfill.
    d. During final wipe down of workspace
    e. FACILITY REPRESENTATIVE and/or their Industrial Hygiene Consultant will consider alternate respiratory protection systems proposed by the Contractor. The Contractor must provide documentation that asbestos levels during previous, comparable jobs were within the protection factors of the respirators to be used as outlined in Table I. The use of the following type of respirators is contingent upon approval by FACILITY REPRESENTATIVE and/or their Industrial Hygiene Consultant.

TABLE I		
Maximum Airborne Fiber Concentration Outside Respirator*	Protection Factor	Minimum Acceptable Respirator**
0.1 fiber/cc	10	Half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency filters
0.5 fibers/cc	50	Full face piece air-purifying respirator equipped with high efficiency filters.
1.0 fibers/cc	100	Any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
10.0 fibers/cc	1,000	Type "C" supplied air respirators, full face piece, pressure demand mode.
Over 10.0 fibers/cc	1,000	Type "C" supplied air respirators, full face piece, pressure demand mode, equipped with an auxiliary positive pressure, self-contained breathing apparatus.

Disposable single use respirators are not to be worn for protection against asbestos.
*Must demonstrate that the fiber levels will not exceed 0.01 f/cc inside the respirator based on quantitative mask fit testing for each individual using the respirator protection factor formula.
**Greater respiratory protection is always acceptable regardless of asbestos concentrations.

2. Use high efficiency powered air-purifying respirators (PAPR) for the following provided maximum airborne fiber concentration outside the respirator is at or below 1.0 fibers/cc:
   a. During use of glovebag technique.
   b. During limited use of glovebag technique and removal of piping with asbestos insulation intact.
3. Use Type "C" respirators for the following (follow guidelines set forth in Table I):
   a. At the start of glovebag removal procedures until personal air monitoring indicates fiber levels acceptable for lesser respiratory protection.
   b. Any situation where gross contamination has occurred because of a tear or rupture in the glovebag and air sampling indicates airborne fiber levels have exceeded 1.0 fibers/cc. Use full face piece, supplied air Type "C" respirator, in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.
   c. During removal and encapsulation, use supplied-air, full face piece, Type "C" pressure demand for fiber levels at or below 10.0 fibers/cc or pressure demand with auxiliary positive pressure self-contained breathing apparatus for fiber levels over 10.0 fibers/cc. When exposure limits are established, respirators presented in Table I that afford adequate protection for the maximum concentrations of airborne asbestos may be used. If respirators

other than a Type “C” pressure-demand, supplied-air respirator, are provided, determine the exposure of each employee to airborne asbestos during each type of removal operation. Determine both the excursion limit and the eight hour, time-weighted average concentration of asbestos fibers to which each of the employees is exposed during each type of removal operation.

d. Type “C” Respirators must be worn with belt to minimize possibility of dislodging facemask if the hose becomes snagged in the Work Area.
e. Provide a minimum of two spare hoses to be available at any time to the state and their authorized visitors and inspectors to connect to their assigned clean Type “C” respirator without having to displace worker from abatement area to obtain a hose connection if use of Type “C” becomes necessary.

4. Alternate respiratory protection systems proposed by the Contractor will be considered by the Facility Representative Industrial Hygiene Consultant. Documentation must be provided by the Contractor that asbestos levels during previous, comparable jobs were within the protection factors of the respirators to be used as outlined in Table I. The use of the following type of respirators is contingent upon approval by the Facility Representative retained CIH consultant.
5. When Type “C” respirators are not required according to the OSHA standard (29 CFR 1926.1101, CCR Title 8 Section 1529 or this specification, whichever is more stringent), provide workers with approved, permanent, personally-issued and marked respirators with replaceable filters. Provide sufficient quantity of filters jointly approved by NIOSH/MSHA for use in asbestos environments so that workers can change filters as required by manufacturer during the workday. Filters must not be used any longer than one workday. Respirator filters must be stored at job site in Clean Room and must be totally protected from exposure to asbestos prior to their use.

E. Compressors must meet the requirements of 29 CFR 1910.134 and 29 CFR 1910 Subpart I. Periodic inspection of the carbon monoxide monitor must be evidenced. Documentation of adequacy of compressed air system/respiratory protection system must be retained on-site. Documentation must include a list of compatible components with the maximum number and type of respirators that may be used with the system. Periodic testing of compressed air must ensure that systems provide air of sufficient quality.

PART 4 EXECUTION

4.1 PROJECT PROCEDURES:

A. Abatement Procedure Plans: Submit a detailed plan of the Work procedures for abatement of asbestos materials. At a minimum include the following and follow Attachment B - Asbestos Work Plan Outline:

1. Personnel monitoring procedures in accordance with 29 CFR 1926.1101 and CCR Title 8 Section 1529.
2. Phasing of abatement work indicating daily roster of workers for each phase.
3. Security system warning signs locations in accordance with 29 CFR 1926.58
4. Detailed plans for decontamination facilities, toilets, and systems providing intraroom and Work Area to outside communication showing connections to existing building.

5. Standard procedures for protecting workers, visitors, and employees and protection of spaces outside Work Area from contamination.
6. Engineering systems exposure control indicating number, location, and capacity of supply and exhaust systems, the expected direction of flow, and the range of expected differential pressure in each area.
7. Number and location of view ports in accordance with BAAQMD requirements. Submit a shop drawing indicating locations.

B. Emergency Precautions and Procedures
1. Establish emergency and fire exits from the Work Area. Emergency exits must be equipped with two full sets of protective clothing and respirators.
2. Local medical emergency personnel, both ambulance crews and hospital emergency room staff, must be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated or injured workers, and must be advised on safe decontamination.
3. The Contractor must be prepared to administer first aid to injured personnel after decontamination. Seriously injured personnel must be treated immediately or evacuated without delay for decontamination. When an injury occurs, the Contractor must stop Work and implement fiber reduction techniques (e.g., water spraying) until the injured person has been removed from the Work Area.
4. Before starting actual removal of asbestos material local police and fire departments must be notified as to the danger of entering the Work Area and they must be invited to attend an informal training program to be conducted by the Contractor which must provide information regarding abatement activities, decontamination practices, etc. The Contractor must make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

C. Worker Protection Procedures (Bilingual: English and Spanish) -- To Be Posted in Clean Room.
1. Each worker and authorized visitor must, upon entering the job site: Remove street clothes in the clean-change room and put on a respirator and clean protective clothing before entering the equipment room or the Work Area.
2. Workers must, each time they leave the Work Area: Remove gross contamination from clothing before leaving the Work Area; proceed to the equipment room and remove clothing except respirators; still wearing the respirator, proceed naked to the showers; clean the outside of the respirator with soap and water while showering; remove the respirator; thoroughly shampoo and wash themselves.
3. Following showering and drying off, each worker must proceed directly to the clean change room and dress in clean clothes at the end of each day's work, or before eating, smoking, or drinking. Before re-entering the Work Area from the clean-change room, each worker and authorized visitor must put on a clean respirator and must dress in clean protective clothing.
4. Contaminated work footwear must be stored in the equipment room when not in use in the Work Area. Upon completion of asbestos abatement, dispose of footwear as contaminated waste.
5. Workers removing waste containers from the equipment decontamination enclosure must enter the holding area from outside wearing a respirator and dressed in clean disposable coveralls. No worker may use this system as a means to leave or enter the wash room or the Work Area.
6. Color of disposable clothing worn outside Work Area must be different in color or markings from disposable clothing work inside Work Area.

7. Workers must not eat, drink, smoke, or chew gum or tobacco while in the Work Area.
8. Workers and authorized visitors with beards must not enter the Work Area unless equipped with respirators approved for use with beards.

4.2 PREPARATION

A. Work Areas:
1. Shut down electric power. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground-fault interrupter circuits as power source for electrical equipment.
2. Shut down and isolate heating, cooling, ventilation air systems to prevent contamination and fiber dispersal to other areas of the structure. During the work, vents within the Work Area must be sealed with tape and plastic sheeting and as shown on plans.
3. Do not begin work until area is free of loose equipment.
4. Pre-clean fixed objects within the proposed Work Areas, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with protective barriers of plywood covered with minimum 4 mil plastic sheeting sealed with tape.
5. Clean the proposed Work Areas using HEPA filtered vacuum equipment or wet cleaning methods as necessary to maintain fiber levels at or below 0.01 f/cc. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters must not be used.
6. Seal off openings, including but not limited to corridors, doorways, ducts, grills, diffusers, and any other penetrations of the Work Areas, with plastic sheeting sealed with tape.
7. Cover floor and wall surfaces with plastic sheeting sealed with tape. Use a minimum of two layers of 6-mil plastic on floors. Cover floors first so that plastic extends at least 12 inches up on walls, then cover walls with a minimum of 4 mil plastic sheeting to the floor level, thus overlapping the floor material by a minimum of 12 inches. The Contractor may use additional layers to assist in protection during the replacement of materials.
8. Install Decontamination Enclosure System or equivalent prefabricated portable decontamination units as approved.
9. Maintain emergency and fire exits from Work Areas.
10. Shut down steam in lines that are to be abated.

B. Decontamination Enclosure System (General):
1. Construct Decontamination Enclosure System with suitable framing for rigid doorways and walls. Walls and floor of Decontamination Enclosure System must be lined with two layers of six mil polyethylene sheeting sealed with duct tape.
2. Access between contaminated and uncontaminated rooms or areas must be through an airlock. Access between any two rooms within the Decontamination Enclosure Systems must be through a rigid doorway. Rigid doorways to shower room must be provided with an interlocking device to prevent the opening of both doors simultaneously.
3. A fixed louver must be provided in all rigid panel doors of a Decontamination Enclosure System. Fixed louvers may be installed in rigid walls in lieu of installing them in rigid panel doors.

C. Worker Decontamination Enclosure System: Construct a Worker Decontamination Enclosure Systems contiguous to the Work Area consisting of three totally enclosed chambers as follows:

1. An equipment room with two rigid doorways, one to the Work Area and one to the shower room.
2. A shower room with two rigid doorways, one to the equipment room and one to the clean room. Shower room must contain at least one shower with hot and cold or warm water. Careful attention must be paid to the shower enclosure to ensure against leaking of any kind. Ensure a supply of soap at all times in the shower room. Shower water must be filtered to remove asbestos prior to being discharged to drain or barrel.
3. A clean room with one rigid doorway into the shower and one entrance or exit to non-contaminated areas of the building. Clean room must have sufficient space for storage of worker's street clothes, towels, and other non-contaminated items. Clean room must also store fresh, non-contaminated protective clothing, respirators, and any other accessory to be used by workers in the Work Area.

D. Equipment Decontamination Enclosure System:

1. Provide or construct an Equipment Decontamination Enclosure System consisting of areas as follows:
   a. A wash room, constituting an airlock, with a rigid doorway to a designated wet sponge area, a rigid doorway to the holding area, and a rigid doorway to the shower area.
   b. A wet sponge area, with a rigid doorway to the equipment room and wash room.
   c. A holding area, constituting an airlock, with a rigid doorway to an uncontaminated clean room and rigid doorway each to wash room and loading ramp.

E. Separation of Work Areas from Occupied Areas.

1. Separate parts of the building required to remain in use from parts of the building that will undergo asbestos abatement by means of airtight barriers, constructed as follows:
   a. Build suitable wood or metal framing and apply 3/8-inch minimum thick sheathing on the Work side.
   b. Cover sheathing with minimum of two layers of 6-mil plastic sheet, sealed with duct tape as specified on Work Area side.
   c. Seal all penetration points to the Work Area by using minimum of two layers of 6-mil plastic sealed with duct tape.

F. Maintenance of Enclosure Systems:

1. Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
2. Visually inspect enclosures at the beginning of each work period.
3. Use smoke methods to test effectiveness of barriers prior to implementing asbestos removal and when directed by the Facility Representative.

G. Asbestos abatement work must not commence until:

1. Arrangements have been made for disposal of waste at an acceptable site.
2. Arrangements have been made for containing and disposal of waste water resulting from wet stripping.
3. Work Areas and Decontamination Enclosure Systems and parts of the building required to remain in use are effectively segregated.

4. Tools, equipment and material waste receptors are on hand.
5. Arrangements have been made for building security.
6. Preparatory steps have been taken and applicable notices posted and permits obtained.
7. Differential pressure systems are installed and operating.
8. The Contractor submittal for isolating non-asbestos Work Areas have been reviewed and approved by the Facility Representative.

4.3 ENCAPSULATION OF ASBESTOS

A. Repair damaged and missing areas of existing asbestos lagging to obtain a suitable base for sealing and to restore continuity of existing material. Use asbestos free replacement material approved by the Facility Representative. Prepare surfaces and apply replacement material in accordance with manufacturer's recommendations.

B. Remove damaged, loose or hanging asbestos material. Pack in labeled, sealable plastic bags, 6-mil minimum thickness and place in labeled containers for transport.

C. Seal filled containers. Place caution labels on containers in accordance with OSHA regulation 29 CFR 1910.1101(g)(2) and 8 CCR 1529. Disposal procedure and clean up must be in accordance with 29 CFR 1926.1101and 8CCR 1529. Store filled containers in container area.

D. Clean external surfaces of containers thoroughly by wet sponging in the designated wet sponge area which is part of Decontamination Enclosure System. Move containers to wash room, wet clean each container thoroughly, and move to holding area pending removal to uncontaminated areas. Ensure that containers are removed from the holding area by workers who have entered from uncontaminated areas dressed in clean coveralls. Ensure that workers do not enter from uncontaminated areas into the wash room or the Work Area. Ensure the contaminated workers dispose of their contaminated coveralls in the wash room except respirators; after wet cleaning the containers and moving them to the holding area, still wearing the respirator, proceed naked to the showers; then follow the procedure of respirator washing, showering, drying off, and dressing in clean clothes as outlined under Article 3.01 (C) Worker Protection Procedures (Bilingual), of this section.

E. Upon receipt of written notice to proceed, apply penetrating encapsulant.
   1. Encapsulant must be prepared and applied according to manufacturer's specification, using airless spraying equipment. Because application by spraying could cause dissemination of residual fibers, encapsulant must be applied with as much caution and at as low a nozzle pressure as possible.
   2. Encapsulant must be applied in two coats. First coat must be applied until lagging begins to drip. Encapsulant must be allowed to dry. Second coat must then be applied until lagging begins to drip.

F. Apply penetrating type encapsulant to provide complete penetration of asbestos surfaces in accordance with manufacturer's recommendation. Apply encapsulant using airless spray equipment.

G. Apply heavy-body latex paint to lagging after second coat of encapsulant has completely dried and in accordance with encapsulant manufacturer's directions.

4.4 ASBESTOS REMOVAL (GROSS REMOVAL TECHNIQUE)

A. Spray asbestos material with amended water, using spray equipment capable of providing a “mist” application to reduce the release of fibers. Saturate material sufficiently to wet it to substrate without causing excess dripping or delamination of the material. Spray asbestos material repeatedly during work process to maintain wet condition and to minimize asbestos fiber dispersion.

B. Remove saturated asbestos material in small sections. As it is removed, pack material in sealable plastic bags of 6-mil minimum thickness and place in labeled containers for transport. Material must not be allowed to dry out prior to insertion into container. Where asbestos material is applied to a gypsum or fiber substrate, both the substrate and the asbestos materials may be removed. Replacement of substrate, if removed, must be performed hereunder in accordance with applicable portions of other sections of these specifications.

C. Seal filled containers. Place caution labels on containers in accordance with OSHA regulation 29 CFR 1910.1101(g)(2) and 8 CCR 1529. Disposal procedure and clean up must be in accordance with 29 CFR 1926.1101 and 8 CCR 1529. Store filled containers in container area.

D. Clean external surfaces of containers thoroughly by wet sponging in the designated wet sponge area, which is part of the Decontamination Enclosure System. Move containers to wash room, wet clean each container thoroughly, and move to holding area pending removal to uncontaminated areas. Ensure that containers are removed from the holding area by workers who have entered from uncontaminated areas dressed in clean coveralls. Ensure that workers do not enter from uncontaminated areas into the wash room or the Work Area. Ensure the contaminated workers dispose of their contaminated coveralls in the wash room except respirators; after wet cleaning the containers and moving them to the holding area, still wearing the respirator, proceed naked to the showers; then follow the procedure of respirator washing, showering, drying off, and dressing in clean clothes as outlined under Article 3.1 (C) Worker Protection Procedures (Bilingual), of this section.

E. After completion of stripping work, surfaces from which asbestos has been removed must be wire brushed and/or wet sponged or cleaned by an equivalent method to remove all visible material and residue. During this work the surfaces being cleaned must be kept wet.

F. Notify the Facility Representative and the Facility Representative observation service in writing that Work Area is ready for visual inspection review. During visual inspection the Facility Representative observation service must verify that all surfaces in the Work Area are free from all visible material and residue. Otherwise, repeat wire brushing and/or wet sponging and cleaning as above until the Work Area is in compliance.

G. All inaccessible lagging having exposed edges as a result of this work must be sealed with arabol or similar compounds and labeled after approval by the Facility Representative observation service.

H. Pipe Insulation Removal: Cut and separate metal bands where applicable. Locate the section length (typically three feet) and cut around the circumference at the end of the attached section. Twist the section to ensure it is free from the pipe. Using an airless sprayer, saturate the exterior of the covering with amended water to limit fiber release. Locate the upper and lower half seam and position one seam at the top of the pipe. After positioning, cut along the length of the section and carefully open each half. Immediately saturate the exposed inner surface thoroughly with amended water. Lower both halves into 6-mil polyethylene disposal bags. Insulation must not be allowed to fall on the floor. Debris on the floor must be picked up and placed in disposal bags immediately. Clean to remove all debris remaining on the pipe.

I. Fitting Insulation Removal: Saturate fitting insulation with amended water. Remove fitting insulation using scraping tools, hand pressure and brushing. Immediately saturate the exposed inner surface thoroughly with amended water. Insulation must be removed by striking or chipping the surfaces. Deposit fitting insulation directly into 6-mil disposal bags. Fitting insulation must not be placed or allowed to fall on the floor. Debris falling on the floor must be picked up and placed in disposal bags immediately. Clean to remove all debris left on fitting.

J. Duct Insulation Removal: Spray insulation with amended water using an airless sprayer. Remove saturated insulation in small sections using scraping tools, hand pressure and brushing. As it is removed, pack the material in sealable 6-mil disposal bags. Insulation must not be placed or allowed to fall on the floor. Debris falling on the floor must immediately be picked up and placed in disposal bags. Clean to remove all debris left on the substrate.

4.5 ASBESTOS REMOVAL (GLOVEBAG TECHNIQUE)

A. For glovebag work approved for this project, procedures specified in this Section must be amended as specified in this article.

B. Bags commercially manufactured specifically for glovebag enclosure removal of asbestos must be used, subject to consultant’s approval. All bags must be a minimum of 6-mil clear PVC or polyethylene, appropriately sized for the removal area and task.

C. Provide and utilize the following materials and equipment for this work. Chilled amended water, duct tape, plastic sheeting and waste bags, respiratory protection, disposable coveralls, warning signs, HEPA-filtered vacuum cleaner, wettable fiberglass cloth, utility knife (retractable blade), tin snips as required for a aluminum jacket, wire cutters (as required for wire reinforcing), industrial stapler (Bostitch or equivalent), with + 3 Lineal Feet (LF) of maximum 3/16-inch inside diameter (I.D.) flexible tubing at end of wand for insertion into glovebag). Chisels and wire brushes may be used on pipe joint material which is resistant to wetting.

D. Precautions:
   1. Maximum temperature of components (pipe, ducts, stacks, etc.) allowable for glovebag work must be as specified by glovebag manufacture. Glovebag procedures must not be permitted on live steam equipment.
   2. Contain Work Area by shutdown of HVAC systems, excluding unauthorized personnel from the immediate Work Area, closing doors, and installing warning signs (as directed by the Facility Representative observation service).

3. Wear personal protection consisting of disposable whole body suits and respirators.
4. Protect immediate area by covering floor and nearby equipment with plastic sheeting; temporarily wrap damaged/deteriorated asbestos insulation adjacent to the work with plastic and tape to prevent damage or disturbance during removal.
5. Provide supplementary lighting as required.
6. The Contractor must have a HEPA-exhaust unit on-site during all glovebag operations for use in an emergency where breech of glovebag occurs.
7. The Contractor must provide a crew of two or more well trained persons for each glovebag removal project. One member of the crew must be dedicated to ensuring that the glovebag is secured to the component.

E. Preparation:
1. Preclean area as specified or shown on Drawings.
2. Pipe, other wrappable components - place necessary tools in bag. Wrap glovebag around pipe, seal with staples and tape leaving enough sealed space above pipe to allow easy access. Secure bag to pipe to support weight of stripped insulation and water (additional support for the bag may be provided by a chair or ladder, or by suspension).
3. Insert HEPA-vacuum nozzle and flexible tubing or wetting agent sprayer into hole location provided; seal airtight with duct tape.
4. Smoke Test: The Facility Representative observation service must inject smoke via a small hole and slowly squeeze bag. Repair leaks and hole as required.

F. Removal Procedure:
1. During removal, periodically wet the inside surfaces of bag and any waste for better visibility and fiber control. Use cold water to prevent fogging.
2. During removal, periodically use HEPA-vacuum to compensate for any leaks and to reduce airborne fiber levels.
3. Cut the insulation sharply for neat sealing of exposed insulation. Leave four inches minimum margin at the bag seal point for safety. Thoroughly wet pipe insulation.
4. After removal and brushing, wash down all surfaces to below the levels where the bag will be sealed, and saturate the waste. Look for residue in folds, on the back side of pipe, etc.
5. Upon completion of removal Work, but prior to commencing encapsulation, the Contractor must request the Facility Representative observation service to conduct an inspection and approval of the removal work.
6. Upon approval from the Facility Representative observation service, the Contractor must then seal all substrate surfaces from which asbestos material was removed with an approved encapsulant.
7. Gather tools in a glove hand and pull the glove inside out. Seal the arm with plus or minus six inches of tape and cut through the middle of the tape. Bend and re-tape the ends. Save the “bagged” tools for the next bag operation or clean by placing in pail of water.
8. Collapse the bag with the HEPA-vacuum. With vacuum still applied, seal the bag just above the glove level. Remove the nozzle and tubing, Place a 6-mil waste bag over the glove bag and then carefully remove the glove bag from the component and immediately seal it in the labeled waste bag. Check the component for loose waste and vacuum as required. Twist and seal the waste bag, then place into container.

G. Post Removal Procedures:
   1. Seal exposed insulation with fiberglass wettable cloth or other approved material while the insulation is damp, unless additional removal is planned.
   2. If no additional removal is planned, the glove-enclosed tools must be immersed in a pail of water, opened and cleaned. (Rags and/or sponges can be used to clean other tools, but cannot be salvaged). The water and other debris must be disposed of as asbestos waste.

H. The Contractor may elect to remove piping scheduled for demolition as indicated on drawings with the asbestos insulation intact. Glovebag a section of piping insulation large enough that the pipe can be cut without disturbing the adjacent asbestos insulation. Wrap the remaining asbestos insulation in two layers of 6-mil plastic secured with duct tape and cut and remove the piping in section. Dispose of entire piping sections with intact insulation as contaminated asbestos waste.

I. Clean and remove miscellaneous plastic sheeting barriers HEPA filters and disposable tools. Clean and seal areas damaged or disturbed by temporary barriers. Place debris in containers with sealed glovebags. Seal filled containers and remove from Work Areas to holding area until ready for loading for disposal. If glovebag operations are conducted in a contained area, decontaminate containers and workers as specified elsewhere in the section. Notify the Facility Representative that Work Area is ready for clearance air testing.

4.6 DISPOSAL

A. Waste Transportation: Submit the method of transport of hazardous waste including name, address, EPA I.D. number and telephone number of transporter.

B. Hazardous Waste Site: Submit for approval the name, class, address, EPA I.D. number and telephone number of hazardous waste site(s) to be utilized for disposal.

C. Waste Manifest: Submit for approval at the Pre-Construction meeting a filled out Waste Manifest form. For Waste Manifest purposes the Generator is the facility of the subject work. Obtain necessary information for this purpose from the Facility Representative construction supervisor. Give a copy of the Waste Manifest to the Facility Representative observation service for each required shipment.

D. Containers to be loaded for transportation from the holding area must be removed by workers who have entered from uncontaminated areas, dressed in clean overalls. Workers must not enter from the holding area into the wash room or the Work Area.

E. The sealed asbestos containers must be delivered to the Contractor’s pre-designated approved Hazardous Waste Site for burial; in accordance with Title 22, CCR, EPA guidelines and 40 CFR 61.156 and local Air Pollution Control District Regulations.

F. Notify the Facility Representative 48 hours in advance of the time when contaminated materials are to be removed from the site.

G. The Contractor must be responsible for safe handling and transportation of hazardous waste generated by this contract to the designated Hazardous Waste Site.

H. The Contractor must hold the Military Department harmless for claims, damages, losses, and expenses against the Military Department, including attorney's fees arising out of or resulting from asbestos spills on the site or spills reroute to the disposal site.

4.7 DECONTAMINATION OF WORK AREA (GROSS REMOVAL TECHNIQUE)

A. After written notification to proceed from the Facility Representative observation service after visual inspection, encapsulate surfaces where asbestos material has been removed.

1. Surfaces from which asbestos have been removed must be sealed with a clear encapsulant after the surface is clean and dry. Apply encapsulant using airless spray equipment.
2. Prepare and apply encapsulant according to the manufacturer's specifications. Because application by spraying could cause dissemination of residual fibers, encapsulant must be applied with as much caution and at as low a nozzle pressure as possible.
3. Encapsulant must be applied in two coats. Encapsulant must be allowed to dry between coats, per manufacturer's recommendations.

B. Upon completion of encapsulation work, notify the Facility Representative in writing that encapsulation surfaces are ready for review. The Facility Representative observation service and the Contractor must certify that a clearance fiber count is at or below 0.01 f/cc.

C. Upon proper notification, the Facility Representative and the Facility Representative observation service will review encapsulated surfaces for conformance with specifications. Non-conformance of work must be remedied until work is in compliance.

D. Upon successful compliance with review of the Facility Representative, and after written notification from the Facility Representative observation service, remove outer layer of plastic floors. Inner plastic layer and isolation barriers, vents, grilles, diffuser, etc. must remain in place.

E. Wet clean, or clean with a HEPA vacuum equipment, surfaces within Work Area. Equipment used in Work Area must be included in clean-up and must be removed from Work Area. Decontamination Enclosure System(s) must be removed during cleaning sequence.

F. After final cleaning operation or removal procedure specified under Article 3.5, notify the Facility Representative 24 hours in advance that Work Area is ready for review and "Clearance Testing". If "Clearance Testing" shows Work Area has not been decontaminated, repeat cleaning and/or application of encapsulant until Work Area is in compliance.

G. After written notification from the Facility Representative accepting decontamination of Work Area, including work specified under Article 3.5, remove inner plastic layer isolation barriers and proceed with any remaining repairs or refinish work and reestablishment of objects and systems as specified.

4.8 AIR MONITORING

A. Area Air Monitoring:

1. Throughout the abatement process area air monitoring may be conducted by the Facility Representative observation service to ensure work is done in conformance with fiber concentration limits of these specifications.
2. If area air monitoring outside the Work Area are in excess of 0.01 f/cc the Contractor must make changes in work procedures to assure compliance with minimum standards. Unsatisfactory results are fiber counts in excess of 0.01 fibers/cc by PCM Method outside the Work Area for area air monitoring.
3. The Facility Representative observation service will report area air monitoring results collected inside the Work Area to the Contractor and the Facility Representative on the following day prior to start of Work.

B. The Contractor must submit written report to the Facility Representative observation service of the Contractor's personnel monitoring before the start of work on the following day. Personnel air monitoring must not exceed the levels recommended for the type of respiratory gear in use.

C. Clearance Air: The Facility Representative upon receipt of the clearance certification from the Contractor, will conduct final air clearance sampling upon completion of each Work Area. Final air clearance samples will have a minimum volume of 1,200 liters. Except where debris has been removed from a soil surface, samples must be collected using aggressive air sampling techniques. For the purpose of this work, air clearance release criteria must be defined as an air sample showing less than 0.01 fibers/cc by PCM method, or TEM AHERA clearance levels. TEM analysis must also be performed if two consecutive PCM tests fail to provide Work Area clearance. Contractor is responsible for all costs associated with failure to meet clearance requirements including lab costs, consultant costs, and any other direct or indirect costs incurred by the Facility Representative.

4.9 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

A. When clean-up and installation of replacement finishes is complete:
1. Relocate objects moved to temporary locations in the course of work to their former positions.
2. Re-secure mounted objects removed in course of Work in their former positions.
3. Re-establish HVAC, mechanical and electrical systems in proper working order. Install new filters and dispose of used filters as contaminated waste.

4.10 REPAIR AND PAINTING

A. Damage to finishes and other items as a result of work under this section must be repaired or replaced, painted, or cleaned to match existing adjacent surfaces to satisfaction of the Facility Representative and as specified elsewhere.

4.11 CLEAN UP

A. Maintain a clean project site during and upon completion of work of this section. Cleaning must be in accordance with the General Requirements and Section 01 35 43.

END OF SECTION

SECTION 02 82 13 - ATTACHMENT A
ASBESTOS BULK SAMPLING SUMMARY

The following data is taken from the [_____] non-destructive pre-demolition hazardous materials survey of the [_____], dated [_____]. Any suspected asbestos materials encountered during work that have not been identified as part of this survey should not be disturbed until such time proper sampling and analysis has been conducted by authorized personnel to determine appropriate handling procedures. The FACILITY REPRESENTATIVE must be notified immediately upon encountering such materials. All material quantities reported herein are rough order of magnitude estimates and should not be used for bidding purposes. Contractor's bidding on the abatement portion of this project must be limited to those materials identified in Attachment A below. Sub-surface asbestos-containing utility piping, including but not limited to, cement water pipes and wrapped gas mains, are assumed to be located in the vicinity of the [Building] and throughout the site. The majority of the sub-surface asbestos-containing utility piping located throughout the site has been removed under [Bid Package No 1].

[BUILDING]

MATERIAL	AMOUNT
[ ]	[ ]

END OF SECTION 02 82 13 - ATTACHMENT A

SECTION 02 82 13 - ATTACHMENT B
ASBESTOS WORK PLAN OUTLINE

In accordance with Contract Documents, the Contractor is required to prepare a written (typed or word-processed), site-specific Asbestos Work Plan, and submit to the Facility Representative prior to start of Work. This plan is required for the Contractor to meet the requirements of OSHA and the Contract Documents, and must describe work procedures and control methods that will protect [Facility] facilities and staff.

The Contractor must prepare the Asbestos Work Plan to include, at a minimum, the following information:

I. Location of Work

The Work to be completed under this Asbestos Work Plan will be completed at:
[Facility]

Previous hazardous materials inspections or surveys have found that asbestos-containing materials are present at the following locations:
[Building/Location]
[Building/Location]

The presence of asbestos represents a hazard to workers who may disturb these materials during the course of this Work.

II. Description of Work

Describe the anticipated work scope, including:
A. Removal (list materials and locations)
B. Encapsulation (list materials and locations)
C. Repair (list materials and locations)
D. Decontamination (list materials and locations)
E. Any other activities that will or may result in worker exposures to asbestos.

III. Schedule

A. General
Start Date:
Completion Date:

The competent person will conduct worksite visual inspections on a daily basis, or more often as necessary.

B. Phase Dates

Phase/Task	Anticipated Date(s)
Mobilization	_____
Setup of Work Area(s), containments, other _____	_____
Removal/repair/other abatement	_____
Final cleaning	_____
Visual Inspection	_____
Final clearance (visual and air sampling)	_____
Teardown	_____
Demobilization	_____

IV. Equipment and Materials

List all equipment and materials to be used, such as the following. List trade names or types where known.

HEPA vacuums
Scrapers
Power saws
Hammers
Screwdrivers
Pry bars
Cutting shears
Other hand tools
Negative air filtration units
Manometers
Shower facilities
Airless sprayers/compressors
Cleaning detergents
Solvents (must be approved by University)
Paints/sealants/encapsulants (must be approved by University)
Rollers/brushes
Butyl rubber gloves
Disposable coveralls
Respiratory protection
Cotton work gloves
Leather work gloves

V. Crew

List all workers and supervisors, with emergency contact names and pagers.

Clearly identify the supervisor and competent person who has authority for all safety and health.

VI. Control Measures and Work Procedures

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:

OSHA Class I, II, III, IV
Negative pressure enclosure
Wet methods
Glovebagging
Respiratory Protection
HEPA vacuums
Containment (polyethylene barriers) without negative pressure
Solvent removal of mastic
Other procedures *(list)*

VII. Respiratory Protection and Protective Clothing/Personal Protective Equipment

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.

List all personal protective equipment anticipated to be used on the project.

VIII. Decontamination/Hygiene Facilities

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.

Specify the required use of the facilities, including use of the facilities prior to eating, drinking, and smoking, and before leaving the project site.

Describe handling or treatment of asbestos-contaminated solid waste and wastewater.

IX. Air Monitoring Data

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.

X. Worker Training and Qualifications

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.

XI. Notification

Describe all arrangements made on multi-employer work sites to inform affected employers about the asbestos project. Attach copies of any notifications.

XII. Containment Diagram

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.

XIII. Waste

Describe how all waste generated on this project will be packaged, labeled, stored, transported, manifested, and disposed of.

XIV. Preparation of Asbestos Work Plan

Date Prepared: _____

Prepared By (signature, name, and title) _____

END OF SECTION 02 82 13 - ATTACHMENT B

SECTION 02 83 33

REMOVAL AND DISPOSAL OF MATERIAL CONTAINING LEAD

PART 1

PART 2 GENERAL

2.1 SECTION INCLUDES

A. This section specifies requirements for lead-impacted construction including but not limited to:
   1. SUMMARY OF LEAD-RELATED WORKSummary of Lead-Related Work (Section 2.2)
   2. Definitions (Section 2.3)
   3. Submittals and Notices (Section 2.4)
   4. Contractor's Compliance and Quality Assurance (Section 2.5)
   5. Products (Section PART 3)
   6. Execution (Section PART 4)
   7. General Work Area Preparation (Section 4.2)
   8. Worker Protection and Decontamination (Section 4.3)
   9. Respiratory Protection and Personal Protection Equipment (PPE) (Section 4.4)
   10. Hygiene Facilities and Regulated Areas (Section 4.45)
   11. Removal of Loose and Peeling Paint (Section 4.46)
   12. Surface Preparation (Section 4.77)
   13. Lead-Related Demolition (Section 4.88)
   14. Lead-Contaminated Debris Clean Up (Section 4.99)
   15. Mechanical Paint Removal and Surface Preparation (Section 4.10)
   16. Chemical Removal of Lead-Based Paints (Section 4.11)
   17. Cleaning and Decontamination of Work Areas (Section 4.122)
   18. Clearance Inspection and Testing (Section 4.133)
   19. Lead Contamination of the Environment (Section 4.144)
   20. Waste Storage, Segregation, and Characterization (Section 4.155)
   21. Hazardous Waste Disposal (Section 4.166)
   22. Alternative Procedures (Section 4.17)
   23. Stop Work Orders (Section 4.188)
   24. Project Closeout (Section 4.19)

2.2 SUMMARY OF LEAD-RELATED WORK

A. General:
   1. The work described by these specifications is applicable to the California Military Department (CMD) for the Camp Roberts Barracks Renovation. The Project is located at Camp Roberts in San Miguel, California.
   2. This work involves disturbance of finishes and components at the project site that are known or assumed to contain lead and meet the definition of Lead Based Paint (LBP) and/or Lead Containing Paint (LCP), thus disturbance of surface coatings (paint) or ceramic glazing at the project site shall be understood to impact LBP and/or LCP.

3. The Contractor shall determine and implement applicable California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) worker protection requirements, including Title 8 of the California Code of Regulations, Section 1532.1 (8 CCR 1532.1) in a manner that protects Contractor personnel and the public and the environment from potential lead contamination resultant from Contractor work in association with this project.
4. Contractor shall furnish all labor, materials, services, insurance and equipment which are specified, shown or reasonably implied for effective containment, dust suppression, cleaning, impaction, transport, and disposal of LBP and/or LCP from the project site including the following work:
    a. Removal of loose and peeling paint from all painted/coated components and surfaces to be impacted during the project work.
    b. Clean up and disposal of all interior lead contaminated debris from selective demolition, loose paint removal, and surface preparation.
5. The work includes the proper containment, removal, transport, and disposal of the following lead-contaminated materials associated with lead-related construction activities including, but not limited to, the following:
    a. All materials used for work area preparation.
    b. All discarded personnel protective equipment.
    c. All other potentially contaminated materials.
    d. All lead contaminated waste and debris.
    e. Properly disposal of lead-related debris, as listed below:
        1) Lead Based Paint (LBP): waste stream is to be segregated and representative samples for laboratory analysis collected by the Contractor as per this specification.
        2) Lead Containing Paint (LCP): waste stream is to be segregated and representative samples for laboratory analysis collected by the Contractor as per this specification.
        3) Paint waste or other debris that has been classified as hazardous due to the characteristics of toxicity, as determined by required testing performed by the Contractor in accordance with California Code of Regulations (CCR), Title 22, Div. 4.5 and this specification.

B. Upon completion of Contractor's work, all interior and exterior surfaces located within the Contractor's scope of work are to be free of lead-containing debris and/or lead-dust hazards.

C. All resulting demolition, surface preparation, removal, and clean-up wastes are to be disposed of by the Contractor as hazardous wastes unless proven otherwise by waste characterization sampling.

D. All work shall be supervised by experienced persons trained, knowledgeable and qualified in the techniques of lead containing material impaction, proper handling, disposal requirements and the subsequent cleaning of lead-contaminated areas.

E. Related Documents:
1. California Military Department Project, Limited Hazardous Material Sampling Survey Report prepared by NAL and dated February 25, 2015.
2. The project site is depicted on the hazardous material report associated with these specifications.

F. Insert "Related Requirements here (to include but not limited to):

1. Section 00 2126 – Existing Hazardous Materials Information
2. Cal/OSHA Title 8, California Code of Regulations (CCR)
3. California Air Resources Board Ambient Air Quality Standard, Title 24 CCR
4. California Department of Health Services, Title 17 CCR
5. Cal/EPA Title 22 CCR

2.3 DEFINITIONS

Definitions specific to the work of this section:

A. Abatement – Hazardous materials related construction undertaken for the purpose of eliminating or reducing existing recognized hazardous materials related hazards. Title 17 CCR, Division 1, Chapter 8 defines abatement as any set of measures designed to reduce or eliminate lead hazards or lead-based paint for public and residential buildings, but does not include containment or cleaning.

B. Accreditation – Accreditation means that California Department of Public Health (CDPH) has reviewed and finds acceptable a training provider's written application for accreditation, and has conducted and finds acceptable, an on-site audit as specified in Title 17 CCR, Division 1, Chapter 8, subsection 35078(e). Accredited training provider means any individual, corporation, partnership or other unincorporated association or public entity to which the Department has granted accreditation or provisional accreditation to offer lead-related construction courses and continuing education instruction.

C. Action Level (AL) – Cal/OSHA employee exposure level for airborne concentrations of lead of 30 micrograms per cubic meter of air (30µg/m3) calculated as an eight-hour time-weighted average (TWA) per CCR Title 8, Section 1532.1 Lead (8 CCR 1532.1[(b]).

D. Airlock – A system for permitting ingress or egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways at least three feet apart.

E. Air Monitoring – The process of measuring the air contaminant (e.g. lead) content of a specified volume of air in a stated period of time. The purpose of air monitoring is to determine compliance with regulatory occupational and specified environmental exposure limits for airborne contaminates.

F. Cal/OSHA – The State of California Department of Industrial Relations, Division of Occupational Safety and Health.

G. CMD – The State of California Military Department and Rehabilitation (CMD) and its designated representatives for work to be conducted at the project site. For work covered by this plan, CMD or designated representatives include those persons identified by the Contract or otherwise designated by CMD as being authorized to represent CMD for the construction of the Project.

H. Designated representative (State's Representative) – Person(s) designated or appointed by CMD to represent them in matters concerning work project at the site.

I. CDPH – The State of California Department of Public Health.

J. Certified Lead Supervisor – A certified lead supervisor is an individual who has received a certificate or an interim certificate from CDPH as a “certified lead supervisor.”

K. Certified Lead Worker– A certified lead supervisor is an individual who has received a certificate or an interim certificate from CDPH as a “certified lead worker.”

L. Clearance Inspection – A clearance inspection means an on-site limited investigation, as described in Chapter 15: Clearance, sections II-VI, “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing,” U.S. Department of Housing and Urban Development, June 1995.

M. Competent Person – An onsite supervisor who has been formally trained in lead-related construction and who is capable of identifying lead hazards, substandard and improper lead hazard controls, procedures, practices, and conditions and who has sufficient experience and authority to take prompt corrective measures to take corrective action.

N. Containment – Protective physical barriers and associated means and methods used to contain airborne contaminant dust within the work area and prevent contamination of surfaces and grounds below and adjacent to areas where a hazardous material is being disturbed.

O. Hazard Communication (HAZCOM) – Hazard communication training and product labeling is required by Cal/OSHA to be implemented by CMD for each employee exposed to hazardous materials. HAZCOM shall be in accordance with the Hazard Communication Standard (8 CCR 5194). For this plan, HAZCOM training shall be understood to include the hazards associated with lead containing materials and surface coatings.

P. Hazardous Lead Waste – Lead–containing debris shall be classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4.5. Any substance(s) listed in Chapter 11 Section 66261.24 at concentrations greater than the applicable listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC) is considered hazardous waste and may need to be further characterized by the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with 40 CFR 261 and other tests prior to disposal as a hazardous waste.

Q. Hazardous Waste – Waste material that is listed or meets the criteria for hazardous waste as set forth in California Code of Regulations (CCR), Title 22, and Article 9 (see below). At minimum, with regard to the work project, the following shall be considered to be hazardous wastes associated with lead containing paint with respect to this section:
   1. Paint waste or other debris that has been classified as hazardous due to the characteristics of toxicity, as determined by testing in accordance with CCR, Title 22, Div. 4.5.
   2. Any substance listed in Chapter 11, Section 66261.24 at concentrations greater than its listed Soluble Threshold Limit Concentration (STLC) of 5.0 part per million (ppm) or Total Threshold Limit Concentration (TTLC) of 1000 ppm. If the STLC or TTLC values are exceeded, the lead related waste will need to be further characterized by the Toxicity Characteristics Leaching Procedure (TCLP) in accordance with 40 CFR 261.

R. HEPA Vacuum Equipment – High efficiency particulate air (HEPA) filtered vacuuming equipment with a filter system capable of collecting and retaining lead dust. Filters shall be certified to be of 99.97% efficiency for retaining particles of 0.3 microns diameter or larger.

S. HUD – United States Department of Housing and Urban Development.

T. Intact LCP/LBP Components – LCP/LBP components (including equipment) removed substantially intact with LBP firmly adhering to the surface.

U. Lead Based Paint (LBP) – Paint that contains greater than or equal to 0.5 percent lead by weight, or 5,000 ppm, when analyzed by atomic absorption spectroscopy (AAS) or inductively coupled plasma-atomic emissions spectroscopy (ICP-AES) or 1.0 milligrams of lead per square centimeter (mg/cm2) as determined by x-ray fluorescence (XRF) testing or laboratory analysis, or as identified by plan. Untested paints or coatings must be presumed to contain LBP. The presence of LBP triggers specific CDPH rules for residential and public buildings. LBP triggers certain Cal/OSHA pre-job notification requirements, if quantity thresholds are exceeded.

V. Lead Containing Paint – Consumer Product Safety Commission (CPSC) definition of a paint or finish coating with a lead content of greater than 0.009 percent by weight (90 ppm). Note: Cal/OSHA regulation requires compliance with worker protection rules when impacting paint or material containing lead at any detectable level. Untested paints must be presumed to contain lead at Lead Based Paint (LBP) levels (see LBP definition, below).

W. Lead Containing Material – Any material, other than a paint or coating, with a lead content of 0.5 percent (5,000 ppm) or greater. Lead containing material may poise occupational and environmental hazards depending on lead content (level), operation or process, amount of disturbance, and other factors.

X. Lead Contaminated Dust – Lead-contaminated dust means dust that contains an amount of lead equal to, or in excess of:
   1. Forty micrograms per square foot (40 µg/ft^2) for interior floor surfaces; or
   2. Two hundred and fifty micrograms per square foot (250 µg/ft^2) for interior horizontal surfaces; or
   3. Four hundred micrograms per square foot (400 µg/ft^2) for exterior floor and exterior horizontal surfaces.

Y. Lead Contaminated Soil – Lead-contaminated soil means bare soil that contains an amount of lead equal to, or in excess of, four hundred parts per million (400 ppm) in children's play areas and one thousand parts per million (1000 ppm) in all other areas.

Z. Lead Hazard – Lead hazard means deteriorated lead-based paint, lead contaminated dust, lead contaminated soil, disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisance which may result in persistent and quantifiable lead exposure.

AA. Lead Paint Surface Preparation – The process of conducting surface preparation to remove loose, flaking, and deteriorated paint prior to selective or general work or painting. Where the surface is being prepared for painting, lead-related work controls apply for any additional surface preparation required for painting. Also referred to as lead paint stabilization.

BB. Lead Related Construction – Any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and clean-up, that, by using or disturbing lead containing material or soil, may result in significant exposure of adults or children to lead.

CC. Lead Related Waste – Paint chips, vacuum dust, and debris, used cleaning articles, wastewater, plastic sheets and other disposable items used during lead/chromium containing paint impaction are considered lead contaminated waste or suspect hazardous waste pending further characterization.

DD. Parts Per Million (ppm) – A common unit used to denote the lead concentration of surface coatings. Note: ppm is equivalent to milligrams per kilogram (mg/kg).

EE. Permissible Exposure Limit (PEL) – This is the highest level of a regulated contaminant in air that an employee can be permitted to be exposed to in an eight hour work day without respiratory protection. For longer work days, the PEL is lowered and can be determined by dividing 400 by the number of hours worked per day. When the PEL is exceeded, action must be taken to lower the exposure level and protect the worker per the applicable regulation.
    1. PEL (lead) – An exposure to airborne lead of 50 micrograms of lead per cubic meter of air (50 µg/m3), averaged over an 8-hour workday referred to as a time weighted average (TWA).

FF. Personal Protective Equipment (PPE) – Coveralls, respirators, gloves, eye and hearing protection, hardhats and/or other personal equipment worn by individuals for the purpose of shielding from exposure to potentially hazardous materials or site conditions.

GG. Presumed Lead-Based Paint – Presumed lead-based paint means paint or surface coating affixed to a component in or on a structure constructed prior to January 1, 1978. Presumed lead-based paint does not include paint or surface coating that has been tested and found to contain an amount of lead less than one milligram per square centimeter (1.0 mg/cm2) less than half of one percent (0.5%) by weight, or less than 5,000 ppm.

HH. Public Building – A structure which is generally accessible to the public, including but not limited to, schools, daycare centers, museums, airports, hospitals, stores, convention centers, government facilities, office buildings and any other building which is not an industrial building or a residential building.

II. Qualified Person – The specially trained individual to be responsible for conducting air sampling, calibration of air sampling pumps, evaluating sampling results, and conducting respirator fit tests. This role is often assigned to the Competent Person.

JJ. Regulated Area – A designated and controlled area in which hazardous material impaction or hazardous materials–impacted work activities are undertaken or which may become contaminated as a result of such actions. A regulated area, also known as a work area, is a controlled area delineated by barrier tape (or similar means) at minimum and signage to restrict access to Authorized Personnel. In some instances, a higher degree of physical isolation and control may be required and specified.

KK. Removal – Procedures specified as necessary to remove and clean–up hazardous materials, paint and debris with heavy metal contamination or components with heavy metal containing coatings from the designated areas and to dispose of these materials at an acceptable site in accordance with Federal, State and Local Regulations.

LL. Residential Building – Residential building means a structure, or part of a structure, and its land, which is used or occupied, or intended to be used or occupied, in whole or in part, as the home or residence of one or more persons.

MM. Stabilization – Process of stabilizing existing loose or deteriorated paint by removing loose paint and preparing the surface for painting using lead trained workers and a suitable containment system to prevent lead hazard to personnel or the environment. Proper surface preparation with lead dust and contamination controls is required. Stabilization is normally complete with removal of loose paint on components and equipment to be demolished. However, the final step of stabilization for components to remain is the application of a suitable or specified primer coat and, depending on the project plans, finish coats when and as specified. Also referred to as lead paint stabilization, surface preparation, or LBP stabilization.

NN. Trigger Task – Operation, process or task specifically identified by Cal/OSHA Lead Standard - 8 CCR 1532.1 as a potential lead exposure hazard requiring certain protective measures to be implemented prior to obtaining the results of an initial exposure assessment. Trigger tasks include, but are not limited to, any of the following tasks when materials or paints that contain lead are present and will be disturbed:

1. Manual work
2. Manual scraping or sanding
3. Heat gun applications
4. Use of power tools for cleaning or removal
5. Rivet busting
6. Abrasive blasting and clean-up of spent abrasive
7. Welding, cutting or torch burning

OO. Transportation Storage Disposal (TSD) Facility – An USEPA or State permitted facility for transportation, storage, and disposal of hazardous wastes.

PP. Universal Waste – Certain common designated hazardous wastes that are required to be handled and disposed of or recycled in accordance with special rules. Includes fluorescent light tubes, HID lamps, sodium vapor lamps, mercury switches, mercury thermostats, NiCad, Silver, Mercury and other batteries (often used in building alarms and emergency systems), and other items.

QQ. USEPA – United States Environmental Protection Agency.

RR. USEPA RRP – United States Environmental Protection Agency Lead Renovation, Repair and Painting Program (RRP) regulation (40 CFR 745, Subpart E) establishes standard lead-safe work practices, training/certification requirements for entities conducting renovation and/or demolition work within pre-1978 housing, child care facilities and kindergartens.

SS. Visually Clean – Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or paint debris, chips or dust distinguishable from the initial soil or ground conditions.

TT. Washroom – A room or area established outside the work area for hand washing at minimum. Where the lead PEL is exceeded, the washroom shall contain a shower facility with hot and cold water and a water filtering system.

UU. Waste Coordinator – CMD individual(s) identified to provide waste material handling, storage, transportation, disposal and general waste regulation compliance oversight and guidance.

VV. Wet Cleaning – The process of eliminating lead dust contamination from building surfaces and objects by using wet cloths, mops, or other cleaning tools which have been washed with specified detergent solutions and rinsed with clean water.

2.4 SUBMITTALS AND NOTICES

Requirements are as set forth in the contract for items required to be submitted under this section.

A. Contractor Licensure, Certificates and Records
   1. Prior to the start of work at the project site, but not fewer than 14 calendar days prior to the planned commencement of work, the Contractor shall submit copies of the following documentation to CMD.
      a. Contractor shall hold the following license classifications:
         1) State of California Contractors State License Board (CSLB)
            a) Contractor shall hold a valid CSLB Contractor's license as well as hold any other licenses applicable to specified trade work.
   2. If air monitoring demonstrates an exposure above Action Level (AL) or PEL for lead, the Contractor shall maintain documentation that employees receiving this exposure have received the following:
      a. Contractor shall maintain documentation affirming that employees have AL training, if exposed above AL.
      b. Contractor shall maintain documentation affirming that employees have appropriate CDPH lead worker or supervisor certification if exposed above PEL while in a public building.
   3. Product Data:
      a. Product data including manufacturer's product safety data sheets (SDS), specifications, samples and application instructions and other pertinent information regarding equipment and materials to be used onsite, as necessary.

B. Agency Notifications
   1. Per Title 8, CCR, Chapter 4, Subchapter 4, Article 4, Section 1532.1(p), the employer or Contractor are required to send notification to Cal/OSHA prior to the start of work that impacts lead if one, or more of the following criteria are met:
      a. The lead content of the material disturbed is greater than 0.5 percent, 5,000 parts per million or 1.0 mg/cm^2
      b. The amount of lead-containing material is greater than 100 square feet or 100 linear feet
      c. Torch cutting or welding for longer than one hour per shift is to occur
   2. Written notification, if required, is to be sent in a manner to reach the nearest Cal/OSHA district office at least 24 hours prior to the start of lead work. Urgent and unforeseen work may be reported by phone at the start of the job, but is required to be followed by written confirmation within 24 hours of the call.

3. Where applicable, submit one copy of each regulatory agency notification required, prior to start of lead-related work.

C. Project procedure submittal
   1. Contractor shall submit the following to CMD prior to the start of work applicable to these specifications:
      a. Detailed work plan describing the methods to be used including products, work procedures, tools and equipment, and lead containment and contamination controls and clean-up methods.
      b. Cal/OSHA lead compliance plan for controlling worker exposure to lead.
      c. Name and training documentation for the Competent Person responsible for lead compliance.
      d. Plan for disposal of lead-contaminated wastes generated by this work in accordance with all applicable Federal, State and Local regulations
      e. Name and certification of laboratory to be used for waste characterization analysis.

D. Personnel Qualification and Protection Submittal
   1. Contractor shall submit the following to CMD prior to the start of work applicable to these specifications:
      a. Certification that all employees engaged in lead–related construction work have attended lead hazard training appropriate to their assignments.
      b. All training for other lead-related construction activities shall be in accordance with the worker training provisions in the Cal/OSHA and California Department of Public Health (CDPH) lead regulations and this specification.
      c. For any employee involved in lead abatement, lead demolition or other lead-related construction activity, or is otherwise anticipated to be exposed over the Cal/OSHA PEL for lead, submit CDPH accredited training certificates and CDPH lead worker and/or supervisor certificates, as applicable.
      d. Documentation that all employees engaged in Trigger Tasks have had the appropriate medical examinations specified in 8 CCR 1532.1 within the prescribed time periods immediately preceding project start-up. Note: It shall be the Contractor's responsibility to secure any and all medical and exposure information releases required for employee records in accordance with regulation. Evidence of medical requirement compliance shall include, but are not necessarily limited to:
         1) Documentation of medical surveillance examination by a licensed medical physician prior to commencement of trigger task work.
            a) Documentation shall include baseline blood lead levels.
            b) Medical exams shall have been performed within the last 12 months and the baseline blood lead shall have been within 30 days in advance of starting work.
         2) Statement by the examining physician that employee is fit to wear a respirator in accordance with 8 CCR 1531 within the last 12 months.
         3) Documentation that each employee required to wear respirators has passed a respirator fit test within the past 12 months and has been assigned an individual respirator based on the fit test.
      e. Methods, procedures and plan for monitoring employee airborne lead exposure as required by Cal/OSHA and airborne lead levels outside regulated areas or regulated area containments during lead component removal and surface preparation activities.

Methods and procedures, at a minimum, shall comply with requirements outlined in 8 CCR 1532.1 Lead. Include Name, address and certification information for laboratory to be used for air sample analysis.

E. Lead-Related Construction Product and Equipment Submittal
   1. Contractor shall submit the following to CMD prior to the start of work applicable to these specifications:
      a. Calibration data showing that the secondary flow rate standards (rotometers) used for personal and general air monitoring equipment have been calibrated from a primary standard within the last 30 days from the date of submittal.
      b. Product data sheets and safety data sheets (SDS) for each product proposed for use on this project such as but not limited to wetting agents, chemical paint removers, detergents, adhesives, and abrasives.
      c. Product data sheets and manufacturer's certification that HEPA vacuums, HEPA ventilation equipment, and other equipment required or to be used to contain airborne dust and fume. Third-party certifications for HEPA vacuums and HEPA ventilation equipment reporting that such equipment meets the established HEPA requisite filtration standard.
      d. Product data sheets for all power tools and equipment used to remove LCP or prepare surfaces containing LCP.

F. Lead-Related Construction Daily Submittal
   1. Submit the following documentation to CMD within five days of project initiation:
      a. Copies of initial and periodic personnel air monitoring laboratory results and calculated eight hour time weighted average results for each employee monitored shall be provided within 48 hours of sample collection.
      b. Updated training and medical certifications (as required herein) shall be provided prior to assignment of new personnel and for existing personnel prior to allowable time limits or expiration dates. The allowable intervals since the last medical examination (12 months), blood lead test (6 months), or fit test (12 months), shall not be exceeded.
      c. .

G. Lead-Related Construction Close-out Submittal
   1. Submit the following documentation to CMD within five days of project completion:
      a. Provide blood-lead test documentation for each worker required to undergo blood lead monitoring prior to or during lead related work.
      b. Provide entry and exit logs for each of the Contractor’s work areas.
      c. Provide copies of disposal manifests and records as required herein for project closeout.
      d. Provide all outstanding daily submittal documents and records not previously submitted.
      e. Lead waste characterization analysis results with executed chain of custody.

2.5 CONTRACTOR'S COMPLIANCE AND QUALITY ASSURANCE

A. Competent Person
   1. The Contractor shall have a Competent Person onsite at all times while Lead-Related Construction involving a trigger task is in progress. The Contractor's Competent Person shall communicate and coordinate with CMD with regard to work schedules, inspections, daily submittals, and compliance issues.
      a. The Contractor's Competent Person shall:

1) Ensure the Contractor's compliance with the plans, specifications, and regulation.
2) Conduct worker exposure monitoring using a Qualified Person and provide results to CMD at the end of the project and/or upon request.
3) Inspect regulated areas for compliance.
4) Accompany CMD during on site regulated area inspections upon request.
5) Ensure all of the Contractor's lead-related construction workers have current valid medical, blood lead test, training, and respirator fit test records where required and provide copies of all new or updated records to CMD for approval before assigning the workers to any work within regulated areas.
6) Take timely and appropriate corrective actions to ensure compliance with the lead-related construction specifications and to eliminate unsafe, unhealthy, and environmentally unsound work practices regardless of whether or not they are brought to the Contractor's attention by CMD.
7) Conduct waste stream characterization testing of each lead-related waste stream and adhere to characterization of waste for proper packaging, labeling, storage, transportation, and disposal of waste. Ensure any additional waste testing required by the landfill is completed and ensure proper storage, shipping and timely disposal of all hazardous waste.

PART 3 PRODUCTS

3.1 PROTECTIVE COVERING

A. Polyethylene sheets (poly) used onsite shall be fire resistant, of 6 mil thickness.

B. Other reinforced impervious plastic sheeting products (10 mil thickness minimum) as may be required for use as drop cloths protection of deck, grounds, flatwork and other surfaces.

3.2 CLEANERS

A. Clean-up and decontamination agents shall be suitable for the cleansing of lead from surfaces, shall not contain methyl bromide compounds and are subject to approval by CMD.

3.3 CHEMICAL PAINT REMOVERS (STRIPPERS)

A. Chemical paint removal systems shall be selected on the basis of the type of paint to be removed, the substrate type, and chemical compatibility with new coating systems to be applied. The Contractor shall conduct test or pilot removals to determine the chemical removal system for best suited to meet project requirements based on actual site conditions.

B. Chemical removal systems shall effectively remove paint without adversely affecting the treated surface’s suitability for repainting or adversely affecting the bonding, appearance or durability of the coatings to be applied.

C. Chemical strippers, or other chemical products used onsite, shall not contain methylene chloride compounds.

3.4 PRIMER/SEALER COATINGS

A. The primer/sealer coatings applied after paint removal shall be compatible with the painting systems to follow under this contract and must conform to applicable work specifications for each application.

3.5 TAPE

A. Self-adhesive tape capable of sealing joints of adjacent sheets of polyethylene sheeting and for attachment of polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

3.6 DISPOSAL CONTAINERS FOR HAZARDOUS WASTE

A. Provide six (6) mil thick polyethylene sheeting, six (6) mil leak-tight polyethylene bags and other impervious containers or drums as required by applicable regulations.

B. Provide labels for all waste container as all waste shall be labeled as hazardous or presumed hazardous waste unless proven otherwise by appropriate sampling and laboratory analysis unless otherwise noted.

C. All hazardous waste shipping containers shall meet applicable DOT requirements.

3.7 WARNING SIGNS AND LABELS

A. Caution Signs
   1. Signs are to be large enough to be readable from a distance and include the following phrase in minimum two-inch high letters:
      a. CAUTION LEAD HAZARD
         KEEP OUT UNLESS AUTHORIZED
   2. Signs shall be posted at each approach to each lead or abatement regulated area or area where lead-related construction work is conducted.

B. Cal/OSHA Lead Warning Signs
   1. Signage including the following phrase shall be posted at the entrance to each regulated area:
      a. WARNING
      b. LEAD WORK AREA
      c. POISON
      d. NO SMOKING OR EATING

C. Labels
   1. Hazardous waste shall be labeled according to Federal, State and Local regulations including but not limited to the California Code of Regulations, Title 22, Chapter 30 and the United States Department of Transportation 49 CFR Parts 172, 173, 178 and 179.

3.8 PERSONAL PROTECTIVE EQUIPMENT

A. Personal protective equipment shall comply with the requirements of 8 CCR 1532.1, Lead.

B. Minimum protective clothing and equipment for trigger tasks pending initial exposure monitoring and any operation known to exceed the PEL shall consist of disposable, full-body coveralls, disposable boots, gloves, or equivalent in accordance with ANSI Z41. Sleeves at wrists and cuffs at ankles shall be secure.

C. All disposable clothing worn during each work shift shall be removed prior to exiting the regulated area and shall be properly segregated and placed in containers for proper waste characterization. The Contractor shall bear full responsibility for additional costs associated with waste profiling and disposal if wastes are not properly segregated.

D. Eye protection and hard hats shall be available and worn at all times and shall conform to ANSI 87.1 and ANSI 89.1

E. The Contractor shall provide Authorized Visitors with suitable disposable protective clothing, headgear, respirators, and footwear whenever authorized visitors are required to enter the regulated area.

3.9 RESPIRATORS

A. For trigger tasks pending initial exposure assessment results and any operation known to exceed the PEL, provide workers with personally issued respiratory equipment approved by NIOSH and suitable for the lead exposure level in the regulated area and any other airborne contaminate hazards present. The following general conditions shall apply to respirator use:
   1. All respirators used must be certified by NIOSH and a respirator program shall be established and implemented.
   2. Respirators shall be used whenever airborne lead concentrations will exceed, or are likely to exceed 50 micrograms of lead per cubic meter of air ($\mu g/m^3$) and for any of the Trigger Tasks which have not been demonstrated to be below the PEL by initial monitoring, and for all operations involving the removal of LCP or lead contamination regardless of airborne lead concentrations.
   3. The Contractor shall conduct daily monitoring to represent each employees exposure to determine of the respirators in use provide adequate protection and are appropriate for the task. Prior to initial monitoring, the level of protection shall follow Cal/OSHA requirements for the specific Trigger Task.
   4. Respirators worn shall be selected based on measured or reasonably expected airborne concentrations of lead as follows:

Table 1 – Respirator Protection Factors

Maximum Airborne Lead Concentration Outside Respirator	Protection Factor	Minimum Acceptable Respirator
>500 µg/m^3	Up to 10	Half-face mask air purifying respirator with HEPA filter cartridges (P-100)
>1,250 µg/m^3	Up to 25	Loose-fitting hood or helmet powered air purifying respirator (PAPR) with HEPA filter cartridges (P-100)
>50,000 µg/m^3	Up to 1,000	Full-face powered air purifying respirator (PAPR) with HEPA filter cartridges (P-100)
>50,000 µg/m^3	Up to 1,000	Hood or helmet supplied air respirator, operated in continuous-flow mode; or full face supplied air respirator, operated in continuous flow, pressure-demand, or other positive-pressure mode
>500,000 µg/m^3	>10,000	Full face, helmet or hood self-contained breathing apparatus (SCBA) operated in pressure-demand or other positive pressure mode

Notes:

- Greater respiratory protection is always acceptable regardless of lead concentrations.
- Disposable (single use) respirators are not to be worn for protection against lead.

B. The Contractor is responsible for determination of airborne lead concentration for the Contractor's personnel and for providing and enforcing use of appropriate personnel respirator protection based upon airborne lead concentrations and this specification.

C. Respirators shall not be removed inside the regulated area. Workers shall proceed to the designated washing area and clean the external surface of the respirator body before removing the respirator.

3.10 TOOLS AND EQUIPMENT

A. Provide suitable tools for the removal of LCP and lead contamination including HEPA vacuums, HEPA exhaust units, ground fault circuit interrupters (GFCIs), ladders, scaffold, and garden sprayers.

B. All tools and equipment brought onsite shall be clean and free of lead and other hazardous material contaminants. HEPA vacuums shall be labeled with a lead warning label and dedicated to lead-impacted construction work to prevent commingling of lead wastes with asbestos or other vacuum wastes.

C. Provide enough support equipment, including but not limited to, lumber, nails, hardware, shower stalls, hoses, plumbing, drain pans, sump pumps, and waste water storage drums to construct and operate the required hand washing system and, where required, a portable Wash Room with showers.

PART 4 EXECUTION

4.1 GENERAL

A. All work impacting known or presumed lead containing material must be accomplished in conformance with these specifications, applicable regulations and provisions of the contract documents. In addition to the lead hazard controls of these specifications, the applicable requirements for selective demolition, surface preparation, painting, restoration, patching, and repair shall be adhered to.

B. Public and worker warning and safety information to be posted: Inside the designated construction area, post signs at all approaches to the lead removal or trigger task regulated area entrance to read:
   1. CAUTION LEAD HAZARD
      KEEP OUT UNLESS AUTHORIZED

C. In addition, post the Cal/OSHA Lead Hazard Warning Poster at the immediate regulated area entrance where trigger tasks are conducted unless monitoring results show airborne exposure levels to be below PEL.

4.2 GENERAL WORK AREA PREPARATION

A. The following requirement apply to lead-impacted work involving trigger tasks or other work that is likely or known to disturb material containing lead in a manner that will generate lead containing dust and debris within the regulated area.
   1. Where feasible, the regulated area shall be established within construction fencing or barriers. Otherwise, cordon off the regulated area extending at a minimum of 10 feet horizontally beyond the area of Lead-Impacted Construction regulated area with barrier tape and warning signs as specified herein.
   2. Pre-clean visible suspect lead-containing dust and debris around and under areas where LCP or LCP coated components will be removed or disturbed. Use HEPA vacuums and wet methods to perform this cleaning which shall include, at minimum, the designated regulated area.
   3. Interior Areas:
      a. For demolition, and debris clean-up, activities:
         1) Install critical barriers, decontamination area and hygiene facilities, as needed, to prevent migration of lead contamination outside of the regulated area.
         2) Cover interior floors and non-movable objects within the regulated area, ensuring protection of existing interior finishes to remain, during demolition work.
   4. Exterior Areas:
      a. For demolition, and debris clean-up, activities:
         1) Cover and protect ground and/or horizontal surfaces within regulated area as to contain the lead hazard within the established work area.
         2) Extend groundcover from a sufficient distance beyond the immediate work area, as needed, to contain all lead-related construction debris within the containment.
   5. Seal all seams and secure plastic to prevent undesired movement. The means used to seal plastic to building components shall not damage the existing finishes to remain.

6. Where lead-containing material removal is likely to generate airborne dust or paint chips, devise a suitable containment to control such dust and prevent dispersal by wind.
7. Provide a designated entry/exit point to regulated areas suitable for workers to properly decontaminate and exit from the regulated area as specified herein. Install lead caution and warning signage as specified above and provide at minimum a hand washing facility.
8. Lead-related construction work shall not initially proceed until CMD has checked and approved regulated area preparations.

4.3 WORKER PROTECTION AND DECONTAMINATION

A. The Contractor shall use only workers trained and medically qualified for the assigned lead work and respirator usage for trigger tasks or other work known or reasonably expected to generate airborne exposures to lead in excess of the AL or PEL.

B. Medically-qualified shall mean that the worker who perform trigger tasks, abatement or other Lead-Related Construction tasks likely to exceed the AL, has had at minimum biological monitoring and a medical evaluation for use of respiratory protection in accordance with 8 CCR 1532.1 (j).

C. If the AL is anticipated to exceeded on any project for 30 days or more per year, the employee shall be enrolled in an occupational medical exam for lead exposure and periodic biological monitoring per 8 CCR 1532.1 (j) (2) and (3).

D. Each worker shall have successfully completed lead training in accordance with 8 CCR 1532.1 (l). All workers shall have had a minimum lead hazard communication training tailored to their particular job assignments.

E. All workers and their supervisors performing lead-related construction work anticipated or determined to exceed the AL are required to have formal documented training in lead hazards meeting 8 CCR 1532.1 (l) (2).

F. Where the workers and their supervisors are assigned work that is determined or reasonably expected to exceed the PEL, both the workers and their supervisors shall be trained by a Department of Public Health (CDPH) accredited training provider for lead related construction and certified as lead workers and supervisors by CDPH.

G. In the absence of personnel air monitoring data showing exposure below the PEL, each worker and Authorized Visitor, prior to entering the lead-related construction work area, shall enter the designated clean change room or area and don full body reusable or disposable coveralls, booties or shoe covers, respirator with HEPA cartridges (P100) and gloves before entering the regulated area.

H. When exiting a regulated area HEPA vacuum the exterior of reusable work clothing and/or dispose of disposable protective clothing in separate labeled waste containers dedicated to personal protection equipment (PPE) for proper waste characterization, as applicable. Proceed to a designated hygiene facility; decontaminate hands and face (and respirator, if applicable).

I. All tools and equipment shall be decontaminated by HEPA vacuuming and/or wet wiping prior to being taken out of the regulated area. Tools and equipment with inaccessible internals shall be externally wet-wiped, bagged and sealed prior to being removed from the regulated area.

J. Workers shall not eat, drink, smoke, apply cosmetics or chew gum or tobacco within the work area.

4.4 RESPIRATORY PROTECTION AND PERSONAL PROTECTION EQUIPMENT (PPE)

A. Respiratory protection equipment shall be provided according to the requirements of CCR, Title 8, Section 1532.1(f) and used in accordance with CCR, Title 8, Section 5144.

B. Personal protective equipment shall be provided according to the requirements of CCR, Title 8, Section 1532.1 (g).

4.5 HYGIENE FACILITIES AND REGULATED AREAS

A. Hygiene facilities shall be provided according to the requirements of CCR, Title 8, Section 1532.1 (i)(1) through (6).

4.6 REMOVAL OF LOOSE AND PEELING PAINT

A. Prepare the regulated area as indicated herein to ensure the protection of surfaces to remain and the environment.

B. Using wet methods, remove loose and peeling paint using scrapers, putty knives, wire brushes, and other tools deemed appropriate to achieve a surface with firmly adhered paint. Use only enough wetting to slightly dampen the surface and control dust emissions.

C. Clean up paint chips and debris using wet methods and HEPA vacuuming as the removal proceeds.

D. When complete, proceed to complete surface preparation for painting to complete stabilization.

4.7 SURFACE PREPARATION

A. Prepare the surface for the primer coating in accordance with the painting specifications of this contract. Use of wet methods and HEPA-equipped vacuums is required. If power tools are to be used to impact painted surfaces, such tools shall be equipped with HEPA filtration.

B. Feather the coating edge transitions from substrate to coatings and from one coat to the next to obtain a smooth, clean, adhered surface for painting.

4.8 LEAD-RELATED DEMOLITION

A. Prior to demolition start, remove loose and peeling paint from the substrates to be demolished and from substrates and components to remain within the work area.

B. Minimize dust generation and use wet methods and HEPA-equipped vacuums during demolition work whenever dust may be produced.

C. Remove entire components when possible, to avoid excessive surface coating disturbance.

D. Use HEPA-equipped power tools when impacting surface coatings containing lead.

E. Containerize paint dust and debris for disposal as hazardous waste using wet methods and HEPA vacuums.

4.9 LEAD-CONTAMINATED DEBRIS CLEAN UP

A. Segregate and remove non-debris and non-disposable building components for salvage that are not fastened or attached to the building. Decontaminate, wrap and tag items to remain per contract documents.

B. Clean up and containerize all lead contaminated dust and debris using wet methods and HEPA vacuums.

C. After removal of all visible dust and debris, complete a final cleaning and decontamination of all exposed surfaces, structures, and finishes to remain.

D. All removed dust and debris shall be considered lead hazardous waste for disposal purposes.

4.10 MECHANICAL PAINT REMOVAL AND SURFACE PREPARATION

A. Surface preparation and loose paint removal by power tool methods such as sanders shall utilize only tools that are equipped with HEPA filtered dust collection systems.

B. All indoor power tool surface preparation and loose paint removal shall be conducted only in negative pressure containment with HEPA exhaust.

C. Protective equipment including respirators shall be selected in accordance with Cal/OSHA lead requirements and shall not be downgraded without valid exposure monitoring data indicating adequacy of selected equipment.

D. No visible emissions shall be permitted outside the regulated work area.

4.11 CHEMICAL REMOVAL OF LEAD-BASED PAINTS

A. Prepare regulated area by establishing a warning signage and installing poly sheeting a sufficient distance from the chemical application to contain any migration of chemical or lead-related debris, including water.

B. Stage or install temporary emergency eyewash capable of providing a 15 minute flush within the immediate work area if corrosive organic or inorganic paint strippers are used, or as recommended by the product manufacturer.

C. A hygiene facility (shower or hand-washing station) shall be available onsite within a sufficient distance of the work area to accommodate prompt emergency personnel decontamination.

D. Product data sheets and Safety Data Sheets (SDS), formerly Material Safety Data Sheets (MSDS), shall be available onsite for each chemical product used by the Contractor.

E. Each worker shall wear appropriate protective equipment including chemical goggles, face shields, impervious gloves, aprons, and booties over standard disposable coveralls prior to handling corrosive and/or toxic chemical removers.

F. Apply chemical paint removers (and any associated neutralizers) in accordance with the manufacturer's instructions. Remove all paints and coatings down to bare substrate. Ensure that the chemical systems and paint removal methods leave a clean and smooth surface capable of receiving a suitable primer/sealer coating after final cleaning and surface preparation.

G. Containerize all chemical and paint removal wastes in impervious containers labeled as hazardous waste.

H. Package all contaminated rags, protective equipment, disposable cleaning materials, and plastic sheeting in labeled impervious containers and transfer to a secure hazardous waste storage area.

I. Clean and decontaminate the regulated area in accordance with the procedures outlined herein. Decontaminate all tools and equipment before removing them from the work area. Place tools and equipment in sealed bags (or equivalent) prior to being transferred to another non-contiguous regulated area.

4.12 CLEANING AND DECONTAMINATION OF WORK AREAS

A. Perform the following clean-up procedures daily:
   1. Clean regulated areas until they are free of loose dust and debris using HEPA and/or wet-wiping after pick-up of large debris.
   2. Wet debris with a fine mist of water and collect and containerize the material. All material to be properly segregated, double bagged or containerized, sealed, and moved to a designated, secure, waste storage area for waste characterization.
   3. At the end of each work day the Contractor's Competent Person shall inspect work performed to ensure the work has been completed and no visible dust or residue remains on the areas removed and/or in the regulated area. CMD's Representative shall be included in that inspection process when and if they request inclusion.

B. Final Clean up and Decontamination of Regulated Areas:
   1. At completion of lead-related construction work involving trigger tasks or task which produce lead-containing dust and debris, perform cleaning as follows:
      a. Clean all regulated areas where lead-related construction was performed by vacuuming all surfaces with a HEPA vacuum followed by wet-wiping using methods and materials sufficient to prevent cross contamination.
      b. Disassemble and remove containment barriers at each regulated area location after cleaning as specified above. Place containment construction material debris into waste bags and remove to the temporary waste storage area.
      c. Place containment membranes and plastic sheeting and waste rags in labeled six mil plastic bags or containers, seal and store in a designated, secure, waste storage area for waste characterization.

C. The cleaning procedure employed by the Contractor shall prevent spread of contamination and effectively clean surfaces, while producing minimal waste.

D. All tools and equipment potentially contaminated with lead shall be decontaminated prior to exiting the regulated area and/or appropriately containerized to avoid dispersion of lead to other areas of the project site.

4.13 CLEARANCE INSPECTION AND TESTING

A. All lead-impacted work that generates dust and/or debris that may contain lead contamination is subject to review by CMD to determine if clean-up and decontamination of the regulated area is adequate, once a work task is completed.

B. Interior Clearance Inspection and Testing
   1. After the final clean-up of each regulated area by the Contractor, CMD may conduct a visual inspection to ensure that all visible dust and debris has been removed. If the regulated area is not visibly clean, as determined by CMD, the Contractor shall re-clean and decontaminate the regulated area as described herein at their own cost until the regulated area passes inspection.
   2. If the results of the final visual inspection are unsatisfactory, or there is reason to believe that lead contamination may persist in the Contractor's regulated area, CMD may proceed to collect clearance dust wipe samples. The decision to collect wipe samples will be at the sole discretion of CMD.
   3. The visibly clean regulated area shall not contain surface lead dust contamination at or in excess of the established clearance criteria.
   4. Dust wipe samples may be taken by CMD to assess adequacy of the Contractor's cleaning and decontamination procedures.
      a. All dust wipe samples will be analyzed for lead using either AAS or ICP for total lead. At least two workdays will be allowed from the time of collection to receipt of verbal or fax results from the laboratory. The results will be provided to the Contractor within two days of receipt of sample results.
      b. If collected, dust wipe samples will sent under proper chain of custody protocol to an American Industrial Hygiene Association (AIHA) Environmental Lead Laboratory Accreditation Program (ELLAP) accredited laboratory by CMD.
      c. The Contractor's cleaning and decontamination shall be deemed adequate when all collected and analyzed dust wipe sample results from the regulated area are below the following clearance criteria levels for lead:
         1) Interior floors – 40 µg/ft²
         2) Interior horizontal window surfaces – 250 µg/ft²
         3) Exterior floors and exterior horizontal window surfaces – 800 µg/ft²
      d. If dust wipe samples are determined by the analyzing laboratory to exceed the clearance criteria, the entire regulated area representative of such sampling must be cleaned and retested until the clearance criteria are met. The Contractor shall pay all laboratory and delivery charges for additional dust wipe samples taken in each regulated area upon clearance failure.
   5. If a regulated area fails the visual or analytical clearance criteria specified above, the Contractor shall re-clean the entire regulated area at no additional cost and shall be responsible for any additional cost incurred by CMD for failed clearance tests, including labor and laboratory costs.

4.14 LEAD CONTAMINATION OF THE ENVIRONMENT

A. In the event that removed lead-containing material, dust, or debris is not properly contained within the regulated area and thereby migrates outside established barriers,

the Contractor shall stop work immediately, notify CMD immediately, and commence clean-up and decontamination procedures as described herein or directed by CMD.

4.15 WASTE STORAGE, SEGREGATION, AND CHARACTERIZATION

A. The Contractor shall provide for secure onsite temporary storage of lead-containing material and/or related waste. Waste storage location, equipment, containers and methods are subject to prior approval by CMD.

B. Intact LCP components are not normally considered to be hazardous wastes and may often be removed and disposed of as non-hazardous construction wastes. However, it is the Contractor's sole responsibility to ensure the waste produced by the Contractor's means and methods is properly characterized and disposed of.

C. The Contractor shall be responsible for secure onsite temporary storage for known or suspect hazardous LBP paint chip, dust/debris, and clean–up related waste.

D. Suspect hazardous waste streams and waste categories listed below shall be considered lead hazardous waste until proven otherwise through testing. Suspect hazardous waste shall be segregated by the CMD based on potential for exhibiting hazardous waste characteristics. Lead related wastes, at a minimum, are to be segregated into the below listed categories:
   1. Category I: Paint removed by chemical stripping, mechanical removal or abrasive media, paint chips, vacuum bags, used cleaning materials. These materials are typically hazardous wastes and shall be assumed hazardous unless proven nonhazardous via approved laboratory analysis.
   2. Category II: Plastic sheeting and tape, disposable clothing, and equipment. These materials shall be non-hazardous if properly cleaned and decontaminated. However, these items are to be considered hazardous wastes subject to testing.
   3. Category III: Work dust and debris from lead painted finishes and structures undergoing work are to be considered hazardous waste subject to testing.

E. Waste streams shall be tested by the Contractor using the following lead testing protocol thresholds for determination of hazardous waste characterization:

Table 2 – California Environmental Protection Agency (Cal/EPA) Testing Protocol for Lead

Laboratory Analytical Method for Determination of Lead Content	Hazardous Waste Threshold	Waste Characterization
Total Threshold Limit Concentration (TTLC)	≤50 ppm	Non-Hazardous Waste
Total Threshold Limit Concentration (TTLC)	>50 ppm - ≤1,000 ppm	Run STLC
Total Threshold Limit Concentration (TTLC)	>1,000 ppm	California Hazardous Waste, Run TCLP
Soluble Threshold Limit Concentration (STLC)	≤5 mg/L	Non-Hazardous Waste
Soluble Threshold Limit Concentration (STLC)	>5 mg/L	California Hazardous Waste, Run TCLP

Table 3 – USEPA Testing Protocol for Lead

Laboratory Analytical Method	Hazardous Waste Threshold	Waste Characterization
Toxicity Characteristic Leaching Procedure (TCLP)	>5 mg/L	RCRA Hazardous Waste
Toxicity Characteristic Leaching Procedure (TCLP)	≤5 mg/L	Non-RCRA Hazardous Waste

F. Based on the above testing protocols, any representative waste stream having a soluble lead concentration greater than or equal to five ppm lead as determined by STLC or TCLP analyses or any waste greater than or equal to 1,000 ppm lead using the TTLC analysis shall be considered a lead hazardous waste. If the TTLC result for a waste stream is less than 50 ppm lead, then no further testing is required for the sampled waste stream unless the waste changes in character or composition.

G. Composite representative samples shall be taken of each waste stream category generated and shall be composited into one sample for analysis. A minimum of four composite samples shall be taken to represent each category of waste generated. It will be the responsibility of the Contractor to ensure representative samples are taken from each category of segregated waste.

H. Each category of suspect hazardous waste shall be tested and characterized according to requirements of the selected permitted waste disposal site.

I. If other hazardous constituents are known or suspected to be present, the testing shall also include those substances or conditions.

J. The waste shall be packaged, stored, handled, transported and disposed of for each category of waste generated based on the testing results and regulatory protocol.

K. All testing shall be performed by a laboratory that complies with and is certified under the Environmental Laboratory Accreditation Program (ELAP) established by CDPH.

L. The cost of all waste characterization or waste profiling required by the approved landfill will be the responsibility of the Contractor.

M. In the event that CMD determines that the waste is not properly segregated, the mixed waste stream shall be considered hazardous. The Contractor shall be responsible for the costs associated with any additional testing required.

N. The Contractor shall bear full responsibility for additional costs associated with waste disposal and characterization if waste is not properly segregated as required herein.

4.16 HAZARDOUS WASTE DISPOSAL

A. Site Storage and Handling:
   1. The Contractor shall pay strict attention to the requirements of 40 CFR 262 and 265 and Title 22, Division 4.5 for the onsite handling of hazardous waste, with special attention given to the time of storage, amount of material stored at any one time, use of proper containers, and personnel training
   2. All waste shall be stored in secure, locked, labeled, sealed impervious containers and not placed on the unprotected ground.

3. All containers shall be shielded adequately to prevent dispersion of the debris by wind or rain and shall be labeled as hazardous waste.
4. Any evidence of improper storage shall be cause for immediate shutdown of the project until a corrective action is taken.

B. Each suspect lead hazardous waste produced shall be placed in properly segregated, labeled and sealed impervious containers by the Contractor. Hazardous containers, bags, and packaged waste shall be stored in a designated, secure, locked waste storage area and be labeled with the following information:
1. Waste Category: Lead UN2291, 6.1, PGIII
2. Waste Code: The USEPA waste code designation for lead is D008.
3. USEPA Identification Number: (CMD to provide to Contractor)
4. Date Accumulated: (Insert Date)
5. California Medical Facility
6. 1600 California Drive
7. Vacaville, California 95696
8. Origin of waste: (Insert Waste Stream Name, i.e. Paint Chips, Vacuum Bags)

C. The exterior of waste containers shall be cleaned using a HEPA vacuum and/or wet-wiping prior to removing them from the work area.

D. Wastes shall not be treated or processed in an attempt to mitigate the waste streams hazardous characteristics; as such treatment is prohibited by RCRA.

E. The Contractor shall arrange to have the lead hazardous waste transported from the site in accordance with the requirements of 40 CFR 263 and 264, and disposed of properly in accordance with 40 CFR 268, 8 CCR Articles 40 and 41, 49 CFR Parts 172, 173, 178, and 179 and Title 22, Chapter 30, Articles 5, 6, 6.5 and 8.

F. The Contractor shall submit to CMD the Name, Class, and USEPA ID Number of the waste disposal site(s) to be used for each waste category that has been determined by testing to exceed the hazardous waste thresholds provided herein.

G. The Contractor shall prepare hazardous waste shipping manifests for review by CMD. Upon waste or material pickup by the selected waste transporter, manifests shall be signed by CMD and copies retained to verify that all steps of the handling and disposal process have been completed properly.
1. Copies of the fully completed manifests and landfill weight tickets shall be provided to CMD.

H. The Contractor shall be responsible for all costs associated with transportation and disposal of all wastes generated as the result of this work.

I. No waste characterized as hazardous waste or originating from a waste stream characterized as hazardous shall be stored onsite for more than 90 days prior to being properly transported for disposal.

J. All equipment, materials, and waste generated on this project must be removed offsite to their proper locations by the Contractor within 7 calendar days from completion of all abatement and lead-impacted construction work.

K. Containers to be loaded for transportation from the storage area must be removed by workers who have entered from uncontaminated areas, dressed in clean coveralls.

4.17 ALTERNATIVE PROCEDURES

A. If specified procedures cannot be utilized, a request shall be made in writing to CMD providing details of the problem encountered and recommended alternatives.

B. Alternative procedures shall provide equivalent or greater employee protection than procedures that are replaced.

C. Any alternative procedure must be approved in writing by CMD or authorized prior to the implementation of the procedure.

4.18 STOP WORK ORDERS

A. CMD has the authority to stop work if it is determined that conditions or procedures are not in compliance with the specifications and/or applicable regulations; to the extent of potential endangerment of state employees, the public or environment.

B. The work stoppage shall remain in effect until conditions have been corrected, corrective measures have been taken to the satisfaction of CMD and the Contractor has received written approval from CMD to recommence work.

C. All standby time and testing costs required to correct the above mentioned problems shall be borne solely at the Contractor's expense.

D. Examples of conditions that might result in a work stoppage include but are not limited to:
   1. Uncontrolled visible emissions which escape the established regulated area or breach physical protective barriers within the regulated area.
   2. Ambient airborne levels of lead outside the construction area at more than 15 $\mu g/m^3$ of lead averaged over an eight-hour work period. Measurement of the ambient airborne lead levels may be made outside the immediate regulated area and at the nearest areas occupied by unprotected personnel or the public.
   3. Waste storage area left unsecured and/or improper containment of lead hazardous waste.
   4. Lead surface contamination outside the regulated area above clearance or pre-start background levels, whichever is higher as determined by wipe tests.

4.19 PROJECT CLOSEOUT

A. Prior to approval of final payment request, the Contractor must provide the following information:
   1. Copies of all hazardous waste manifests, profile sheets and weight tickets for all hazardous wastes.
   2. Copies of all required worker and environmental air monitoring results.
   3. Copies of all outstanding daily submittals not previously submitted to CMD.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Formwork for cast-in-place concrete, with shoring, bracing, and anchorage.
   2. Openings for other work.
   3. Form accessories.
   4. Form stripping.

B. Related Documents and Sections
   1. Section 03 20 00 - Concrete Reinforcement.
   2. Section 03 15 00 – Concrete Accessories
   3. Section 03 30 00 - Cast-In-Place Concrete.

1.2 QUALITY ASSURANCE

A. Formwork shall be in conformance with ACI 347, unless otherwise specified.

1.3 DELIVERY, STORAGE AND HANDLING

A. Store products subject to damage by dirt and moisture in a clean, dry location, off the ground and suitably protected.

1.4 COORDINATION

A. Coordinate the design, construction and installation of concrete formwork with the requirements for openings, sleeves, chases, reglets, pipes, recesses, nailers, anchors, ties, inserts and other embedded items.

PART 2 PRODUCTS

2.1 MATERIALS

A. Form materials shall be new and undamaged at start of work.

B. Use flexible spring___steel forms or laminated boards to form radius bends.

C. Form Lumber: Douglas Fir, Construction Grade, No. 2 or better, S1S2E.

D. Plywood [for Unlined Forms]: Five___ply, 3/4 inch thick, APA B___B Plyform, Class I, Exterior Type with mill___oiling treatment omitted.

E. [Plywood for Lined Forms: High Density Overlay, Plyform, Class I, EXT___DFPLA, minimum 3/4 inch thick, joint pattern as detailed.

F. Form Liner
   1. Manufacturer
      a. Fitzgerald Construction Sales, Inc. No. 304 Vinylok Interlocking Trapezoidal PVC Form liners.
   2. Provide in continuous lengths.

2.2 EARTH FORMS

A. Where approved, vertical excavated surfaces may be used for forms for slabs on grade and grade beams, provided that the earth will stand without caving and that suitable provisions are taken to prevent raveling of top edges or sloughing of loose materials from the walls of the excavation.

B. Where earth forms are permitted, clear dimensions as indicated shall be maintained and any over excavation shall be filled monolithically with concrete.

C. Construct wood edge strips at top sides of excavations.

2.3 FORM ACCESSORIES

A. Accessories which will be wholly or partially embedded in concrete, such as ties and hangers, shall be a commercially manufactured type, of metal; wire will not be acceptable.

B. The portion remaining in the concrete shall leave no metal within one inch of concrete face and no fractures, spalls, depressions, or other surface disfigurations greater that 3/4 inch in diameter.

C. Spreader cones on ties shall not exceed one inch in diameter.

2.4 FORM SEALER

A. Manufacturers
   1. Sonneborn Building Products, Inc., "Form Saver".
   2. Grace Construction Materials "Form Fill".
   3. Burke "Form Sealer" (also known as "Kwik Koat Form Coating").

B. Type: Shall eliminate grain raise as a result of moisture and shall not interfere with color, bond, or subsequent treatment of concrete surface.

2.5 FORM RELEASE AGENTS

A. For Exposed Concrete to Receive Paint or Other Coatings: Chemically active type producing water insoluble soaps. Release agents shall contain no petroleum solvents such as creosote, paraffin, wax or diesel oils.

B. For Unexposed Concrete: Any type that will not interfere with bond of applied finishes.

PART 3 EXECUTION

3.1 FORMWORK

A. All concrete placement shall be contained by constructed forms or stable earth forms.

B. Design, construct, and brace formwork and temporary falsework to safely support concrete and safely hold personnel during construction operations.

C. Construct forms of sufficient strength and rigidity to produce finished concrete of the precise size, shape, and location indicated, within the specified tolerances. Form assembly shall permit removal in proper sequence without damage to concrete.

D. Arrange forms to permit single placement of exposed areas and panels without joints between adjacent forming materials in the same plane.

E. Construct forms for architectural concrete full height and width between construction joints in concrete surface.

F. Construct forms no higher than 12 inches above the top of a placement or construction joint.

G. Construction Joints
   1. Form in accordance with requirements of Section 03 30 00.
   2. Provide a surfaced strip where construction joints intersect exposed surfaces; faces to provide straight lines at joints. Prior to subsequent placement, remove strip and tighten forms.
   3. Construction joints shall show no overlapping or offsetting of concrete surfaces and shall, as closely as possible, present the same appearance as butted plywood joints.
   4. Joints in a continuous line shall be straight and true.

H. Provide cleanouts as required to permit inspection and thorough cleaning of loose dirt, debris, and waste material. Cleanouts shall not be apparent on concrete surfaces exposed to view in the finished Work.

I. Chamfered Corners
   1. Chamfer exposed corners unless otherwise indicated.
   2. Obtain chamfers by placing 3/4 inch x 3/4 inch non staining moldings in forms. Provide pieces in longest lengths possible and miter joints.

J. Whenever concrete bases or foundations are to be provided for equipment furnished as part of the Work of other Sections, verify dimensions for the equipment to be furnished before concrete is placed.

K. Form surfaces for concrete exposed to view in the finished Work shall be constructed of plywood.

L. For surfaces not exposed to view in the finished Work, forms shall be lumber, form plywood, or any other suitable material.

M. Form Liner: Install in forms with nails or staples in accordance with form liner manufacturer's recommendations.

N. Formwork shall be clean and free of debris when concrete is placed.

O. Forms shall be sufficiently tight to prevent leakage of water and mortar.

P. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only.

Q. Locate temporary openings on forms at inconspicuous locations.

R. Provide openings in formwork to accommodate work of other Sections. Accurately place and securely support items built into forms.

3.2 TOLERANCES

A. Construct formwork to tolerances specified in ACI 347, except that anchor bolt setting tolerances shall be in conformance with AISC Code of Standard Practice, Section 7.5.

B. Where tighter tolerances are required to accommodate detention equipment or other items specified in other sections, construct formwork to the most restrictive tolerance.

3.3 PREPARATION OF FORMS

A. Treat contact surface of plywood and lumber forms with a form sealer in accordance with the manufacturer's printed instructions.

B. Clean surfaces and reseal before each use to ensure undamaged concrete.

C. Do not use form oil.

3.4 STRIPPING OF FORMS

A. Strip forms using methods which will not damage concrete.

B. Do not remove forms until concrete has attained sufficient strength to support its own weight and construction live loads to be placed thereon without damage to the structure, but not before minimum time as follows:
   1. Walls: 2 days.
   2. Footings, Curbs, Walks, and Paving: Side forms may be removed 24 hours after concrete is placed.
   3. Columns: 7 days.
   4. Soffits and Side Forms of Beams and Slabs: 10 days.
   5. Shoring: 21 days.

3.5 RESHORING

A. Submit reshoring plan to Facility Representative if forms are to be stripped earlier than specified above.

3.6 RE-USE OF FORMS

A. Re-use of forming materials shall be subject to the approval of the Facility Representative, provided the material is structurally sound, free of defects and blemishes. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces. In no case shall forming materials be used more than 4 times.

B. Clean and repair surfaces of forms to be re-used in the work. Apply new form coating compound as specified for new formwork.

C. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces.

END OF SECTION

SECTION 03 15 00

CONCRETE ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Locating and furnishing construction joints.

B. Related Sections
   1. Section 03 10 00 - Concrete Forming and Accessories.
   2. Section 03 20 00 - Concrete Reinforcing.
   3. Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES

A. ACI 318-[Date] - Building Code Requirements for Reinforced Concrete.

B. CE CRD-C572-[Date] - Corps of Engineers Specification for Polyvinylchloride Waterstops.

C. CE CRD-C513 - Corps of Engineers Specification for Rubber Waterstops.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23.

B. Shop Drawings
   1. Water Stops: Indicate details of construction joint types; support used in concrete pours to demonstrate water stop will remain secure until complete encasement.
   2. Construction and Control Joints: Indicate layout and location; joint types and details.

C. Product data
   1. Product data for products and materials indicated.
   2. Manufacturer’s technical bulletins and instructions for shipment, storage, handling, installation, and repair.

D. Sample: Submit sample for each size, shape, and fitting of water stop(s) proposed. Include splice, joint, and fabricated cross.

E. Certificates: Submit certification of acceptance of pourable joint filler for potable water structures by federal EPA or state health agencies.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping: Prepare and protect materials for shipment in accordance with manufacturer's recommendations.

B. Storage
   1. Store products in accordance with manufacturer's recommendations.
   2. Store products subject to damage by dirt and moisture in a clean, dry location, off the ground, and suitably protected.

PART 2 PRODUCTS

2.1 MATERIALS

A. Rubber Waterstops
   1. Performance Requirements: CE CRD-C513.
   2. Manufacturers
      a. Dayton Surperior; Vinylex Kwik-tie Waterstop.
      b. Greenstreak; Styrene Butadiene Rubber Waterstop.

2.2 ACCESSORIES

A. Bond Breaker: In accordance with Section 03 30 00.

B. Nonshrink Grout: In accordance with Section 03 30 00. Compatible with joint sealant.

C. Reinforcing Steel: In accordance with Section 03 20 00.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive the Work. Notify the Facility Representative, in writing, of any conditions requiring corrective action.

B. Verify conformance of water stops with dimensions shown and with aproved product data; prior to embedding water stops in concrete.

C. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

A. Construction Joints
   1. Prior to placement of abutting concrete, clean contact surface.
   2. Remove laitance and spillage from reinforcing steel and dowels.
   3. Roughen surface to a minimum of 1/4-inch amplitude
      a. Sandblast after the concrete has fully cured.
      b. Water blast after the concrete has partially cured.
      c. Green cut fresh concrete with high pressure water and hand tools.

4. Perform cleaning so as to not to damage water stop, if one is present.

B. Expansion and Contraction Joints
   1. All expansion and contraction joint materials in concrete floors shall terminate a minimum of 1/2 inch below the surface. After set, joints shall be trimmed and filled with joint filler.
   2. Expansion and contraction joints shall be no wider than 3/4 inch.

C. Control Joint
   1. Coat concrete surfaces above and below plastic water stop with bond breaker.
   2. Avoid damage to water stop.
   3. Verify proper type and size of reinforcing and dowels.

3.3 INSTALLATION

A. Construct straight joints; make vertical or horizontal, except where walls intersect sloping floors.

B. Time Between Concrete Pours
   1. At least two hours must elapse after depositing concrete in long or high columns and/or heavy walls before depositing concrete in beams, girders, or slabs supported thereon.
   2. For short columns and low height walls, 10 feet or less, wait at least 45 minutes prior to depositing concrete in beams, girders, brackets, column capitals, or slabs supported thereon.
   3. Consider beams, girders, brackets, column capitals, and haunches as part of the floor or roof system and place monolithically with the floor or roof system.
   4. Should concrete placement sequence result in cold joint located below finished water surface, install water stop in joint prior to additional concrete placement.

C. General
   1. Join water stops at intersections to provide continuous seal.
   2. Center water stop on joint.
   3. Secure water stop in correct position to avoid displacement during concrete placement.
   4. Repair or replace damaged water stop.
   5. Vibrate concrete to obtain impervious concrete in the vicinity of all joints.

D. Joints in Footings and Slabs
   1. Ensure that space beneath water stop is completely filled with concrete.
   2. Concrete placement
      a. Make a visual inspection of the entire water stop area as shown.
      b. Limit to elevation of water stop in first pass.
      c. Vibrate the concrete under the water stop.
      d. Lift the water stop to confirm full consolidation without voids.
      e. Place remaining concrete to full height of slab as shown.

E. Galvanized Steel Water Stops
   1. Install in construction joints unless otherwise shown.
   2. Place water stops in wall construction joints by tamping into place immediately after the pour is completed and before concrete has begun to set. Puddle each side to level the concrete and assure that the water stop is properly embedded.

3. Place water stop in other joints and secure in forms prior to placing concrete.

4. Where metal water stops are spliced, lap at least 12 inches and secure together with sheet metal screws.
5. After the concrete has set to the point where the surface can be cut with a broom or a stream of water, or by any other means specified, cut off the surface to a rough finish, minimum roughness of 1/4-inch amplitude, with all laitance removed and the concrete left clean.

F. Rubber Water Stops

3.4 TESTING AND INSPECTION

A. The Facility Representative will inspect the installation of the Work

3.5 DEFECTIVE WORK

A. Work not conforming to required lines, details, dimensions, tolerances, or other specified requirements shall be considered defective. Notify the Facility Representative upon discovery of these conditions.

B. Required repair or replacement of defective Work will be determined by the Facility Representative.

C. Do not patch, fill, touch-up, repair, or replace Work except upon express direction of the Facility Representative for each individual area.

D. Defective Work shall be repaired or replaced as recommended by the Facility Representative at no additional expense to the Facility.

3.6 PROTECTION

A. Protect the Work from damage from subsequent construction operations.

B. Provide protection in accordance with manufacturer's instructions.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Reinforcing steel bars, wire fabric and accessories for concrete and unit masonry.

B. Related Sections
   1. Section 03 10 00 - Concrete Formwork.
   2. Section 03 15 00 – Concrete Accessories
   3. Section 03 30 00 – Cast-in-Place Concrete.

1.2 REFERENCES

A. CBC California Building Code, 2016 Edition.

B. ACI American Concrete Institute

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.

B. Facility Representative will inspect reinforcement.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Reinforcing steel shall be delivered from the mill in securely tied bundles, each bundle limited to one size and grade of material. Plastic or metal tags in an exposed position on each bundle shall identify the mill, the melt or heat number, and the grade and size of material. Identification of steel shall be maintained after bundles are broken.

B. After fabrication, reinforcing steel shall be bundled and tagged for identification at the site. Tags shall identify the steel by the reinforcement item marking indicated on the reviewed Shop Drawings and the quantity of such item contained in the bundle.

C. Segregate to maintain identification after bundles are broken.

D. Store off the ground, protected from the elements and contaminants which could adversely affect bond.

1.5 COORDINATION

A. Coordinate reinforcement with placement of formwork, anchor bolt locations, anchors, inserts, conduit, sleeves, and other items required to be cast in concrete. Ensure reinforcement will not interfere with the placement of such items, formed openings and other Work.

PART 2 PRODUCTS

2.1 REINFORCEMENT

A. Reinforcing Bars
   1. Welded Bars: ASTM A706, Grade 60 deformed low alloy steel bars, plain finish.
   2. All Other: ASTM A615, Grade 60 deformed billet steel bars, plain finish, unless otherwise indicated.

B. Welded Wire Fabric: ASTM A185 Plain Type, [and ASTM A82]. Provide in flat mats, rolls are not acceptable.

2.2 ACCESSORY MATERIALS

A. Wire for Ties, Stirrups, and Spiral Reinforcement: ASTM A82, minimum 16 gage.

B. Splice Sleeves:
   1. Acceptable Manufacturers:
      a. Splice Sleeve North America; NMB Splice Sleeve.
      b. Erico Products, Inc.; Lenton Interlock Rebar Splicing System.
      c. [Dayton/Richmond; US/MC - SAE] Coupler Splice System.
   2. Description: Steel splice sleeves conforming to requirements of ACI 318 and CBC, Chapter 19A for mechanically spliced reinforcing. Each splice sleeve shall be identified with the size, type, and manufacturer's identification imprinted on the sleeve.

C. Chairs, Bolsters, Spacers, Bar Supports, and Other Accessories
   1. Conform to requirements of ACI 315; size and shape for strength and support of reinforcement during concrete placement conditions.
   2. Where portion of accessories will be within 1/2 inch of concrete surfaces exposed to the weather in the finished Work, such accessories shall be made of stainless steel.
   3. Use wire bar type support complying with CRSI recommendations, unless otherwise indicated.
   4. For slabs on grade, use supports with sand plates or horizontal runners where wetted base materials will not support chair legs.
   5. For exposed to view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are hot dip galvanized, or plastic or stainless steel protected.
   6. Over vapor barriers or waterproof membranes, use load-bearing bottom pads or precast concrete chairs to prevent penetration of the membrane.

2.3 FABRICATION

A. Reinforcing steel shall be bent cold and shall not be straightened or rebent in a manner that will damage the material.

B. Fabricate concrete reinforcing in accordance with ACI 318 and CBC 2016.

C. Locate reinforcing splices not indicated on Drawings, at point of minimum stress as approved.

PART 3 EXECUTION

3.1 PLACEMENT

A. At time of concrete placement, reinforcement shall be free of coatings that could adversely affect the bond with concrete.

B. Reinforcement shall be supported and fastened together to prevent displacement by construction loads or by the placement of concrete, beyond the tolerances specified in ACI 301.

C. Furnish reinforcing bars full length, to the extent practicable. Splices will be permitted only where indicated on the Drawings, Shop Drawings or as otherwise permitted by the Facility Representative.

D. Lap welded wire fabric reinforcement 12 inches at edges, unless otherwise indicated, and wire together.

E. Sleeved Splices: Install splice sleeves in accordance with manufacturer's instructions; permitted only where indicated.

F. Other Splices in Reinforcement: Lapped ends of bars may be placed in contact and securely wired or may be separated sufficiently to permit the embedment of the entire surface of each bar in concrete.
   1. Stagger splices in adjacent bars.
   2. Lap bars as indicated, but no less than 24 inches.

G. Obstructions: Should conduit, pipes, inserts, sleeves, or other items interfere with the placement of reinforcement, notify the FACILITY Representative and obtain approval of procedure before placement of concrete is started.

H. Concrete Cover: Indicated on Drawings.

I. Welding
   1. Conform to the requirements of AWS D1.4; welding by AWS-qualified welders.
   2. Perform field test on minimum one weld within each 25 welds.

J. Place, support and secure reinforcement against displacement. Do not deviate from required position.

K. Misplaced Reinforcing
   1. If reinforcing bars are found to be misplaced after concrete has been placed, immediately notify the Facility Representative and make no correction and cutting without Facility Representative review and recommendations.
   2. Misplaced bars shall not be bent.
   3. Perform redesign alterations, corrections, or replacement of concrete or reinforcing required because of misplaced bars.

L. Accommodate placement of formed openings.

M. Dowels shall be tied securely in place before concrete is deposited. Bending of dowels subsequent to concrete placement is not permitted.

3.2 MAINTENANCE OF REINFORCING

A. Continuously inspect and maintain reinforcement in proper position during concrete operations.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Expansion and contraction joint devices associated with concrete work.

B. Related Sections
   1. Section 03 10 00 - Concrete Formwork
   2. Section 03 15 00 – Concrete Accessories
   3. Section 03 20 00 - Concrete Reinforcement.
   4. Section 03 25 10 - Expansion and Contraction Joints.

1.2 REFERENCES

A. ACI 302 - Guide for Slab Construction.

B. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

C. ACI 305R - Hot Weather Concreting.

D. ACI 306R - Cold Weather Concreting.

E. ACI 308 - Standard Practice for Curing Concrete.

F. ACI 318 Building Code Requirements for Reinforced Concrete.

G. ANSI/ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).

H. ANSI/ASTM D1190 - Concrete Joint Sealer

I. ANSI/ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

J. ASTM C94 – Ready-Mixed Concrete.

K. CBC California Building Code 2016 Ed. State Chapters.

1.3 DEFINITIONS

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

1.4 SUBMITTALS

A. Submit under provisions of Division 1.

1.5 QUALITY ASSURANCE

A. Conform to CBC, California Building Code.

B. Allowable Tolerances: Deviation from plumb or level shall not exceed 1/8 inch within 10 feet in any direction, as determined with a 10 foot straight edge.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle packaged materials in the manufacturer's original, sealed containers, each clearly identified with the manufacturer's name, and name and type of product.

B. Store materials subject to damage by dirt and moisture in a clean, dry location, off the ground and suitably protected.

1.7 JOB CONDITIONS

A. Environmental Requirements for Placing Concrete
   1. Hot Weather: ACI 305.
   2. Cold Weather: ACI 306.
   3. Do not place concrete during precipitation, unless adequate protection is provided.

1.8 COORDINATION

A. When required by Facility Representative, provide a Concrete Placement Checklist in form approved by Facility Representative. Checklist to indicate items of work and must be signed by Contractor and Facility Representative prior to placement of concrete.

B. Coordinate work under provisions of Division 1.

C. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

D. Concrete which is to receive application of other Work shall be water-cured only, and maintained free from other formwork and curing materials, unless otherwise accepted by the Facility Representative.

PART 2 PRODUCTS

2.1 MATERIALS

A. Concrete: Ready-mixed, ASTM C94.

B. Cement: ASTM C150. Type I, Type II, or Type V may be used if type is not indicated on Drawings.

C. Aggregate: ASTM C33, except as modified by CCR Title 24, Section 2 2603.

D. Water: Potable, clean, not detrimental to concrete, containing less than 500 ppm of chlorides.

2.2 ACCESSORIES

A. Curing Compound: Liquid membrane, ASTM C309, type I; conforming to volatile organic compound (VOC) limits established by Local Air Quality Control Board (LAQCB) District Regulations.

B. Sheet Curing Material: ASTM C171.

C. Patching Mortar: Epoxy type, 100 percent solids, suitable for use on damp or dry surfaces.
   1. Manufacturer
      a. Euclid Chemical Company; Euco 456 Mortar.
      b. Sika Chemical Corporation; Sikadur 43 Patch-Pak.
      c. The Burke Company; Burkepoxy Mortar.

D. Patching Compound: Free flowing, polymer modified, cementitious topping.
   1. Manufacturers
      a. Vertical or Overhead Applications
         1. Euclid Chemical Company; Verticoat.
         2. Dayton-Superior; Poly-Fast.
         3. Euclid Chemical Company; Euco Thin Coat.
         4. Sika Chemical Corporation; Sikatop 121.

2.3 JOINT DEVICES AND FILLER MATERIALS

A. Joint Filler Type A: ASTM D1751; Asphalt impregnated fiberboard or felt, 1/4 inch thick; tongue and groove profile.

B. Joint Filler Type B: ASTM D1752; Closed cell polyvinyl chloride foam, resiliency recovery of 90 percent if not compressed more than 50 percent of original thickness.

C. Joint Filler Type C: ASTM D1752; Premolded sponge rubber, fully compressible with recovery rate of minimum 95 percent.

D. Construction Joint Devices: Integral galvanized steel formed to tongue and groove profile, with removable top strip exposing sealant trough where indicated.

2.4 MIXES

A. General Requirements
   1. Design mixes shall be in accordance with CBC 1905 A.3.1, Method B.
   2. Instruct Testing Agency to base mix designs on use of materials tested and approved.
   3. Concrete mixes shall be designed to meet strengths specified and be of uniform density without segregation when placed.
   4. Fly Ash:
      a. Fly ash may be used only in concrete mixes with Portland cement Type II and IIA and shall not be used with high early strength Portland cement Type III.
      b. Reduction of Portland cement, by weight, is acceptable with addition of an equal weight of fly ash provided the cement reduction shall not exceed 12 percent when comparing the mix design without fly ash to the mix design with fly ash.

5. Water Reducers
    a. Use water-reducing admixtures in all concrete without superplasticizers.
    b. Use water-reducing admixtures in all concrete with superplasticizers to allow proper mixing prior to adding superplasticizer.
    c. Meet design strengths, slumps, water-cement ratio, and other requirements as specified at slump required for placement.
    d. Use water reducers in combination with superplasticizers as required for mixing.
6. Mix designs are subject to review. Final acceptance of materials will depend upon strength testing after placement.
7. Specifically Prohibited Admixtures:
    a. Admixtures containing hydrogen chloride, calcium chloride, or thiocyanates.
    b. Admixtures containing more than 0.05 percent chloride ions.
8. Unspecified admixtures will not be permitted, unless accepted by the Facility Representative, and under condition that the Testing Agency modifies mix design as necessary, and each such modification is approved by the Structural Engineer.
9. Concrete may be designed for either pump or conventional placement. If pumping will be used, the mix shall be specifically designed for pumping and shall be so designated.

B. Nonshrink Grout: Mix in accordance with the manufacturer's printed instructions, using potable water from a domestic source.

C. Dry Pack: Mix, in proportions by volume, one part cement to two-and-one-half parts fine aggregate, screening out materials retained on a No. 4 sieve. Mix with water to a consistency such that, when a ball of mixture is compressed in the hand, it will maintain its shape, showing finger marks, but not showing any surface water.

D. Patching Mortar: Mix in proportions, by volume, of one part cement to two parts fine aggregate.

2.5 MIXING

A. Batch Plant Conditions
1. Equipment and plant shall be capable of weighing, proper segregation and efficient handling, and shall be subject to approval. Equipment and plant processes not approved shall not be used in the Work.
2. Use approved automatic metering capable of determining moisture content of sand.

B. General Requirements
1. Concrete mixing shall comply with CBC.
2. Mix cement, fine and coarse aggregates, and water to exact proportions.
3. Measure fine and coarse aggregates separately according to approved method which provides accurate control and easy checking.
4. Adjust grading to improve workability; do not add water, unless otherwise recommended by the F Representative.
5. Maintain proportions, values, and factors or prove mixes throughout Work.

C. Admixtures: Use automatic metering dispenser to introduce admixture into mix.

2.6 CONCRETE CLASSES

A. See schedule at the end of this Section.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that conditions are satisfactory for the installation of cast-in-place concrete.

B. Verify requirements for concrete cover over reinforcement.

C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

D. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 PREPARATION

A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

B. In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

C. Remove loose dirt and foreign matter from excavations and forms; remove standing water and saturated soil from excavations and from cavities. Placing concrete in standing water shall not be permitted. Hardened concrete and foreign materials shall be removed from the inner surfaces of conveying equipment.

D. Thoroughly clean reinforcement and other embedded items free from loose rust and other objectionable matter.

E. Thoroughly wet wood forms, except coated plywood, and adjacent concrete at least one hour in advance of placing concrete; securely close cleanout end inspection ports; repeat wetting as necessary to keep forms damp.

F. Moisten subgrade or sand associated with under-slab vapor barrier system one day prior to placing concrete; maintain moisture until concrete placement.

G. Maintain equipment clean and of sufficient quantity and capacity to efficiently execute the Work.

H. Verify subgrade and forms have been checked for line and grade, and work areas have been observed and approved by the F Representative.

I. Before depositing new concrete on or against hardened concrete, retighten forms and prepare surface of hardened concrete as follows:
   1. Concrete which has been placed longer than 6-1/2 hours: Sandblast to roughen surfaces. Thoroughly clean of foreign matter and laitance, and moisten with water.
   2. Concrete which has been placed longer than 3-1/2 hours but less than 6-1/2 hours: Remove all laitance from concrete by wire brushing.

3.3 PLACEMENT

A. Do not place concrete until reinforcing has been inspected and approved by Facility Representative.

B. Notify the Facility Representative 48 hours before each concrete placement.

C. Transporting
   1. Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods which prevent the separation or loss of the ingredients.
   2. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped more than four feet.
   3. Spouts, elephant trunks, or other approved means shall be used to prevent segregation.
   4. Concrete may be pumped from the transit mixer to places of deposit, provided that information on mix-design adjustments, equipment data, procedures, and the entire operation are submitted for the Facility Representative's prior review.
      a. Pumps shall be suitable for the mix, aggregate size, and slump required.
      b. Pump operators shall be experienced in the operation of the equipment to be used.
   5. Use of aluminum equipment to transport concrete is not permitted.

D. Depositing
   1. Place concrete in accordance with ACI 318-14 Section 26.5.2(f).
   2. Maintain during placement or until the completion of the section, a plastic surface approximately horizontal.
   3. Prevent displacement of reinforcement, anchor bolts, welding plates, and other items required to be embedded in concrete.
   4. Before concrete sets, completely remove concrete spilled on forms or reinforcing steel in portions of structure not to be immediately concreted.
   5. Place concrete continuously between predetermined expansion, control, and construction joints. An interruption in placing of more than 60 minutes will be cause for shutting down concrete placement operations and the wasting of remaining mixed concrete, concrete in hoppers, and concrete in mixers. In case such interruption occurs, provide construction joints where and as directed, and cut concrete back to such line, cleaning forms and reinforcing as specified herein.
   6. Keep a record of the time and data of placing the concrete in each portion of the structure. Keep reports until the completion of the structure, and keep reports open to the review of the Facility Representative.

E. Consolidation
   1. Thoroughly consolidate concrete by puddling with suitable tools during placement and thoroughly working around reinforcement, embedded fixtures, and into the corners of forms.
   2. In addition to manual spading and tamping, internally vibrate concrete with high-speed mechanical vibrators of sufficient amplitude for adequate consolidation.
   3. Vertically insert and remove hand-held vibrators at points 18 inches to 30 inches apart.
   4. Do not use vibrators to transport concrete in forms.
   5. Vibrate concrete minimum amount required for consolidation.
   6. Do not vibrate concrete placed for slab on grade except at slab edges adjacent to edge forms and at items embedded in the slab.

F. Construction Joints
   1. Verify location and conformance with typical details; provide only where designated or accepted by the Facility Representative.
   2. Horizontal construction joint shall conform to ACI 318-14 Section 26.5.6.
   3. Surface of construction joints shall be cleaned and roughened by removing the entire surface and exposing clean aggregate solidly embedded in mortar matrix in accordance with the following procedure:
   4. Contact surface shall be thoroughly cleaned by sandblasting or chipping the entire surface not earlier than five days after the initial placement or by an accepted method that will assure equal bond such as a thorough hose washing of surface not less than two or more than four hours after concrete is placed, wash water and chalk-like material being entirely cleaned from the surface. Vertical construction joints in suspended slabs shall be sandblasted.
   5. Prevent formation of shoulders and ledges.
   6. Control joints shall be located between construction joints.
      a. Cut joints after concrete finishing, using Soff-Cut Systems or approved equivalent. Take necessary measures to prevent cracking.

3.4 FINISHING - GENERAL

A. Remove fins, projections, and loose material.

B. Patch honeycomb, aggregate pockets, voids, and holes as follows:
   1. Chip out until sound concrete is exposed to minimum depth of one inch.
   2. Prepare patching mortar with approximately two parts normal Portland cement, one part white cement, and nine parts fine aggregate; vary proportions of cement as necessary to match color of adjacent concrete.
   3. Saturate surfaces with water and fill cavities with patching mortar.
   4. Fill holes left by form ties with patching mortar.
   5. Cure patches as specified for concrete.

3.5 UNFORMED SURFACE FINISHES

A. Broom Finish
   1. For exterior flatwork and where indicated.
   2. Draw a soft-bristled push broom over an initially trowel-finished surface.
   3. When coarser surfaces are desired, use a stiffer-bristled broom.
   4. Broom finish shall provide a non-slip surface, even if exposed to rain.

3.6 PROTECTION

A. Maintain concrete temperature above 50 deg F during curing.

B. Protect concrete from sun and rain.

C. Do not subject concrete to any loads until it is completely cured and has attained its minimum 28 day strength.

D. Protect concrete during and after curing from damage from subsequent construction operations.

E. Cover traffic areas with plywood sheets; maintain paper and plywood in place and in good repair for as long as necessary to protect against damage from construction operations.

F. Keep finished areas free from traffic for a minimum of four days or as necessary until surfaces have set sufficiently to prevent damage.

3.10 CURING

A. Curing shall immediately follow finishing and shall be accomplished for each portion of the Work as follows:

B. Flatwork Surfaces
   1. Water cure all concrete work.
   2. Membrane cure exterior pavement and slab surfaces.
   3. Where hardener is applied, cure in accordance with hardener manufacturer's printed instructions.
   4. Do not use liquid membrane curing compounds on surfaces to receive other finishes.

3.11 DEFECTIVE CONCRETE

A. Repair or replacement of defective concrete will be determined by the Facility Representative

B. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of F Representative for each individual area.

C. Defective concrete shall be repaired or replaced as recommended by the Facility Representative at no additional expense to the facility. Repair materials shall include cements, admixtures, epoxy, and aggregates as required by the nature of the defects.

D. With the prior acceptance of the Facility Representative, some minor defective Work may be repaired by use of cement mortar; however, if the defects are serious or affect the strength of the structure or its appearance, the Facility Representative may require the removal and replacement of that portion of the structure affected.

E. Immediately after removing forms, concrete surfaces shall be inspected, and pour joints, voids, rock pockets, tie holes, and similar defects shall be patched at once, but not until the surfaces have first been examined by the Facility Representative. Submit information on patching mixture and method proposed for use to the Facility Representative for review prior to commencing.

3.12 PATCHING

A. Allow Facility Representative to inspect concrete surfaces immediately upon removal of forms.

B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Facility Representative upon discovery.

C. Patch imperfections as directed.

D. Patching Tie Holes
   1. Cut nails and tie wires for form ties flush with the face of the concrete, and leave surfaces smooth and clean.
   2. Remove metal spreader ties on exposed concrete Work, or snap off inside the wall surface.
   3. Patch resulting cone pockets on exposed surfaces, and solidly pack with cement grout.

3.13 DRY PACKING

A. Provide for setting steel plates or bolts on concrete.

B. Completely fill voids; thoroughly compact in place.

C. Bolts or inserts which have been dry packed or grouted in place shall not be tensioned sooner than seven days after packing.

3.14 SCHEDULE

A. Where not otherwise indicated on the Drawings or in other Sections, provide concrete in accordance with the following Table:

CLASS***	STRENGTH	SLUMP (MAX)*	AGGREGATE (MAX)**	MINIMUM CEMENT POUNDS PER C.Y.
Slabs on Grade (Exterior Walkways)	3000	4"	1-1/2"	470
Retaining Walls	4500	4"	1"	610
Concrete Fill (Pipe columns and guards)	3000	4"	1-1/2"	470
Fence Footings	4000	3-1/2"	3/4"	550
Flatwork	4000	4"	1-1/2"	550
	2500	4"	1-1/2"	430
	2000	4"	1"	400

END OF SECTION

SECTION 05 05 55

TAMPER PROOF METAL FASTENINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Removable and non removable tamper proof metal fasteners.
   2. Thread adhesive.
   3. Tools for installation and removal.

B. Related Sections
   1. Additional requirements for the installation of tamper proof metal fasteners may be in individual Sections.

1.2 REFERENCES

A. AWS D1.1- 2000 - Structural Welding Code - Steel.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and 01 33 23.

B. Product Data
   1. Product data for each of products and materials indicated.
   2. Indicate finish, head design, strength, and corrosion resistance.
   3. Manufacturer’s technical bulletins and installation/application instructions.
   4. Material Safety Data Sheets (MSDS).

C. Samples: Submit three samples of each type of tamper proof fastener proposed for use.

D. Qualification Data: For manufacturer.

1.4 DEFINITIONS

A. Accessible Areas: All areas within the property are considered Accessible, except as specifically listed below.
   1. All areas more than ten feet above adjacent finished floor or grade.
   2. Areas above suspended ceilings; behind access panels; and within plumbing chases.
   3. Interior of control rooms, except control consoles are considered exposed.
   4. Areas more than 4 feet from the inside of fences enclosing equipment pads.

B. Tamper Proof Metal Fasteners: Metal fasteners of size and type best suited for intended application, having head design requiring special tools, of controlled availability, for removal.

C. Security Fasteners: Same as Tamper Proof Metal Fasteners.

D. Exposed Fasteners
   1. Fasteners not completely concealed by earthwork, paving, or by the finish of a structure.
   2. Fasteners which may be accessed and removed, without the prior removal of other fasteners designated as tamper proof or security.

1.5 QUALIFICATIONS

A. Manufacturer: Company regularly and presently engaged in the manufacture of products of the type specified within minimum five years experience.

1.6 COORDINATION

A. Coordinate the required locations, finishes, delivery schedule, and installation of tamper proof metal fastenings with the Work of the Sections requiring the fasteners.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle packaged materials in the manufacturer's original, sealed containers, each clearly identified with the manufacturer's name, and name and type of product.

B. Store materials subject to damage by dirt and moisture in a clean, dry location, off the ground, and suitably protected.

C. Store, protect, and handle installation/removal tools to prevent unauthorized use or duplication.

1.8 EXTRA MATERIALS

A. Tamper Proof Metal Fasteners
   1. Provide 100 of each type and size, sorted, to the COR/PM Representative.
   2. Clearly identify contents of each package; indicate type, size, and name, address and phone number of California distributor where additional fasteners may be obtained.

PART 2 PRODUCTS

2.1 MATERIALS

A. Corrosion resistant, hardened, high strength, plated or stainless steel.

B. Nonferrous metal where exposed to weather, moisture, or high humidity.

C. Plating: Cadmium, zinc, nickel, phosphate, or chrome to match adjacent materials.

2.2 FASTENERS

A. Non Removable
   1. Twist-off head type, dressed smooth.
   2. Allen or similar recessed drive type, drilled to remove drive surfaces, filled with body putty.

B. Removable
   1. Allen head (hexagon) with center pin reject, button head, or flat head as required by application.
   2. Torx drive (star) with center pin reject, button head, or flat head as required by application.
   3. Spanner Head Screws or one-way removable screws: Not permitted.
   4. Removable only by tools produced by fastener manufacturer or other licensed fabricator specifically for individual tamper proof fastener.
   5. Limit size and shape variations such that no more than six different tools are required for each type of tamper proof fastener used on project.

C. Structural
   1. Where tamper proof fastening is required in structural connections, unless otherwise indicated fastening may be accomplished by either:
      a. Installing high strength bolts with a torque wrench.
      b. Tack welding nuts.

2.3 ACCESSORIES

A. Tools: Provide ten complete sets of manual drive tools required for installation and removal of removable tamper proof fasteners. Package each set in an individual kit and deliver to the COR/PM Representative.

B. Screw-thread Adhesive Sealant
   1. Manufacturers
      a. [Henkel; Loctite No. 271 Thread Locker.]
      b. [Devcon; PermaTek High Strength Thread Locker Red.]
      c. [Master Bond, Inc.; Master Bond Adhesive/Sealants.]

C. Expansion Shields, One-Way Sex Bolts, Toggle Bolts, Tamp-ins, and Miscellaneous Accessories: Size and type as indicated, best suited to intended application, and as required for complete installation.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive the Work. Notify the COR/PM Representative, in writing, of any conditions requiring corrective action.

B. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

A. Coordinate tamper proof metal fastener material, finish, size, type, and threads with requirements of other Sections.

3.3 INSTALLATION

A. Install tamper proof metal fasteners in accordance with manufacturer's instructions, using tools designed for fastener installation and removal.

B. Set removable tamper proof metal fasteners with screw thread adhesive sealant in accordance with manufacturer's instructions.

3.4 SCHEDULE

A. This schedule applies to the Work of all Sections unless specifically exempted in the individual Section.

B. In accordance with the definitions set forth above, all exterior exposed fasteners in accessible areas shall be the tamper proof metal type specified herein.

C. Provide removable type tamper proof metal fasteners unless otherwise indicated.

END OF SECTION

SECTION 05 73 00

METAL RAILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Custom fabricated ornamental railing systems.

B. Stainless steel handrails, balusters and fittings.

C. Aluminum handrails, balusters and fittings.

D. Brass handrails, balusters and fittings.

E. Structural glass railing systems.

1.2 RELATED SECTION

1.3 REFERENCES

A. ASTM A123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2001a.

B. ASTM A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2001.

C. ASTM C1048 - Standard Specification for Heat Treated Flat Glass, Coated and Uncoated Glass.

D. AWS D 1.1 - Structural Welding Code - Steel; 2002.

E. NAAMM AMP 510 - Metal Stairs Manual; 1992, Fifth Edition.

F. SSPC Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 1982 (Ed. 2000).

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data substantiating compliance with Contract Documents. Include manufacturer's installation instructions.

C. Shop Drawings: Submit Shop Drawings for stairs and railings.
   1. Include plans, elevations, and details.
   2. Show connection and accessory items and locations for anchor and bolt installation.
   3. Include design loads, structural calculations, and material properties.
   4. Provide Shop Drawings signed and sealed by structural engineer licensed in the state in which Project is located.

D. Railing Sample: 12 inch long Sample illustrating color, finish, sheen, and concealed connection detail.

E. Supply installation templates, required reinforcing, and recessed anchorage devices in timely fashion to installers of related work that will receive products of this section.

1.5 QUALITY ASSURANCE

A. Single Source Responsibility: Work of this section shall be designed, fabricated, shipped and installed by a single source company that has specialized in ornamental handrails and railings with ten years minimum experience.

B. Installer Qualifications: Installation shall be performed by the fabricator or a company acceptable to the fabricator.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store in a weather tight location and protect from corrosion, distortion, and other damage during delivery storage and handling.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer:

1. Couturier Iron Craft

2. Or Approved Equal

B. Requests for substitutions will be considered in accordance with provisions of Section 01 65 00.

2.2 MATERIALS

A. Stainless Steel Tubing: ÅSTM A554, Type 304.

B. Stainless Steel Bars, Shapes, and Moldings: ÅSTM A276, Type 304.

2.3 TUBE RAILINGS

A. Consistency: Provide visible components of same alloy and components that are free of surface blemishes where exposed to view in finished installation.

B. Material: Stainless steel tubing.
1. Tubing Diameter: 1.9 inches (48 mm).
2. Thickness: 16 gage; 0.065 inches (1.7 mm).
3. Elbows and Tees: Flush design.
4. Dimensions and Configurations: As indicated on Drawings.
5. Assembly: Welded.

6. Flanges for Embedded Posts:
    a. Circular, collard cover plate, no screw holes, for setting in concrete.
7. Wall Mounted Components: Components necessary to support railing with 1-1/2 inch (38 mm) clearance from wall, and as follows:
    a. Under slung support brackets: Supports at maximum 60 inches (1524 mm).
    b. Wall return without support: Terminates 1/4 inch (6 mm) from side wall.
    c. Fasteners: Exposed.
    d. Fasteners: Concealed.
8. Finish: Stainless No. 4 satin.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify that reinforcement and anchoring devices are the correct type, have been located correctly, and have been installed properly.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 INSTALLATION

A. Install ornamental railings plumb and level and in full accordance with manufacturer's instructions.

B. Locate railings as indicated on Drawings and at heights that are in accordance with applicable code.

C. Anchor to substrates in strict accordance with tested anchorage system, free from distortion or defects detrimental to appearance or performance.

3.3 CLEANING AND PROTECTION

A. Remove manufacturer's protective coverings from exposed surfaces after installation.

B. Clean surfaces using materials and methods as recommended by manufacturer.

C. Protect finishes from damage during construction period with temporary protective coverings acceptable to the manufacturer.

D. After installation of system is complete, advise General Contractor of methods necessary for protection until Substantial Completion.

END OF SECTION

SECTION 06 52 13

FIBERGLASS REINFORCED POLYESTER (FRP) PANELS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fiberglass reinforced polyester (FRP) panels.
   2. Adhesive accessories.

B. Related Section:
   1. Section 06 10 00 - Rough Carpentry: Plywood base.

1.2 REFERENCES

A. ASTM C1178 - [2018] Glass Mat Water-Resistant Gypsum Backing Panel.

B. ASTM C1396 - [2017] Gypsum Board.

C. ASTM D2583 - [2013] Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impresser.

D. ASTM D5319 - [2017] Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.

E. ASTM E84 - [2018] Standard Test Method for Surface Burning Characteristic of Building Materials.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and Section 01 33 23.

B. Product Data: Manufacturer’s literature for each type of product indicated including FRP panels and accessories. Include pictorial information on full line of patterns and colors for selection by the CMD Representative.
   1. For adhesives include printed statement of VOC content and chemical components.
   2. For laminating adhesive used in factory-laminated plastic panels include documentation indicating that product contains no urea formaldehyde.

C. Samples: Submit for each type, pattern, and color of FRP panels selected. Samples shall be 12 inch by 12 inch, and accessories shall be 9 inches long, minimum. Include samples of trim.

D. Submit manufacturers’ instructions for installation and use of products specified.

1.4 QUALITY ASSURANCE

A. Provide panels, adhesives, and accessories produced by a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original unopened containers with labels indicating brand names, and colors and patterns designations legible and intact.
   1. Deliver adhesive in sealed containers.
   2. Do not remove markings until materials have been inspected and approved.

B. Store, handle, and protect materials in accordance with manufacturer's printed instructions.

C. Allow panels to acclimate for a minimum of 24 hours in temperature and humidity conditions approximating the operating environment of the finished room.

D. Protect surface of panels during handling and installation.

1.6 PROJECT CONDITIONS

A. During installation and for not less than 48 hours before installation, maintain room temperature required for adhesive being used.

B. Provide ventilation to disperse fumes during application of adhesive. Allow no containers of adhesive to be opened until all potential sources of flame or spark have been shut down or extinguished and until warning signs have been posted.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufactures
   1. Sequentia: [Structoglas]
   2. Xerxes.
   3. Kemlite Co., Fire-X Glasbond.

2.2 MATERIALS

A. Panels: Fiberglass reinforced plastic (FRP); impact and stain resistant.
   1. Size: 0.090 inch thick by 48 inches wide x length required in one piece. Provide coved base where other base is not indicated.
   2. Finish: Embossed.
   3. Color: As selected by the CMD Representative.
   4. USDA Approved, meeting FDA and FSIS (Food Safety and Inspection Service) requirements.
   5. Flame-Spread Index less than 200; Smoke-Developed Index less than 450 as determined by testing identical products according to ASTM E84 by a qualified testing agency. Identify products with appropriate marking of applicable testing agency.

B. Adhesive: Contact type as recommended by manufacturer.
   1. VOC Content: 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Sealant: Single-component, mildew-resistant, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Division 07 Section "Joint Sealants."
   1. VOC Content: 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Accessories: Provide panels complete with matching trim pieces for joints, corners and terminations.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that conditions are satisfactory for the installation of FRP panels, in accordance with manufacturer's instructions.

B. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 PREPARATION

A. Clean wall and panel surfaces of contaminants detrimental to adhesive and panel performance.

3.3 INSTALLATION

A. Install panels in accordance with manufacturer's instructions, using adhesive application method.

B. Adhesive: Comply with manufacturer's instructions regarding materials, method of application, spread rate, drying time, open time and temperature and humidity limitations.

C. Joints: Finish snugly, neatly, and as inconspicuously as possible using manufacturer's materials for the purpose.

D. Trim: Apply at seams, corners and terminations as indicated on Drawings. Exposed edges not allowed.

3.4 CLEANING

A. Immediately remove any adhesive from face of panels using solvent recommended by adhesive manufacturer. Keep faces clean during application.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Structural and nonstructural wall, floor, and roof framing.
   2. Roof curbs and cants.
   3. Blocking, nailers, and shims.
   4. Wood furring.
   5. Preservative treatment of wood.

B. Related Sections
   1. Section 01 81 13 - Sustainable Design Requirements

1.2 REFERENCES

A. AITC - American Institute of Timber Construction.

B. ALSC - Softwood Lumber Standards PS 20-2012.

C. ANSI/AF&PA NDS 2012 - National Design Specification for Wood Construction.

D. ASTM F1667-2012 - Driven Fasteners: Nails, Spikes, and Staples.

E. AWPA C1-2012 - Preservative Treatment by Pressure Process.

F. AWPA C20-2012 - Structural Lumber Fire-Retardant Treatment by Pressure Process.

G. AWPA UI-2012 - User Specification for Treated Wood.

H. FSC STD-01-001-2012 - Principles and Criteria for Forest Stewardship.

I. 40 CFR, Part 59, Subpart D-2015 - National Volatile Organic Compound Emission Standards for Architectural Coatings.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and 01 33 23.

B. Product Data
   1. Product data for products and materials indicated.
   2. Manufacturer’s technical bulletins and installation/application instructions.
   3. Material Safety Data Sheets (MSDS).

4. Products
    a. Wood preservatives.
    b. Proprietary connection devices.
5. [For Credit EQ 4.1] For adhesives, include printed statement of VOC content (in g/L less water).
6. (For Credit EQ 4.4] For composite-wood products, include documentation indicating that product contains no urea formaldehyde.
7. [For Credit MR 7] Chain-of-custody (COC) certificates certifying that products specified to be made from certified wood comply with forest certification requirements. Include evidence that vendor that invoices FSC-certified wood products to project contractors and sub-contractors is certified for chain of custody by an FSC-accredited certification body. Include copy of vendor invoice identifying all wood products and all FSC products on a line-item basis, the value of each line item, and the vendor's COC number.
8. [For Credit EQ4.2] For paints and coatings, include printed statement of VOC content (in g/L).

1.4 COORDINATION

A. Coordinate the design, construction, and installation of rough carpentry with the requirements of the Work of other Sections

1.5 DELIVERY, STORAGE, AND HANDLING

A. Handle, stack, and store lumber off the ground in such a manner that it will be protected from damage and prevented from absorbing moisture. Protect with waterproof covering that provides adequate air circulation. Secure covering to prevent blow-off and prevent damage.

B. Do not store seasoned materials in wet or damp locations.

C. Protect fire-retardant materials against high humidity and moisture during storage and erection.

D. Deliver fasteners in bags or boxes, properly tagged for identification.

E. Store fasteners and attachment devices off the ground in a dry location, protected from dirt, damage, and the elements.

PART 2 PRODUCTS

2.1 MATERIALS

A. Forest Certification: Provide members produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001.

B. Lumber: Douglas Fir; S4S; WCLIB grade marked or by an agency certified by WCLIB; each mill shipment shall be accompanied by a WCLIB certificate of inspection.; size shall be in accordance with PS 20; free of boxed heart; maximum 19 percent moisture content at time of installation; of the following minimum grades.
    1. Studs: No. 1 Grade.

2. Structural Joists and Planks (2 to 4 inches thick x 5 inches and wider): No. 1 Grade.
3. Beams and Stringer, Posts and Timbers (5 x 5 inches and larger): Select Structural Grade.
4. Miscellaneous Light Framing (2 to 4 inches thick x 2 to 4 inches wide): Construction Grade.
5. Blocking: No. 2 Grade.
6. Grounds: Straight and free from loose knots and knot holes.
7. Load Carrying Members: Minimum of No. 2 Grade.

C. Each piece of fire-retardant lumber shall be labeled to show compliance with the UL requirement specified and shall be grade stamped with the applicable AWPA quality mark indicating the preservative and retention.

2.2 FASTENERS

A. Provide all nails, screws, bolts, washers, lag screws, joist hangers, tie straps, clips, and similar items as required to the complete Work.

B. Nails: Use types and sizes as indicated, and in accordance with CBC Chapter 23 - Nailing Schedule, except sizes shall not be smaller than indicated.

C. Powder Actuated Fasteners
1. Types and Sizes: As indicated or appropriate for the Work required and materials involved.
2. Uses: Limited to those indicated, specified, or approved by Facility Representative.

D. Anchors
1. Toggle bolt type for anchorage to hollow masonry.
2. Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
3. For fastenings secured to hardened concrete or masonry, inserts and sleeves shall be metal only.
4. Bolt or ballistic fastener for anchorages to steel.

E. Fastener Finishes
1. Fasteners in contact with pressure treated products shall be hot-dipped galvanized.
2. Fasteners exposed to moisture, high humidity, or to the exterior shall be hot-dipped galvanized or cadmium-plated, unless otherwise indicated or specified.
3. Nails and screws shall be corrosion resistant for exterior or damp areas.
4. Finish nails and screws shall be bright finished for other interior Work.
5. Machine bolts and washers shall be corrosion resistant.

F. Adhesives: Epoxy for structural bonding rough carpentry.
1. [For Credit EQ 4.1] VOC Content for Multipurpose Construction Adhesives: **70** g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2. Manufacturers
    a. BASF Construction Chemicals; “Sonneborn 400”.
    b. OSI Pro-Series; SF-565 VOC Compliant Sub-Floor Adhesive.
    c. Or Approved Equal.

2.3 WOOD TREATMENTS

A. Wood shall be treated with appropriate fire retardant or preservative as necessary in accordance with exposure, wood species, and applicable codes.

B. VOC Content of Interior Paints and Coatings: Provide products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    1. Fire-Retardant Coatings: VOC content for coating category for which coating is formulated.
    2. Wood Preservatives: 350 g/L.
    3. Flat Paints, Coatings, and Primers: VOC content of not more than 50 g/L.
    4. Non-Flat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
    5. Floor Coatings: VOC not more than 100 g/L.
    6. Shellacs, Clear: VOC not more than 730 g/L.
    7. Shellacs, Pigmented: VOC not more than 550 g/L.
    8. Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L.
    9. Clear Wood Finishes, Varnishes: VOC content of not more than 350 g/L.
    10. Clear Wood Finishes, Lacquers: VOC not more than 550 g/L.5.
    11. Stains: VOC not more than 250 g/L.

C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following chemical restrictions:
    1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
    2. Restricted Components: Paints and coatings shall not contain any of the following:
        a. Acrolein.
        b. Acrylonitrile.
        c. Antimony.
        d. Benzene.
        e. Butyl benzyl phthalate.
        f. Cadmium.
        g. Di (2-ethylhexyl) phthalate.
        h. Di-n-butyl phthalate.
        i. Di-n-octyl phthalate.
        j. 1,2-dichlorobenzene.
        k. Diethyl phthalate.
        l. Dimethyl phthalate.
        m. Ethylbenzene.
        n. Formaldehyde.
        o. Hexavalent chromium.
        p. Isophorone.
        q. Lead.
        r. Mercury.

s. Methyl ethyl ketone.
t. Methyl isobutyl ketone.
u. Methylene chloride.
v. Naphthalene.
w. Toluene (methylbenzene).
x. 1,1,1-trichloroethane.
y. Vinyl chloride.

D. Where used for exposed locations, treatment materials shall be types guaranteed to not adversely affect durability and appearance of applied finishes.

E. Treatment materials having a highly persistent, noticeable residual odor will not be permitted.

F. After treatment, kiln or air dry lumber and plywood to a moisture content of 19 percent or less.

G. Pressure Treatment
1. Items requiring pressure treatment
a. Wood used in conjunction with roofing, flashing, vapor barriers, and waterproofing.
b. Wood in contact with masonry or concrete.
c. Wood subject to insect attack.
d. Wood in contact with ground or water.
e. Additional locations required by codes, the Facility, or accepted standard construction practice.
2. Pressure treat items after fabrication where possible. Use surface applied treatment for items cut after pressure treatment.
3. Do not mill or trim pressure treated items beyond limits recommended by treatment manufacturer.
4. Surface-Applied Wood Preservative (Type A)
a. Nonaqueous solution containing not less than 5 percent pentachlorophenol, commercially prepared and formulated to repel water and inhibit decay.
b. Suitable for application by either brush or dip methods.
c. Integral coloring to allow visual inspection of treated members.
5. Pressure-Treated Wood Preservative (Type B)
a. Required for lumber and plywood where indicated or specified and not otherwise required to be fire-retardant pressure treated (Type C).
b. Provide for lumber and plywood in contact with concrete, masonry, or grout.
c. Concealed Locations: Any process acceptable in accordance with AWPA Standard C1 and meeting specified requirements.
d. Exposed Locations: Treated members shall be milled smooth within limits permitted by process manufacturer.

H. Fire-retardant Treatment
1. Items requiring Fire-retardant treatment
a. Wood used in Type I and II buildings.
b. Exposed wood.
c. Wood used in fire-rated assemblies.
d. Wood requiring reduced flame/fuel/smoke ratings.
e. Communications Backboards.

f. Electrical mounting boards.
g. Additional locations required by codes, the Facility, or accepted standard construction practice.

2. Fire-Retardant Pressure Treatment(Type C)
   a. Processes shall meet requirements of CBC Part 2, Section 202, definition entitled “Fire-Retardant-Treated Wood,” and requirements specified herein.
   b. UL listed and labeled in accordance with UL BMD Section “Lumber, Treated (BPVV).”
   c. Treated lumber shall be UL classified FR-S.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready for installation of rough carpentry. Notify the Facility Representative, in writing, of any conditions requiring corrective action.

B. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected. Beginning of installation means acceptance of existing conditions.

3.2 NAILING

A. Predrill undersize holes as necessary to prevent splitting.

B. Drive nails straight and free from bends.

C. At multiple or grouped nailing, set alternate nails at slightly different angles to improve strength.

D. For trim or similar members, side-stagger alternate nails to prevent warp and twist.

E. Where concealed, set nail heads flush to avoid interference with installation of materials to be applied next.

F. Where exposed, set nail heads recessed for proper putty stopping.

3.3 FRAMING

A. Construct and secure rough carpentry as indicated.

B. Construction details, connections, and fastenings not otherwise indicated shall be in accordance with the requirements of CBC.

C. Provide solid backing and blocking as indicated and required.

D. Set members level and plumb, in correct position.

E. Place horizontal members with crown side up.

F. Cut and prepare ends and surfaces to effect full bearing, and as otherwise necessary for proper fit.

G. Cut notches without overcutting inside corners.

H. Plates and sills on concrete or masonry: Bed plates and sills of exterior walls in Portland cement mortar to obtain continuous level bearing; bolt down after mortar sets. Bed plates for interior partitions when indicated or necessary for level bearing.

I. Studs: Space as indicated; frame corners with not less than three studs. Set on single sole plate, cap with double top plate lapped at corners, lapped no less than 4 feet at splices.

J. Posts, Girders, and Beams: Frame to true end bearings; provide supports and anchors of such design to hold securely in position and prevent base deterioration. Splice girders and beams only over bearings.

K. Curb Members
1. Curb roof openings, except where prefabricated curbs are provided.
2. Construct curb members of single pieces.
3. Form corners by alternating lapping side members.
4. Coordinate curb installation with other Sections whose Work affects or is affected by the Work of this Section.

3.4 BACKBOARDS

A. Install telephone and electrical panel backboards.

B. Size backboards as indicated; where not indicated, over-size the backboards by 12 inches on all sides.

C. Sand to leave paintable surface.

3.5 FIELD-APPLIED WOOD TREATMENT

A. Surface Applied Preservative (Type A)
1. Treat members after cutting, shaping, and bolting.
2. Application
   a. Apply in accordance with manufacturer's instructions.
   b. Dip members for 15 minutes, or saturate by brushing on two complete coats at 10 minute intervals.
   c. Air-dry two hours before setting treated members into place.

B. Fire-Retardant Pressure Treatment(Type C)
1. After cutting, shaping, and boring, retreat surfaces using materials and methods in accordance with manufacturer's instructions.

3.6 TESTING AND INSPECTION

A. Testing and inspection shall be in accordance with CBC Section 1704A.6.

B. FACILITY Representative will provide the following inspections:

1. Inspect wood structural elements and assemblies to ensure conformance with the Contract Documents.
2. Inspect timber connectors to ensure conformance with the Contract Documents.

3.7 DEFECTIVE WORK

A. When complete, rough carpentry shall be free from unnecessary cuts, holes, and other damage and defects.

B. Rough carpentry not conforming to required lines, details, dimensions, tolerances, finishes, strength, or other specified requirements shall be considered defective. Notify the Facility Representative upon discovery of these conditions.

C. Required repair or replacement of defective rough carpentry will be determined by the Facility Representative.

D. Do not patch, fill, touch-up, repair, or replace rough carpentry except upon express direction of Facility Representative for each individual area.

E. Defective rough carpentry shall be repaired or replaced as recommended by the Facility Representative at no additional expense to the Facility.

3.8 PROTECTION

A. Protect rough carpentry from damage from subsequent construction operations.

END OF SECTION

SECTION 06 61 16

SOLID SURFACE FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Provide solid surfacing fabrications including but not limited to following:

1. lavatory or laboratory tops with seamed bowls.
2. lavatory or laboratory tops with integral bowls.
3. millwork counter tops with sinks and cove backsplashes.

B. Related Sections: Following description of work is included for reference only and shall not be presumed complete:

1. Waste management and disposal requirements: Section 01 74 19, Waste Management and Disposal.
2. Provision of indoor air quality requirements: Section 01 81 19, Indoor Air Quality Requirements.
3. Provision of finish carpentry and architectural woodwork: Section 06 40 00, Architectural Woodwork.
4. Provision of elastomeric joint sealants: Section 07 90 00, Joint Sealants.

1.02 REFERENCES

A. Abbreviations and Acronyms:

1. MDF: Medium Density Fiberboard.
2. SCAQMD: SloCountyt Air Quality Management District; www.aqmd.gov.
3. VOC: Volatile Organic Compound.

B. Definitions:

1. Solid Surface: Non-porous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

C. Reference Standards:

1. ANSI/NPA A208.2-09 - Medium Density Fiberboard (MDF) For Interior Applications
2. ASTM C920-14a- Standard Specification for Elastomeric Joint Sealants
3. ASTM D638-10- Standard Test Method for Tensile Properties of Plastics
4. ASTM D785-08- Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials
5. ASTM D790-10- Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

6. ASTM D5420-10- Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact)
7. ASTM E84-14 - Standard Test Method for Surface Burning Characteristics of Building Materials
8. ASTM E228-11- Standard Test Method for Linear Thermal Expansion of Solid Materials with a Push-Rod Dilatometer
9. ASTM G21-13 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
10. ASTM G22-76(96)- Standard Practice for Determining Resistance of Plastics to Bacteria
11. ASTM G155-13 - Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
12. NFPA 255-06 - Standard Method of Test of Surface Burning Characteristics of Building Materials
13. NSF/ANSI 51-07 - Food Equipment Materials
14. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials
15.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meetings: Arrange preinstallation meeting 1 week prior to commencing work with all parties associated with trade as designated in Contract Documents or as requested by Architect. Presided over by Contractor, include Architect who may attend, Subcontractor performing work of this trade, Owner's representative, testing company's representative and consultants of applicable discipline. Review Contract Documents for work included under this trade and determine complete understanding of requirements and responsibilities relative to work included, storage and handling of materials, materials to be used, installation of materials, sequence and quality control, Project staffing, restrictions on areas of work and other matters affecting construction, to permit compliance with intent of work of this Section.

1.04 SUBMITTALS

A. Product Data: Indicate Product description including solid surface sheets, sinks, bowls and illustrating full range of standard colors, fabrication information and compliance with specified performance requirements. Submit Product data with resistance to list of chemicals.

B. Shop Drawings: Submit Shop Drawings for work of this Section in accordance with Section
01 30 00. Indicate plans, sections, dimensions, component sizes, edge details, thermosetting requirements, fabrication details, attachment provisions, sizes of furring, blocking, including concealed blocking and coordination requirements with adjacent work. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacles and other items installed in solid surface.

C. Coordination Drawings: Submit coordination drawings indicating plumbing and miscellaneous steel work indicating locations of wall rated or non-rated, blocking requirements, locations and recessed wall items and similar items.

D. Samples: Submit samples in accordance with Section 01 30 00. Submit minimum 6" x 6" samples. Cut sample and seam together for representation of inconspicuous seam. Indicate full range of color and pattern variation. Approved samples will be retained as standards for work.

E. Test and Evaluation Reports: Submit flammability test reports [and food preparation zone certifications/listing confirming compliance with NSF/ANSI 51.

1.05 CLOSEOUT SUBMITTALS

A. Operational and Maintenance Data:

1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions. Include in Project closeout documents.
2. Provide a commercial care and maintenance kit and video. Review maintenance procedures and warranty details with Owner upon completion.

1.06 QUALITY ASSURANCE

A. Qualifications:

1. Installers: Provide work of this Section executed by competent installers with minimum 5 years experience in the application of Products, systems and assemblies specified and with approval and training of the Product manufacturers.

B. Mock-Ups:

1. Prior to final approval of Shop Drawings, erect 1 full size mock-up of each component at Project site demonstrating quality of materials and execution for Architect review.
2. Should mock-up not be approved, rework or remake until approval is secured. Remove rejected units from Project site.
3. Approved mock-up will be used as standard for acceptance of subsequent work.
4. Approved mock-ups may remain as part of finished work.

1.07 DELIVERY, STORAGE AND HANDLING

A. Delivery and Acceptance Requirements: Deliver no components to Project site until areas are ready for installation.

B. Storage and Handling Requirements:

1. Store components indoors prior to installation.
2. Handle materials to prevent damage to finished surfaces.

1.08 WARRANTY

A. Manufacturer Warranty: Provide manufacturer’s standard warranty for material only for period of 10 years against defects and/or deficiencies in accordance with General Conditions of the Contract. Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Architect and at no expense to Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer List: Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:

1. Corian® by DuPont; www.corian.com
2. Samsung Chemical USA; www.staron.com
3. Wilsonart Contract; www.wilsonartcontract.com

B. Substitution Limitations: This Specification is based on Corian® Products. Comparable Products from manufacturers listed herein will be accepted provided they meet requirements of this Specification.

2.02 MATERIALS

A. Performance/Design Criteria:

	Property	Requirement (min or max)	Test Procedure
1.	Solid Surface Based Products:		
a.	Tensile Strength	6000 psi min	ASTM D638
b.	Tensile Modulus	1.5 x 10^6 psi min	ASTM D638
c.	Tensile Elongation	0.4% min.	ASTM D638
d.	Flexural Strength	10000 psi min	ASTM D790
e.	Flexural Modulus ASTM D790	1.2 x 10^6 psi min	
f.	Hardness	>85-Rockwell "M" scale min.	ASTM D785
g.	Thermal Expansion	2.2 x 10^{-5} in./in./°F	ASTM E228
h.	Fungi and Bacteria G21 & G22	Does not support microbial growth	ASTM
i.	Microbial Resistance	Highly resistant to mold growth	UL 2824
j.	Ball Impact NEMA LD 3, Method 3.8 drop	No fracture - 1/2 lb. Ball:	6 mm slab - 36" drop 12 mm slab - 144"
k.	Weatherability	ΔE*94<5 in 1,000 hrs	ASTM G155
l.	Flammability 255 723		ASTM E84, NFPA & UL

		All Colors			
		6 mm		12 mm	
m.	Flame Spread	<25		<25	
n.	Smoke Developed		<25		<25
o.	Class	A		A	NFPA 101®, Life Safety Code

B. Solid Surface Material:

C. Non-porous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment; not coated, laminated or of composite construction; meeting following criteria:

D. Flammability: Class 1 and A when tested to UL 723.

E. Food Equipment Material Compliance: Food Zone to NSF/ANSI 51.

1. Ensure material has minimum physical and performance properties specified under “Performance/Design Criteria”.
2. Ensure superficial damage to a depth of 0.010" is repairable by sanding and polishing.

F. Adhesive for Bonding to Other Products: One component silicone to ASTM C920.

G. Sealant: A standard mildew-resistant, FDA/UL® and NSF/ANSI 51 compliant in Food Zone area, recognized silicone color matched sealant or clear silicone sealants.

H. Sink/Bowl Mounting Hardware: Manufacturer's approved bowl clips, brass inserts and fasteners for attachment of undermount sinks/bowls.

I. Heat Reflecting Tape: Manufacturer’s standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.

J. Insulating Nomex® Fabric: Manufacturer’s standard for use with conductive tape in insulating solid surface material from adjacent heat source.

2.03 COMPONENTS

A. Window Sills: 1/2" thick solid surfacing material, adhesively joined with inconspicuous seams, edge details as indicated on Drawings. Color selected later by Architect from manufacturer’s full color range.

B. Counter Perimeter Frame: Ensure 1/2" [3/4"] thick, moisture resistant [cores for counter tops in wet areas having sinks or lavatories are 3/4" thick exterior grade plywood with waterproof adhesive, Fir or Poplar plywood, veneer core only.] [MDF core conforming to ANSI/NPA A208.2 balanced design, manufactured from recycled materials, meeting ANSI Standards for emissions, of minimum density of 48 lb/cu ft and surface character to match sample approved by Architect.

Ensure fire retardant Product contains fire-retardant chemicals injected with raw materials during manufacturing and achieves a maximum flame-spread rating of 25 with a maximum smoke development of 200 when tested to ASTM E84.

C. Lavatory Tops with Integral Bowls: Molded countertop of solid polymer material 22", complete with integrally molded bowl[s] of solid polymer material; edge details as indicated on Drawings. Provide with non-coved backsplash and endsplashes as shown on Drawings.

D. Fabrication:

1. Fabricate components in shop to greatest extent practical to sizes and shapes indicated, in accordance with approved Shop Drawings and solid polymer manufacturer requirements. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints. Provide factory cutouts for plumbing fittings and bath accessories as indicated on Drawings.
2. Where indicated, thermoform corners and edges or other objects to shapes and sizes indicated on Drawings, prior to seaming and joining. Cut components larger than finished dimensions and sand edges to remove nicks and scratches. Heat entire component uniformly prior to forming.
3. Ensure no blistering, whitening and cracking of components during forming.
4. Fabricate backsplashes from solid surfacing material with optional radius cove where counter and backsplashes meet as indicated on Drawings. Backsplashes for most colors may be fabricated by traditional means discussed in K-25294 *Backsplashe*s. Colors with metallic/mica particle or veined colors creating directional aesthetics (K-26833 *Directional Aesthetics*) may require the techniques in Technical Bulletin K-28235 *Thermoformed Backsplash*.
5. Fabricate joints between components using manufacturer's standard joint adhesive. Ensure joints are inconspicuous in appearance and without voids. Attach 50 mm (2") wide reinforcing strip of solid polymer material under each joint. Reinforcing strip of solid polymer material is not required when using DuPont™ Joint Adhesive 2.0.
6. Provide holes and cutouts for plumbing and bath accessories as indicated on Drawings.
7. Rout and finish component edges to a smooth, uniform finish. Rout cutouts, then sand edges smooth. Repair or reject defective or inaccurate work.

8. Finish: Ensure surfaces have uniform finish:

    a. Matte, with a 60° gloss rating of 5 - 20.

    b. Semi-gloss, with a 60° gloss rating of 25 - 50.

    c. Polished, with a 60° gloss rating of 55 - 80.

9. Fabrication Tolerances:

    a. Variation in Component Size: +/-1/8".
    b. Location of Openings: +/-1/8" from indicated location.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions:

1. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work. Proceed with installation only after unsatisfactory conditions have been corrected.
2. Verify actual site dimensions and location of adjacent materials prior to commencing work.
3. Examine cabinets upon which counter tops are to be installed. Verify cabinets are level to within 1/8" in 10' - 0".
4. Notify Architect in writing of any conditions which would be detrimental to installation.

B. Evaluation and Assessment: Commencement of work implies acceptance of previously completed work.

3.02 INSTALLATION

A. Install components plumb, level, rigid, scribed to adjacent finishes in accordance with reviewed Shop Drawings and Product installation details.

B. Fabricate field joints using manufacturer's recommended adhesive, with joints being inconspicuous in finished work. Exposed joints/seams are not permitted. Keep components and hands clean when making joints. Reinforce field joints as specified herein. Cut and finish component edges with clean, sharp returns.

C. Route radii and contours to template. Anchor securely to base component or other supports. Align adjacent components and form seams to comply with manufacturer’s written recommendations using adhesive in color to match work. Carefully dress joints smooth, remove surface scratches and clean entire surface.

D. Seal between wall and components with joint sealant as specified herein and in Section 07 92 00, as applicable.

E. Provide backsplashes and endsplashes as indicated on Drawings. Adhere to countertops using a standard color-coordinated silicone sealant. Adhere applied sidesplashes to countertops using a standard color-matched silicone sealant. Provide coved backsplashes and sidesplashes at walls and adjacent millwork. Fabricate radius cove at intersection of counters with backsplashes to dimensions shown on reviewed Shop Drawings. Adhere to countertops using manufacturer’s standard color-coordinated joint adhesive.

F. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Ensure components are clean on date of Substantial Completion of the Work.

3.03 REPAIR

A. Repair minor imperfections and cracked seams and replace areas of severely damaged surfaces in accordance with manufacturer's "Technical Bulletins".

3.04 SITE QUALITY CONTROL

A. Non-Conforming Work: Replace damaged work which cannot be satisfactorily repaired, restored or cleaned, to satisfaction of Architect at no cost to Owner.

3.05 CLEANING

A. Remove excess adhesive and sealant from visible surfaces.

B. Clean surfaces in accordance with manufacturer's "Care and Maintenance Instructions".

3.06 PROTECTION

A. Provide protective coverings to prevent physical damage or staining following installation for duration of Project.

B. Protect surfaces from damage until date of Substantial Completion of the Work.

END OF SECTION

SECTION 07140

FLUID-APPLIED WATERPROOFING

I PART 1 GENERAL

I.1 SUMMARY

Section includes fluid applied primer, polyurea waterproofing and protective coating.

I.2 REFERENCES

A. ASTM International:

1. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

2. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.

3. ASTM D638 [2014] - Standard Test Method for Tensile Properties of Plastics.

4. ASTM D2240 [2015] - Standard Test Method for Rubber Property-Durometer Hardness.

5. ASTM D2369 [2015] – Standard Test Method for Volatile Content of Coatings.

6. ASTM D2697 [2014] - Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings.

7. ASTM D2794 [2019] - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

8. ASTM D3389 [2016] - Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader).

9. ASTM D3489 – Standard Test Method for Rubber Microcellular Urethane.

10. ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

11. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

B. International Concrete Repair Institute:

1. IRCI Guideline No. 03732.

I.3 SYSTEM DESCRIPTION

Waterproofing System: 90 mil average thickness application of fluid applied material to prevent moisture migration.

I.4 SUBMITTALS

A. Section 01 33 00 – Submittals.

B. Shop Drawings: Indicate special joint or termination conditions and conditions of interface with other materials.

C. Product Data: Submit data for surface preparation, flashings, joint cover sheet, and joint and crack sealants, with temperature range for application of waterproofing membrane.

D. Manufacturer's Installation Instructions: Submit special procedures and perimeter conditions requiring special attention.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

I.5 QUALITY ASSURANCE

A. Perform Work in accordance with Approved Material Manufacturer’s written installation instructions and International Concrete Repair Institute Guideline No. 03732.

B. Maintain one copy of each document on site.

I.6 QUALIFICATIONS

A. Waterproofing Material Manufacturer: Company specializing in waterproofing membrane with minimum five years documented experience.

B. Applicator: Contractor specializing in performing the work of this section with a minimum of three years documented experience installing the approved materials and holds a current Qualified Contractor Certificate from the approved manufacturer.

I.7 MOCKUP

A. Section 0140 00 - Quality Control: Requirements for mockup.

B. Construct Mockup; two (2) four foot by four foot sections of CCX plywood joined at a right angle to simulate a wall/ceiling condition) and 32 square feet of horizontal concrete flooring and curbs (in existing mechanical room) to represent finished work including internal and external corners, jointing, attachment method, flashings.

I.8 PRE-INSTALLATION MEETINGS

A. Section 01 40 00 – Quality Control: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

I.9 ENVIRONMENTAL REQUIREMENTS

Maintain ambient temperatures above 50 degrees F for 24 hours before and during application and at least 5 degrees F above dew point before and during application and until liquid or mastic accessories have cured.

I.10 WARRANTY

A. Section 01700 – Contract Closeout: Product warranties and product bonds.

B. Furnish five year manufacturer warranty for waterproofing failing to resist penetration of water.

C. For warranty repair work, remove and replace materials concealing waterproofing.

II PART 2 PRODUCTS

II.1 FLUID APPLIED WATERPROOFING

A. Manufacturers:

1. VersaFlex Incorporated: VF 20 (modified urethane primer), FSS 50DM (2 component Polyurea) and Aliphatic ClearCoat (top coat).

2. Innovative Coatings: Primer 12 (epoxy-polyamine primer), Innovative Tuff 50D Polyurea (2 component Polyurea) and Polyaspartic 60 (Polyurea top coat).

3. Substitutions: Section 01 60 00 - Material and Equipment: Product options and substitutions.

II.2 COMPONENTS

A. Primer; two component with high solids and liquid applied. Apply at approximately 6 to 8 mils.

B. Polyurea; multi component, high solids Polyurea. Apply at approximately 80 mils.

C. Polyurea Topcoat: Multi component, pigmented, aliphatic polyaspartic quick cure coating.Apply at approximately 8 - 10 mils.

II.3 ACCESSORIES

A. Mesh Tape: Mesh tape as recommended by approved Polyurea manufacturer.

B. Joint Filler:Polyurea joint filler as recommended by approved Polyurea manufacturer.

III PART 3 EXECUTION

III.1 EXAMINATION

A. Section 01400 – Quality Control: Coordination and project conditions.

B. Verify substrate surfaces are free of frozen matter, dampness, loose particles, cracks, pits, projections, penetrations, or foreign matter detrimental to adhesion or application of waterproofing system.

C. Verify substrate surfaces are smooth, free of honeycomb or pitting, and not detrimental to full contact bond of waterproofing materials.

D. Verify items penetrating surfaces to receive waterproofing are securely installed.

E. Verify substrate surface slopes to drain for horizontal waterproofing applications.

III.2 PREPARATION

A. Protect adjacent surfaces not designated to receive waterproofing.

A. Clean and prepare surfaces to receive waterproofing. Vacuum substrate clean. Concrete must be mechanically profiled and prepared by shot blasting, grinding, water- jetting, or other means of scarification to produce a Concrete Surface Profile (CSP) between #2 and #4,according to International Concrete Repair Institute (ICRI) Guideline No. 03732

B. Do not apply waterproofing to surfaces unacceptable to manufacturer.

C. Seal cracks and joints with sealant materials using depth to width ratio as recommended by sealant manufacturer.

III.3 INSTALLATION

Apply primer, base coat and top coat at rates described in II.2.A, B and C above.

III.4 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control: Field inspection.

III.5 PROTECTION OF INSTALLED CONSTRUCTION

A. Protect new or existing construction components from Polyurea overspray.

B. Do not permit traffic over unprotected or uncovered coating.

C. Immediately after curing, dust membrane with #80 stone dust (slip fail) at rate of approximately 10 lbs/100 sq ft.

END OF SECTION

SECTION 07 21 00

THERMAL INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Blanket insulation.
   2. Acoustical sound isolation insulation.
   3. Related accessories.

B. Related Sections:
   1. Section 07 90 00 – Joint Protection.

1.2 REFERENCES

A. ASTM C272 – 2018: Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.

B. ASTM C578 – 2018: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation

C. ASTM C665 – 2017: Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

D. ASTM D226 – 2017: Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

E. ASTM D2103 – 2015: Polyethylene Film and Sheeting.

F. ASTM D5116 – 2017: Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products

G. ASTM E84 2018 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Product Data
   1. Product Data: For each type of product indicated.
   2. For adhesives used at Project site, include printed statement of VOC content.
   3. For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content, the manufacturer, and the source of the recycled content data.
   4. For glass-fiber products, include printed statement of VOC content and ASTM D 5116 emission test results.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.

1.4 C. RESEARCH/EVALUATION REPORTS: FOR FOAM-PLASTIC INSULATION, FROM QUALITY ASSURANCE

A. When tested in accordance with ASTM E84, flame-spread rating of insulation materials shall not exceed 25, smoke density shall not exceed 450.

B. Materials used in fire rated assemblies shall bear the U.L. (or other approved testing laboratory) classification marking.

1.5 DELIVERY, HANDLING, AND STORAGE

A. Deliver and store insulation in the manufacturer's original packaging, clearly identified with manufacturer's name, and name, type, and thickness of insulation.

B. Store insulation indoors, protected from moisture and other sources of damage.

C. Follow additional requirements of the manufacturer.

D. Delivery, handling and storage shall be in accordance with 01 65 00.

1.6 PROJECT CONDITIONS

A. Do not install insulation until building is sufficiently enclosed or protected against absorption of moisture by the insulation, and do not install insulation unless supporting framing and surrounding construction is in a thoroughly dry condition.

PART 2 PRODUCTS

2.1 BLANKET INSULATION

A. Materials: ASTM C665; glass fiber or mineral fiber units; unfaced unless otherwise indicated.
1. Flame spread rating of insulation materials.
2. Smoke density shall not exceed 450.

B. Manufacturers:
1. Owens-Corning; Fiberglass FS25.
2. Manville;Flame-Resistant FSK.
3. Certainteed; Flame Resistant FSK.

C. Location: Exterior Walls With Metal Studs: Type I, [R-11] unless otherwise indicated. Based on Energy Calculations recommendation

D. Width: As required to fit framing.

E. Sustainability Requirements: Provide glass-fiber blanket insulation as follows:
1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.
2. Low Emitting: Insulation tested according to ASTM D5116 and shown to emit less than 0.05-ppm formaldehyde.

2.2 RIGID INSULATION

A. Sustainability Requirements: Provide glass-fiber blanket insulation as follows:
   1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.
   2. Low Emitting: Insulation tested according to ASTM D5116 and shown to emit less than 0.05-ppm formaldehyde.

B. Manufacturers:
   1. Owens-Corning - Formular Rigid Foam Insulation
   2. Dow - StyroFoam Insulation
   3. Approved Equal.

2.3 ACOUSTICAL SOUND ISOLATION INSULATION

A. Material: ASTM C665, Type I; unfaced, glass-fiber or mineral-fiber units.

B. Thickness: Nominal 2-3/4 inches, unless otherwise indicated.

C. Width: As required to fit metal stud construction indicated.

D. Location: Concealed within partitions where indicated.

E. Manufacturers:
   1. Manville; Sound Control Batts
   2. Owens-Corning; Fiberglas Commercial Insulation Blankets
   3. Certainteed; Sound Control Batts

F. Sustainable DesignRequirements: Provide glass-fiber blanket insulation as follows:
   1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.
   2. Low Emitting: Insulation tested according to ASTM D5116 and shown to emit less than 0.05-ppm formaldehyde.
   3. Recycled Content: Provide blankets with recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content constitutes a minimum of 10% by weight.

2.4 INSTALLATION MATERIALS

A. Adhesive for Bonding Insulation:
   1. Type recommended by insulation manufacturer, and complying with requirements for fire performance characteristics of insulation with which used.
   2. VOC Content: Not more than 80 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Mechanical Fasteners:
   1. Type recommended by insulation manufacturer and capable of securely and rigidly fastening insulation in place.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces to receive thermal and acoustical insulation are satisfactory for their installation.

B. Verify that substrate, adjacent materials, and insulation are dry.

C. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 INSTALLATION

A. Blanket Insulation
   1. Install insulation where indicated, as specified, and in accordance with the manufacturer's printed instructions; fasten in place with manufacturer recommended fastening method.
   2. Install with factory applied membrane facing toward building interior unless otherwise indicated.
   3. Install snugly between framing members, with ends snugly fitted between units and against adjacent construction.
   4. Carefully cut and fit insulation around pipes, conduit, and other obstructions and penetrations.
   5. Where door and window frames occur in framing, cut additional strips of insulation and hand-pack as necessary to thoroughly fill voids in and around such frames.
   6. Do not fill indicated air spaces with insulation.

B. Acoustical Insulation:
   1. Install in accordance with manufacturer's instructions for conditions encountered.
   2. Fit insulation to exterior side of mechanical and electrical services within the plane of insulation.
   3. Fill entire width of stud cavities.
   4. Install in one or more layers as indicated, or to achieve the indicated STC rating, whichever is greater.
   5. Where insulation does not fill the cavity depth, provide supplementary support to hold the insulation in place.
   6. Provide temporary support to hold insulation in place until permanent supporting finish materials are applied.
   7. Trim insulation neatly to fit spaces tightly, without gaps or voids.
   8. Install insulation inside door and window frames, boxed studs, shim spaces, and other miscellaneous spaces which might otherwise provide a path for uninterrupted sound transmission.

C. Rigid Insulation:
   1. Install vapor retarder over the slab-on-grade, carried up the wall a sufficient height in order that it can be properly joined to the wall vapor retarder and affect a tight seal.
   2. Insulation shall be 2 inches thick, applied in two or more layers. All layers of insulation shall have tightly fitted and staggered joints.
   3. Cover insulation with a slip sheet. Extend slip sheet up the inside of the side wall at least the height of the base. Lap slip sheet joints 6 inches minimum.
   4. Coordinate installation with placing of concrete topping over insulation.

END OF SECTION

SECTION 07 25 00

WEATHER BARRIERS

PART 1 - GENERAL

1.1 SECTION INCLUDES

"Weather barrier assembly" has been used throughout the document. A weather barrier is a weather-resistant membrane for vertical building envelope protection that will maintain air/moisture resistance while maintaining moisture-vapor permeability.

A. Weather barrier membrane (DuPont Tyvek CommercialWrap or Equal).
B. Seam Tape (DuPont Tyvek Tape or Equal)
C. Flashing (DuPont™ FlexWrap or Equal)
D. Fasteners (DuPont Tyvek Wrap Caps or Equal)

1.2 REFERENCES

A. ASTM International
   1. ASTM C920; Standard Specification for Elastomeric Joint Sealants
   2. ASTM C1193; Standard Guide for Use of Joint Sealants
   3. ASTM D882; Test Method for Tensile Properties of Thin Plastic Sheeting
   4. ASTM D1117; Standard Guide for Evaluating Non-woven Fabrics
   5. ASTM E84; Test Method for Surface Burning Characteristics of Building Materials
   6. ASTM E96; Test Method for Water Vapor Transmission of Materials
   7. ASTM E1677; Specification for Air Retarder Material or System for Framed Building Walls
   8. ASTM E2178; Test Method for Air Permeance of Building Materials
   9. ASTM E2357; Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

B. AATCC – American Association of Textile Chemists and Colorists
   1. Test Method 127 Water Resistance: Hydrostatic Pressure Test

C. TAPPI
   1. Test Method T-410; Grams of Paper and Paperboard (Weight per Unit Area)
   2. Test Method T-460; Air Resistance (Gurley Hill Method)

1.3 SUBMITTALS

A. Refer to Section 01 33 00 Submittal Procedures and 01 60 00 Product Requirements.
B. Product Data: Submit manufacturer current technical literature for each component.
C. Samples: Weather Barrier Membrane, minimum 8-1/2 inches by 11 inch.

D. Quality Assurance Submittals

1. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with indicated requirements.
2. Manufacturer Instructions: Provide manufacturer's written installation instructions.
3. Manufacturer's Field Service Reports: Provide site reports from authorized field service representative, indicating observation of weather barrier assembly installation.

E. Closeout Submittals

1. Refer to Section 01 78 00 Closeout Submittals
2. Weather Barrier Warranty: Manufacturer's executed warranty form with authorized signatures and endorsements indicating date of Substantial Completion.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Installer shall have experience with installation of commercial weather barrier assemblies under similar conditions.
2. Installation shall be in accordance with weather barrier manufacturer's installation guidelines and recommendations.
3. Source Limitations: Provide commercial weather barrier and accessory materials produced by single manufacturer.
4. Contact manufacturer's designated representative prior to weather barrier assembly installation, to perform required mock-up visual inspection and analysis as required for warranty.

C. Pre-installation Meeting

1. Refer to Section 01 31 19 Project Meetings.

2. Hold a pre-installation conference, two weeks prior to start of weather barrier installation. Attendees shall include Contractor, Architect, Engineer, Installer, Owner's Representative, and Weather Barrier Manufacturer's Designated Representative.

3. Review all related project requirements and submittals, status of substrate work and preparation, areas of potential conflict and interface, availability of weather barrier assembly materials and components, installer's training requirements, equipment, facilities and scaffolding, and coordinate methods, procedures and sequencing requirements for full and proper installation, integration and protection.

1.5 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 01 60 00 Product Requirements.

B. Deliver weather barrier materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Store weather barrier materials as recommended by weather barrier manufacturer.

1.6 SCHEDULING

A. Review requirements for sequencing of installation of weather barrier assembly with installation of windows, doors, louvers and flashings to provide a weather-tight barrier assembly.

B. Schedule installation of weather barrier materials and exterior cladding within nine months of weather barrier assembly installation.

1.7 WARRANTY

A. Refer to Section 01 78 00 Closeout Submittals.

B. Special Warranty

1. Special weather-barrier manufacturer's warranty for weather barrier for a period of ten (10) years from date of purchase.

2. Pre-installation meetings and jobsite observations by weather barrier manufacturer for warranty are required.

PART 2 – PRODUCTS

2.1 MANUFACTURERs

A. DuPont; 4417 Lancaster Pike, Chestnut Run Plaza 728, Wilmington, DE 19805; 1-800-44-TYVEK (8-9835); http://www.construction.tyvek.com. This product is listed solely as basis of design.

B. James Hardie Co. HardieWrap

C. Or Approved Equal.

2.2 MATERIALS

A. Basis of Design: spunbonded polyolefin, non-woven, non-perforated, weather barrier is based upon DuPont™ Tyvek® CommercialWrap® and related assembly components.

B. Performance Characteristics:

1. Air Penetration: 0.001 cfm/ft^2 at 75 Pa, when tested in accordance with ASTM E2178. Type I per ASTM E1677. ≤0.04 cfm/ft^2 at 75 Pa, when tested in accordance with ASTM E2357

2. Water Vapor Transmission: 28 perms, when tested in accordance with ASTM E96, Method B.

3. Water Penetration Resistance: 280 cm when tested in accordance with AATCC Test Method 127.

4. Basis Weight: 2.7 oz/yd^2, when tested in accordance with TAPPI Test Method T-410.

5. Air Resistance: Air infiltration at >1500 seconds, when tested in accordance with TAPPI Test Method T-460.

6. Tensile Strength: 38/35 lbs/in., when tested in accordance with ASTM D882, Method A.

7. Tear Resistance: 12/10 lbs., when tested in accordance with ASTM D1117.

8. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84. Flame Spread: 10, Smoke Developed: 10.

2.3 ACCESSORIES

A. Seam Tape: 3 inch wide, DuPont™ Tyvek® Tape for commercial applications.

B. Fasteners:

1. Tyvek® Wrap Caps, as distributed by DuPont: #4 nails with large 1-inch plastic cap fasteners, or 1-inch plastic cap staples with leg length sufficient to achieve a minimum penetration of 5/8-inch into the wood stud.

C. Sealants

1. Refer to Section 07 90 00 Joint Protection.
2. Provide sealants that comply with ASTM C920, elastomeric polymer sealant to maintain watertight conditions.
3. Products:
   a. DuPont™ Commercial Sealant
   b. Sealants recommended by the weather barrier manufacturer.

D. Adhesives:

1. Provide adhesive recommended by weather barrier manufacturer.
2. Products:
   a. SIA 655
   b. Or Approved Equal.

E. Primers:

1. Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing.
2. Products:
   a. SIA 655
   b. Permagrip 105
   c. Or approved equal

F. Flashing

1. DuPont™ FlexWrap™, as distributed by DuPont: flexible membrane flashing materials for window openings and penetrations.
2. DuPont™ Thru-Wall Surface Adhered Membrane with Integrated Drip Edge: Thru-Wall flashing membrane materials for flashing at changes in direction or elevation (shelf angles, foundations, etc.) and at transitions between different assembly materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify substrate and surface conditions are in accordance with weather barrier manufacturer recommended tolerances prior to installation of weather barrier and accessories.

3.2 INSTALLATION – WEATHER BARRIER

A. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturer recommendations.

B. Install weather barrier prior to installation of windows and doors.

C. Start weather barrier installation at a building corner, leaving 6-12 inches of weather barrier extended beyond corner to overlap.

D. Install weather barrier in a horizontal manner starting at the lower portion of the wall surface with subsequent layers installed in a shingling manner to overlap lower layers. Maintain weather barrier plumb and level.

E. Sill Plate Interface: Extend lower edge of weather barrier over sill plate interface 3-6 inches. Secure to foundation with elastomeric sealant as recommended by weather barrier manufacturer.

F. Window and Door Openings: Extend weather barrier completely over openings.

G. Overlap weather barrier

1. Exterior corners: minimum 12 inches.
2. Seams: minimum 6 inches.

H. Weather Barrier Attachment:

1. Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturer recommended fasteners, space 12 -18 inches vertically on center along stud line, and 24 inch on center, maximum horizontally.

I. Apply 4 inch by 7 inch piece of DuPont™ StraightFlash™ or weather barrier manufacturer approved alternate to weather barrier membrane prior to the installation cladding anchors.

3.3 SEAMING

A. Seal seams of weather barrier with seam tape at all vertical and horizontal overlapping seams.

B. Seal any tears or cuts as recommended by weather barrier manufacturer.

3.4 OPENING PREPARATION (for use with non-flanged windows – all cladding types)

A. Flush cut weather barrier at edge of sheathing around full perimeter of opening.

B. Cut a head flap at 45-degree angle in the weather barrier at window head to expose 8 inches of sheathing. Temporarily secure weather barrier flap away from sheathing with tape.

3.5 FLASHING (for use with non-flanged windows – all cladding types)

A. Cut [7-inch] [9-inch] wide DuPont™ FlexWrap™ or DuPont™ FlexWrap™ NF a minimum of 12 inches longer than width of sill rough opening. Apply primer as required by manufacturer.

B. Cover horizontal sill by aligning DuPont™ FlexWrap™ edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches. Secure flashing tightly into corners by working in along the sill before adhering up the jambs.

C. Fan DuPont™ FlexWrap™ at bottom corners onto face of wall. Firmly press in place. Mechanically fasten fanned edges. Mechanical fastening is not required for DuPont™ FlexWrap™ NF.

D. Apply 9-inch wide strips of DuPont™ StraightFlash™ at jambs. Align flashing with interior edge of jamb framing. Start DuPont™ StraightFlash™ at head of opening and lap sill flashing down to the sill.
E. Spray-apply primer to top 6 inches of jambs and exposed sheathing.
F. Install DuPont™ FlexWrap™ DuPont™ FlexWrap™ NF at opening head using same installation procedures used at sill. Overlap jamb flashing a minimum of 2 inches.
G. Coordinate flashing with window installation.
H. On exterior, install backer-rod in joint between window frame and flashed rough framing. Apply sealant at jambs and head, leaving sill unsealed. Apply sealants in accordance with sealant manufacturer's instructions and ASTM C 1193.
I. Position weather barrier head flap across head flashing. Adhere using 4-inch wide DuPont™ StraightFlash™ over the 45-degree seams.
J. Tape top of window in accordance with manufacturer recommendations.
K. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around entire window to create air seal. Apply sealant in accordance with sealant manufacturer's instructions and ASTM C 1193.

3.6 OPENING PREPARATION (for use with flanged windows)

A. Cut weather barrier in an "I-cut" pattern. A modified I-cut is also acceptable.
   1. Cut weather barrier horizontally along the bottom and top of the window opening.
   2. From the top center of the window opening, cut weather barrier vertically down to the sill..
   3. Fold side and bottom weather barrier flaps into window opening and fasten.
B. Cut a head flap at 45-degree angle in the weather barrier at window head to expose 8 inches of sheathing. Temporarily secure weather barrier flap away from sheathing with tape.

3.7 FLASHING (for use with flanged windows)

A. Cut 7-inch wide DuPont™ FlexWrap™ or DuPont™ FlexWrap™ NF a minimum of 12 inches longer than width of sill rough opening.
B. Cover horizontal sill by aligning DuPont™ FlexWrap™ edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches. Secure flashing tightly into corners by working in along the sill before adhering up the jambs.
C. Fan DuPont™ FlexWrap™ at bottom corners onto face of wall. Firmly press in place. Mechanically fasten fanned edges. Mechanical fastening is not required for DuPont™ FlexWrap™ NF.
D. On exterior, apply continuous bead of sealant to wall or backside of window mounting flange across jambs and head. Do not apply sealant across sill.
E. Install window according to manufacturer's instructions.
F. Apply 4-inch wide strips of DuPont™ StraightFlash™ at jambs overlapping entire mounting flange. Extend jamb flashing 1-inch above top of rough opening and below bottom edge of sill flashing.
G. Apply 4-inch wide strip of DuPont™ StraightFlash™ as head flashing overlapping the mounting flange. Head flashing should extend beyond outside edges of both jamb flashings.

H. Position weather barrier head flap across head flashing. Adhere using 4-inch wide DuPont™ StraightFlash™ over the 45-degree seams.
I. Tape head flap in accordance with manufacturer recommendations.
J. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around entire window to create air seal. Apply sealant in accordance with sealant manufacturer's instructions and ASTM C 1193.

3.8 THRU-WALL FLASHING INSTALLATION

A. Apply primer per manufacturer's written instructions.
B. Install preformed corners and end dams bedded in sealant in appropriate locations along wall.
C. Starting at a corner, remove release sheet and apply membrane to primed surfaces in lengths of 8 to 10 feet.
D. Extend membrane through wall and leave ¼ inch minimum exposed to form drip edge.
E. Roll flashing into place. Ensure continuous and direct contact with substrate.
F. Lap ends and overlap preformed corners 4 inches minimum. Seal all laps with sealant.
G. Trim exterior edge of membrane 1-inch and secure metal drip edge per manufacturer's written instructions.
H. Terminate membrane on vertical wall. Terminate into reglet, counterflashing or with termination bar.
I. Apply sealant bead at each termination.

3.12 FIELD QUALITY CONTROL

A. Notify manufacturer's designated representative to obtain periodic observations of weather barrier assembly installation.

3.14 PROTECTION

A. Protect installed weather barrier from damage.

END OF SECTION

SECTION 07 42 13

METAL SIDING PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Through-fastened metal wall panels.

B. Architectural metal wall panels.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.

B. Section 06 15 00 - Wood Decking.

C. Section 07 21 00 – Thermal Insulation.

D. Section 07 62 00 - Sheet Metal Flashing and Trim.

E. Section 07 90 00 - Joint Protection.

1.3 REFERENCES

A. Building Design Codes: International Building Code (IBC)

B. American Iron and Steel Institute (AISI): North American Specification for the Design of Cold-Formed Steel Structural Members.

C. American Institute of Steel Construction (AISC): Manual of Steel Construction.

D. ASTM International (ASTM):
1. ASTM D 659: Method of Evaluating Degree of Chalking of Exterior Paints.
2. ASTM D 822 - Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
3. ASTM D 3361 - Standard Practice for Unfiltered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
4. ASTM D 4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films
5. ASTM D 4587 - Standard Practice for Fluorescent UV-Condensation Exposures of Paint and Related Coatings.
6. ASTM G 23 - Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials.

1.4 PERFORMANCE REQUIREMENTS FOR WALL SYSTEMS

A. Design Requirements for Wall Systems:
1. System Design: Metal wall system as designed by the manufacturer shall be a complete system. All components of the system shall be supplied by the same manufacturer.

2. Wall Panels: Steel panels shall be designed in accordance with the AISI Cold-Formed Steel Design Manual.
3. Design Loads: Design load application shall be in accordance with local building code.
4. Wind Loads: The design wind loads shall be based on the wind criteria in accordance with local building code.
5. Deflection: Deflection requirements shall be in accordance with the applicable building code, or as a minimum, L/180 for wind load (but not less than 10 psf (49 kg/sq m).
6. Accessories and Fasteners: Accessories and fasteners shall be capable of resisting the specified design wind suction forces in accordance with local building code.

B. Framing Members Supporting the Metal Panel System:
1. Additions/revisions to framing members supporting the metal panel system to accommodate the manufacturer/fabricator's design shall be the Contractor's responsibility, and shall be submitted for review and approval by the Engineer of Record.
2. Framing members and their connections shall be designed in accordance with AISC, AISI, and LGSI design specifications as applicable. Deflection requirements shall be in accordance with the applicable building code, or as a minimum, the provisions of the AISC Steel Design Guide Series 3 - Serviceability Design Considerations for Low-Rise-Buildings.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 30 00.
1. Product Data: Manufacturer's data sheets on each product to be used.
2. Storage and handling requirements and recommendations.
3. Installation methods.

B. Shop Drawings:
1. Show methods of erection, elevations, and plans of roof panels, sections and details, anticipated loads, flashings, roof curbs, vents, sealants, interfaces with all materials not supplied and proposed identification of component parts and their finishes.
2. Submit complete shop drawings and erection details to Architect for review. Do not proceed with manufacture prior to review of shop drawings and approval of shop drawings. Do not use drawings prepared by Architect for shop or erection drawings.

C. Selection Samples: For each finish product specified, color charts representing manufacturer's full range of standard colors and patterns. For non standard colors or finishes color samples must be submitted to manufacturer for matching if quantity of custom materials is sufficient.

D. Verification Samples: For each product specified, two samples, minimum size 12 inches (305 mm) x full panel width, representing actual product configuration.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:
1. Panels specified in this section shall be produced in a permanent factory environment with fixed-base roll-forming equipment. Standing seam roofing may be roll formed at the jobsite if the design lengths of the panels are longer than shipping capabilities. Roll forming of the profiled panels, curving of all

panels, factory mitering of corners, and fabricating of all curved flashings shall be performed by the manufacturer.
2. Manufacturer shall submit names and addresses of five previous projects of equal size and scope at the request of the Architect.
3. Specified system shall have been in use in the United States for a minimum of ten years.
4. Manufacturer with a minimum of five years of experience in manufacturing panels of this nature in a permanent, stationary, indoor production facility utilizing industrial equipment.

B. Installer Qualifications:
1. Installer shall have completed five projects of similar scope and magnitude that have been in service for a minimum of five years with satisfactory performance of the panel system.
2. Installer shall submit names and addresses of five previous projects of equal size and scope at the request of the Architect.
3. Installer's foreman shall be trained in the proper installation of the specified system, and present at all times when material is being installed.

C. Regulatory Requirements: Comply with specified performance and local building code requirements. In the event of conflict, comply with the higher performing or more restrictive requirement.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver panels to job site properly packaged to provide protection against transportation damage.

B. Exercise extreme care in unloading, storing, and erecting panels to prevent bending, warping, twisting, end and surface damage.

C. Store all material and accessories above ground on well skidded platforms.

D. Store inside or under breathable waterproof covering. Provide proper ventilation to panels to prevent condensation buildup between each panel. Elevate one end of bundles while being stored.

E. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 WARRANTY

A. Finish Warranty: Manufacturer warrants that under normal atmospheric conditions the metal panels will meet the following requirements after shipment from manufacturer's mill:
1. Kynar 500 / Hylar5000 - Fluorocarbon (PVDF).
a. The paint will not crack, check or peel for a period of 20 years.
b. The paint will not chalk in excess of number 8 rating for a period of 20 years.
c. The paint will not change color more than 5 NBS units for a period of 20 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer:

1. Flexospan,

2. Approved Equal.

B. Requests for substitutions will be considered in accordance with provisions of Section 01 65 00.

2.2 THROUGH-FASTENED METAL WALL PANELS

A. Metal Wall Panels: Flexbeam Metal Wall Panel as manufactured by Flexospan 7.2 inches (183 mm) on center rib spacing by 1-1/2 inch (38 mm) deep. Overall panel width of 38.875 inches (987 mm) with wall coverage of 36 inches (914 mm).

B. Material:
1. Painted Steel with G-90 Galvanizing or Galvalume coated.
   a. Steel Thickness:
      1) 18 gauge.
   b. Finish:
      1) Kynar 500 / Hylar5000:
         a) Kynar 500 and Hylar 5000, 70 percent content fluorocarbon coatings.
         b) Top Side Finish: Primer, dry = 0.2 mil; Top coat, dry = 0.7 mil to 0.9 mil.
         c) Reverse Side Finish: Primer, dry = 0.2 mil; pigmented polyester backer = 0.35 mil to 0.45 mil.
         d) Accelerated Weathering: Per ASTM D 3361, 2000 hours, maximum color change of 2AE Hunter units; a chalk rating of no less than #8 per ASTM D 659.
         e) Where the panel backside is exposed to view, the color may vary from panel to panel. If an exact match is required, material shall be special ordered with a minimum quantity requirement. Must call manufacturer for special order price quote, warranty and availability.
   c. Color:
      1) Flexospan Standard Color to match existing structures

C. Accessories:
1. Metal Components:
   a. Provide accessories and other items essential to a complete roof panel installation including trim, flashing, fascia, metal closures, caps, gutters, downspouts, soffits and similar metal components.
   b. Metal components to be fabricated from same gauge and finish as metal panels, unless otherwise noted.
2. Flashing: Flashing shall have the same gauge and finish as the exterior panel, unless otherwise noted.

3. Fasteners:

a. Exposed fasteners shall be hex head self-drilling screws with bonded washers and color finished to match panels. Screws may be either plated carbon steel or stainless steel as noted on the drawings.
b. Exposed stainless steel rivets shall match color finish of panel.

4. Closure Strips: Polyethylene to match configuration of the covering.
5. Sealants:
   a. Exposed Sealants: Shall be one component silicone based as recommended by panel manufacturer: field applied.
   b. Concealed Sealants: Non-curing, non-skinning butyl, polyisobutylene or polybutane tape as recommended by panel manufacturer; field applied.

D. Fabrication:
1. Form and fabricate components of the system to the profiles and patterns as determined by Architect.
2. Metal panels shall be factory formed on a stationary industrial type rolling mill.
3. Panel Orientation: Panels with custom metallic finishes are directional and shall be erected so as to produce a consistent visual effect.
4. Length: Unless otherwise shown on Drawings or specified herein, panels shall be full length. Fabricate flashings in 10 ft (3 m) lengths.
   a. Panel Length: Factory formed standard lengths to 40 feet (12 m).
   b. Panel Length: Factory formed custom lengths of 40 feet to 60 feet (12 m to 18 m) with special packaging and shipping.

E. Accessories:
1. Metal Components:
   a. Provide accessories and other items essential to a complete roof panel installation including trim, flashing, fascia, metal closures, caps, gutters, downspouts, soffits and similar metal components.
   b. Metal components to be fabricated from same gauge and finish as metal panels, unless otherwise noted.
2. Flashing: Flashing shall have the same gauge and finish as the exterior panel, unless otherwise noted.
3. Fasteners:
   a. Exposed fasteners shall be hex head self-drilling screws with bonded washers and color finished to match panels. Screws may be either plated carbon steel or stainless steel as noted on the drawings.
   b. Exposed stainless steel rivets shall match color finish of panel.
4. Closure Strips: Polyethylene to match configuration of the covering.
5. Sealants:
   a. Exposed Sealants: Shall be one component silicone based as recommended by panel manufacturer: field applied.
   b. Concealed Sealants: Non-curing, non-skinning butyl, polyisobutylene or polybutane tape as recommended by panel manufacturer; field applied.

F. Fabrication:
1. Form and fabricate components of the system to the profiles and patterns as determined by Architect.
2. Metal panels shall be factory formed on a stationary industrial type rolling mill.
3. Panel Orientation: Panels with custom metallic finishes are directional and shall be erected so as to produce a consistent visual effect.
4. Length: Unless otherwise shown on Drawings or specified herein, panels shall be full length. Fabricate flashings in 10 ft (3 m) lengths.
   a. Panel Length: Factory formed standard lengths to 40 feet (12 m).

b. Panel Length: Factory formed custom lengths of 40 feet to 60 feet (12 m to 18 m) with special packaging and shipping.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Tolerance Requirements: No panels shall be erected if the structural steel does not meet the tolerances of the AISC Code, Section 7. It is the responsibility of the Contractor to examine this alignment before the panels are erected. The Contractor is responsible for properly installing the roof system and ensuring that all purlins or sub-framing members are properly installed.

C. If structural steel erection is the responsibility of another installer, notify Architect of unsatisfactory conditions before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION - METAL PANELS

A. Install in accordance with manufacturer's instructions.

B. Fastening of Exterior Wall Panels:
1. Exposed fastener profiles shall be attached with No. 14, self-tapping screws when attached to a sub-girt with a No. 14 by 3/4 inch (19 mm) sheet metal screw, or 12/14 by 1 inch (25 mm) self-drilling screws with sealing washers. When used with color-coated exterior panels, fastener heads shall be the same color as the panel. Fasteners used for attaching aluminum, stainless steel, or Galvalume/Acrylume, shall be of an approved type.
2. Concealed fastener exterior panels shall be positive fastened only, no clip-type fastening shall be permitted. When fastened directly to structural steel, panels shall be attached with No. 14 by 1 inch (25 mm) self-tapping screws. When used in conjunction with a FL-24 liner panel and sub-girt, the exterior panel shall be attached using No. 14 by 3/4 inch (19 mm) sheet metal screws, or 12/14 by 1 inch (15 mm) TEK 3 self-drilling screws.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Remove strippable film immediately upon erection of panels or flashings.

C. On standing seam roofing panels complete the seaming first and then immediately remove strippable plastic film.

D. Exercise extreme care in unloading, storing, and erecting panels to prevent bending, warping, twisting, end and surface damage.

E. Remove all metal filings from panel surface as part of the cleanup procedure.

F. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 84 43

FIRE-RESISTANT JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Floor-to-wall joints.
   2. Head-of-wall joints.
   3. Wall-to-wall joints.
   4. Perimeter fire-resistive joint systems consisting of floor-to-wall joints between perimeter edge of fire-resistance-rated floor assemblies and exterior curtain walls.

B. Related Sections include the following:
   1. Section 07 90 00 - Joint Protection: Non-fire-resistive joint sealants.
   2. Section 23 33 16 – Dampers Fire and Smoke

1.2 REFERENCES

A. ASTM E84 [2018] - Test Method for Surface Burning Characteristics of Building Materials.

B. ASTM E119 [2018] - Test Methods for Fire Tests of Building Construction and Materials.

C. ASTM E 814 [2013] - Fire Test of Penetration Firestop Systems.

D. ASTM E1966 [2015] - Fire-Resistive Joint Systems.

E. UL - Underwriters' Laboratories, Inc.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide fire-resistive joint systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly in which fire-resistive joint systems are installed.

B. Joint Systems in and between Fire-Resistance-Rated Constructions: Provide systems with assembly ratings equaling or exceeding the fire-resistance ratings of construction that they join, and with movement capabilities indicated as determined by UL 2079.
   1. Load-bearing capabilities as determined by evaluation during the time of test.

C. Perimeter Fire-Resistive Joint Systems: For joints between edges of fire-resistance-rated floor assemblies and exterior curtain walls, provide systems of type and with ratings indicated below and those indicated in the Fire-Resistive Joint System Schedule at the end of Part 3, as determined by UL 2079.

1. UL-Listed, Perimeter Fire-Containment Systems: Integrity ratings equaling or exceeding fire-resistance ratings of floor or floor/ceiling assembly forming one side of joint.

D. For fire-resistive systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E84.

1.4 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and 01 33 23.

B. Product Data: For each type of product indicated.
1. For sealants and sealant primers used inside the weatherproofing system, include printed statement of VOC content.

C. Shop Drawings: For each fire-resistive joint system, show each kind of construction condition in which joints are installed; also show relationships to adjoining construction. Include fire-resistive joint system design designation of testing and inspecting agency acceptable to authorities having jurisdiction that demonstrates compliance with requirements for each condition indicated.
1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each fire-resistive joint system configuration for construction and penetrating items.

D. Product Certificates: For each type of fire-resistive joint system, signed by product manufacturer.

E. Field quality-control test reports.

F. Evaluation Reports: Evidence of fire-resistive joint systems' compliance with ICCES], from the ICC Evaluation Service.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FMG according to FMG 4991, "Approval of Firestop Contractors."

B. Source Limitations: Obtain fire-resistive joint systems, for each kind of joint and construction condition indicated, through one source from a single manufacturer.

C. Fire-Test-Response Characteristics: Provide fire-resistive joint systems that comply with the following requirements and those specified in Part 1 "Performance Requirements" Article:
1. Fire-resistance tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or another agency performing testing and follow-up inspection services for fire-resistive joint systems acceptable to authorities having jurisdiction.

2. Fire-resistive joint systems are identical to those tested per methods indicated in Part 1 "Performance Requirements" Article and comply with the following:

a. Fire-resistive joint system products bear classification marking of qualified testing and inspecting agency.
b. Fire-resistive joint systems correspond to those indicated by referencing system designations of the qualified testing and inspecting agency.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver fire-resistive joint system products to Project site in original, unopened containers or packages with qualified testing and inspecting agency's classification marking applicable to Project and with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials for fire-resistive joint systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install fire-resistive joint systems when ambient or substrate temperatures are outside limits permitted by fire-resistive joint system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Ventilate fire-resistive joint systems per manufacturer's written instructions by natural means or, if this is inadequate, forced-air circulation.

1.8 COORDINATION

A. Coordinate construction of joints to ensure that fire-resistive joint systems are installed according to specified requirements.

B. Coordinate sizing of joints to accommodate fire-resistive joint systems.

C. Notify the CMD Representative inspecting agency at least seven days in advance of fire-resistive joint system installations; confirm dates and times on days preceding each series of installations.

D. Do not cover up fire-resistive joint system installations that will become concealed behind other construction until the CMD Representative inspecting agency and building inspector of authorities having jurisdiction have examined each installation.

PART 2 PRODUCTS

2.1 MATERIALS, GENERAL

A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Architectural Sealants: Not more than 250 g/L.
2. Nonmembrane Roof Sealants: 300 g/L.

3. Single-Ply Roof Membrane Sealants: 450 g/L.
4. Sealant Primers for Nonporous Substrates: Not more than 250 g/L.
5. Sealant Primers for Porous Substrates: Not more than 775 g/L.
6. Modified Bituminous Sealant Primers: 500 g/L.

2.2 MANUFACTURERS

A. Manufacturers
   1. Hilti
   2. 3M
   3. Approved equal.

2.3 FIRE-RESISTIVE JOINT SYSTEMS

A. Compatibility: Provide fire-resistive joint systems that are compatible with joint substrates, under conditions of service and application, as demonstrated by fire-resistive joint system manufacturer based on testing and field experience.

B. Accessories: Provide components of fire-resistive joint systems, including primers and forming materials, that are needed to install fill materials and to comply with Part 1 “Performance Requirements” Article. Use only components specified by fire-resistive joint system manufacturer and approved by the qualified testing and inspecting agency for systems indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of work.
   1. Proceed with installation only after unsatisfactory conditions have been corrected.
   2. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 PREPARATION

A. Surface Cleaning: Clean joints immediately before installing fire-resistive joint systems to comply with fire-resistive joint system manufacturer’s written instructions and the following requirements:
   1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of fill materials.
   2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with fill materials. Remove loose particles remaining from cleaning operation.
   3. Remove laitance and form-release agents from concrete.

B. Priming: Prime substrates where recommended in writing by fire-resistive joint system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent fill materials of fire-resistive joint system from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from fire-resistive joint system materials. Remove tape as soon as possible without disturbing fire-resistive joint system's seal with substrates or damaging adjoining surfaces.

3.3 INSTALLATION

A. General: Install fire-resistive joint systems to comply with Part 1 "Performance Requirements" Article and fire-resistive joint system manufacturer's written installation instructions for products and applications indicated and in accordance with approved shop drawings.

B. Install forming/packing/backing materials and other accessories of types required to support fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

C. Install fill materials for fire-resistive joint systems by proven techniques to produce the following results:
   1. Fill voids and cavities formed by openings and forming/packing/backing materials as required to achieve fire-resistance ratings indicated.
   2. Apply fill materials so they contact and adhere to substrates formed by joints.
   3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 FIELD QUALITY CONTROL

A. Inspecting Agency: the CMD representative will engage a qualified independent inspecting agency to inspect fire-resistive joint systems and prepare inspection reports. [FMG 4911]

B. Testing Services: Inspecting of completed installations of fire-resistive joint systems shall take place in successive stages as installation of fire-resistive joint systems proceeds. Do not proceed with installation of joint systems for the next area until inspecting agency determines completed work shows compliance with requirements.
   1. Inspecting agency shall state in each report whether inspected fire-resistive joint systems comply with or deviate from requirements.

C. Remove and replace fire-resistive joint systems where inspections indicate that they do not comply with specified requirements.

D. Additional inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

E. Proceed with enclosing fire-resistive joint systems with other construction only after inspection reports are issued and fire-resistive joint systems comply with requirements.

3.5 CLEANING AND PROTECTION

A. Clean off excess fill materials adjacent to joints as Work progresses by methods and with cleaning materials that are approved in writing by fire-resistive joint system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure fire-resistive joint systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

END OF SECTION

SECTION 07 90 00

JOINT PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Preparing sealant substrate surfaces.
   2. Sealant and backing.

B. Related Sections:
   1. Section 09 90 00 – Painting and Coatings
   2. Sealants used in conjunction with Building Components as indicated in all divisions.

1.2 REFERENCES

A. ASTM C732 2017- Aging Effects of Artificial Weathering on Latex Sealing Compounds.

B. ASTM C834 2017 - Latex Sealing Compounds.

C. ASTM C881 2015 - Epoxy-Resin Base Bonding Systems for Concrete.

D. ASTM C882 2013 - Test Method for Bond Strength of Epoxy - Resin Systems Used with Concrete by Slant Shear.

E. ASTM C920 2018 - Elastomeric Joint Sealants.

F. ASTM D695 2015 - Compressive Properties of Rigid Plastics.

G. ASTM D2240 2005 - Test Method for Rubber Property-Durometer Hardness.

1.3 SUBMITTALS

A. Product Data
   1. For sealants and sealant primers used inside the weatherproofing system, including printed statement of VOC content.

B. Samples: Submit showing the standard colors available for each sealant material intended for installation in an exposed location.

C. Certificates: Submit certificate that materials specified and proposed for use are suitable for intended application.

D. Manufacturer’s installation instructions.

E. Warranties: Sample of special warranties.

1.4 QUALITY ASSURANCE

A. Applicator: Company with minimum [3] years experience in the application of materials of the type specified in this Section.

B. Regulatory Requirements: Joint Sealers shall meet all current limits set by regulatory agencies regarding Volatile Organic Compounds (VOC).

1.5 FIELD SAMPLES

A. Provide field samples in accordance with Section 01 45 00.

B. Construct field sample panel of size reviewed by the Facility Representative, illustrating sealant types, colors, and tooled surfaces.

C. Locate as directed.

D. Accepted sample may remain as part of the Work.

1.6 MOCK-UPS

A. Provide sealant and related accessories for mock-ups in accordance with Section 01 45 00.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in the unopened, original containers or unopened packages with manufacturer’s name, labels, product identification, and lot numbers where appropriate.

B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturer.

1.8 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Failures include but are not limited to the following:
      a. Air and/or water penetration.
      b. Loss of adhesion or cohesion.
      c. Failure to cure.
   2. Warranty Period: **Two** years from date of Project completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Failures include but are not limited to the following:
      a. Loss of adhesion or cohesion.
      b. Failure to cure.
   2. Warranty Period: [**2)** years from date of Project completion.

C. C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
   1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
   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

2.1 MATERIALS, GENERAL

A. A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
   1. Architectural Sealants: Not more than 250 g/L.
   2. Nonmembrane Roof Sealants: 300 g/L.
   3. Single-Ply Roof Membrane Sealants: 450 g/L.
   4. Sealant Primers for Nonporous Substrates: Not more than 250 g/L.
   5. Sealant Primers for Porous Substrates: Not more than 775 g/L.
   6. Modified Bituminous Sealant Primers: 500 g/L.

2.2 SEALANTS

A. Type A Sealant:
   1. Manufacturers:
      a. [Euclid Chemical Company; Eucolastic II - Pourable].
      b. [Mameco International; Vulkem 245].
      c. [Pecora Corp.;Urexpan NR-200].
      d. [Sika Corp.; Sikaflex 2C-SL].
      e. [Sonneborn Building Products; Sonolastic SL II].
   2. Multiple components, self-leveling polyurethane based sealant in accordance with ASTM C920, Type M, Grade P, Class 25.

B. Type B Sealant: Not used

C. Type C Sealant: Not Used

D. Type D Sealant:
   1. Manufacturers:
      a. [Adco Seal; No. B-100].
      b. [Pecora Corp.; BC-158].
      c. [PTI Sealants ; No. 707].
      d. [Tremco; Butyl Sealant].
   2. Butyl rubber based sealant in accordance with ASTM C920, Type S, Grade NS, Class 7.5.

E. Type E Sealant:
   1. Manufacturers:
      a. Pecora Corp.; AC-20].
      b. Sonneborn Building Products; Sonolac.
      c. Tremco; Acrylic Latex Caulk.
   2. Latex acrylic based sealant in accordance with ASTM C834.

F. Type F Sealant:
   1. Manufacturers:
      a. Dow Corning Corp.; No. 795.
      b. General Electric Co.; Silpruf.
      c. Pecora Corp.; 864].
      d. Sika Corp.; Sikaflex 1A.
      e. Tremco, Spectrem 1.
   2. Low-modulus silicone sealant in accordance with ASTM C920, Type S, Grade NS, Class 50.

G. Type G Sealant: Not used

H. Type H (Acoustical) Sealant:
   1. Tape:
      a. Manufacturers:
         1) Arlon; Series 6A.
         2) Norton Co.; Norseal V30 Series.
         3) Williams Products, Inc.; U-Gasket.
      b. Polyvinylchloride foam tape with pressure sensitive adhesive on one side, 3/4 inch wide by the thickness required to accommodate unevenness of substrate and completely fill openings between partition framing and building floors and concrete or masonry walls.
   2. Compound:
      a. Manufacturers:
         1) Ohio Sealants; Sound Caulk (solvent type).
         2) Pecora Corp.; BA-98.
         3) Tremco; Acoustical Sealant.
      b. Permanently resilient type manufactured specifically for acoustical applications.

2.3 MISCELLANEOUS MATERIALS

A. Backer Rod:
   1. Material: Closed-cell foam, nonstaining, nongassing, resilient material such as neoprene, butyl, or polyurethane, compatible with sealant to be used.
   2. Sized and shaped to control depth of sealant and to provide 20 percent to 50 percent compression upon insertion.

B. Joint Cleaner:
   1. For metal and glass: [Xylol, xylene, toluol, or toluene].
   2. For removing lacquer coatings: [Lacquer thinner].

C. Primer: As recommended by sealant manufacturer for use intended.

D. Masking Tape: Pressure-sensitive adhesive paper type.

E. Bond Breaker: Pressure-sensitive adhesive polyethylene tape.

2.4 SEALANT COLORS

A. Sealant color for use in exposed locations shall be as selected by the Facility Representative from manufacturer's standard colors.

B. Wherever sealants are not exposed to view, provide manufacturer's standard color which has the best overall performance characteristics for the application indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Inspect joints to be sealed to determine if conditions are satisfactory for the proper installation of joint sealants.

B. If unsatisfactory conditions exist, do not commence Work until such conditions have been corrected. Beginning of installation means acceptance of existing conditions.

3.2 GENERAL

A. Provide sealant wherever necessary to:
1. Prevent light leakage.
2. Prevent moisture leakage.
3. Facilitate cleaning and sanitation.
4. Seal exposed joints around door and window frames, signs, display boards, casework, fire extinguisher cabinets, fire alarm boxes, plumbing fixtures, electrical device cover plates, light fixtures, and other items indicated to be set in sealant.

3.3 PREPARATION

A. Cleaning: Clean joint surfaces, using joint cleaner as necessary, of dust, dirt, oil, grease, rust, lacquers, laitance, release agents, moisture, and other matter which could adversely affect adhesion of sealants.

B. Masking: Mask areas adjacent to joints.

C. Priming: Apply primer, if required, in accordance with manufacturer's printed instructions.

D. Joints shall enclose sealant on three sides.
1. Where adequate joints for sealants have not been provided, suitable joints shall be cleaned out to the depth required, or as indicated, and ground to a minimum width of 1/4 inch without damage to the adjoining Work, unless otherwise specified or indicated.
2. No grinding shall be performed on metal surfaces.

3.4 APPLICATION

A. Install sealant and backing materials in accordance with manufacturer's instructions.

B. Apply in accordance with manufacturer's instructions regarding ambient temperature for application and curing.

C. Install backing materials in joints using blunt instrument to avoid puncturing.
   1. Do not twist backing while installing.
   2. Install backing so that joint depth is 50 percent of joint width, minimum ¼ inch deep.

D. Apply sealants in joints using pressure gun with nozzle cut to fit joint width.

E. Place sealants in uniform, continuous beads without gaps or air pockets.

F. Tool joints to required configuration within 10 minutes of sealant application.

G. If masking materials are used, remove immediately after tooling.

H. Seal joints adjacent to painted Work before the final coat of paint is applied.

I. Verify adhesion of sealants to substrates.

3.5 CLEANING

A. Remove spilled and excess materials adjacent to joints without damaging adjacent surfaces.

B. Leave finished Work in neat, clean condition with no evidence of spillovers or damage to adjacent surfaces.

3.6 SCHEDULE

A. Type A:
   1. Joints in concrete and tile floors and paved surfaces subject to foot traffic.

B. Type D:
   1. Interior wall penetrations for pipe and conduit that will be concealed by escutcheons and other trim and plate, and for lap joints in sheet metal.

C. Type E:
   1. Joints, voids and penetrations not otherwise specified for interior surfaces exposed to view and requiring painting.
   2. Bedding of fixtures, partitions, equipment and accessories fastened to walls and floors, and flanges and escutcheons of items penetrating surfaces in the following locations: kitchens, dining rooms, staff and public toilet rooms, inmate toilet rooms except as otherwise specified, change rooms, and other areas requiring sanitary conditions to eliminate any open joints between contact surfaces.

D. Type F:
   1. Exterior and interior joints in contact with organically-coated aluminum.
   2. Exterior and interior vertical joints in concrete, except as otherwise specified.
   3. Exterior joints in masonry and portland cement plaster.
   4. Around metal door, window and louver frames penetrating exterior concrete, masonry and portland cement plaster surfaces, except as otherwise specified.

E. Type H:
   1. Perimeter joints around sound-retardant partitions and electrical boxes and other penetrations in such partitions.

F. Conflicts:
   1. In the event of conflict between the above Schedule and sealant type indicated on Drawings, notify the Facility Representative.
   2. The Facility Representative will determine sealant type to be installed in location in question.
   3. Install sealant type directed by the Facility Representative, complete with all necessary joint preparation and accessories.

END OF SECTION

SECTION 08 11 00

METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Steel doors.
   2. Steel frames.

B. Related Sections
   1. Section 08 70 00 - Hardware.
   2. Section 09 90 00 - Painting and Coating.

1.2 REFERENCES

A. Steel Door Institute (SDI)
   1. ANSI A250.8 2012 - Recommended Specifications for Standard Steel Doors & Frames.
   2. SDI-105 - Recommended Erection Instructions for Steel frames.
   3. SDI-111 - Recommended Standard Details for Steel Doors & Frames and Accessories.
   4. SDI-113 - Test Procedure and Acceptance Criteria for Apparent Thermal Performance for Steel Door and Frame Assemblies.
   5. ASTM A568 2014 - Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements For.
   6. ASTM A653 2015 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   7. ASTM A659 2012 - Standard Specification for Commercial Steel, Sheet and Strip Carbon (0.16 percent Maximum, to 0.25 Percent Maximum), Hot-Rolled.
   8. ASTM A794 2012 - Standard Specification for Commercial Steel, Sheet, Carbon, (0.16 percent Maximum to 0.25 percent Maximum) Cold-Rolled.
   9. ASTM A924 2014 - Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process.
   10. ASTM D2201 1999 - Standard Practice for Preparation of Zinc-Coated and Zinc Alloy-Coated Steel Panels for Testing Paint and Related Coating Products.
   11. ASTM F1577 2012 - Standard Test Methods for Detention Locks for Swinging Doors.
   12. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
   13. U.L. - Underwriters Laboratories Inc.
   14. Certification Listings; Warnock Hersey International Inc.
   15. ANSI 250.10 2012 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and 01 33 23.

B. Product Data: Provide manufacturer's standard details and catalog data demonstrating compliance with referenced standards. Provide installation instructions.

C. Certificates:
   1. Provide manufacturer's certification that products are in accordance with referenced standards.
   2. Provide evidence of manufacturer's membership in the Steel Door Institute.

D. *Shop Drawings: Submit for approval the following:*
   1. *Door, frame, and hardware schedule in accordance with the construction documents.*

E. Samples: Submit for approval the following:
   1. 6 inch x 6 inch samples of each color of factory finish specified.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide all products from a single manufacturer who is a member of the Steel Door Institute.

B. Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies tested for fire-test-response characteristics per ASTM E1577, and are labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect products from moisture, construction traffic, and damage.
   1. Store under cover.
   2. Place units on 4-inch high wood sills or in a manner that will prevent rust or damage.
   3. Do not use non-vented plastic or canvas shelters.
   4. Should wrappers become wet, remove immediately.
   5. Provide 1/4 inch space between doors to promote air circulation.

PART 2 PRODUCTS

2.1 MATERIALS

A. Steel Sheet for Doors and Frames:
   1. Cold rolled steel: ASTM A 794 and A 568.
   2. Hot rolled, pickled, and oiled steel: ASTM A 659 and A 568.
   3. Hot dipped zinc coated steel: ASTM A 924 and A 653; Class A40 for alloyed coatings or G60 for spangled coatings, minimum.

B. Steel Sheet for Anchors and Accessories:
   1. Electrolytically deposited zinc coated steel: ASTM D2201 and A 568; Class B (0.075 oz/sf), minimum.

2.2 MANUFACTURED UNITS

A. Comply with ANSI A 250.8.

B. Fire-rated openings: Comply with NFPA 80.
   1. Affix permanent labels attesting to fire resistance
   2. At stairway enclosures, provide units listed for 450 degree F maximum temperature rise rating for 30 minutes of exposure.
   3. Provide manufacturer's certificate that oversized openings have been constructed in accordance with all other applicable requirements for labeled door construction.

C. Provide Grade and Model as indicated in the Door Schedule.

D. Provide units of galvanized steel where indicated on the door schedule.

E. Provide glazing stops and beads where glazed lights are indicated.

2.3 STEEL DOORS

A. Door Type: Seamless steel doors with composite construction.

B. Interior Doors: ANSI 250.8 Grade III, Model 2, heavy duty, minimum 16 gauge cold-rolled steel, 1-3/4 inches thick.

C. Exterior Doors: ANSI 250.8 Grade III, Model 2, extra heavy duty, minimum 16 gauge galvanized sheet steel, 1-3/4 inches thick.

D. Finish: Factory primed in accordance with ANSI A224.1 and field painted.

E. Construct doors in accordance with ANSI 250.8.

F. Interior doors:
   1. Provide insulated construction with U-value of at least 0.48 when tested in accordance with SDI-113.
   2. Provide manufacturer's standard foam insulated core.
   3. Steel stiffened grid core and stile and rail units are exempt from thermal rating requirements.

G. Construct full flush and seamless door cores as follows:
   1. Fire-rated doors: In accordance with listed construction.
   2. Honeycomb core.
   3. Polyurethane foam core.
   4. Polystyrene foam core.
   5. Unitized grid core.
   6. Steel stiffeners core.

2.4 STEEL FRAMES

A. Interior Frames: Welded type, 16 gauge sheet steel, mitered, or coped corners.

B. Exterior Frames: Welded type, 16 gauge galvanized sheet steel, mitered, or coped corners.

C. Finish: Factory primed and field painted.

D. Provide either knockdown field assembled or welded unit type frames unless otherwise indicated.

E. Provide welded unit type frames.

F. Provide drywall slip-on type frames for installation after drywall partition are erected

G. Lights and Transoms: Provide tubular mullions and transom bars with heads and jambs.

H. Terminate stops at a 45-degree angle, 6 inches above floor; cover stop with welded metal filler plate.
   1. Exception: Light-proof doors, sound-rated, doors, lead-lined doors, and double egress doors.

PART 3 EXECUTION

3.1 EXAMINATION

A. The installer shall verify that project conditions are suitable before beginning installation of frames.
   1. Verify that completed openings to receive knock-down wrap-around frames are of correct size and thickness.
   2. Verify that completed concrete or masonry openings to receive butt type frames are of correct size.

B. Correct unsatisfactory condition before proceeding with installation.

C. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 INSTALLATION

A. Install frames in accordance with SDI-105.

B. Install doors plumb and in true alignment and fasten to achieve the maximum operational effectiveness and appearance of the unit. Maintain clearances in accordance with ANSI 250.8 or NFPA 80.

C. Fill welded wrap-around frames in masonry construction with mortar as masonry is laid-up.

D. Fill welded wrap-around frames in plaster construction with plaster as work progresses.

E. If additives are used in masonry or plaster work during cold weather, field coat the inside of steel frames with a bituminous compound to prevent corrosion.

3.3 ADJUST AND CLEAN

A. Adjust doors for proper operation, free from binding or other defects.

B. Clean and restore soiled surfaces. Remove scraps and debris, and leave site and a clean condition.

END OF SECTION

SECTION 08 31 13

ACCESS DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Wall access doors.
   2. Ceiling access doors.
   3. Related hardware.

B. Related Sections
   1. Section 05 05 55 - Tamper Proof Metal Fasteners.
   2. Section 09 21 16 - Gypsum Board Assemblies.
   3. Section 09 90 00 - Painting and Coating.

1.2 REFERENCES

A. UL - Underwriters' Laboratories, Inc.: Fire Hazard Classifications.

B. ASTM A568 [2017] - Steel Sheet, Carbon and High Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements For.

C. ASTM A653/A653M [2018] - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

D. ASTM E84 [2018] - Test Method for Surface Burning Characteristics of Building Materials.

E. ASTM E162 [2016] - Test method for Surface Flammability of Materials Using a Radiant Heat Energy Source.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and 01 33 23.

B. Product Data: Manufacturer's standard descriptive literature.

C. Shop Drawings: Indicate locations, materials, dimensions, product configuration, finish, fire ratings, and attachment to adjacent construction.

D. Manufacturer's installation instructions.

E. Submit request for Substitution for access panels attached with tamper proof metal fasteners proposed for use in lieu of hinged ceiling access panels.

1.4 SYSTEM REQUIREMENTS

A. Access Doors: Provide wall and ceiling access doors as indicated and as required for access to equipment. [Indicate location of schedule on the drawings]

B. Coordinate locations of equipment with access doors of size and type appropriate for the use and location.

C. Minimum requirements for ceiling access doors:
   1. Provide a minimum of one lockable access door for each 150 SF of ceiling area with a minimum of one per room.
   2. Ceiling access doors shall be a minimum of 12 inches x 12 inches and a maximum of 24 inches x 48 inches unless directed otherwise by the CMD Representative. Where areas above ceilings are otherwise inaccessible, at least one access door shall be a minimum of 24 inches by 24 inches.

D. Access panels attached with tamper proof metal fasteners may be proposed for use in lieu of hinged ceiling access panels for access to volume dampers and electrical equipment other than smoke detectors, personal alarms, or motors. Fasteners shall be long enough to penetrate the T-bar grid and both top and bottom flanges of the panel's edge channel; panel shall be fastened at a minimum of (4) locations per 2 foot x 4 foot panel.

1.5 MOCK-UP

A. Provide mock-up of access panel in suspended acoustic ceiling grid in accordance with Section 01 45 00.

B. When accepted, mock-up will demonstrate minimum standard for the Work. Mock-up may remain as part of the Work.

1.6 QUALITY ASSURANCE

A. Manufacturer: Company with minimum 5 years' experience in the manufacture of products of the type specified; regularly and presently engaged in product manufacture.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's standard protective packaging.

B. Do not remove protective packaging until ready for installation.

C. Follow manufacturer's instructions for storage and handling.

1.8 SEQUENCING AND SCHEDULING

A. Coordinate the Work of this Section with other Sections whose work affects or is affected by the Work of this Section.

B. Coordinate the building-in of anchors and similar items.

PART 2 PRODUCTS

2.1 WALL ACCESS DOORS

A. Type AD1: Non-rated access panels; flush mounted for installation in masonry, plaster, gypsum wallboard partitions and ceramic tile walls.
   1. Use: Offices, Restrooms, Assembly hall [verify location with the CMD Representative]
   2. Size: Nominal 16-inches square
   3. Material:
      a. Door: 14-gauge cold rolled steel
      b. Frame: 2 inch by 2 inch by 3/16 inch steel angle
   4. Finish: Factory applied prime coat, field painted
   5. Hardware:
      a. Concealed continuous piano hinge allowing opening to 165 degrees.
      b. Lock as scheduled.
   6. Anchor: Masonry anchors secure the panel when installed in masonry.

B. Type AD2: Non-rated access panels; flush mounted for installation in masonry, plaster, gypsum wallboard partitions and ceramic tile walls.
   1. Use: Toilets, Showers, Janitor Closets [verify location with the CMD Representative]
   2. Size: Nominal 24-inches square
   3. Material: 10-gauge Type 304 stainless steel door and frame (2 inch by 2 inch)
   4. Finish: Number 4 satin finish.
   5. Hardware:
      a. Concealed continuous piano hinge allowing opening to 165 degrees.
      b. Lock as scheduled.
   6. Anchor: Masonry anchors secure the panel when installed in masonry.

C. Type AD3: Non-rated access doors; flush mounted for installation in masonry, plaster and gypsum wallboard partitions.
   1. Use: Roof mechanical chase (exterior), staircases [verify location with the CMD Representative]
   2. Size: Nominal 24-inches square
   3. Material: 14-gauge cold rolled sheet galvanized bonderized steel door and frame with 22-gauge galvanized drywall bead at perimeter.
   4. Finish: Galvanized, bonderized steel, with factory applied prime coat, field painted
   5. Hardware:
      a. Concealed continuous piano hinge.
      b. Lock as scheduled.

2.2 CEILING ACCESS DOORS

A. Type ADC1: FF Systems Model F2AKL, non-rated access panels; flush mounted for installation in gypsum wallboard ceiling.
   1. Use: Kitchens and other associated high moisture areas such as Toilets, Showers, Janitor Closets [verify location with the CMD Representative]

2. Size: Nominal 24” x 36” square
3. Material: Aluminum (set for ½” Gyp. Bd.)
4. Finish: Number 4 satin finish.
5. Hardware:
    a. Concealed continuous piano hinge.
    b. Lock as scheduled.

2.3 FABRICATION

A. Manufacture each access panel assembly as an integral unit ready for installation.

B. Welded construction: Furnish with a sufficient quantity of 1/4-inch mounting holes to secure access panels to types of supports indicated.

C. Furnish number of latches required to hold door in flush, smooth plane when closed.

2.4 MANUFACTURERS

A. Accudor

B. Best Access Doors

C. Approved Equal.

2.5 KEYING

A. All keyways shall be the same. Key as directed by the CMD Representative.

B. Provide six keys per access door and one blank per lock.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify rough openings for doors and frames are correctly sized and located for access to items behind frames.

B. Verify correct placement of built-in frames and accessories.

C. Verify that conditions are satisfactory for the installation of doors.

D. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 INSTALLATION

A. Install access doors in accordance with manufacturer’s instructions and approved shop drawings.

B. Secure rigidly in place in accordance with approved shop drawings.

C. Install frames plumb and level in wall and ceiling openings, parallel to building lines.

D. Position to provide convenient access to valves, ductwork, and other mechanical and electrical work requiring access as indicated and directed.

3.3 CLEANING, ADJUSTMENTS, AND PROTECTION

A. Clean and adjust for smooth, even operation.

B. Protect finished installation.

END OF SECTION

SECTION 09 21 16

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Gypsum board.
   2. Abuse–resistant backing board for use in secure areas in toilet rooms, with tile cover.
   3. Duct enclosure board.
   4. Wallboard accessories.

B. Related Sections
   1. Section 07 90 00 - Joint Protection.
   2. Section 09 22 00 - Supports for Plaster and Gypsum Board.
   3. Section 09 14 00 – Resinous Coatings
   4. Section 09 90 00 - Painting and Coating.

1.2 REFERENCES

A. ASTM A653 - 2015 Sheet Steel Galvanized or Zinc–Iron Alloy Coated (Galvannealed) by the Hot–Dip Process.

B. ASTM C36 - 2003 Gypsum Wallboard.

C. ASTM C1325 - 2017 Non Asbestos Fiber Mat Reinforced Cement Substrate Sheets.

D. ASTM C423 - 2017 Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

E. ASTM C475 - 2015 Joint Compound and Joint Tape for Finishing Gypsum Board.

F. ASTM C630 - 2003 Water–Resistant Gypsum Backing Board.

G. ASTM C840 - 2017 Application and Finishing of Gypsum Board.

H. ASTM C954 - 2015 Steel Drill Screws for the Application of Gypsum Board or Metal to Steel Studs from 0.033 inches to 0.112 inches in Thickness.

I. ASTM C1002 - 2016 Steel Self–Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

J. ASTM C1047 - 2014 Accessories for Gypsum Wallboard and Gypsum Veneer Base.

K. ASTM C1177 - 2013 Glass Mat Gypsum Substrate for Use as Sheathing.

L. ASTM C1178 - 2013 Glass Mat Water–Resistant Gypsum Backing Panel.

M. ASTM C1278 - 2017 Fiber–Reinforced Gypsum Panel.

N. ASTM C1280 - 2013 Application of Gypsum Sheathing.

O. ASTM C1396 - 2014 Gypsum Board.

P. ASTM D3273 - 2012 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

Q. ASTM E84 – 2016 Test Method for Surface Burning Characteristics of Building Materials.

R. ASTM E90 - 2016 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

S. ASTM E119 - 2016 Test Methods for Fire Tests of Building Construction and Materials.

T. ASTM E413 - 2016 Classification for Rating Sound Insulation.

U. Gypsum Association Fire Resistance Design Manual.

V. GA–223 - Gypsum Panel Products Types, Uses, Sizes, and Standards.

W. GA–216 - Application and Finishing of Gypsum Panel Products.

X. GA–239 - Water Resistant Gypsum Backing Board for Ceramic Tile in Wet Areas.

1.3 QUALITY ASSURANCE

A. Manufacture: Gypsum wallboard, including accessories and fasteners, shall be the products of the same manufacturer.

B. Fire–Resistance–Rated Assemblies: For fire–resistance–rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

C. STC–Rated Assemblies: For STC–rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

1.4 REGULATORY REQUIREMENTS

A. Comply with fire–resistance ratings indicated on the Contract Documents.

B. Materials, accessories, and application procedures shall be listed by UL or tested in accordance with ASTM E119 for the type of construction indicated.

C. The Work shall comply with the applicable requirements of ASTM C840.

1.5 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

B. Product Data: Indicate materials, sizes, fire ratings, and other applicable data.
   1. For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content, the manufacturer, and the source of the recycled content data.
   2. For adhesives used to laminate gypsum board panels to substrates include printed statement of VOC content.

C. Submit manufacturer's certification that materials comply with the requirements of this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery
   1. Deliver materials to the Project site with manufacturer's labels intact and legible.
   2. Deliver fire–rated materials bearing the testing agency's label and classification identification.

B. Storage
   1. Store materials indoors in a dry area, under cover, and stacked flat, off the floor.
   2. Stack wallboard so that long lengths are not over short lengths.
   3. Store flammable adhesives away from fire, sparks or smoking areas.

C. Handle wallboard in a manner to avoid damaging face and edges of sheets.

1.7 PROJECT CONDITIONS

A. Maintain temperature range between 55 and 70 degrees F for 24 hours before, during, and after gypsum wallboard and joint treatment applications.

B. Do not install panels that are wet, those that are moisture damaged, and those that are 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.

C. Ventilation
   1. Provide ventilation during and following adhesive and joint treatment applications.
   2. Use temporary air circulators in enclosed areas lacking natural ventilation.
   3. Under slow drying conditions, allow additional drying time between coats of joint treatment.
   4. Protect installed materials from drafts during hot and dry weather.

D. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

E. Do not install interior products until installation areas are enclosed and conditioned.

PART 2 PRODUCTS

2.1 PANELS, GENERAL

A. A. Recycled Content: Provide gypsum panel products with recycled content such that postconsumer recycled content plus one–half of preconsumer recycled content constitutes a minimum of 25% percent by weight.

2.2 MANUFACTURERS

A. Gypsum Wall Board Products and Accessories: Listed products establish standard of quality and shall be manufactured by a single manufacturer from the following:
   1. Georgia–Pacific Gypsum, LLC, Gypsum Wallboard Products (GP), DENS product line.
   2. [United States Gypsum Co. USG)
   3. Or Approved Equal

2.3 GYPSUM BOARD

A. Fire Rated: Type 'X'; 5/8 inch thick unless otherwise indicated on the Contract Documents.
   1. Manufacturers
      a. Georgia Pacific
      b. USG
      c. Or Approved Equal

B. Finish Board: ASTM C1396; tapered and wrapped long edges.
   1. Provide for exposed locations not otherwise indicated, including where painted, and where indicated as fire taped only.
   2. Manufacturers
      a. Georgia Pacific
      b. USG
      c. Or Approved Equal

C. Abuse–Resistant Backing Board: Aqua–Tough Panels; Panel designed for wall assemblies in high–traffic areas requiring moisture, mold and fire resistance. Comply with ASTM C1278 and meet or exceed physical property requirements of ASTM C1396 and ASTM C1178.
   1. Basis–of–Design Product: USG; "Fiberock Interior Panels, Aqua–Tough".
   2. Core: Water resistant core for use in intermittently wet areas.
   3. Facing: Paper free facing, achieving a mold resistance value of 10 when tested per ASTM D3273. Smooth, paintable surface suitable for plaster and tile application.
   4. Long Edges: Tapered.

D. Backing Board: ASTM C1325; square and wrapped long edges.
   1. Provide as first layer of double layer work, and elsewhere as indicated.
   2. Manufacturers
      a. Georgia Pacific
      b. USG
      c. Or Approved Equal

E. Water–Resistant Board: ASTM C1396; tapered and wrapped long edges.
   1. Provide on walls at exposed and concealed locations at toilet rooms, janitor rooms, kitchens, and other “wet” spaces indicated.
   2. Provide 1/2–inch units where it abuts above or adjacent to cementitious backer board.
   3. Manufacturers
      a. Georgia Pacific
      b. USG
      c. Or Approved Equal

F. Solid, Duct Enclosure: Complete system, as indicated, consisting of solid gypsum liner panels, steel framing, joint battens, and associated accessories.
   1. Manufacturers
      a. Georgia Pacific
      b. USG
      c. Or Approved Equal

2.4 WALLBOARD ACCESSORIES

A. General: Wallboard accessories shall be from the same manufacturer as the wallboard system used.

B. Fasteners
   1. General:
      a. ASTM C954 for fastening to 20 gauge and thicker supporting metal.
      b. ASTM C1002 for connection to 22 gauge and thinner metal.
      c. Type G or W Screws with corrosion–resistant coating for attachment to wood.
   2. Lengths
      a. Sufficient for point penetration through supporting metal framing of not less than 1/4–inch or more than 1/2–inch.
      b. Sufficient for minimum 3/4–inch penetration into wood studs.

C. Metal Trim
   1. Corner Bead: Fine mesh expanded steel wing type, zinc coated in conformance with ASTM A653, G90 coating designation.
   2. Control Joint: Steel, perforated flange wing type, with single bead, zinc coated in conformance with ASTM A653, G90 coating designation.
   3. Edge Trim: Steel, of configuration and size dictated by Project conditions, zinc coated in conformance with ASTM A653, G90 coating designation.

D. Joint Treatment Materials: In conformance with ASTM C475.
   1. Joint Tape: Perforated.
   2. Joint Compounds: Ready mixed, regular and water resistant types, recommended by wallboard manufacturer.
   3. Prefill Joint Compound: Powdered.

E. Miscellaneous Items: Furnish components not specified herein but indicated and required for a complete installation.
   1. Laminating Adhesive: Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2. Acoustical Sealant: Provide sealants that have a VOC content of **250** g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that conditions are satisfactory for the installation of gypsum wallboard and associated accessories:
   1. Check framing for accurate spacing and alignment.
   2. Verify that spacing of installed framing does not exceed maximum allowable for thickness of wallboard to be used.
   3. Verify that door frames are set for thickness of wallboard to be used.
   4. Repair protrusions of framing, twisted framing members, and unaligned members before installation of wallboard commences.
   5. Verify openings and backing for recessed and surface mounted accessories and equipment.

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. Beginning installation indicates acceptance of existing conditions.

3.2 APPLICATION OF GYPSUM BOARD

A. Apply materials in conformance with ASTM C840, GA –216, GA–223, GA–239, the manufacturer's printed installation instructions, and as indicated or specified. Install gypsum board for fire–rated assemblies in accordance with UL or other design numbers indicated on the Contract Documents.

B. Apply gypsum panels to the supporting framing as follows, unless otherwise indicated:
   1. On vertical surfaces, apply panels with long edges parallel to supporting framing members and with abutting panel edges centered on a framing member. Make abutting edge joints occur at different studs for panels on opposite sides of partitions, and in successive layers of multiple layers on the same side of partitions.
      a. To minimize joints, panels may be applied with long edges parallel or perpendicular to framing members on vertical surfaces above ceilings, above 10 feet, or where concealed behind plywood finish surfaces. Long edges shall be applied parallel to supporting framing where required to meet provisions of applicable codes or to conform to listings for required fire ratings.
   2. On horizontal surfaces, apply panels with long edges perpendicular to supporting framing members and with abutting panel ends centered on a framing member. Stagger end joints in adjacent panel rows.
   3. Ensure screws are minimum Type S 2" buglehead screws. Screw in gypsum board 8" on center on the edge and 12" on center in the field.

C. Use sheets of maximum lengths practicable to minimize joints.

D. Neatly fit edges and stagger joints.

E. Cut and fit neatly around outlets and switches. Back–to–back wall penetrations shall be at least one stud space apart for acoustical insulation.

F. Provide water resistant gypsum wallboard on walls at kitchens, toilet rooms, janitor rooms, and other “wet” areas as scheduled.
   1. Seal cut edges and fasteners with edge sealant in accordance with wallboard manufacturers printed installation instructions.
   2. Seal joints with water resistant joint compound.

G. Isolation of Wallboard from Other Construction
   1. Provide perimeter relief where wallboard abuts structural decks, ceilings, vertical structural elements, or window sections.
   2. Finish wallboard edge with metal casing bead of type indicated or specified. Casings may be omitted in concealed areas above ceilings.
   3. Seal space between casing bead and structure with continuous sealant bead in accordance with Section 07 90 00.
   4. Seal around electrical boxes and conduit and pipe penetrations.
   5. Seal at base of wallboard sheets as indicated.

H. Acoustical Control Requirements for Sound Walls
   1. Seal airtight with acoustical sealant materials in accordance with Section 07 90 00.
   2. Seal penetrations through walls, or cuts in one face of walls, with a full bead of sealant at perimeter, including provisions for electrical outlets, switch boxes, pipes, ducts, and similar items.
   3. Seal electrical boxes on the back side with sheet sealant pad. Where wires enter the boxes, seal openings and make airtight around the wires and knockout openings.

I. Installation of Fasteners
   1. Do not locate fasteners less than 3/8 inch from edges or ends of sheets.
   2. Fire–Rated Partitions: Provide fasteners along perimeter edge bearings at not over 8 inches on center, and along field area bearings at not over 12 inches on center, unless otherwise required or indicated on the Contract Documents.
   3. Non–Fire–Rated Partitions: Unless otherwise indicated on the Contract Documents, provide fasteners along perimeter edge and field area bearings at not over 12 inches on center. Do not install fasteners on any bearing partition closer than 8 inches below top track of partition secured to overhead structures.
   4. Drive shank perpendicular to wallboard surface.
   5. Drive fasteners with power driven oval hammer as recommended by wallboard manufacturer. Do not hammer screws. Install using screw guns with magnetic bit and depth locator.
   6. Set fastener heads slightly below surface of wallboard, but do not break or strip paper face around fasteners.
   7. Stagger fasteners opposite each other on adjacent ends or edges.

J. Installation of Metal Trim
   1. Provide metal corner bead at vertical and horizontal external corners and angles.
   2. Install metal edge trim at junctions of wallboard and other materials and at exposed edges.
   3. Provide control joints where indicated and at intervals not to exceed 30 feet in each direction in continuous vertical and horizontal surfaces.
   4. Reveal Trim:

a. Provide for locations indicated, set to straight lines, joints neatly fitted, mitered at corner returns.
b. Secure each piece into place using full and continuous bed of adhesive.

5. Metal trim may be omitted behind plywood wall finishes and where permitted by listings for fire–rated assemblies.

3.3 TAPING AND FINISHING

A. Mix joint and finishing compounds in accordance with referenced standard and manufacturer's printed instructions.

B. Joints
1. Center tape over joint and embed in uniform layer of joint compound of sufficient width and depth to provide firm and complete bond.
2. Apply skim coat while embedding tape.

C. Treat angles with reinforcing tape and metal trim folded to conform to adjacent surfaces for straight and true angles and edges.

D. Allow a minimum of 24 hours drying time between applications of compounds.

E. Apply minimum of two coats of finishing compound over joint compound and tape unless otherwise specified. Apply as many coats as required to assure that joints and depressions will be invisible after application of finish.
1. Spread first coat evenly and feather out beyond edges of tape and embedding compound, so that camber is 1/32 inch or less.
2. After first finishing coat is thoroughly dry, cover with second coat with edges out beyond the preceding coat.
3. Do not apply finishing compound to joints of water resistant wallboard in areas to receive ceramic tile finish.

F. Give dimples at fastener heads and marred spots on surface of wallboard one coat of joint compound and minimum of three coats of finishing compound, applied in same manner as specified hereinbefore.

G. Treat metal trim applications as follows:
1. Conceal exposed flanges of metal trim with a minimum of two coats of compound.
2. Extend compound 8 inches to 10 inches each side of metal nosing or trim.

H. After each application of joint or finishing compound has dried, lightly sand joints.

I. Finish surfaces shall be plumb, have straight surfaces with no waves or buckles, and shall be free of unevenness at joints. Surfaces shall be uniformly smooth and ready for painting, wall covering, or other finishes.

J. At electrical closets and other areas indicated to be fire–taped, perform minimum taping and cementing of joints and fastener heads to meet applicable code requirements.

3.4 ALLOWABLE TOLERANCES

A. Gypsum wallboard surfaces shall have no measurable variation in any 24 inch direction and a maximum variation of 1/8 inch in 10 feet when a straightedge is laid on the surface in any direction.

B. Shim Work as required to comply with specified tolerances.

C. Do not exceed 1/16–inch offset between planes of abutting sheets at edges or ends.

3.5 REPAIR, CLEAN–UP

A. Repair fastener pops by driving a new fastener approximately 1–1/2 inches from the fastener pop and reset the popped fastener. When face paper is punctured, drive a new fastener approximately 1–1/2 inches from the defective fastener. Fill damaged surfaces with compound.

B. Upon completion of installation, remove from adjacent surfaces overspray, splatter, and daubs of taping and finish compound.

3.6 PROTECTION

A. Maintain temperature and humidity conditions required by manufacturer to protect the installation. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. 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 or discoloration.

C. Protect completed Work from damage or deterioration until Final Acceptance.

END OF SECTION

SECTION 09 65 00

RESILIENT FLOORING

PART 1 GENERAL

1.1 Summary

A. Section includes:
1. Resilient tile flooring.
2. Resilient sheet flooring.
3. Resilient bases.
4. Related accessories.

B. Related sections:
1. Section 07 19 00 - water repellents.

1.2 References

A. ASTM d2047 - [Latest edition] standard test method for static coefficient of friction of polish-coated flooring surfaces as measured by the James machine

B. ASTM E84 - [Latest edition] surface burning characteristics of building materials.

C. ASTM F1066 - [Latest edition] vinyl composition floor tile.

D. ASTM F1303 [Latest edition] sheet vinyl floor covering with backing.

E. ASTM f1700 - [Latest edition] solid vinyl floor tile.

F. ASTM f1869 - [Latest edition] measuring moisture vapor emission rate of concrete subfloor using anhydrous calcium chloride.

G. ASTM f1913 - [Latest edition] sheet vinyl floor covering without backing.

H. ASTM f2170 - [Latest edition] determining relative humidity in concrete floor slabs using in situ probes.

I. Fs l-f-1641 - floor covering, translucent or transparent vinyl surface, with backing.

J. Fs l-f-475 - floor covering, vinyl surface (tile and roll), with backing.

K. Fs rr-t-650 - treads, metallic and non-metallic, non-skid.

L. Fs ss-w-40 - wall base: rubber and vinyl plastic.

1.3 Submittals

A. Submit in accordance with section 01 33 00.

B. Product data: for each type of product indicated.

1. [For credits mr 4.1 and mr 4.2] for products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content, the manufacturer, and the source of the recycled content data.
2. [For credit eq 4.1] for adhesives, sealants, and chemical-bonding compounds include printed statement of voc content.
3. [For credit mr 6.0] for linoleum flooring include printed statement of costs for each rapidly renewable resource.
4. [for credit eq 4.3] for resilient flooring include documentation of floorscore™ certification.

C. Samples:
1. Submit samples of manufacturer's full line of patterns and colors for selection by the CMD representative.
2. Submit for each type, pattern, and color of resilient flooring material selected.
3. Tile samples shall be full size.
4. Sheet vinyl samples shall be 12 inch by 12 inch.
5. Accessories shall be 9 inches long, minimum.

D. Manufacturer's installation instructions.

E. Manufacturer's instructions for maintenance and stain removal.

1.4 Quality assurance

A. Slip resistance: where required for conformance to accessibility standards, flooring shall conform to a minimum coefficient of friction of 0.5 when tested in accordance with ASTM D2047.

B. Minimum recycled content 50 percent postconsumer of vinyl and 90 percent of rubber base.

1.5 Delivery, storage, and handling

A. Deliver materials in manufacturer's original unopened containers with labels indicating brand names, colors and patterns, and quality designations legible and intact.

B. Do not remove markings until materials have been inspected and accepted.

C. Store and protect accepted materials in accordance with manufacturer's printed instructions.

D. Store materials in the original containers at not less than 70 degrees f for a minimum of 48 hours immediately prior to installation.

1.6 Project conditions

A. Maintain the temperature in spaces to receive resilient flooring materials between 70 and 90 degrees f for a minimum of 48 hours prior to installation, during installation, and 48 hours after installation. Thereafter, maintain a minimum temperature of 55 degrees f.

1.7 Extra materials

A. Provide resilient flooring materials for replacement and maintenance.

B. Clearly identify each carton as to contents. Indicate project, bid package, building and room numbers.

C. Include materials of each size, color, pattern and type incorporated in the work.

D. Vinyl composition tile: provide one carton for each 1,500 square feet, or fraction thereof, of vinyl composition tile installed

E. Seamless flooring: provide one percent of total installed area for each type, pattern, and color of sheet vinyl and seamless flooring installed.

F. Accessories: provide one percent of each type of accessory and trim for each size, color and type installed.

PART 2 Products

2.1 Vinyl composition tile

A. Manufacturer:
1. Armstrong excelon series.
2. Azrock floor products Whisper V series
3. Tarkett inc: Expressions series]

B. Type: composition of vinyl resins and fiber fillers, conforming to astm f1066, type iv, composition 1.

C. Pattern and color: will be selected by the CMD representative from manufacturer's standard range.

D. Size: 12-inch square, 1/8 inch thick.

E. Vinyl composition tile shall contain minimum of 25 percent recycled content.

2.2 Rubber base

A. Acceptable manufacturers:
1. Burke flooring products.
2. Roppe rubber corp.
3. Johnsonite.

B. Base: fs ss-w-40, type i rubber; coved; [6] inches high; 1/8 inch thick.

C. Base accessories: premolded end stops, internal corners, and external corners of same material, size, and color as base.

D. Color: selected by the CMD representative from manufacturer's standard range.

E. Resilient base shall contain minimum of 25 percent recycled content.

2.3 Accessories

A. Material: rubber or vinyl.

B. Reducer strips: ASTM F1066, type ii, tapered- edge style, of thickness to suit abutting floor covering material.

C. Cap strip: round style, minimum 3/4 inch size.

D. Tread nosing: type indicated on the drawings.

E. Color: to be selected by the CMD representative from the manufacturer's standard range.

F. Thickness: matching, or compatible with, thickness of abutting flooring material.

2.4 Installation materials

A. Installation materials shall be of the types and brands recommended by the flooring material manufacturer for the specific installation conditions, and include:
   1. Adhesives: water-resistant type recommended by floor covering manufacturer for products and substrates indicated.
      a. For sheet vinyl floor covering use adhesives that have a voc content of not more than [50 g/l] [60 g/l] <insert requirement> when calculated according to 40 cfr 59, subpart d (epa method 24).
      b. For linoleum flooring use adhesives that have a oc content of not more than [50 g/l] <insert requirement> when calculated according to 40 cfr 59, subpart d (epa method 24).
         1) Vct and asphalt tile adhesives: not more than 50 g/l.
   2. Primer.
   3. Crack filler and leveling compound; industrial products, inc. [vi-tex leveling compound,] armstrong floor div. [underlayment s-180,].
   4. Welding rods for seamless flooring shall be in color selected by the CMD representative from manufacturer's standards.
   5. Chemical-bonding compound: manufacturer's product for chemically bonding seams.
      a. Use chemical-bonding compound that has a voc content of [350] [510] <insert value> g/l or less when calculated according to 40 cfr 59, subpart d (epa method 24).
   6. Cove backing.

PART 3 EXECUTION

3.1 Examination

A. Verify that conditions are satisfactory for the installation of resilient flooring materials.

B. Verify surfaces are smooth and flat.

C. Perform moisture test series to determine volume of vapor emission by standard anhydrous calcium chloride crystal test. Test results shall be expressed in pounds of emission within 1,000 square feet during 24 hours.

D. Verify that concrete floors exhibit negative alkalinity, and do not exhibit carbonization or dusting, at the time of application of flooring.

E. Correct all unsatisfactory conditions prior to the installation of resilient flooring materials.

3.2 Preparation

A. Remove dirt, oil, grease, and other foreign matter from surfaces to receive resilient flooring materials.

B. Fill cracks to provide a level surface for application of resilient flooring.

C. Prohibit traffic from area until filler is cured.

D. Vacuum substrate clean.

E. Prime surfaces, if recommended by resilient flooring adhesive manufacturer.

F. Seal concrete surfaces to receive resilient flooring with a topical vapor emissions membrane or sealer which is compatible with the adhesive and/or flooring if the vapor emissions rate from the concrete exceeds the recommendations of the flooring and/or adhesive manufacturer.

3.3 Application of adhesives

A. Mix and apply adhesives in accordance with the manufacturer’s printed instructions, except as specified.

B. Provide safety precautions during mixing and applications as recommended by adhesive manufacturer.

C. Apply adhesives uniformly over surfaces.

D. Apply no more adhesive at any time than can be covered by resilient flooring material within manufacturer’s recommended working time of the adhesive.

E. Remove adhesive which dries or films over.

F. Do not soil walls or adjacent areas with adhesive.

G. Promptly remove spillage.

3.4 Installation - vinyl composition tile

A. Install tile in accordance with manufacturer's instructions, except as specified.

B. Mix tile from container to ensure shade variations are consistent.

C. Install tile to square grid pattern with joints aligned.

D. Do not lay tile less than one half width of a field tile, except where accepted by the CMD representative for irregularly shaped rooms or spaces.

E. Cut border tile neatly and accurately to fit within 1/64 inch of abutting surfaces.

F. Fit tile neatly and tightly into breaks and recesses, around pipes and penetrations, under saddles or thresholds, and around permanent cabinets and equipment.

G. At door openings where tile and other floor materials meet, make joinings under centers of doors.

H. Following installation of tile, divert traffic from installation area for at least 24 hours.

3.5 Installation - sheet vinyl

A. Install sheet vinyl in accordance with manufacturer's instructions, except as specified.

B. Cut sheet material in lengths and sizes required.
1. Cut for minimum number of seams and for pattern match between adjacent abutting edges.
2. Double-cut, if required.
3. Lay cut sheets flat and allow to acclimate to room temperature prior to installation.

C. Work out wrinkles and air pockets.

D. Roll material in two directions, starting at center of sheet.

E. Butt edges of adjoining sheets.

F. Heat-weld joints thoroughly.

G. Self-coved base
1. Cut, fit, and miter sheet material at interior and exterior corners to form integral bases 5 inches high, unless otherwise indicated.
2. Install fillet member to ease transition at intersection between floor and wall.
3. Apply heavy coat of adhesive to vertical wall surfaces where sheet vinyl will be applied.
4. Mask upper wall surface to avoid excessive adhesive above contact line.
5. Install cap strip.

3.6 Installation - reducer strips

A. Apply adhesive and bond securely to substrate in straight, true lines.

B. Provide where floor covering terminates exposing the edge of the covering.

C. Center edge strips under doors where floor covering terminates at a door opening.

D. Cut ends to fit edges of door frames and abutting surfaces; fit edges to adjoining floor coverings.

E. Top of strips shall be flush with top of resilient flooring material.

3.7 Installation - resilient base

A. Install base in lengths as long as practical to minimize the number of joints and suit installation conditions.

B. Install with tight butt joints. Fit joints tight and vertical.

C. Install on solid backing. Bond tight to wall surfaces.

D. Press down so that bottom edge follows floor profile.

E. Use premolded units at exposed ends and external corners; miter internal corners.

F. Scribe and fit to door frames and other interruptions.

3.8 Installation - miscellaneous accessories

A. Install accessories in accordance with manufacturer’s instructions.

3.9 Cleaning and protection

A. Prohibit traffic on floor finish for 48 hours after installation.

B. Not less than four days following completion of installation of resilient flooring, clean surfaces with a neutral cleaner recommended by the flooring materials manufacturer for the type of material installed. Remove excess adhesive without damaging surfaces.

C. For flooring materials requiring waxing, apply two coats of nonslip wax or other finish recommended by the flooring materials manufacturer following cleaning of flooring materials, and buff to a sheen.

D. Protect completed installation from traffic and damage with a covering of heavy kraft paper, taped at edges.

END OF SECTION

SECTION 09 77 33

FIBERGLASS REINFORCED POLYESTER (FRP) PANELS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fiberglass reinforced polyester (FRP) panels.
   2. Adhesive accessories.

B. Related Section:
   1. Section 06 10 00 - Rough Carpentry: Plywood base.

1.2 REFERENCES

A. ASTM C1178 - [2018] Glass Mat Water-Resistant Gypsum Backing Panel.

B. ASTM C1396 - [2017] Gypsum Board.

C. ASTM D2583 - [2013] Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impresser.

D. ASTM D5319 - [2017] Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.

E. ASTM E84 - [2018] Standard Test Method for Surface Burning Characteristic of Building Materials.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 and Section 01 33 23.

B. Product Data: Manufacturer’s literature for each type of product indicated including FRP panels and accessories. Include pictorial information on full line of patterns and colors for selection by the CMD Representative.
   1. For adhesives include printed statement of VOC content and chemical components.
   2. For laminating adhesive used in factory-laminated plastic panels include documentation indicating that product contains no urea formaldehyde.

C. Samples: Submit for each type, pattern, and color of FRP panels selected. Samples shall be 12 inch by 12 inch, and accessories shall be 9 inches long, minimum. Include samples of trim.

D. Submit manufacturers’ instructions for installation and use of products specified.

1.4 QUALITY ASSURANCE

A. Provide panels, adhesives, and accessories produced by a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original unopened containers with labels indicating brand names, and colors and patterns designations legible and intact.
   1. Deliver adhesive in sealed containers.
   2. Do not remove markings until materials have been inspected and approved.

B. Store, handle, and protect materials in accordance with manufacturer's printed instructions.

C. Allow panels to acclimate for a minimum of 24 hours in temperature and humidity conditions approximating the operating environment of the finished room.

D. Protect surface of panels during handling and installation.

1.6 PROJECT CONDITIONS

A. During installation and for not less than 48 hours before installation, maintain room temperature required for adhesive being used.

B. Provide ventilation to disperse fumes during application of adhesive. Allow no containers of adhesive to be opened until all potential sources of flame or spark have been shut down or extinguished and until warning signs have been posted.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufactures
   1. Sequentia: [Structoglas]
   2. Xerxes.
   3. Kemlite Co., Fire-X Glasbond.

2.2 MATERIALS

A. Panels: Fiberglass reinforced plastic (FRP); impact and stain resistant.
   1. Size: 0.090 inch thick by 48 inches wide x length required in one piece. Provide coved base where other base is not indicated.
   2. Finish: Embossed.
   3. Color: As selected by the CMD Representative.
   4. USDA Approved, meeting FDA and FSIS (Food Safety and Inspection Service) requirements.
   5. Flame-Spread Index less than 200; Smoke-Developed Index less than 450 as determined by testing identical products according to ASTM E84 by a qualified testing agency. Identify products with appropriate marking of applicable testing agency.

B. Adhesive: Contact type as recommended by manufacturer.
   1. VOC Content: 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Sealant: Single-component, mildew-resistant, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Division 07 Section "Joint Sealants."
   1. VOC Content: 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Accessories: Provide panels complete with matching trim pieces for joints, corners and terminations.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that conditions are satisfactory for the installation of FRP panels, in accordance with manufacturer's instructions.

B. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 PREPARATION

A. Clean wall and panel surfaces of contaminants detrimental to adhesive and panel performance.

3.3 INSTALLATION

A. Install panels in accordance with manufacturer's instructions, using adhesive application method.

B. Adhesive: Comply with manufacturer's instructions regarding materials, method of application, spread rate, drying time, open time and temperature and humidity limitations.

C. Joints: Finish snugly, neatly, and as inconspicuously as possible using manufacturer's materials for the purpose.

D. Trim: Apply at seams, corners and terminations as indicated on Drawings. Exposed edges not allowed.

3.4 CLEANING

A. Immediately remove any adhesive from face of panels using solvent recommended by adhesive manufacturer. Keep faces clean during application.

END OF SECTION

SECTION 09 90 00

PAINTING AND COATING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Paint materials.
2. Surface preparation.
3. Exterior painting and finishing schedule.
4. Interior painting and finishing schedule.

B. Related Sections:
1. Section 01 35 43 - Environmental Procedures

1.2 REFERENCES

1.3 ASTM D16 - 2016 DEFINITIONS OF TERMS RELATING TO PAINT, VARNISH, LACQUER, AND RELATED PRODUCTS.DEFINITIONS

A. Paint: Paint system materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

B. Exposed: Visible in the completed Work.

C. Unexposed: Concealed in the completed Work.

1.4 SYSTEM DESCRIPTION

A. Surface preparation and finish painting of interior and exterior surfaces and miscellaneous components.

1.5 SUBMITTALS

A. Submit in accordance with Section 01 33 00. In addition to the number of copies required by Section 01 33 00, submit two (2) extra copies for review by Facility's air pollution control consultant. The submittals shall include the initial and subsequent submittals.

B. Samples:
1. Samples of manufacturer's standard colors for color selection.
2. Samples of Selected Colors and Finishes
   a. Three sets of samples, using materials accepted for the Project, of each color and paint finish selected by the Facility Representative.
   b. Prepare on 8 inch by 10 inch hardboard panels in a stair step manner so all required coats show.
   c. Label and identify each sample as to location and application.
3. Resubmit samples as required until required sheen, color, and texture are achieved.

4. Acceptance of samples for color, gloss, and texture shall in no way waive material quality requirements.

C. Product Data: For each type of product indicated.
   1. [For Credit EQ 4.2] For paints include printed statement of VOC content and chemical components.

D. For consideration of products of manufacturers other than those named, in addition to the information required to be submitted for substitutions under the provisions of Division 0, for each product submit current (within the last 6 months) test data from a recognized independent testing laboratory, accompanied by a letter stating that the proposed products are equal to or better than those specified.

E. Manufacturer's application instructions.

1.6 QUALITY ASSURANCE

A. Paint materials not otherwise specified shall be products of one manufacturer regularly producing materials of types specified.

1.7 FIELD SAMPLES

A. Provide field samples in accordance with Section 01 45 00.

B. Construct field sample for each type of finish on each substrate.

C. Paint a sample panel for each color selected.

D. Large Surface Areas, More than 40 sf: Apply to entire surface in one plane, terminating only at corners.

E. Small surface Areas, 40 sf or Less: Apply to minimum 4 sf.

F. Construct field sample using surface preparation method, material, and application of material as specified.

G. Review:
   1. Request in writing the Facility Representative's review after permanent lighting is in operation where field sample has been constructed.
   2. At the option of the Facility Representative, temporary lighting providing illumination of the same intensity, color, and character may be utilized for review of field samples.
   3. The Facility Representative will review field sample no later than 4 days following receipt of request.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver paints and stains ready mixed in labeled, tightly covered containers to the Project site.

B. Store materials on pallets or skids in clean, dry, well-ventilated areas, away from heat, sparks, flame, and direct rays of sunshine; maintain storage areas free from fire hazard.

C. Remove used rags and hazardous waste materials at end of work each day, unless properly stored in metal containers with tightly-fitting metal covers.

D. Frequently remove accumulated waste materials.

1.9 PROJECT CONDITIONS

A. Comply with manufacturer's recommendations for environmental conditions under which paint and paint systems shall be applied.

B. Ensure adequate ventilation during interior painting.

C. Do not apply exterior paint in rain, snow, fog or mist, when temperature is below 45 degrees F, or when relative humidity is above 50 percent.

1.10 WARRANTY

A. Provide warranty under provisions of Section 01 78 00.

B. Colors of surfaces painted as part of the work of this Section shall, at the end of one year, have remained free from serious fading.

C. Paint shall have its original adherence at the end of one year and there shall be no evidence of blisters, running, peeling, scaling, chalking, streaks, or stains at the end of this period.

D. Washing with alkali-free soap and water shall remove surface dirt from painted surfaces without producing deteriorating effects.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturer:
1. Dunn-Edwards Paint Co.
2. Kelly Moore.
3. Sherman Williams.
4. Approved Equal.

2.2 MATERIALS - GENERAL DESCRIPTION

A. Wood Filler: Paste filler recommended by manufacturer for wood type used, in color according to color of stain finish scheduled or selected.

B. Cementitious Filler: Nonshrink formulation; white portland cement with fine silicate aggregate, zinc-oxide pigment, and reinforcing chemical binder as approved.

C. General Purpose Filler: Standard spackling compound or gypsum wallboard joint compound or latex patching compound; for patching plaster, gypsum wallboard, and wood surfaces to receive opaque paint finishes.

D. Thinner: As recommended by each manufacturer for his respective product.

E. Equipment: Provide scaffolding, staging, drop cloths, covers, brushes, rollers, and spraying and other equipment of the type, grade, and size required for proper execution of the Work.

2.3 MISCELLANEOUS SURFACE PREPARATION MATERIALS

A. Concrete Cleaner (for the removal of grease and oils):
   1. Concrete Wash [#17].
   2. Concrete Saver [108 Cleaning and Etching Solution].
   3. UGL Concrete [Etch and Clean].

B. Galvanized Metal Chemical/Acid Etch
   1. Dunn-Edwards [Galva-Etch Etching Liquid, GE 123].
   2. Vista
   3. Sherman Williams

2.4 PAINT MATERIALS

A. General
   1. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
      a. Flat Paints, Coatings, and Primers: VOC content of not more than 50 g/L.
      b. Nonflat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
      c. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
      d. Floor Coatings: VOC not more than 100 g/L.
      e. Shellacs, Clear: VOC not more than 730 g/L.
      f. Shellacs, Pigmented: VOC not more than 550 g/L.
      g. Stains: VOC not more than 250 g/L.
      h. Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L.

B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
   1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
   2. Restricted Components: Paints and coatings shall not contain any of the following:
      a. Acrolein.
      b. Acrylonitrile.
      c. Antimony.
      d. Benzene.
      e. Butyl benzyl phthalate.
      f. Cadmium.
      g. Di (2-ethylhexyl) phthalate.
      h. Di-n-butyl phthalate.
      i. Di-n-octyl phthalate.
      j. 1,2-dichlorobenzene.

k. Diethyl phthalate.
l. Ethylbenzene.
m. Formaldehyde.
n. Hexavalent chromium.
o. Isophorone.
p. Lead.
q. Mercury.
r. Methyl ethyl ketone.
s. Methyl isobutyl ketone.
t. Methylene chloride.
u. Naphthalene.
v. Toluene (methylbenzene).
w. 1,1,1-trichloroethane.
x. Vinyl chloride.

C. Primer/sealer for interior and exterior concrete masonry, and exterior cement plaster, shall contain or have properties which are equivalent to the following:
1. Vehicle: Acrylic and epoxy resins, water and additives.
2. Pigments: Titanium dioxide and reinforcing pigments.
3. Solids by Volume: 34 percent minimum.
4. Solvent Type: Waterborne.
5. Resin Type: Acrylic/epoxy.

D. Primer for interior and exterior non-ferrous metal shall contain or have properties which are equivalent to the following:
1. Alkyd Option:
a. Vehicle: Alkyd resins, thinners and additives.
b. Pigments: Titanium dioxide and reinforcing pigments.
c. Solids by Volume: 44 percent minimum.
d. Solvent Type: Paint thinner.
e. Resin Type: Alkyd.
2. Acrylic Option:
a. Vehicle: Acrylic resins, water and additives.
b. Pigments: Titanium dioxide, reinforcing, and corrosion inhibiting pigments.
c. Solids by Volume: 38 percent minimum.
d. Solvent Type: Waterborne.
e. Resin Type: 100 percent acrylic.

E. Primer for exterior wood fascia and trim shall contain or have properties which are equivalent to the following:
1. Vehicle: Acrylic resins, water and additives.
2. Pigments: Titanium dioxide.
3. Solids by Volume: 39 percent minimum.
4. Solvent Type: Waterborne.
5. Resin Type: 100 percent acrylic.

F. Block filler for interior and exterior concrete masonry shall contain or have properties which are equivalent to the following:
1. Exterior (medium aggregate):
a. Vehicle: Acrylic resins, water and additives.
b. Pigments: Titanium dioxide and reinforcing pigments.
c. Solids by Volume: 48 percent minimum.
d. Solvent Type: Waterborne.
e. Resin Type: 100 percent acrylic.

2. Interior (smooth aggregate):
    a. Vehicle: Acrylic resins, water and additives.
    b. Pigments: Titanium dioxide and reinforcing pigments.
    c. Solids by Volume: 51 percent minimum.
    d. Solvent Type: Waterborne.
    e. Resin Type: 100 percent acrylic.

G. Primer for interior and exterior precast and cast-in-place concrete, and interior concrete masonry receiving an alkyd enamel paint finish, shall be two component, and shall contain or have properties which are equivalent to the following:
    1. Vehicle: Epoxy and polyamine resins, water and additives.
    2. Pigments: Titanium dioxide and reinforcing pigments.
    3. Solids by Volume: 42 percent minimum.
    4. Solvent Type: Waterborne.
    5. Resin Type: Epoxy.

H. Primer for interior and exterior ferrous metal shall contain or have properties which are equivalent to the following:
    1. Vehicle: Alkyd resins and oils, thinners and additives.
    2. Pigments: Titanium dioxide, rust inhibitive and reinforcing pigments.
    3. Solids by Volume: 56 percent minimum.
    4. Solvent type: Paint thinner.
    5. Resin Type: Alkyd.

I. Primer for interior wood surfaces, and for gypsum wallboard surfaces receiving an epoxy coating, shall contain or have properties which are equivalent to the following:
    1. Vehicle: Acrylic resins, water and additives.
    2. Pigments: Titanium dioxide and reinforcing pigments.
    3. Solids by Volume: 43 percent minimum.
    4. Solvent Type: Waterborne.
    5. Resin Type: 100 percent acrylic.

J. Fire retardant alkyd undercoat designed to provide excellent sealing, adhesion, and enamel holdout; primer on new wood surfaces and an intermediate coat on previously sealed wood surfaces; shall contain or have properties which are equivalent to the following:
    1. Vehicle: Alkyd resins, thinners and additives.
    2. Pigments: Titanium dioxide (TiO_2) and reinforcing pigments.
    3. Solids by Volume: 54 percent $\pm$2 percent minimum.
    4. Solvent Type: Paint Thinner
    5. Resin Type: Alkyd.

K. Sealer for interior veneer plaster shall contain or have properties which are equivalent to the following:
    1. Vehicle: Alkyd resins, thinners and additives.
    2. Pigments: Titanium dioxide and reinforcing pigments.
    3. Solids by Volume: 56 percent minimum.
    4. Solvent Type: Paint thinner.
    5. Resin Type: Alkyd.

L. Sealer for interior gypsum board receiving an acrylic paint finish shall contain or have properties which are equivalent to the following:
    1. Vehicle: Vinyl acrylic resins, water and additives.
    2. Pigments: Titanium dioxide and reinforcing pigments.

3. Solids by Volume: 37 percent minimum.
4. Solvent Type: Waterborne.
5. Resin Type: Acrylic copolymer.

M. Gloss paint for interior and exterior ferrous and non-ferrous metals shall be formulated for interior and exterior applications and shall contain or have properties which are equivalent to the following:
1. Vehicle: Acrylic resins, water and additives.
2. Pigments: Titanium dioxide.
3. Solids by Volume: 33 percent minimum.
4. Solvent Type: Waterborne.
5. Resin Type: 100 percent acrylic.

N. Semi-gloss paint for exterior wood fascia and trim shall be formulated for exterior applications and shall contain or have properties which are equivalent to the following:
1. Vehicle: Acrylic resins, water and additives.
2. Pigments: Titanium dioxide and reinforcing pigments.
3. Solids by Volume: 40 percent minimum.
4. Solvent Type: Waterborne.
5. Resin Type: 100 percent acrylic.

O. Semi-gloss paint for interior and exterior ferrous and non-ferrous metals, and interior wall and ceiling surfaces where indicated, shall be formulated for interior and exterior applications and shall contain or have properties which are equivalent to the following:
1. Vehicle: Acrylic resins, water and additives.
2. Pigments: Titanium dioxide.
3. Solids by Volume: 34 percent minimum.
4. Solvent Type: Waterborne.
5. Resin Type: 100 percent acrylic.

P. Low sheen for exterior concrete, concrete masonry, and cement plaster wall surfaces shall be formulated for exterior applications and shall contain or have properties which are equivalent to the following:
1. Vehicle: Acrylic resins, water and additives.
2. Pigments: Titanium dioxide and reinforcing pigments.
3. Solids by Volume: 35 percent minimum.
4. Solvent Type: Waterborne.
5. Resin Type: 100 percent acrylic.

Q. Line striping coating for exterior asphalt and concrete roads, walkways, curbs, parking lots, and other areas as indicated, shall be formulated for exterior applications and shall contain or have properties which are equivalent to the following:
1. Vehicle: Acrylic and epoxy resins, water and additives.
2. Pigments: Titanium dioxide and reinforcing pigments.
3. Solids by Volume: 39 percent minimum.
4. Solvent Type: Waterborne.
5. Resin Type: Acrylic/epoxy.

R. Eggshell paint for interior wall and ceiling surfaces where indicated, and miscellaneous interior wood components where indicated shall be formulated for interior applications and shall contain or have properties which are equivalent to the following:
   1. Vehicle: Acrylic resins, water and additives.
   2. Pigments: Titanium dioxide and reinforcing pigments.
   3. Solids by Volume: 40 percent minimum.
   4. Solvent Type: Waterborne.
   5. Resin Type: 100 percent acrylic.

S. Eggshell paint for interior ferrous and non-ferrous metals, and interior wall and ceiling surfaces where indicated, shall be formulated for interior and exterior applications and shall contain or have properties which are equivalent to the following:
   1. Vehicle: Acrylic resins, water and additives.
   2. Pigments: Titanium dioxide and reinforcing pigments.
   3. Solids by Volume: 35 percent minimum.
   4. Solvent Type: Waterborne.
   5. Resin Type: 100 percent acrylic.

T. Semi-gloss paint for interior wall and ceiling surfaces where indicated, and miscellaneous interior wood components where indicated shall be formulated for interior applications and shall contain or have properties which are equivalent to the following:
   1. Vehicle: Acrylic resins, water and additives.
   2. Pigments: Titanium dioxide.
   3. Solids by Volume: 37 percent minimum.
   4. Solvent Type: Waterborne.
   5. Resin Type: 100 percent acrylic.

U. Low sheen enamel for interior wall and ceiling surfaces where indicated shall be formulated for interior applications and shall contain or have properties which are equivalent to the following:
   1. Vehicle: Vinyl acrylic resins, water and additives.
   2. Pigments: Titanium dioxide and reinforcing pigments.
   3. Solids by Volume: 42 percent minimum.
   4. Solvent Type: Waterborne.
   5. Resin Type: Acrylic copolymer.

V. Gloss enamel paint for interior wall and ceiling surfaces where indicated, and for mechanical and electrical equipment and/or enclosures, shall be formulated for interior and exterior applications and shall contain or have properties which are equivalent to the following:
   1. Vehicle: Alkyd resins, thinner and additives.
   2. Pigments: Titanium dioxide.
   3. Solids by Volume: 52 percent minimum.
   4. Solvent Type: Paint thinner.
   5. Resin Type: Alkyd.

W. Gloss and semi-gloss epoxy coatings for interior wall and ceiling surfaces shall be two component, and shall contain or have properties which are equivalent to the following:
   1. Vehicle: Epoxy and polyamine resins, water and additives.
   2. Solids by Volume: 50 percent minimum.
   3. Solvent Type: Waterborne.

4. Resin Type: Epoxy

X. Fire Retardant Alkyd Semi-Gloss Enamel for telecommunications terminal backboard (TTB).
   1. Vehicle: Alkyd resins, thinner and additives.
   2. Pigments: Titanium dioxide (TiO_2) and reinforcing pigments.
   3. Solids by Volume: 55 percent ±2 percent minimum.
   4. Solvent Type: Paint Thinner
   5. Resin Type: Alkyd

Y. Additional surface preparation and paint materials required by other Sections and not listed herein shall be manufacturer's best quality for the intended purpose.

2.5 PAINT MATERIALS FOR EXTERIOR USE

A. Primers and Undercoats:

Product	Dunn-Edwards Product / Number	
Acrylic Masonry Primer/Sealer	Eff-Stop	W 709
Acrylic Multi-Purpose Primer	M-P Prime	W 713
Acrylic Wood Primer (Exterior)	E-Z Prime	W 708
Concrete Block Filler, Medium	Blocfil	W 304
Galvanized/Aluminum Primer	Galv-Alum	QD 43-7
Two Component Waterborne Epoxy Masonry Primer	Super-Loc	w 718
White Alkyd Corrosion Inhibitive Primer	Corrobar	43-5

B. Paint Finish Coats:

Product	Dunn-Edwards Product / Number	
100 percent Acrylic Gloss Paint (Int./Ext.)	Permagloss	W 960
100 percent Acrylic Low Sheen Paint (Exterior)	Enduracryl	W 705
100 percent Acrylic Semi-Gloss Paint (Int./Ext.)	Permasheen	W 901
100 percent Acrylic Wood and Masonry Flat Paint (Ext.)	Evershield	W 701
Line Striping Coating	Vin-L-Stripe	W 801-1

2.6 PAINT MATERIALS FOR INTERIOR USE

A. Primers and Undercoats:

Product	Dunn-Edwards Product / Number	
Acrylic Enamel Undercoater (Interior)	Unikote	W 707
Acrylic Masonry Primer Sealer	Eff-Stop	W 709
Acrylic Multi-Purpose Primer	M-P Prime	W 713
Alkyd Pigmented Sealer (Interior)	Alkylseal	E 28-1
Concrete Block Filler, Smooth	Blocfil	W 305
Galvanized/Aluminum Primer	Galv-Alum	QD 43-7
Pigmented Sealer (Interior)	Vinylastic	W 101
Two Component Epoxy Masonry Primer	Super-Loc	W 718
White Alkyd Corrosion Inhibitive Primer	Corrobar	43-5

B. Paint Finish Coats:

Product	Dunn-Edwards Product / Number	
100 percent Acrylic Eggshell Paint (Interior)	Decosheen	W 440
100 percent Acrylic Eggshell Paint (Int./Ext.)	Permashell	W 940
100 percent Acrylic Gloss Paint (Interior/Exterior)	Permagloss	W 960
100 percent Acrylic Semi-Gloss Paint (Interior)	Decoglo	W 450
100 percent Acrylic Semi-Gloss Paint (Int./Ext.)	Permasheen	W 901
Latex Flat Enamel (Interior)	Durawall	W 3447
Quick-Dry Alkyd Gloss Enamel	Enduratec	QD 42-8

C. Epoxy Coatings:

Product (distributed by Dunn-Edwards)	Dunn-Edwards Product / Number	
Gloss Waterborne Epoxy	Intergard	I 735

D. Fire Retardant Coatings:

Product (distributed by Dunn-Edwards)	Dunn-Edwards Product / Number	
Interior Fire Retardant Alkyd Enamel Undercoater	SUPER U-365	E 22-1V
Interior Fire Retardant Alkyd Semi-Gloss Enamel	ARISTOGLO	74

2.7 COLORS

A. The Facility Representative will select the finish colors and textures and determine the basic colors of surfaces to be painted or stained.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that conditions are satisfactory for the application of paint and stain finishes.

B. Before commencing paint applications, have an authorized representative of paint manufacturer inspect work areas and report his findings.

C. If unsatisfactory conditions exist, do not commence the application until such conditions have been corrected.

D. Application of first coat of finish constitutes acceptance of surface conditions and responsibility for ultimate finish.

3.2 PREPARATION

A. Rooms and spaces shall be broom-clean before commencement of paint application.

B. Surfaces to be finished shall be dry, clean, smooth, and free from rust, scale, oil, grease, grit, frost, sap, and other foreign matter. Shellac and seal marks which might bleed through surface finish.

C. Protect nameplates, switchplates, instruments, gauges, stainless steel, aluminum, and other surfaces which are not to be painted by masking or other means.

D. Hardware, hardware accessories, lighting fixtures, and similar items in place shall be sufficiently protected or removed prior to painting, and replaced upon completion of painting of each space.

E. Disconnect heating and other equipment adjacent to walls, and move to permit wall surfaces to be painted. Following completion of painting, replace and reconnect equipment.

F. Locate and install scaffolding and staging to avoid interference with the Work of other Sections.

G. Wood:
   1. Clean soiled surfaces. Sand smooth and dust clean. Neatly fill nail holes, cracks, and depressions with filler. When dry, sand flush and smooth.
   2. Before finishing, exposed portions shall have handling marks or effects of exposure to moisture removed with a thorough, final sanding over surfaces of the exposed portions, using at least 150 grit or finer sandpaper, and shall be cleaned before applying sealer or finish.

H. Gypsum Wallboard:
   1. Fill narrow, shallow cracks and small holes with general purpose filler.
   2. Rake deep, wide cracks and deep holes. Fill with thin layers of general purpose filler.
   3. Allow fill material to dry.
   4. Sand smooth after drying. Do not raise nap of paper on wallboard.

I. Metals:
   1. Remove mill scale, rust, corrosion, and other foreign matter by wire brushing, scraping, sandblasting, or solvent, as required to produce a clean, smooth surface.
   2. Clean oil, grease, and dust from surfaces using mineral spirits.
   3. Touch up chipped or abraded areas in shop primer using primer compatible with existing.
   4. Pretreat galvanized metal with phosphoric acid etch or vinyl wash. Apply primer within four hours of acid etching.

J. Concrete:
   1. Clean concrete surfaces with a solution of trisodium phosphate or as recommended by the paint system manufacturer.
   2. Remove grease and oils.
   3. Grout clean interior concrete surfaces receiving alkyd paint or epoxy coating, in accordance with Section 03 30 00.
   4. Prime interior concrete surfaces to be painted. When primer is dry, fill holes, depressions, and pits with cementitious filler. Spot prime filler, when dry, with an additional coat of primer.

K. Ductwork Interiors: Clean visible portion of ductwork interiors with solvent and wipe clean.

L. Cement and/or Gypsum Plaster: Using the PH pencil test for surface alkalinity, verify that the PH of the surface to be painted is within manufacturer's recommended PH range prior to application. Correct unsatisfactory conditions per paint manufacturer's recommendations.

3.3 APPLICATION

A. Do not apply initial coating until moisture content of surface, as tested with a moisture meter, is within limitations recommended by the coating manufacturer.

B. Apply coatings in accordance with manufacturer's printed instructions.

C. Methods of Application: Brush (B), Roller (R) or Spray (S) application shall be used in accordance with the following schedule:

Surface	1st Coat	2nd Coat	3rd Coat
Ferrous Metal			
Primed	----	B, R, S	B, R, S
Unprimed	B, S	B, R, S	B, R, S
Non-Ferrous Metal*			
Primed	----	B, R, S	B, R, S
Unprimed	B, S	B, R, S	B, R, S
Masonry*	R, S	R, S	R, S
Gypsum Wallboard	R, S	R, S	R, S
Wood*			
Primed	----	B	B
Unprimed	B	B	B
Concrete and Concrete			
Masonry Units	R, S	R, S	R, S
Cement Plaster	R, S**	R, S	R, S

* Does not apply to large wall surfaces. Use sheepskin daubers to reach surfaces which are inaccessible to brushes.

** Back-roll first coat when using a spray application.

D. Coats:
1. Apply coats and undercoats in accordance with the manufacturer's recommendations. A uniform and opaque painted finish utilizing at least three coats is the minimum requirement. More coats of paint may be required to obtain a finish acceptable to the Facility Representative.
2. Tint pigmented undercoats to approximately the same shade as the final coat. Perceptibly increase the depth of shade in successive coats.
3. Allow each coat to thoroughly dry before application of succeeding coat; comply with manufacturer's recommendations for drying time between coats.
4. Sand and dust between each coat to remove defects visible from a distance of 5 feet.
5. Finish coats shall be smooth, even and free from brush marks, streaks, laps and pile-up of paints, and skipped and missed areas.
6. Finish mill and shop primed items with materials compatible with prime coat.
7. Paint surfaces of galvanized steel drip moldings, reveal joints and trim, and casing beads that will be exposed in the finished Work.

E. Leave parts of moldings and ornaments clean and true to details with no undue amount of paint in corners and depressions.

F. Edges of paint adjoining other materials and colors shall be clean and sharp with no overlapping.

G. Refinish whole surfaces where portion of finish is not acceptable.

H. Pretreatment of Existing Surfaces: Unless specified first coat is suitable for materials and conditions encountered, apply one additional coat of surface conditioner as recommended by paint manufacturer.

I. Priming:
   1. Wood
      a. Prime or stain and seal wood surfaces.
      b. Apply prime coat to edges, ends, face, underside, and back side of wood to be exposed in the finished Work, including telephone and electric backboards.
   2. Metals:
      a. Prime surfaces of miscellaneous iron and steel not embedded in concrete, and surfaces of ungalvanized, unprimed sheet steel.
      b. Time lapse between priming and application of second coat shall be as short as possible to provide for proper bonding to prime coat.

J. Spraying:
   1. Spray only with airless sprayer.
   2. Apply in fine, even spray without addition of thinner.
   3. When necessary, follow by brushing to ensure uniform coverage and to eliminate wrinkling, blistering, and air holes.
   4. If spraying becomes detrimental to equipment or objectionable to personnel, brush painting will be required.

K. Steel Framing:
   1. Where structural and miscellaneous steel framing will remain concealed in completed Work, provide field-applied second prime coat.
   2. Use material compatible with shop-primer material.
   3. Apply after completion of steel erection, before being enclosed.
   4. Omit where steel is to be encased in concrete or to receive cementitious fireproofing.

L. Exposed Plumbing, Mechanical, and Electrical Items:
   1. Finish exposed items without factory finish to match adjacent finished surfaces, unless otherwise directed. Where adjacent surface is unfinished, color will be selected by the Facility Representative.
   2. Finish shop primed and/or factory primed items to match adjacent finished surfaces, unless otherwise directed. Where adjacent surface is unfinished, color will be selected by the Facility Representative.
   3. Wash exposed metal with solvent, then prime and paint as scheduled.
   4. Spray-paint wherever practicable.
   5. Exposed mechanical and plumbing items that require painting include but are not limited to the following:
      a. Uninsulated metal piping.
      b. Uninsulated plastic piping.
      c. Pipe hangers and supports.
      d. Tanks that do not have factory-applied final finishes.
      e. Visible surfaces behind vents, registers, and grilles, which shall be painted flat black. When ductwork is exposed, and not otherwise required to be painted, the interior portion of ductwork behind vents, registers, and grilles is not required to be painted.
      f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
h. Access panels.

6. Exposed electrical items that require painting include but are not limited to the following:
   a. Switchgear.
   b. Panelboards.
   c. Electrical equipment that is indicated to have a factory-primed finish for field painting.
   d. Conduit.
   e. Access panels.

M. Miscellaneous Painting: Perform as indicated or required and as directed to coordinate appearance and/or color of incidental items or surfaces with adjacent surfaces.

N. Touch-up and restore finish where damaged.

O. When complete, painted surfaces shall be clean, uniform in appearance, and free from holidays, skips, runs, bubbles, streaks, scratches, and other damage and defects.

3.4 PROTECTION

A. Provide barriers and post signs as necessary to protect newly applied finishes.

3.5 CLEANING

A. Clean up spilled and spattered paint daily.

B. Remove spilled and spattered paint, taking care not to mar surface finish of item being cleaned.

C. Leave the Project site in a clean and orderly condition.

3.6 PAINT SYSTEMS

A. Paint all exterior and interior surfaces not specifically excluded.

B. Only major areas are scheduled, but all miscellaneous items and areas within the room or space shall be painted.

C. The number of coats specified is the minimum number acceptable. If full coverage is not obtained with the specified number of coats, apply additional coats as necessary to produce the required finish, at no increase in Contract Price.

D. Acceptance of Final Colors: Final coat of paint for both exterior and interior shall not be applied until the colors have been accepted by the Facility Representative.

3.7 SCHEDULE - ITEMS NOT TO BE PAINTED

A. Do Not Paint the Following Items:
   1. Products having factory finish (products which are shop or factory primed only shall be painted).
   2. Concrete floors with chemical hardener finish.

3. Exterior concrete paving, curbs, gutters, and walks.
4. Pre-finish or factory finished floor, wall and ceiling materials.
5. Plastic laminate-covered surfaces.
6. Copper, stainless steel, aluminum, brass, bronze and chromium-plated surfaces.
7. Elastomeric materials.
8. Glass, glazing compound and sealants.
9. Finish hardware, unless otherwise indicated (hardware which is shop or factory primed only shall be painted).
10. Roofing finishing materials.
11. Sprayed fireproofing.
12. Concealed construction such as wall surfaces, mechanical and electrical systems within suspended ceiling spaces, wall shafts, chases and furred spaces.
13. Name plates.
14. UL Labels, fusible links, sprinkler heads.
15. Gauges, thermometers and other recording devices.
16. Moving parts of mechanical equipment such as shafts and valve stems.
17. Lighting fixtures.
18. Plumbing fixtures.
19. Galvanized stair treads and landings
20. Other items specifically indicated not to be painted.
21. Interior concrete surfaces within housing unit cells.

3.8 SCHEDULE - EXTERIOR PAINT SYSTEMS

A. Ferrous metal surfaces - gloss finish (exposed exterior surfaces and items which are generally not visible from the ground):
   1. First Application: White alkyd corrosion inhibitive primer.
   2. Second Application: White alkyd corrosion inhibitive primer, half tinted.
   3. Third Application: Interior/exterior 100 percent acrylic gloss paint.

B. Ferrous metal surfaces - semi-gloss finish (exposed exterior surfaces and items which are generally visible from the ground):
   1. First Application: White alkyd corrosion inhibitive primer.
   2. Second Application: White alkyd corrosion inhibitive primer, half tinted.
   3. Third Application: Interior/exterior 100 percent acrylic semi-gloss paint.

C. Non-ferrous or galvanized metal surfaces - gloss finish (exposed exterior surfaces and items which are generally not visible from the ground):
   1. First Application: Galvanized/aluminum primer or acrylic multi-purpose primer.
   2. Second Application: Interior/exterior 100 percent acrylic gloss paint.
   3. Third Application: Interior/exterior 100 percent acrylic gloss paint.

D. Non-ferrous or galvanized metal surfaces - semi-gloss finish (exposed exterior surfaces and items which are generally visible from the ground):
   1. First Application: Galvanized/aluminum primer or acrylic multi-purpose primer.
   2. Second Application: Interior/exterior 100 percent acrylic semi-gloss paint.
   3. Third Application: Interior/exterior 100 percent acrylic semi-gloss paint.

E. Precast and cast-in-place concrete wall panel surfaces:
   1. First Application: Two component epoxy masonry primer.
   2. Second Application: Exterior 100 percent acrylic wood and masonry flat paint.
   3. Third Application: Exterior 100 percent acrylic wood and masonry flat paint.

F. Concrete Masonry:
   1. First Application: Acrylic masonry primer sealer.
   2. Second Application: Concrete block filler - medium aggregate.
   3. Third Application: Exterior 100 percent acrylic wood and masonry flat paint.
   4. Fourth Application: Exterior 100 percent acrylic wood and masonry flat paint.

G. Wood Fascia and Trim:
   1. First Application: Exterior acrylic wood primer.
   2. Second Application: Exterior 100 percent acrylic low sheen paint.
   3. Third Application: Exterior 100 percent acrylic low sheen paint.

H. Cement Plaster:
   1. First Application: Acrylic masonry primer sealer.
   2. Second Application: Exterior 100 percent acrylic wood and masonry flat paint.
   3. Third Application: Exterior 100 percent acrylic wood and masonry flat paint.

3.9 SCHEDULE - INTERIOR PAINT SYSTEMS

A. Ferrous metal surfaces - gloss finish (exposed interior surfaces and items which are generally subject to wear, including floor curbs and frames, grating, stair treads, risers, and stringers, pipe railings, handrails, and ladders):
   1. First Application: White alkyd corrosion inhibitive primer.
   2. Second Application: White alkyd corrosion inhibitive primer, half tinted.
   3. Third Application: Interior/exterior 100 percent acrylic gloss paint.

B. Ferrous metal surfaces - semi-gloss finish (exposed interior surfaces and items which are generally not subject to wear, including hollow metal frames and doors, vault frames and doors, and mechanical system piping):
   1. First Application: White alkyd corrosion inhibitive primer.
   2. Second Application: White alkyd corrosion inhibitive primer, half tinted.
   3. Third Application: Interior/exterior 100 percent acrylic semi-gloss paint.

C. Ferrous metal surfaces - eggshell finish (underside of exposed metal decks):
   1. First Application: White alkyd corrosion inhibitive primer.
   2. Second Application: White alkyd corrosion inhibitive primer, half tinted.
   3. Third Application: Interior/exterior 100 percent acrylic eggshell paint.

D. Non-ferrous or galvanized metal surfaces - gloss finish (exposed interior surfaces and items which are generally subject to wear, including floor curbs and frames, grating (except where subject to foot traffic), stair risers and stringers, pipe railings, handrails, and ladders):
   1. First Application: Galvanized/aluminum primer or acrylic multi-purpose primer.
   2. Second Application: Interior/exterior 100 percent acrylic gloss paint.
   3. Third Application: Interior/exterior 100 percent acrylic gloss paint.

E. Non-ferrous or galvanized metal surfaces - semi-gloss finish (exposed interior surfaces and items which are generally not subject to wear, including frames and doors, and mechanical system piping):
   1. First Application: Galvanized/aluminum primer or acrylic multi-purpose primer.
   2. Second Application: Interior/exterior 100 percent acrylic semi-gloss paint.
   3. Third Application: Interior/exterior 100 percent acrylic semi-gloss paint.

F. Non-ferrous or galvanized metal surfaces - eggshell finish (underside of exposed metal deck):
   1. First Application: Galvanized/aluminum primer or acrylic multi-purpose primer.
   2. Second Application: Interior/exterior 100 percent acrylic eggshell paint.
   3. Third Application: Interior/exterior 100 percent acrylic eggshell paint.

G. Mechanical and electrical equipment and/or enclosures - machinery enamel (including mechanical equipment, machinery and appliances, motors, starters and control equipment such as pumps, compressors, fans, unit heaters, ventilation and air conditioning units excluding machine parts, and cabinets and enclosures):
   1. First Application: White alkyd corrosion inhibitive primer (galvanized/aluminum primer on galvanized surfaces).
   2. Second Application: Quick-dry alkyd gloss enamel.
   3. Third Application: Quick-dry alkyd gloss enamel.

H. Concrete wall, ceiling, and column surfaces not otherwise specified and not specifically excluded in kitchens, dishwashing rooms, showers, wash-down areas, and similar wet locations, and/or indicated as gloss finish:
   1. First Application: Two-component epoxy masonry primer.
   2. Second Application: Quick-dry alkyd gloss enamel.
   3. Third application: Quick-dry alkyd gloss enamel.

I. Concrete wall, ceiling, and column surfaces indicated as epoxy painted, epoxy coated, or polyester coated surfaces:
   1. First Application: Prime coat(s) per epoxy coating manufacturer's recommendations.
   2. Second Application: Gloss or semi-gloss waterborne epoxy coating.
   3. Third Application: Gloss or semi-gloss waterborne epoxy coating.

J. Concrete wall, ceiling, and column surfaces indicated as semi-gloss finish (for second and third applications in kitchen support areas, dining rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic semi-gloss paint):
   1. First Application: Two-component epoxy masonry primer.
   2. Second Application: Interior 100 percent acrylic semi-gloss paint.
   3. Third Application: Interior 100 percent acrylic semi-gloss paint.

K. Concrete wall, ceiling, and column surfaces indicated as eggshell finish (for second and third applications in kitchen support areas, dining rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic eggshell paint):
   1. First Application: Two-component epoxy masonry primer.
   2. Second Application: Interior 100 percent acrylic eggshell paint.
   3. Third Application: Interior 100 percent acrylic eggshell paint.

L. Concrete masonry wall surfaces not otherwise specified and not specifically excluded in kitchens, dishwashing rooms, showers, wash-down areas, and similar wet locations, and/or indicated as gloss finish:
   1. First Application: Two-component epoxy masonry primer.
   2. Second Application: Concrete block filler - smooth aggregate.
   3. Third Application: Quick-dry alkyd gloss enamel.
   4. Fourth application: Quick-dry alkyd gloss enamel.

M. Concrete masonry wall surfaces indicated as epoxy painted, epoxy coated, or polyester coated surfaces:
   1. First Application: Concrete block filler - smooth aggregate.
   2. Second Application: Prime coat(s) per epoxy coating manufacturer's recommendations.
   3. Third Application: Gloss or semi-gloss waterborne epoxy coating.
   4. Fourth Application: Gloss or semi-gloss waterborne epoxy coating.

N. Concrete masonry wall surfaces indicated as semi-gloss finish (for third and fourth applications in kitchen support areas, dining rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic semi-gloss paint):
   1. First Application: Acrylic masonry primer sealer.
   2. Second Application: Concrete block filler - smooth aggregate.
   3. Third Application: Interior 100 percent acrylic semi-gloss paint.
   4. Fourth Application: Interior 100 percent acrylic semi-gloss paint.

O. Concrete masonry wall surfaces indicated as eggshell finish (for third and fourth applications in kitchen support areas, dining rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic eggshell paint):
   1. First Application: Acrylic masonry primer sealer.
   2. Second Application: Concrete block filler - smooth aggregate.
   3. Third Application: Interior 100 percent acrylic eggshell paint.
   4. Fourth Application: Interior 100 percent acrylic eggshell paint.

P. Veneer plaster wall and ceiling surfaces indicated as semi-gloss finish (for second and third applications in kitchens and adjoining support areas, dining rooms, dishwashing rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic semi-gloss paint):
   1. First Application: Interior alkyd pigmented sealer.
   2. Second Application: Interior 100 percent acrylic semi-gloss paint.
   3. Third Application: Interior 100 percent acrylic semi-gloss paint.

Q. Veneer plaster wall and ceiling surfaces indicated as eggshell finish (for second and third applications in kitchens and adjoining support areas, dining rooms, dishwashing rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic eggshell paint):
   1. First Application: Interior alkyd pigmented sealer.
   2. Second Application: Interior 100 percent acrylic eggshell paint.
   3. Third Application: Interior 100 percent acrylic eggshell paint.

R. Gypsum wallboard wall and ceiling surfaces indicated as epoxy painted, epoxy coated, or polyester coated surfaces:
   1. First Application: Interior acrylic enamel undercoater.
   2. Second Application: Gloss or semi-gloss waterborne epoxy coating.
   3. Third Application: Gloss or semi-gloss waterborne epoxy coating.

S. Gypsum wallboard wall and ceiling surfaces indicated as semi-gloss finish (for second and third applications in kitchens and adjoining support areas, dining rooms, dishwashing rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic semi-gloss paint):
   1. First Application: Interior pigmented sealer.
   2. Second Application: Interior 100 percent acrylic semi-gloss paint.

3. Third Application: Interior 100 percent acrylic semi-gloss paint.

T. Gypsum wallboard wall and ceiling surfaces indicated as eggshell finish (for second and third applications in kitchens and adjoining support areas, dining rooms, dishwashing rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic eggshell paint):
   1. First Application: Interior pigmented sealer.
   2. Second Application: Interior 100 percent acrylic eggshell paint.
   3. Third Application: Interior 100 percent acrylic eggshell paint.

U. Exposed wood, including doors, cabinets, trim, baseboards, and miscellaneous components in areas receiving a semi-gloss finish (for second and third applications in kitchens and adjoining support areas, dining rooms, dishwashing rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic semi-gloss paint):
   1. First Application: Interior acrylic enamel undercoater.
   2. Second Application: Interior 100 percent acrylic semi-gloss paint.
   3. Third Application: Interior 100 percent acrylic semi-gloss paint.

V. Plywood: Telecommunications terminal backboard (TTB); apply fire retardant paint system to delay ignition and flame spread.
   1. First Application: Interior Fire Retardant Alkyd Enamel Undercoater.
   2. Second Application: Interior Fire Retardant Alkyd Semi-Gloss Enamel.
   3. Third Application: Same as for Second.

W. Exposed wood, including doors, cabinets, trim, baseboards, and miscellaneous components in areas receiving an eggshell finish, or which are not otherwise specified and not specifically excluded (for second and third applications in kitchens and adjoining support areas, dining rooms, dishwashing rooms, health service and health service support areas, toilet rooms, and janitor rooms, apply interior/exterior 100 percent acrylic eggshell paint):
   1. First Application: Interior acrylic enamel undercoater.
   2. Second Application: Interior 100 percent acrylic eggshell paint.
   3. Third Application: Interior 100 percent acrylic eggshell paint.

X. Exposed wall and ceiling surfaces not otherwise specified and not specifically excluded:
   1. First Application:
      a. Concrete: Two component epoxy masonry primer.
      b. Concrete Masonry: Acrylic masonry primer sealer.
      c. Gypsum Wallboard: Interior latex flat enamel (self priming on gypsum wallboard).
   2. Second Application:
      a. Concrete: Interior latex flat enamel.
      b. Concrete Masonry: Concrete block filler - smooth aggregate.
      c. Gypsum Wallboard: Interior latex flat enamel.
   3. Third Application:
      a. Concrete: Interior latex flat enamel.
      b. Concrete Masonry: Interior latex flat enamel.
   4. Fourth Application:
      a. Concrete Masonry: Interior latex flat enamel.

3.10 SCHEDULE - PAINTED SIGNAGE

A. Building / Room / Area Identification
   1. Type: As specified or as indicated on drawings. [Indicated on signage schedule]
   2. Paint: As scheduled above under Exterior Paint Systems or Interior Paint Systems.
   3. Text style: Helvetica, condensed where necessary to fit field, capital letters, unless otherwise indicated.
   4. Locations: Additional locations that may require signage
      a. Housing:
         1) Fire access signage: 4-inch high red lettering on white background.
         2) Fire hose cabinets: 4-inches high red lettering on white background, text “FIRE HOSE”.

END OF SECTION

SECTION 10 14 00

SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Interior resin-coated vinyl signs.
   2. Safety signs.

B. Related Sections
   1. Section 09 90 00 - Painting and Coating.

1.2 REGULATORY REQUIREMENTS

A. Perform the Work in accordance with the 2015 International Building Code (IBC)

B. Unified Facilities Code 03-120-01 - 14.

C. Submit under provisions of Sections 01 33 00 and 01 33 23

D. Samples: Furnish samples showing construction of signs, including thickness, colors, and sample lettering.

E. Shop Drawings
   1. Submit schedule showing location and type of sign to be installed.
   2. Indicate attachment method for each sign; include detail for each sign to be mechanically attached.

F. Warranty: Special warranty specified in this Section.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Provide factory wrapping, packaging, and other means necessary to prevent damage or deterioration during shipment, handling, and storage, in accordance with Section 01 65 00.

B. Maintain protective coverings in place and in good repair until removal is necessary for the Work.

C. Store products inside enclosed storage facilities or inside buildings, above grade.

D. Maintain storage spaces and products in dry condition at all times.

E. Protect products against damage during field handling and installation.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Deterioration of metal and polymer finishes beyond normal weathering.
      b. Deterioration of embedded graphic image colors and sign lamination.
   2. Warranty Period: Five years from date of Project completion.

PART 2 PRODUCTS

2.1 RESIN COATED VINYL (RCV) SIGNS

A. Manufacturers
   1. ASI Sign Systems, Inc.- Modulex.
   2. Allen Industries.
   3. Or Approved Equal.

B. Lettering: Ultraviolet-resistant vinyl; pressure-sensitive; 3.5-mil thickness; carrier mounted; size as indicated in the schedule, 5/8-inch minimum to 2-inch maximum height.

C. Symbols: Vinyl; pressure-sensitive; 3.5-mil thickness; carrier mounted; size as indicated in the schedule.

D. Finish: Resin Coating Manufacturer’s standard.

2.2 SAFETY SIGNS

A. Manufacturers
   1. Seton Name Plate Corp.
   2. Nutheme Illustrated Safety Company.
   3. Or Approved Equal.

B. Minimum 20-gauge steel or minimum 0.032-gauge aluminum.

C. Lettering and Numeral Style: Helvetica Medium; upper case unless otherwise indicated.

D. Characters and symbols: shall contrast with sign background; black characters and symbols on white background, and white characters and symbols on medium blue background in accordance with Accessibility requirements.

E. Finish: Non-glare, baked enamel.

2.3 ACCESSORIES

A. Mounting Adhesive: Two component epoxy.

B. Metal Fasteners: Stainless Steel; tamper proof type in accordance with Section 05 05 55 where required.

C. Mounting Posts for Safety Signs: Galvanized steel or aluminum.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are satisfactory for the installation of signs. Notify the Facility Representative, in writing, of any conditions requiring corrective action.

B. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 PREPARATION

A. Protect adjacent existing and newly placed construction and finishes as necessary to prevent damage during installation of this Work.

3.3 INSTALLATION

A. Install signs after surfaces are finished, in locations as shown on the Drawings.

B. Install signs square, plumb and level, accurately aligned to position intended, and securely anchored to prevent movement as indicated on the approved shop drawings.

C. Resin Coated Vinyl Signs: After installation of vinyl letters and symbols, mask area around vinyl to provide minimum 1/4-inch wide border all around; apply resin coating to area within mask to minimum thickness of 4.0 mils, level.

D. Safety Signs:
   1. Install on posts, walls, doors, piping, or equipment in a location that will allow high visibility, but a minimum restriction of the working area around walkways and equipment. Sign placement and mounting is subject to approval by the Facility Representative.
   2. Install using tamper proof metal fasteners in accordance with Section 05 05 55.
   3. Install without damaging structures or equipment to allow removal with hand tools without leaving scars on the structure or equipment.
   4. Install on mounting posts only when there is no other suitable surface available.

3.4 CLEANING

A. Clean and polish.

B. Exposed surfaces shall be clean and free from scratches, dents, tool marks, stains, discoloration, and other defects and damage.

3.5 SCHEDULE

END OF SECTION

SECTION 10 21 13.19

PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Phenolic resin toilet partitions and accessories.

B. Related Sections
   1. Section 07 90 00 - Joint Protection.
   2. Section 10 28 00 - Toilet, Bath, and Laundry Accessories.

1.2 REGULATORY REQUIREMENTS

A. Conform to 2015 IBC – International Building Code.

B. Conform to Unified Facilities Code 1-200-01.

1.3 SUBMITTALS

A. Submit in accordance with Sections 01 33 00 and 01 33 23.

B. Samples
   1. Two samples showing manufacturer's standard finish.
   2. Security fasteners proposed for use.

C. Shop Drawings: Indicate partition layout dimensions, panel and door sizes, door swings, elevations, anchorage, and mounting details.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Provide factory wrapping, packaging, and other means necessary to prevent damage or deterioration during shipment, handling, storage, in accordance with Section 01 65 00.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify field measurements are as shown on the Drawings.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Knickerbocker Partition Corporation

B. Global Industries.

C. Sanymetal Products

2.2 PARTITIONS

A. Doors: High Density Polyethylene (HDPE); minimum [3/4]-inch thick; high pressure matte finish melamine surfaces; smooth edges.

B. Panels: High Density Polyethylene (HDPE); minimum [3/4]-inch thick; high pressure matte finish melamine surfaces; smooth edges.

C. Urinal Panels: High Density Polyethylene (HDPE); minimum [3/4]-inch thick; high pressure matte finish melamine surfaces; smooth edges. Screens to be 18” wide x 48” long. Use continuous “L” bracket for mounting to wall.

D. Pilasters: High Density Polyethylene (HDPE); minimum 1-inch thick; high pressure matte finish melamine surfaces; smooth edges.
1. Adjustable Pilaster Base: Knickerbocker or Approved equal.
2. Pilaster Shoes: Type 304 stainless steel; 3-inch height.

E. Hardware: Type 304 stainless steel.
1. Hinges: . Global Steel or Approved Equal
2. Latch/Catch Global Steel or Approved Equal.
3. Coathook: Global Steel or Approved Equal.
4. Door Stop: Global Steel or Approved Equal.
5. Antigrip Headrail: Global Steel or Approved Equal.
6. Grab Bars: Freedom Showers or Approved Equal.
7. Soap Dish: Bobrick or Approved Equal.
8. Curtain Rod:Global Steel or Approved Equal.

F. Curtain: Freedom Showers or Approved Equal.

G. Shower Seat: Freedom Showers or Approved Equal.

2.3 FINISHES

A. Partitions: Color to be Global industries Folkstone or Approved equal.

B. Stainless Steel: No. 4 finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and openings are ready to receive the Work.

B. Verify field measurements are as shown on the Drawings.

C. Verify correct spacing of plumbing fixtures.

D. Verify correct location of built-in framing, anchorage, and bracing.

E. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 PREPARATION

A. Protect elements surrounding the Work of this Section from damage or disfiguration.

3.3 INSTALLATION

A. Install partitions and screens, hardware, fittings, and accessories in accordance with the manufacturer's printed instructions and as indicated on the approved shop drawings.

B. Provide fasteners suitable for attaching to adjacent construction.

C. Conceal evidence of drilling in finished Work.

D. Components attached to walls and floors which may leave gap of 1/32 inch or greater shall be bedded in sealant in accordance with Section 07 90 00, pressure applied to fill gap. Finish smooth and flush.

3.4 ADJUSTMENT

A. Adjust brackets to provide uniform clearances not exceeding the following:
   1. Pilaster and Wall: 1 inch.
   2. Panels and Wall: 1 inch.
   3. Pilasters and Panels: 1/2 inch.
   4. Pilasters and Doors: 3/16 inch.

B. Adjust pilaster shoes to fit flush with adjacent surface.

C. Adjust hardware for proper operation.

D. Set hinges to hold door ajar when not latched.

E. When complete, each compartment assembly shall be set square, plumb and level, accurately aligned, and securely anchored to prevent movement.

F. Doors shall remain plumb in all positions of swing, and doors and hardware shall operate smoothly, quietly, and free from binding.

G. Adjust and service operating elements as necessary to operate smoothly, quietly, and free from binding.

3.5 CLEANING

A. After completion of installation, clean and polish compartments, hardware, fittings, and accessories, leaving exposed surfaces free from damage, dents, tool marks, stains, discoloration, and other defects and damage.

B. Field touch-up of finish surfaces will not be permitted. Replace damaged components.

END OF SECTION

SECTION 10 44 00

FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Fire extinguishers.
   2. Fire extinguisher cabinets.
   3. Accessories.

B. Related Sections
   1. Section 05 05 55 - Tamper Proof Metal Fastenings.

1.2 REFERENCES

A. CCR, Title 19, Division 1, Chapter 3.

B. NFPA 10 - Portable Fire Extinguishers.

1.3 DEFINITIONS

A. Wet Areas: Toilet rooms, kitchens, showers, and other areas exposed directly to water or high humidity, including rooms and spaces with ceramic tile or quarry tile finishes.

1.4 SUBMITTALS

A. Submit in accordance with Sections 01 33 00 and 01 33 23.

B. Shop Drawings
   1. Indicate fire hose cabinet and fire extinguisher cabinet physical dimensions, rough-in measurements for recessed and semi-recessed cabinets, wall bracket mounted measurements, fire hose bracket mounting, and location.
   2. Submit two copies to Facility Representative.

C. Product Data
   1. Provide fire extinguisher and cabinet operational features, color and finish, and anchorage details.

D. Manufacturer’s Installation Instructions
   1. Indicate special criteria and wall opening coordination requirements.

E. Manufacturer’s Certificate: Certify that Products meet or exceed specified requirements.

1.5 OPERATION AND MAINTENANCE DATA

A. Submit in accordance with Division 1.

B. Maintenance Data: Include test, refill or recharge schedules, and recertification requirements for fire extinguishers, and fire hose care, handling, and maintenance data.

1.6 QUALITY ASSURANCE

A. Units listed and approved by UL, and State Fire Marshal.

B. Provide cabinets, fire extinguishers, and accessories by single manufacturer. Ensure extinguishers fit inside cabinets.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

1.8 DELIVERY, STORAGE AND HANDLING

A. Provide factory wrapping, packaging, and other means necessary to prevent damage or deterioration during shipment, handling, storage, in accordance with Section 01 65 00.

B. Deliver spare units to the Facility Representative.
1. Deliver at contract close-out.
2. Tag or package each item.

C. Protect finishes by temporary coverings as required.

PART 2 PRODUCTS

2.1 EXTINGUISHERS

A. Manufacturers:
1. J. L. Industries.
2. Larsen's Manufacturing.
3. Potter-Roemer.

B. Dry Chemical Type: Heavy duty steel tank, with pressure gauge; UL rating 4A-60BC unless otherwise indicated, corrosion and impact resistant finish.

C. Halogenated Type: Heavy duty steel tank with pressure gauge, corrosion and impact resistant finish; UL rating 4A-80BC.

D. Extinguishers: Conform to CCR, Title 19, Division 1, Chapter 3.

2.2 FIRE EXTINGUISHER CABINETS

A. Manufacturers
   1. Larsen's, Detention Series..
   2. J. L. Industries, Detention Series.
   3. Potter-Roemer, DC Series.

B. Cabinets: Semi-recessed as indicated; solid flush door with glass; 18 gauge stainless steel.

C. Operating Hardware
   1. Hinges: Continuous heavy duty hinge.
   2. Lock
      a. 5 pin-tumbler Special Purpose Cabinet Lock with solid cam that will not break or bend away. Key shall be removable in locked position only.
      b. Manufacturers
         1) Yale Commercial Locks and Hardware, Model C970A.
         2) [ ].
         3) [ ].

2.3 KEYING

A. All keyways shall be the same.

B. Key all fire extinguisher cabinets alike, using the key-cut "15263."

C. Provide three keys per lock.

2.4 ACCESSORIES

A. Extinguisher Brackets: Formed steel, corrosion resistant finish, size and type to suit extinguisher.

B. Fire extinguisher cabinet signage: Red painted lettering, one inch high, "FIRE EXTINGUISHER", "FIRE HOSE", or "STANDPIPE VALVE", as appropriate. Place lettering vertically on hinge side of door.

C. Fire extinguisher cabinet mounting hardware: Appropriate to cabinet and mounting surface, except as otherwise shown on the Drawings.

D. Fasteners: Fasteners exposed in the final installation, with the door open and closed, shall be tamper-proof fasteners.

2.5 FABRICATION

A. Form fire extinguisher cabinet, enclosures with right angle inside corners and seams. Form perimeter trim.

B. Pre-drill for anchors.

C. Hinge doors for 180 degree opening.

D. Weld, fill, and grind components smooth.

2.6 FINISHES

A. Steel: Baked enamel finish, red color.

B. Stainless Steel: No. 4 finish.

2.7 CUSTOM FABRICATED FIRE EXTINGUISHER CABINETS

A. Custom fabricate fire hose cabinets as indicated in the Contract Documents. Size as necessary to accommodate fire hose and rack.

B. Form cabinet enclosure with right angle inside corners and seams. Form perimeter trim.

C. Pre-drill for anchors.

D. Hinge doors for 180 degree opening; continuous, heavy duty hinge.

E. Weld, fill, and grind components smooth.

F. Lock
1. 5-pin tumbler Special Purpose Cabinet Lock with solid cam that will not break or bend away. Key shall be removable in locked position only.
2. Manufacturers:
   a. Yale Commercial Locks and Hardware, Model C970A.
   b. [ ]
   c. [ ]
3. Keying:
   a. All keyways shall be the same.
   b. Key all fire hose cabinets alike, using the key-cut "15263."
   c. Provide 3 keys per lock.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify rough openings for cabinet are correctly sized and located.

B. Verify servicing, charging and tagging of fire extinguishers.

C. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected. Beginning installation means acceptance of existing conditions.

3.2 INSTALLATION

A. Install in accordance with manufacturer’s written instructions and as indicated on the approved shop drawings.

B. Install fire extinguisher brackets

C. Install cabinet types as indicated, plumb and level.

D. Place extinguishers. Locate one extinguisher in each cabinet and elsewhere as indicated.

3.3 SCHEDULE

A. Provide fire extinguishers, brackets, and fire extinguisher cabinets of types indicated and as shown on the Drawings.

B. In addition to fire extinguishers, brackets, and cabinets furnished and installed under this Section, Fire extinguishers shall be dry chemical type except as otherwise indicated. All items shall be appropriately identified by Bid Package and Building Number. Deliver spare units to the Facility Representative.

a. Administration:

1) 4 - Fire extinguisher w/ semi-recessed cabinet and bracket.

2. Spare Units

a. Fire Extinguishers:

1) 1 - Dry chemical type.

b. Cabinets (w/ brackets):

1) 1 - Semi-recessed.

2) 1 - Surface mounted.

END OF SECTION

SECTION 10 51 26

SOLID PLASTIC BENCHES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:
1. Solid plastic locker room benches.

B. Related Sections:
1. Division 01 30 00: Administrative, procedural, and temporary work requirements.
2. Division 06 10 00: Rough carpentry.

C. References
1. UL – GREENGUARD certified low emitting materials.
2. ASTM - B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.2 SUBMITTALS

A. Submittals for Review:
1. Shop Drawings: Include dimensioned layouts, elevations, trim, closures and accessories.
2. Product Data: Manufacturer's descriptive data

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 5 years of experience in manufacture of solid plastic lockers with products in satisfactory use under similar service conditions.

B. Installer Qualifications: Minimum 5 years of experience in work of this Section. Certified installer through manufacturer's installation certification program.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect plastic benches from exposure to direct sunlight. This product is not intended for outdoor use.

1.5. WARRANTY

A. Provide manufacturer's 25 year warranty against breakage, corrosion, and delamination under normal conditions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Contract documents are based on products by Scranton Products.

B. Substitutions: Per Section 01 65 00

C. Materials
   1. High Density Polyethylene (HDPE): polyethylene thermoplastic formed into solid plastic components with homogeneous color throughout, with smooth orange peel finish.
   2. Heavy Duty Extruded Aluminum: B221, 6063-T6
   4. Recycled content: Minimum 25 percent.
   5. Color: [To be selected from manufacturer's color range.]

2.2 LOCKER BENCHES

A. Bench Tops: 1-1/2 inch thick HDPE with edges rounded to ¼ inch radius, 10 inches wide x 38 inches long.
B. Pedestals: Aluminum, 16 inches high, secured to bench tops with stainless steel tamper resistant Torx head screws and secured to the floor with lead expansion shields and 2 inch long stainless steel machine bolts.

2.8 FABRICATION

A. Fabricate locker components square and rigid; finish free from scratches and chips.

B. Fabricate locker components for snap-together assembly or slide-together dovetail connections providing solid and secure, anti-racking construction.

C. Fabricate adjacent lockers with common side panel.

D. Fabricate locker units for assembly in maximum of three adjacent lockers.

E. Fabricate locker benches to sizes indicated in single lengths.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install lockers in accordance with manufacturer's instructions and approved Shop Drawings.

B. Set lockers directly on floor.

C. Set plumb, level, rigid, and aligned.

D. Attach lockers to supporting construction with anchors best suited to substrate conditions.

E. Attach locker benches to floor.

3.2 ADJUSTING

A. Adjust doors and latches to operate correctly.

END OF SECTION

SECTION 22 05 23

PIPE, FITTINGS AND VALVES

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Domestic water piping, sanitary sewer piping and natural gas piping within 5 feet of building, equipment drains, fittings, joints, valves, appurtenances not mentioned and connections in accordance with the details shown on the plans and these special provision for the proper installation and operation of the plumbing and piping systems.

I.2 RELATED SECTIONS

A. Section 22 05 29 - Hangers and Supports.

I.3 REFERENCES

A. ASTM B88 - Seamless Copper Water Tube.

B. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

C. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings

D. ASTM B32 - Solder Metal.

E. ASTM A 74 – Hubless, Cast-Iron Soil Pipe

F. ASTM A 888 – Hubless Pipe and Fittings

G. ASTM A 666 – Heavy-Duty, Stainless Steel Couplings

H. ASTM D 2729 - PVC Sewer Pipe

I. IPC – 2015 International Plumbing Code

J. IMC – 2015 International Mechanical Code

I.4 SUBMITTALS FOR REVIEW

A. Section 01 33 00 - Submittals: Procedures for submittals.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

I.5 QUALITY ASSURANCE

A. Installer Qualifications: Three year minimum installation experience on projects with gas piping work similar in scope and nature to that required for the project.

B. Perform Work in accordance with International Plumbing Code 2015 Edition and as specified herein.

C. Valves: Manufacturer's name and pressure rating marked on valve body.

D. Identify water pipe with marking including size, ASTM material classification, ASTM specification, and water pressure rating.

E. Cast Iron Pipe material and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute.

F. Comply with ASME B31.9, “Building Services Piping”, for material, products and installation.

I.6 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 60 00 – Product Requirements: Transport, handle, store, and protect products.

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

I.7 ENVIRONMENTAL REQUIREMENTS

A. Section 01 35 43 – Environmental Procedures: Environmental conditions affecting products on site.

B. Conform to 2015 International Plumbing Code for installation of backflow prevention devices.

C. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

II PART 2 PRODUCTS

II.1 WATER PIPING, ABOVE GRADE

A. Copper Tubing: ASTM B88, Type L, hard drawn.

1. Fittings: ASME B16.22, wrought copper.

2. Joints: ASTM B32, solder, Grade 95TA.

II.2 WATER PIPING, BELOW GRADE

A. Copper Tubing: ASTM B88, Type K, hard drawn.

1. Fittings: ASME B16.22, wrought copper.

2. Joints: ASTM B32, solder, Grade 95TA.

B. PVC Pipe: ASTM D1785, Schedule 80, SDR-26, polyvinyl chloride (PVC) material.

1. Fittings: ASTM D2467, Schedule 80, PVC.

2. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent cement.

II.3 GAS PIPING:

A. Black Steel Pipe: Schedule 40 black steel pipe conforming to ASTM Designation: A 53.

1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M forged steel welding type.

2. Joints: Threaded for pipe 2 inch and smaller; welded for pipe 2-1/2 inches and larger

II.4 DRAIN AND VENT PIPING, ABOVE GRADE.

A. Domestic Waste and Vent, (Above Grade):

1. Cast Iron Pipe: ASTM A74, service weight.

a. Fittings: Cast iron, ASTM A74.

b. Joints: ASTM C564, neoprene gasket system or lead and oakum.

B. Domestic Waste and Vent, (Below Grade):

1. Cast Iron Pipe: ASTM A74, service weight.

a. Fittings: Cast iron.

b. Joints: ASTM C564, neoprene gasket system or lead and oakum.

2. Polyvinyl Chloride (PVC) DWV: ASTM D3034, Type PSM, bell and spigot style rubber ring sealed gasket joint.

a. Fittings: PVC DWV. ASTM D3034.

b. .Joints: ASTM F477, elastomeric gaskets.

II.5 CLEANOUTS.—

A. Cleanout through wall.--

Cleanout through wall shall be cast iron cleanout tee type with polished stainless access plates. Plug shall be countersunk brass or bronze with tapered threads. Cleanout shall be Wade, No. W-8460; Smith, No. 4532; Zurn, No. 1445; or equal.

B. Cleanout through floor.—

Cleanout through floor shall have nonslip scoriated nickel bronze access plate and adjustable frame with square pattern top for ceramic tile and round pattern top for other finishes. Where floors are constructed with a membrane, access frame shall be provided with membrane clamping flange. Plug shall be countersunk brass or bronze with tapered threads. Cleanout shall be Wade, W-7000 Series; Smith, 4023 Series; Zurn, No. 1400; or equal.

C. Cleanout to grade.--

Cleanout to grade shall be cast iron ferrule type. Plug shall be countersunk brass or bronze with tapered threads. Cleanout to grade shall be Wade, No. W-8450; Smith, 4420; Zurn, No 1440; or equal. Shall be installed in concrete valve box, Christy or equal.

II.6 ACCESSORY EQUIPMENT

A. Hose Faucet - Hose faucet shall be compression type, angle pattern, tee handle, ¾-inch female thread with hose end, rough brass. Hose faucet shall be supplied with an integral or non-removable threaded outlet vacuum breaker which meets

the requirements of the American Society of Sanitary Engineering (ASSE) Standard: 1011.

B. Gas Valve - Gas valve shall be natural gas service type, bronze body, quarter turn, flathead and rated for 125 psi. Gas valve shall be Crane, American or equal.

C. Gate Valve – Gate valve shall be Class 125, bronze body, bronze trim, non-rising stem, hand wheel, inside screw. Valve connections shall be as required for the piping in which they are installed.

D. Water Hammer Arrestor - Water hammer arrestor shall be stainless steel body with bellows or piston. Arrestor compression chambers shall be pneumatically charged. Water hammer arrestors shall be tested and certified in accordance with the Plumbing and Drainage Institute Standard: PDI-WH201 and sized as shown on the plans.

E. Access Door: Access door shall be 16 gage prime coated steel, face mounting square frame, minimum 12” x 12” door with concealed hinge and screwdriver latch.

F. Valve Box: Valve box shall be precast high density concrete with polyethylene face and cast iron traffic rated cover marked "WATER," "GAS" or "CO-SS" as applicable. Extension shall be provided as required. Valve box shall be Christy, B03; or approved equal.

II.7 UNIONS

A. Copper tube and pipe: Class 150 bronze unions with soldered joints.

B. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

II.8 PIPE HANGERS AND SUPPORTS

A. Support water piping in accordance with Specification Section 22 05 29, "HANGERS AND SUPPORTS".

III PART 3 EXECUTION

III.1 DEMOLITION

Demolition of existing plumbing piping shall be in accordance with Specification Section 02 41 00.

III.2 PREPARATION

A. Cut tubing square and ream pipe and tube ends. Remove burrs.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with unions.

III.3 INSTALLATION

A. Installation shall conform to the 2015 International Mechanical and Plumbing Codes.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

C. Route piping in orderly manner and maintain gradient.

D. Route parallel and perpendicular to walls. Piping installed under roof beams shall maintain gradient with roof.

E. Install piping to maintain headroom, conserve space, and not interfere with use of space.

F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

H. Provide access where valves and fittings are not exposed.

I. Install valves with stems upright or horizontal, not inverted.

J. Suction line pipe shall be insulated and pipe hangers and pipe supports shall be on the outside of the insulation. Insulation shall carry the hangers.

K. Gas valve and flexible connector shall be provided for gas piping at each appliance. Appropriately rated gas cocks may be used in ½-inch gas pipe. Cock or valve shall be within 3 feet of the appliance.

L. Hose faucets shall be equipped with a compression stop installed on water supply pipes to permit repairs without shutting off water mains. Ball valves may be installed where shown on the plans or otherwise permitted by the Engineer.

M. Water hammer arrestors shall be installed so that they are vertical and accessible for replacement. Water hammer arrestor shall be installed with access door when in walls or there is no access to ceiling crawl spaces. Access door location shall be where shown on the plans or as approved by the Engineer.

III.4 APPLICATION

A. Install unions downstream of valves and at equipment or apparatus connections.

B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.

III.5 INSPECTION

A. Upon completion of installation of water, sewer, vent piping, refrigerant piping system, condensate drain piping and natural gas piping and prior to reconnection of natural gas piping to service, the COR shall be notified that piping is ready for inspection and testing.

III.6 TESTING

A. Rough-in Plumbing Test Procedure - System shall hold 10-foot head of water 2-hour period, and be inspected by COR representative.

B. Gas piping Pressure Test – System shall hold 100 psi air charge for 24-hour period, and be inspected by COR representative.

C. Water piping Pressure Test - Prior to connection of the completed water piping system, the entire building piping system shall be pressure tested, in the presence of the project inspector. Test medium shall be water. The piping system shall be pressurized to 60 psig for a period of 1 hour. Any reduction of test pressure as indicated by a pressure gage shall be deemed to indicate the presence of a leak in the system. The leakage shall be detected by means of soap and water. Where leaks are located, piping shall be repaired and the system shall be retested.

END OF SECTION

SECTION 22 05 29

HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Pipe and equipment hangers and supports.

B. Sleeves.

C. Flashing and sealing equipment and pipe stacks.

I.2 RELATED SECTIONS

A. Not used.

I.3 REFERENCES

A. ASTM A36 – Standard Specification for Carbon Structural Steel.

B. MSS SP69 - Pipe Hangers and Supports - Selection and Application.

I.4 SUBMITTALS

A. Submit for approval under provisions of Section 01 33 00 and 01 60 00.

1. Shop Drawings:

a. SECTION NOT USED

2. Product Data: Provide manufacturers catalog data for all materials covered under this specification.

I.5 QUALITY CONTROL

A. Conform to the provisions of Section 01 45 00.

B. Installer: Company that specializes in performing the work of this Section with a minimum three (3) years' experience.

II PART 2 PRODUCTS

II.1 PIPE AND EQUIPMENT HANGERS AND SUPPORTS

A. Plumbing Pipe Hangers:

1. Conform to MSS SP69 – Pipe Hangers and Supports.

2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Carbon steel, adjustable swivel, split ring.

3. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

4. Vertical Support: Steel riser clamp.

B. Equipment Hangers and Supports

1. Provide templates, threaded rods, angle iron, channels, anchor bolts, and accessories necessary for mounting and anchoring equipment.

2. Construct support of steel members, steel pipe and fittings. Brace and weld new angles to existing structural members shown on plan.

3. Provide A36 3/8" diameter threaded rod with nut above and double nuts below to include flat plate washers at connection points.

4. Provide seismic bracing for equipment and ducting as shown on plans and in accordance with SMACNA.

C. Sleeves:

1. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage thick galvanized steel.

2. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.

3. Sleeves for Round Ductwork: Galvanized steel.

4. Sleeves for Rectangular Ductwork: Galvanized steel or wood.

D. Flashing:

1. Metal Flashing: 26 gage thick galvanized steel.

2. Metal Counter Flashing: 22 gage thick galvanized steel.

3. Waterproofing: 5 lb/sq.ft. sheet lead.

4. Flexible Flashing: Shall be consistent with existing roofing system, install such that it shall not void existing roof warranty.

II.2 ACCESSORIES

A. Hanger Rods: A36 mild steel threaded both ends, threaded one end, or continuous threaded.

B. Wall Anchors: Carbon steel concrete wedge anchor, UL listed for use in concrete.

C. Angle Iron: A36 Hot rolled carbon steel angles in sizes indicated in the drawings.

D. Steel Channels: UNISTRUT P1000, 12 gage steel channels.

II.3 SLEEVES AND SEALS

Sleeves for Rectangular Ductwork: Form with galvanized steel or wood.

III PART 3 EXECUTION

III.1 EQUIPMENT SUPPORTS

A. Suspend equipment in accordance with manufacturer's instructions, as indicated in the Contract drawings and specifications, and as shown in the approved Contractor shop drawings.

B. Provide seismic bracing for unit heaters per manufacturer’s recommendations or as shown in the Contract drawings.

C. Provide threaded rods, steel pipe, steel brackets, steel clamps, steel angles, anchor bolts, steel UNISTRUT channels and accessories necessary for suspending and bracing gas-fired furnaces and unit heaters in the locations shown on the drawings.

III.2 ANCHORS

Provide anchors for suspending hangers from reinforced concrete slabs and sides of reinforced concrete walls WHERE applicable.

III.3 PIPE HANGERS AND SUPPORTS

A. Suspend piping in accordance with manufacturer's instructions and as indicated below.

1. Support horizontal piping as scheduled in Paragraph III.4.

2. Provide threaded rods, wedge anchors, hangers and accessories necessary for suspending piping in the locations shown on the drawings.

3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

4. Place hangers within 12 inches of each horizontal elbow.

5. Use hangers with 1-1/2 inch minimum vertical adjustment.

B. Provide seismic bracing for gas piping as required by 2015 International Plumbing Code or as indicated on the drawings.

III.4 PIPE HANGER SCHEDULE

PIPE SIZE Inches	MAX. HANGER SPACING Feet	HANGER ROD DIAMETER Inches
1/2 to 1-1/4	6	3/8
1-1/2 to 2	10	3/8
3	12	½
4	14	5/8

III.5 SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.

E. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with insulation and caulk airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

F. Install chrome plated steel escutcheons at finished surfaces.

III.6 FLASHING

A. Provide flexible flashing and metal Counter flashing where piping and ductwork penetrate weather or waterproof walls, floors and roofs.

B. Flash vent and soil pipes projecting 3 inches minimum above finished roof surface. For pipes through outside walls, turn flanges back into wall and caulk, metal counter-flash, and seal.

END OF SECTION

SECTION 22 44 00

PLUMBING FIXTURES

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Plumbing fixtures and related components.

I.2 RELATED SECTIONS

A. Section 22 05 23 – Pipe, Fittings and Valves.

B. Section 22 05 29 – Hangers and Supports for Piping and Equipment

I.3 REFERENCES

A. ASME A112.18.1M – Showerheads, Supply and Drain Fittings.

B. ASSE 1001 – Integral, Atmospheric Vacuum Breakers

C. ASME B1.20.1 – Pipe Threads

D. ANSI Z124.5 – Plastic Toilet Seats

E. ASME A112.19.2M – Vitreous China Plumbing Fixtures.

F. NFPA 54 National Fuel Gas Code (2018 edition)

G. IPC – 2015 International Plumbing Code

H. IMC – 2015 International Mechanical Code

I.4 SUBMITTALS FOR REVIEW

A. Section 01 33 00 – Submittal Procedure: Procedures for submittals.

B. Product Data: Provide data for plumbing fixtures, faucets, and accessories. Provide manufacturers catalog information. Indicate product data on submittal.

I.5 QUALITY ASSURANCE

A. Installer Qualifications: Three year minimum installation experience on plumbing projects and work similar in scope and nature to that required for the project.

B. Ensure products and installation of specified products are in conformance with recommendations and requirements of the UPC and the AGA.

I.6 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 65 00 – Product Delivery Requirements: Transport, handle, store, and protect products.

I.7 ENVIRONMENTAL PROCEDURES

A. Section 01 35 43 – Environmental Procedures: Environmental conditions affecting products on site.

I.8 COORDINATION

A. Coordinate roughing-in and final plumbing fixture locations, and verify that fixtures can be installed to comply with original design and reference standards.

II PART 2 PRODUCTS

II.1 MANUFACTURERS

A. See drawing Plumbing drawings for Fixture Schedule, manufacturers and product model numbers.

III PART 3 EXECUTION

III.1 DEMOLITION

A. All removed fixtures shall be disposed of by the contractor.

III.2 PREPARATION

A. Examine roughing-in for water and waste piping systems and supports to verify actual locations and sizes of piping connections and that locations and types of supports match those indicated, before plumbing fixture installation. Use manufacturer's roughing-in data if rough-in data are not indicated.

B. Examine walls, floors and cabinets for suitable conditions where fixtures are to be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

III.3 INSTALLATION

A. Assemble fixtures, trim and fittings, and other components according to manufacturers' written instructions.

B. For wall-hanging fixtures, install off-floor supports affixed to building substrate.

C. Install floor-mounting fixtures on closet flanges or other attachments to piping or building substrate.

D. Install counter-mounting fixtures in and attached to casework.

E. Install fixtures level and plumb according to manufacturers' written instructions and rough-in drawings.

F. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.

G. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.

H. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.

I. Provide chrome plated rigid or flexible supplies to fixtures with stops. reducers and escutcheons.

J. Install open front toilet seats on water closets.

K. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

L. Install traps on fixture outlets.

1. Exception: Omit trap on fixtures with integral traps.

2. Exception: Omit traps on indirect wastes, unless otherwise indicated.

M. Install escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding fittings.

N. Seal joints between fixtures and walls, floors and counters using sanitary-type, one-part, mildew-resistant, silicone sealant. Match sealant color to fixture color.

O. Connect water supplies from water distribution piping to fixtures.

P. Connect drain piping from fixtures to drainage piping.

Q. Install trap primers on all floor drains unless otherwise indicated.

R. Seal fixtures to wall and floor surfaces with sealant, color to match fixture.

III.4 FIELD QUALITY CONTROL

A. Verify that installed fixtures are categories and types specified for locations where installed.

B. Check that fixtures are complete with trim, faucets, fittings, and other specified components.

C. Inspect installed fixtures for damage. Replace damaged fixtures and components.

D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

III.5 ADJUSTING

A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings and controls.

B. Adjust water pressure at faucets, and flushometer valves to produce proper flow and stream.

C. Replace washers and seals of leaking and dripping faucets and stops.

III.6 CLEANING

A. Clean fixtures, faucets and other fittings with manufacturers' recommended cleaning methods and materials. Do the following:

1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.

2. Remove sediment and debris from drains.

III.7 PROTECTION

A. Provide protective covering for installed fixtures and fittings.

Do not allow use of fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION

SECTION 23 05 01

MECHANICAL REQUIREMENTS

I PART 1 - GENERAL

I.1. GENERAL

A. Requirements apply to mechanical work and plans.

B. Comply with all applicable Codes current on date of bid, or submission of price, including 2015 International Mechanical Code

C. Remove or relocate existing mechanical equipment and install new mechanical equipment as shown on the contract drawings.

I.2. SUBMITTALS

A. Provide submittals for any equipment or materials where submittal is required by a statement in plans or specifications.

B. Provide submittals for any equipment or material that is different than as described in plans and specifications, including a different manufacturer or different model number. Such equipment or material may be subject to rejection.

C. Provide submittals for any equipment or any material where total amount of similar equipment or total amount of similar material to be used on job exceeds a value of $1000.

I.3. LEAKS

Leaks of air from ventilation and HVAC systems shall be minimized. Any noticeable air leak shall be repaired to a condition of best practice, and is subject to rejection. Leaks of liquids and gases are not permitted. Any noticeable liquid or gas leak shall be repaired to zero leakage.

I.4. EXISTING CONDITIONS

Existing systems, equipment, materials and conditions that are related to the Contractor's new work are assumed to be in good working condition without damage. Contractor shall inform Contracting Officer's Representative upon first noticing if any existing systems, equipment, materials or conditions related to the Contractor's new work are not in good working condition or are damaged.

II PART 2 - PRODUCTS

II.1. NEW

Equipment and materials shall be new unless noted otherwise.

II.2. LABELING AND MARKING

Equipment and materials shall be labeled or marked on the product with the name or mark of the manufacturer and other information that identifies model number or distinguishes material type and features. Equipment or materials that are not so labeled or marked may be rejected.

III PART 3 - EXECUTION

III.1. Service Interruptions. Coordinate all interruptions of any utility service with the Contracting Officer's Representative as far in advance as possible, and keep Contracting Officer's Representative informed of all changes in plans for the interruption.

III.2. Hot Work. Hot work includes any work with flames, sparks, or heat processes in any way capable of starting a fire. Contractor shall have a written safety program specifically for hot work, including at least all hot work related Cal-OSHA safety regulations, on site at all times hot work is performed and shall ensure that all persons involved with hot work abide by that program.

III.3. Operation & Maintenance Access. Contractor shall become familiar with all new equipment that requires operation and maintenance, and install such equipment to allow for and not block access for operation and maintenance.

III.4. Orientation. Pipes, ducts, equipment and all mechanical work in general shall be oriented square and parallel to existing building lines, except where shown differently on plans. Pipes sloped to drain shall be near to square and parallel with building lines.

III.5. Seals for Cleanliness. Take precautions to prevent any dirt, dust or pests from entering any equipment or materials during all stages of the job, from arrival on site to completion. Use pipe plugs where possible. Use heavy plastic sheet and tape where needed.

III.6. Concealing Work. Give Contracting Officer's Representative at least two working days' notice to observe any work that will be concealed, for example, within walls or buried.

III.7. Noise. New work when in operating mode shall not make more noise than to be expected from well made, well installed, new materials and equipment. Any objectionable noise from a defect in product or installation shall be corrected.

III.8. Clean. Just prior to final acceptance of work, remove all dirt marks from new work, wipe clean and free of debris and dust.

III.9. Demonstration of Operation. Demonstrate to the Contracting Officer's Representative that all new equipment and systems work, that everything is energized and operates properly in all modes of operation.

END OF SECTION

SECTION 23 08 01

TESTING AND BALANCING OF MECHANICAL SYSTEMS

PART 1 - GENERAL

1.1 Scope of Work: Extent of testing, adjusting, and balancing work (TAB) is indicated by the requirements of this section, and also by drawings and schedules. TAB is defined to include, but is not necessarily limited to, air distribution systems, hydronic distribution systems and associated equipment and apparatus of mechanical work. The work consists of setting speed and volume (flow) adjusting facilities provided for systems, recording data, conducting tests, preparing and submitting reports, and recommending modifications to work as required by contract documents.

1.1 References to Other Sections: Drawings and general provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification sections, apply to work of this section. Division 23 Basic Mechanical Materials and Methods sections (Sections 23 05 01) apply to work of this section.

1.2 Description of Work:

1.2.1 Components to be tested, adjusted, and balanced specified in this section shall include the following as applied to mechanical equipment:

1. Air handling units
2. Fans
3. Ductwork systems
4. Coils and heat exchangers

1.2.2 It is the intent of this specification to adjust systems within the tolerances listed below, provided indicated relative pressures are maintained.

1. Supply fans: plus or minus 5%
2. Exhaust fans: plus or minus 10%
3. Terminal devices: plus or minus 10%

1.3 Quality Assurance:

1.3.1 The testing, adjusting, and balancing contractor shall be one of the following:

1. A firm certified by National Environmental Balancing Bureau (NEBB) in those testing and balancing disciplines required for this project, which is not the installer of the system to be tested and is otherwise independent of project. Contractor shall comply with NEBB's "Procedural Standards for Testing, Adjusting and Balancing of Environmental Systems" as applicable to this work.
2. A firm certified by Associated Air Balance Council (AABC) in those testing and balancing disciplines required for this project. AABC-certified firms are independent by definition. Comply with AABC's Manual MN-1 "AABC National Standards", as applicable to this work.

1.3.2 Testing, adjusting, and balancing contractor shall comply with American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) recommendations pertaining to measurements, instruments and testing, adjusting and balancing, except as otherwise indicated.

1.4 Job Conditions:

1.4.1 Do not proceed with testing, adjusting, and balancing work until installation work has been completed and system is operable. Ensure that there is no latent residual work still to be completed. Do not proceed until system scheduled for testing, adjusting, and balancing is clean and free from debris, dirt and discarded building materials.

1.4.2 The mechanical contractor shall make any changes in pulleys, belts, and dampers, and/or add dampers as required for correct balancing.

1.5 Submittals:

1.5.1 Submit the name of the proposed test and balance company for the Engineer's approval within 30 days after awarding of contract.

1.5.2 Submit 4 copies of the dated test and balance report upon completion of TAB work. The report shall include a list of instruments used for the work. The report shall be signed by the supervisor who performed the TAB work, and certified by a professional engineer registered in the state of Florida, who is a regular employee of the TAB firm.

PART 2 - PRODUCTS

2.1 Patching Materials: Except as otherwise indicated, use the same products as used by the original installer for patching holes in insulation, ductwork, and housings which have been cut or drilled for test purposes, including access for test instruments, attaching jigs, and similar purposes.

2.2 Test Instruments: Utilize test instruments and equipment of the type, precision, and capacity as recommended in the referenced standard. All instruments shall be in good condition and shall have been calibrated within the previous 6 months, or more recently if required by standard.

PART 3 - EXECUTION

3.1 General:

3.1.1 Examine installed work and conditions under which testing is to be done to ensure that work has been completed, cleaned and is operable. Do not proceed with TAB work until unsatisfactory conditions have been corrected in manner acceptable to the tester.

3.1.2 Test, adjust and balance environmental systems and components, as indicated, in accordance with procedures outlined in applicable standards, and as modified or detailed herein.

3.1.3 Test, adjust and balance system during summer season for air conditioning systems and during winter season for heating systems, including at least period of operation during outside conditions within 5ºF wet bulb temperature of maximum summer design condition and within 10ºF dry bulb temperature of minimum winter design condition. When seasonal operation does not permit measuring final temperatures, take final temperature readings when seasonal operation does permit.

3.1.4 Prepare TAB report of test results, including instrumentation calibration reports, in the format recommended byapplicable standards, modified as required to include all data listed herein.

3.1.5 Patch holes in insulation, ductwork and housings, which have been cut or drilled for test purposes, in manner recommended by original Installer.

3.1.6 Mark equipment settings including damper control positions, valve indicators, fan speed control levers, and similar controls and devices, to show final settings at completion of TAB work. Provide markings with paint or other suitable permanent identification materials.

3.1.7 Include in the TAB report recommendations for correcting unsatisfactory mechanical performances when system cannot be successfully balanced.

3.1.8 Include an extended warranty of 90 days after completion of testing, adjusting, and balancing work, during which time the Engineer, at his discretion, may request a recheck, or resetting of any component as listed in test report. Testing, adjusting, and balancing contractor shall provide technicians and instruments and make any tests required by the Engineer during this time period.

3.2 Controls:

3.2.1 Check all temperature and humidity controllers for location and calibration.

3.2.2 Check operation of all controllers and controlled devices to verify proper action and connection.

3.2.3 Check all motorized damper motors for leakage when in closed position. If leakage is more than 5%, the mechanical contractor shall reset damper linkages.

3.3 Air System Balancing:

3.3.1 Leakage tests on ductwork must have been completed before air balancing can begin.

3.3.2 Set dampers, volume controls, and fan speeds to obtain specified air delivery with minimum noise level.

3.3.3 Set grille deflections as noted on drawings. Modify deflections if required to eliminate drafts or objectionable air movement.

3.3.4 Record air terminal velocity after completion of balance work.

3.3.5 Record final grille and register deflection settings if different from that specified on contract drawings.

3.3.6 Record all fan speeds.

3.4 Data Collection:

3.4.1 In addition to the data required for any specified performance tests, measure and record the temperatures, pressures, flow rates, and nameplate data for all components listed below.

3.4.2 It is the intent of this section to record data on balanced systems, under normal operating or design conditions.

3.4.3 Temperatures;

1. Outside dry and wet bulb temperatures
2. Dry bulb temperature in each room and at least one wet bulb temperature in each zone.
3. Air Inlet and outlet temperature of each heat exchange device.

3.4.4 Pressures;

1. Suction and discharge static pressure of each fan

3.4.5 Flow rates;

1. Air flow rate through each fan

3.4.6 Nameplate data;

1. Complete nameplate data for motors, fans, air handling units, and all other equipment.

2. Motor data to include horsepower, phase, voltage, RPM, full load nameplate current, fusetron rating in disconnect switch, number or manufacturer's size designation, and ampere rating of overcurrent and low voltage protection devices in starters.

END OF SECTION

SECTION 23 31 00

DUCTWORK

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Metal ductwork.

B. Flexible ductwork

I.2 RELATED SECTIONS

A. Section 23 81 03 - Packaged Gas-Electric Air Conditioning Units.

B. Section 23 33 00 – Ductwork Accessories.

I.3 REFERENCES

A. ASTM A 36 - Structural Steel.

B. ASTM A 90 - Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.

C. ASTM A 527 - Steel Sheet, Zinc-Coated (Galvanized) by Hot-Dip Process, Lock Forming Quality.

D. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

E. SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

F. NFPA 90A, Installation of Air Conditioning and Ventilating Systems.

G. 2015 International Mechanical Code, Chapter 6, Duct Systems.

I.4 SUBMITTALS

A. Submit under provisions of Sections 01 10 00 and 01 33 00.

B. Product Data: Provide data for duct materials, including gage, galvanizing method, insulation and coating. Provide data for exterior duct sealant.

C. Shop Drawings: Contractor shall provide shop drawing showing complete duct layout and construction including, configuration, duct penetrations through fire-rated walls and other partitions, duct transition angles, fittings, reinforcing, flanges, gaskets, connections to equipment, joint construction and sealing, and elbow construction, prior to start of work.

I.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing the work of this section with minimum three years documented experience.

I.6 ENVIRONMENTAL REQUIREMENTS

A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.

B. Maintain temperatures during and after installation of duct sealants.

II PART 2 PRODUCTS

II.1 MATERIALS

A. Rigid Air Ducts: Noncombustible or conforming to requirements for Class 1 air duct materials, or UL 181.

1. Steel Ducts: Shall be galvanized steel sheet, lock forming quality; complying with ASTM A 653/A 653M and having G90 (Z275) coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.

2. Rigid Spiral Ducts: All round spiral duct and fittings shall be manufactured from G-90 galvanized steel, conforming to ASTM and SMACNA standards.

3. Aluminum Ducts: ANSI/ASTM B209; aluminum sheet, alloy 3003-H14. Aluminum Connectors and Bar Stock: Alloy 6061-T6 or of equivalent strength.

4. Stainless Steel Ducts: ASTM A167, Type 304.

B. Fasteners: Rivets, bolts, or sheet metal screws.

C. Indoor Duct Sealant: Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic.

1. Joint and Seam Tape: 2 inches wide; glass-fiber-reinforced fabric.

2. Tape Sealing System: Woven-fiber tape impregnated with gypsum mineral compound and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, air tight seal.

3. Water-Based Joint and Seam Sealant: Flexible, adhesive sealant, resistant to UV light when cured, UL 723 listed, and complying with NFPA requirements for Class 1 ducts.

4. Flange Gaskets: Butyl rubber or EPDM polymer with polyisobutylene plasticizer.

D. Insulated Flexible Ducts:

1. Two ply vinyl film supported by helical wound spring steel wire; fiberglass insulation; polyethylene vapor barrier film.
2. Pressure Rating: 10 inches w.g. positive and 1.0 inches w.g. negative.
3. Maximum Velocity: 4000 fpm
4. Temperature Range: -10 degrees F to 160 degrees F
5. Thermal Resistance: minimum **6.0** square feet-hour-degree F per BTU

E. Hanger and Supports:

1. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

2. Hanger Materials: Galvanized sheet steel or threaded steel rod. Comply with SMACNA's "HVAC Duct Construction Standards—Metal and Flexible" for steel sheet width and thickness and for steel rod diameters.

3. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

4. Trapeze and Riser Supports: Steel shapes complying with ASTM A 36/A 36M.

II.2 DUCTWORK FABRICATION

A. Ventilation Duct: Galvanized Sheet steel.

B. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages, reinforcing, and sealing for 2" Pressure Class Construction.

C. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 20 degrees divergence upstream of equipment and 30 degrees convergence downstream.

D. No variation of duct configuration or sizes permitted except by written permission.

III PART 3 EXECUTION

III.1 INSTALLATION

A. Install ductwork of sizes, runs and connections as shown on drawings.

B. All new exposed ducting shall be insulated on the interior according to 2013 California Mechanical Code Section 604.0.

C. Connect ductwork to air-moving equipment in accordance with manufacturer's written recommendations.

D. Install, support and seal ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and the California Mechanical Code 2013 Edition. Installation shall also conform to NFPA 90A and NFPA 90B. All duct joints shall be sealed externally with an external duct sealant so that the joints are airtight.

E. Neatly cut openings in wall to accommodate duct penetrations where shown on the drawings.

F. Install ducts, unless otherwise indicated, vertically and horizontally and parallel and perpendicular to building lines and with fewest possible joints.

G. Exposed ducts shall be free of dents and blemishes and be mounted tight against adjacent surface with flat hangers.

H. Provide sheet metal angle frame at all duct penetrations of wall, floor or ceiling.

I. Provide backdraft dampers, fire dampers, volume dampers, and other ductwork accessories, where shown or as required.

J. Provide fire stopping at all duct penetrations of one hour fire separations.

III.2 HANGING AND SUPPORTING

A. Support horizontal ducts within 24 inches of each elbow and with 48 inches of each branch intersection.

B. Support vertical ducts at maximum intervals of 16 feet and at each floor.

C. Install concrete inserts before placing concrete.

D. Install powder-actuated concrete fasteners after concrete is placed and completely cured.

1. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slab less than 4 inches thick.

III.3 CONNECTIONS

A. Make connections to equipment with flexible connectors according to Division 15 Section "Duct Accessories."

B. Comply with SMACNA's "HVAC Duct Construction Standards—Metal and Flexible" for branch, outlet and inlet connections.

III.4 TESTING AND BALANCING

A. Testing and balancing shall be in accordance with this work shall be performed by an Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB) certified contractor. The air systems include, but are not necessarily limited to, the following:

1. Supply air systems

2. Return air systems

3. Exhaust air systems

B. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements. Remake leaking joints and retest until leakage is equal to or less than maximum allowable.

C. Ducting shall be cleaned of all debris prior to testing and installing grilles and diffusers.

D. Visually inspect metal ducts for contaminants.
Where contaminants are discovered, re-clean and re-inspect ducts.

END OF SECTION

SECTION 23 33 13

DUCTWORK ACCESSORIES

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Balance dampers

B. Turning Vanes

C. Duct Access Doors

D. Duct test holes

E. Flexible Connectors

I.2 RELATED SECTIONS

A. Section 23 31 00 - Ductwork.

B. Section 23 33 00 – Air Inlets and Outlets

I.3 REFERENCES

A. NFPA 90A– Installation of Air Conditioning and Ventilating Systems.

B. SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

C. 2015 IMC – International Mechanical Code

D. 2017 UFC – Unified Facilities Code 3-410-01

I.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Shop Drawings: Indicate for shop fabricated assemblies including volume dampers, fire dampers and special fittings.

C. Product Data: Provide for shop fabricated assemblies and hardware used.

II PART 2 PRODUCTS

II.1 BALANCE DAMPERS

II.2 Balance Dampers: Dampers shall be factory fabricated, with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Damper handles shall be spray painted orange. Close duct penetrations for damper components to seal duct consistent with pressure class.

II.3 TURNING VANES

A. Fabricate to comply with SMACNA's "HVAC Duct Construction Standards-Metal and Flexible" for vanes and vane runners. Vane runners shall automatically align vanes.

B. Manufactured Turning Vanes: Fabricate 1-1/2 inch wide, single vane, curved blades of galvanized sheet steel set ¾-inch on center; support with bars perpendicular to blades set 2 inches on center; and set into vane runners suitable for duct mounting.

C. Shall be manufactured by Metalaire, Ductmate Industries, Duro Dyne Corp., or approved equal.

D. Acoustic Turning Vanes: Fabricate airfoil-shaped aluminum extrusions with perforated faces and fibrous-glass fill.

II.4 DUCT ACCESS DOORS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.

B. Fabrication: Rigid and close-fitting of galvanized steel with sealing gaskets and quick fastening locking devices. For lined ductwork, install minimum one inch thick liner on door. Doors shall be airtight and suitable for pressure class.

1. Less than 12 Inches Square: Secure with sash locks.

2. Up to 18 Inches Square: Provide two hinges and two sash locks.

3. Access doors with sheet metal screw fasteners are not acceptable.

4. Shall be manufactured by Greenheck, Ductmate Industries or approved equal.

II.5 DUCT TEST HOLES

A. Temporary Test Holes: Cut or drill in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

II.6 FLEXIBLE CONNECTORS

A. General Description: Flame-retardant or noncombustible fabrics, coatings and adhesives complying with UL 181, Class 1.

B. Metal-Edged Connectors: Factory fabricated with a fabric strip 3-1/2 inches to 5-3/4 inches wide attached to two strips of 2-3/4 inch wide, 0.028 inch thick, galvanized sheet steel or 0.032-inch thick aluminum sheets. Select metal compatible with ducts.

C. Indoor System, Flexible Connector Fabric: Glass fabric double coated with neoprene.

1. Minimum Weight: 26 oz./sq.yd.

2. Tensile Strength: 480 lbf/inch in the wrap and 360 lbf/inch in the filling.

3. Service Temperature: Minus 40 to plus 200 deg F.

III PART 3 EXECUTION

III.I INSTALLATION

A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA HVAC Duct Construction Standards - Metal and Flexible. Refer to Section 15890 for duct construction and pressure class.

B. Provide duct test holes where indicated and required for testing and balancing purposes.

C. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment.

D. Provide balance dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly. Install minimum 1 duct width from duct take-off.

E. Provide duct access doors for inspection and cleaning before and after fire dampers. Provide minimum 6 x8 inch size for handaccess.

III.2 ADJUSTING

A. Adjust duct accessories for proper settings.

END OF SECTION

SECTION 23 33 16

DAMPERS FIRE and SMOKE

PART 1 GENERAL

1.1 SUMMARY

.1 Section Includes:

.1 Fire and smoke dampers, and fire stop flaps.

1.2 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 01 74 19 – Construction Waste Management and Disposal.

1.3 REFERENCES

.1 American National Standards Institute/National Fire Protection Association (ANSI/NFPA)

.1 ANSI/NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems.

.2 Health Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 Underwriters Laboratories

.1 UL 555 [2012] Fire Test of Fire Damper Assemblies.

.2 UL 555s [2014] Standard for Smoke Dampers

.3 UL 33 [2015] Heat Responsive Links for Fire Protection Service.

1.4 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures. Include product characteristics, performance criteria, and limitations.

.1 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate the following:

.1 Fire dampers.

.2 Smoke dampers.

.3 Fire stop flaps.

.4 Operators.

.5 Fusible links.

.6 Design details of break-away joints.

.2 Quality assurance submittals: submit following in accordance with Section 01 33 00 - Submittal Procedures.

.1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.2 Instructions: submit manufacturer's installation instructions.

.3 Closeout Submittals:

.1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals

1.5 QUALITY ASSURANCE

.1 Certificates:

.1 Catalogue or published ratings those obtained from tests carried out by manufacturer or those ordered by manufacturer from independent testing agency signifying adherence to codes and standards.

1.6 MAINTENANCE

.1 Extra Materials:

.1 Provide maintenance materials in accordance with Section 01 78 00 – Closeout Submittals.

.2 Provide the following:

.1 6 fusible links of each type.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle in accordance with Section 01 60 00 - Product Requirements.

.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Waste Management and Disposal:

.1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Construction Waste Management and Disposal.

PART 2 PRODUCTS

2.1 FIRE DAMPERS

.1 Fire dampers: arrangement Type B or C, blades out of air stream listed and bear label of ULC, meet requirements of provincial fire authority and ANSI/NFPA 90A. Fire damper assemblies to be fire tested in accordance with CAN4-S112. Minimum rating 1 ½ hours, dynamically rated.

.2 Mild steel, factory fabricated for fire rating requirement to maintain integrity of fire wall and/or fire separation.

.3 Top hinged: offset, round or square; multi-blade hinged or interlocking type; roll door type; or guillotine type; sized to maintain full duct cross section.

.4 Fusible link actuated, weighted to close and lock in closed position when released or having negator-spring-closing operator for multi-leaf type or roll door type in horizontal position with vertical air flow.

.5 Retaining angle iron frame, 40 x 40 x 3 mm, on full perimeter of fire damper, on both sides of fire separation being pierced.

.6 Equip fire dampers with steel sleeve or frame installed to prevent disruption of ductwork or impair damper operation.

.7 Equip sleeves or frames with perimeter mounting angles attached on both sides of wall or floor opening. Construct ductwork in fire-rated floor-ceiling or roof-ceiling assembly systems with air ducts that pierce ceiling to conform with ULC.

.8 Design and construct dampers to not reduce duct or air transfer opening cross-sectional area.

.9 Dampers shall be installed so that the centerline of the damper depth or thickness is located in the centerline of the wall, partition or floor slab depth or thickness.

.10 Unless otherwise indicated, the installation details given in SMACNA Fire, Smoke, and Radiation Damper Installation Guide for HVAC and in manufacturer's instructions for fire dampers shall be followed.

2.2 SMOKE DAMPERS

.1 To be ULC or UL listed and labelled.

.2 Normally closed reverse action smoke vent (S/D-RASV): folding blade type, opening by gravity upon detection of smoke, and/or from remote alarm signalling device actuated by an electro thermal link. Two flexible stainless steel blade edge seals to provide required constant sealing pressure.

.3 Normally open smoke/seal (S/D-SSSD): folding blade type, closing when actuated by means of electro thermal link and/or from remote alarm signalling device. Blade edge seals of flexible stainless steel shall provide required constant sealing pressure. Stainless steel negator springs with locking devices shall ensure positive closure for units mounted horizontally in vertical ducts.

.4 Motorized (S/D-M): folding blade type, normally open with power on. When power is interrupted damper shall close automatically. Both damper and damper operator shall be ULC listed and labelled.

.5 Electro thermal link (S/D-ETL): dual responsive fusible link which melts when subjected to local heat of 74° C and from external electrical impulse of low power and short duration; ULC or UL listed and labelled.

2.3 **COMBINATION FIRE AND SMOKE DAMPERS**

.1 Damper: similar in all respects to smoke dampers specified above.

.2 Combined actuator: electrical control system actuated from smoke sensor or smoke detection system and from fusible link.

2.4 **FIRE STOP FLAPS**

.1 To be ULC listed and labelled and fire tested in accordance with CAN4-S112.2.

.2 Construct of minimum 1.5 mm thick sheet steel with 1.6 mm thick non-asbestos ULC listed insulation and corrosion-resistant pins and hinges.

.3 Flaps to be held open with fusible link conforming to ULC-S505 and close at 74° C.

PART 3 EXECUTION

3.1 **MANUFACTURER'S INSTRUCTIONS**

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

3.2 **INSTALLATION**

.1 Install in accordance with ANSI/NFPA 90A and in accordance with conditions of ULC listing.

.2 Maintain integrity of fire separation.

.3 After completion and prior to concealment obtain approvals of complete installation from authority having jurisdiction.

.4 Install access door adjacent to each damper. See Section 23 33 00 – Air Duct Accessories.

.5 Coordinate with installer of firestopping to Section 07 84 00 – Firestopping.

.6 Ensure access doors/panels, fusible links, damper operators are easily observed and accessible.

.7 Install break-away joints of approved design on each side of fire separation.

3.3 **CLEANING**

.1 Proceed in accordance with Section 01 55 00 - Cleaning.

.2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

SECTION 23 80 00

MECHANICAL VENTILATION

PART 1 GENERAL

I.1 SCOPE

Furnish and install wall exhaust fans, ducting and vents as indicated on the drawings and described herein; also any incidental work not shown or specified that is necessary to provide the complete system.

I.2 SECTION INCLUDES

A. Wall Exhaust Fan.

I.3 RELATED SECTIONS

A. Section 23 31 00 – Ductwork
B. Section 26 05 19 – Building Wire and Cable

I.4 REFERENCES

A. AMCA 210 - Laboratory Methods of Testing Fans for Rating Purposes.

B. AMCA 300 - Test Code for Sound Rating Air Moving Devices.

C. AMCA 301 - Method of Calculating Fan Sound Ratings from Laboratory Test Data.

D. NEMA MG1 - Motors and Generators.

E. International Mechanical Code, 2015.

I.5 SUBMITTAL PROCEDURE

A. Submit under provisions of Section 01 33 00. Shop Drawings: Indicate assembly of centrifugal fans and accessories including fan curves with specified operating point clearly plotted, sound power levels for fan at rated capacity, and electrical characteristics and connection requirements.

B. Product Data - Exhaust Fans: Provide data on centrifugal fans and accessories including fan curves with specified operating point clearly plotted, sound power levels for fan at rated capacity, and electrical characteristics and connection requirements.

C. Manufacturer's Installation Instructions.

I.6 OPERATION AND MAINTENANCE DATA

A. Submit under provisions of Section 01 70 00.

B. Maintenance Data: Include instructions for maintenance and repair, spare parts list, and wiring diagrams.

I.7 WARRANTY

Provide manufacturer's standard warranty, minimum one year for parts and labor.

I.8 DELIVERY, STORAGE, AND HANDLING

Deliver, store, protect and handle products to site under provisions of Section 01 65 00.

I.9 EXTRA MATERIALS

Provide two sets of belts for each fan, if belt driven.

II PART 2 PRODUCTS

II.1 GENERAL

A. All fans shall be Air Moving and Conditioning Association (AMCA) labeled.

B. Performance: See Drawings for specific fan performance.

II.2 EXHAUST FANS,

A. Manufacturer shall be as indicated on the Drawings, or equal. Substitutions are subject to the provisions of Section 01 65 00

B. Fans shall be as shown on the Mechanical Equipment Schedule.

C. Wall exhaust fan shall have ~~humidistat~~ one-hour spring wound timer control.

D. All roof mounter exhaust fans shall be installed on fan manufacturer’s roof curb where applicable.

II.3 CONTROLS

Exhaust fan controls shall be as shown on the plans.

II.4 GRILLES

Grille shall be part of manufacturer’s installed item on exhaust fan or as shown on the plans.

III PART 3 EXECUTION

III.1 GENERAL

A. Install fans, vents, ducting and other accessories in accordance with manufacturer's instructions including all electrical work necessary for a complete functioning system.

B. Fans shall be mounted level with ceiling.

III.2 EQUIPMENT CHECK, TEST, AND START

A. The check, test, and start of each item of equipment shall be in accordance with manufacturer's printed instructions. A copy of the completed check, test and start report of each item of equipment shall be bound with the operating and maintenance instructions.

B. Upon completion of work, provide a schedule of planned maintenance indicating frequency of service for all equipment components.

III.3 MAINTENANCE AND OPERATING INSTRUCTIONS

A. Instruction of Government personnel and maintenance manuals shall be in accordance Section 01 70 00.

III.4 TESTING AND BALANCING

A. Testing and balancing shall be performed in accordance with AABC National Standards for Field Measurement and Instrumentation, Volume Four and Manufacturer's written Instructions. Testing and balancing shall be performed on mechanical equipment.

B. Balance air quantities of supply and exhaust to within +/-5% of those given on Drawings. Measure the rpm and total air quantity at each fan. Measure the ampere reading of each motor input after final adjustments have been made.

C. Upon satisfactory completion of balance and operational test, submit complete test report to the Contracting Officer. Reports shall include the following information for

each fan: fan rpm, CFM, static pressure, motor ampere input, and general summary of test results. Specified ratings and motor nameplate ratings shall be listed with measured readings. Report shall also describe the methods used to balance each fan.

D. Instruments used for testing and balancing of systems shall have been calibrated within a period of six months and shall be checked for accuracy prior to start of work.

E. Three copies of complete test report shall be submitted prior to final acceptance of project.

III.5 TESTING

A. After each installation has been completed, test each unit to demonstrate proper operation and to show unit meets performance requirements specified.

END OF SECTION

SECTION 23 81 03

PACKAGED GAS-ELECTRIC AIR CONDITIONING UNITS

I PART 1 GENERAL

I.1 SCOPE

Furnish and install Packaged Pad mounted Gas-Electric Air Conditioning units; poured-in-place 4” concrete pad and accessories, as indicated on the contract drawings and specifications; also provide any incidental work not shown or specified that is necessary to provide the complete system.

I.2 RELATED SECTIONS

A. Section 22 05 23 – Pipes, Fittings and Valves.

B. Section 23 31 00 - Ductwork.

I.3 REFERENCES

A. ANSI Z223.1 (NFPA 54) - National Fuel Gas Code.

B. AGA - American Gas Association.

C. ARI 210/240 - Unitary Air Conditioning Equipment.

D. ARI 270 - Sound Rating of Outdoor Unitary Equipment.

E. NFPA 70 - National Electrical Code.

F. NFPA 90A - Installation of Air Conditioning and Ventilation Systems.

G. IMC 2015 - International Mechanical Code

I.4 SUBMITTALS

A. Submit for approval under provisions of Specification Sections 01 10 00, 01 33 00, and 01 60 00.

B. Product Data: Provide capacity and dimensions of manufactured products and assemblies required for this project. Indicate electrical service with electrical characteristics and connection requirements, and duct connections.

C. Manufacturer's installation instructions: Provide shop drawings indicating assembly, support for pad mounting, connection requirements, and include start-up instructions.

D. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

I.5 QUALITY ASSURANCE

Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

I.6 REGULATORY REQUIREMENTS

Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., as suitable for the purpose specified and indicated.

I.7 WARRANTY

A. Packaged Pad mounted Gas-Electric HVAC Units: Provide five year warranty for refrigeration compressors and ten year warranty coverage for heat exchangers.

I.8 DELIVERY, STORAGE, AND PROTECTION

A. Deliver, store, protect and handle products at site under provisions of Specification Section 01 60 00.

B. Protect units from physical damage by storing off site until roof mounting curbs are in place, ready for immediate installation of units.

I.9 EXTRA MATERIALS

Provide 2 spare sets of filters for each new unit.

II PART 2 PRODUCTS

II.1 PACKAGE PAD MOUNTED AIR CONDITIONING UNITS

A. Manufacturer: Manufacturer makes and models shall be as indicated in the Equipment Schedule on the Mechanical Drawings. Specific performance shall be as specified in Section III, below.

B. General: Single-Package Pad mounted units having electric cooling and gas heating, economizer where required, R-410A refrigerant. Units shall be self-contained, packaged, factory assembled and pre-wired, consisting of cabinet and frame, supply fan, heat exchanger and gas burner, controls, 2” pleated air filters, refrigerant cooling coil and compressor, condenser coil and condenser fan. Units shall discharge supply air horizontally. Manual outside air damper for non-economizer unit, through the base gas and electric piping where applicable, unit mounted non-fused disconnect, power convenience outlet and return air smoke detectors.

C. Unit Cabinet:

1. Galvanized steel with baked enamel finish on all externally exposed surfaces and primer coated internal panels. Cabinet panels shall be easily removable for servicing.
2. Indoor blower compartment interior cabinet surfaces shall be insulated with a minimum 1/2" thick, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil faced fiberglass insulation shall be used in the furnace compartment. Air Filters shall be accessible through a hinged access door, and will require no tools for screw removal.

3. Units shall have a factory-installed condensate drain pan made of a non-corrosive material, providing a minimum 3/4" connection. The condensate pan must be externally trapped.

D. Fans:

1. Evaporator Fan: Fan shall be belt driven with adjustable-pitch motor pulley. Fan wheel shall be double-inlet, forward curved centrifugal with sealed, permanently lubricated ball bearings. Fan shall be steel with a corrosion resistant finish and shall be statically and dynamically balanced.

2. Condenser Fan: Fan shall be direct-driven propeller type, with aluminum blades, and shall discharge air vertically upward. Condenser fan shall have aluminum blades riveted to corrosion resistant steel spiders and shall be dynamically balanced.

E. Compressor:

1. Provide fully hermetic scroll compressor with factory rubber shock mounted and internally spring mounted on independent dedicated rails for vibration isolation. Compressor shall have internal high and low pressure safety controls, motor overload protection, filter drier, and service gage connections on suction, discharge and liquid lines.

2. Five minute timed off circuit to delay compressor start.

3. Outdoor thermostat to energize compressor above 35 degrees F. ambient.

4. Factory rubber shock mounted and internally spring mounted on independent dedicated rails for vibration isolation.

F. Heating Section:

1. Burner: Induced draft combustion type with energy saving direct spark ignition system, redundant main gas valve, manual shutoff.

2. Heat Exchanger: Stainless steel burners, tubular heat exchanger design and corrosion resistant steel throughout. Shall have a 10 year warranty.

3. Gas Burner Safety Controls: Energize ignition, limit time for establishment of flame, stop gas flow on ignition failure, energize blower motor, and after air flow proven and slight delay, allow gas valve to open.

4. High Limit Control: Temperature sensor with fixed stop at maximum permissible setting, de-energize burner on excessive bonnet temperature and energize burner when temperature drops to lower safe value.

5. Supply Fan Control: Temperature sensor sensing bonnet temperatures and independent of burner controls, with provisions for continuous fan operation.

6. Flue Discharge Deflector: Package shall contain single-piece deflector and hardware to exhaust the flue discharge up and away from unit. The flue discharge deflector shall allow minimum flue side clearances to combustibles to be reduced to 18 inches.

7. Induced Draft Blower: Blower shall be as specified above.

G. Filter Section: Standard filter section shall consist of factory installed, low velocity, throwaway, 2" thick pleated, fiberglass filters of commercially available sizes. Filter face velocity shall not exceed 300 feet per minute at nominal airflow.

H. Base Rails: Manufacturer's standard roll-formed base rails with forklift slots and rigging holes.

I. Disconnect Switch: Factory mount disconnect switch on equipment under provisions of Division 26.

J. Evaporator Coil:

1. Provide copper tube aluminum fin coil assembly with galvanized drain pan and connection.

2. Provide capillary tubes or thermostatic expansion valves for units of 6 tons capacity and less.

K. Condenser Coil:

1. Provide copper tube aluminum fin coil assembly with sub-cooling rows.

2. Provide direct drive propeller fans, resiliently mounted with fan guard. Fan motor shall be totally enclosed, permanently lubricated, with motor overload protection, wired to operate with compressor. Provide high efficiency fan motor.

L. Concrete pad: Pad shall be concrete pad minimum 4” thick 2500 psi. Pad shall be sized such that it meets the size of the unit per approved manufacturer’s specifications with minimum 8” over- sized on all four sides shall. Pad shall have isolators at the each of the mounting points to ensure quiet operation.

M. Operating Controls:

1. Programmable, low voltage, room thermostats, located where shown on drawings.

2. Thermostats shall be Trane, Honeywell or equal recommended by the manufacturer as being compatible with the system, except thermostats requiring remote sensors.

3. Room thermostats shall incorporate:

a. Automatic switching from heating to cooling.

b. Seven day programming with four time periods per day.

c. Individual temperature set points for heating and cooling.

d. Short cycle protection.

e. Temporary program override using "warmer" and "cooler" keys.

f. Lockable set-points and schedules.

g. Room thermostat with back-lit display shall include time of day, actual room temperature, programmed temperature.

h. Thermostat shall have a locking cover.

N. Scheduled Performance:

1. The cooling performance rating shall be per ARI 210 test conditions. The sound rating shall be per ARI 270.

III PART 3 EXECUTION

III.1 DEMOLITION

This section not used.

III.2 EXAMINATION

A. Verify that proper power supply is available.

B. Verify that proper fuel supply is available for connection.

III.3 INSTALLATION

A. Install new curbs level. Ensure top of concrete pad sits 4” above finished grade. Anchor air-conditioner to concrete slab with concrete anchors for a 4” slab.

B. Install pad mounted heating and cooling units in accordance with manufacturer's instructions and as indicated in the drawings and specifications. Install gas, electrical and control connections required for proper operation of the HVAC system.

C. Set outside air damper position to 10% open or as specified on the plans.

D. Install thermostat at a height of 48" above the floor in accordance with manufacturer's instructions and as indicated in the drawings and specifications.

E. Provide conduit and electrical wires in accordance with Division 26. Electrical material and installation shall be in accordance with appropriate requirements of Electrical Sections.

F. Install in accordance with NFPA 90A.

G. Refrigerant lines and condensate drain piping shall be as specified elsewhere in these specifications.

III.4 PERFORMANCE TEST

A. In the presence of the Contracting Officers Representative, the Contractor shall operate new heating and cooling units in the both modes and show that control set-point can be maintained for a period of 30 minutes.

B. If set-points cannot be maintained Contractor shall correct any deficient work and retest.

III.5 DEMONSTRATION

The Contractor shall, upon completion of system installation, in the presence of the COR, perform a complete demonstration of the heating and cooling systems with all features and functions. The demonstration shall include a full demonstration of the thermostat and all of its features and functions.

III.6 THERMOSTAT SETPOINTS, SCHEDULES & SWITCH POSITIONS

The Contractor shall program the final thermostat set-points and schedules. The daytime heating set-point shall be 68 degrees F and the nighttime and weekend heating set-point shall be 55 degrees F. The daytime cooling set-point shall be 78 degrees F and the nighttime and weekend cooling set-point shall be 82 degrees F. Fan and system switches shall be set to auto.

III.7 EQUIPMENT SCHEDULE:

Equipment Schedule is shown on the contract drawings.

END OF SECTION

SECTION 26 11 19

BUILDING WIRE AND CABLE

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Building wire.

B. Wiring connectors and connections.

I.2 RELATED SECTIONS

A. Section 26 05 33 - Conduit.

B. Section 26 05 53 - Electrical Identification.

I.3 REFERENCES

A. NEC – National Electrical Code, 2017 edition.

I.4 SUBMITTALS

A. Submit under provisions of Sections 01 10 00 and 01 33 00

B. Test Reports: Indicate procedures and values obtained.

C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use.

I.5 QUALIFICATIONS

Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three (3) years documented experience.

I.6 REGULATORY REQUIREMENTS

A. Conform to requirements of NEC 2017.

B. Furnish products listed and classified by Underwriters Laboratories, Inc.

I.7 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Conductor sizes are based on copper.

C. Wire and conduit routing shown on Drawings is approximate unless dimensioned. Route wire and conduit as required to meet Project Conditions.

II PART 2 PRODUCTS

II.1 MANUFACTURERS - BUILDING WIRE AND CABLE

A. SOUTHWIRE CO.

B. EXCEL WIRE & CABLE CO.

C. CENTURY WIRE & CABLE CO.

D. BELDEN WIRE AND CABLE.

E. Substitutions: Under provisions of section 01 60 00.

II.2 BUILDING WIRE

A. Description: Single conductor insulated wire for #12 AWG through #10 AWG and stranded insulated wire for #8 AWG or larger.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

F. Insulation: CEC, Type THW, THHN/THWN or XHHW.

II.4 PRODUCT SUBSTITUTION

Product substitution shall be as required under Section 01600.

III PART 3 EXECUTION

III.1 PREPARATION

Completely and thoroughly swab raceway before installing wire.

III.2 WIRING METHODS

Interior and Exterior Locations: Use only building wire Type THW or THHN/THWN or XHHW insulation in raceway.

III.3 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Neatly train and lace wires inside panel board and control panel enclosures and inside pull boxes.

C. Clean conductor surfaces before installing lugs, and connectors.

D. Make splices, taps, and wire termination to carry full ampacity of conductors with no perceptible temperature rise.

III.4 INTERFACE WITH OTHER PRODUCTS

A. Identify wire under provisions of Section 26 05 53.

B. Identify each power conductor with its phase number or other designation indicated on Drawings.

C. Identify each control conductor with its termination number as shown on the control and wiring diagrams.

III.5 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Sections 01 10 00.

B. Inspect wire and cable for physical damage and proper connection.

C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

D. Verify continuity of each power and control wire.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Grounding electrodes and conductors.

B. Equipment grounding conductors.

C. Bonding.

I.2 REFERENCES

A. Section 01 40 00 - Quality Control.

B. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

C. NEC – National Electrical Code 2017 edition.

I.3 GROUNDING SYSTEM DESCRIPTION

A. Rod electrode.

I.4 PERFORMANCE REQUIREMENTS

A. Grounding System Resistance: 5 ohms.

I.5 SUBMITTALS

A. Section 01 33 00 - Submittals: Procedures for submittals.

B. Test Reports: Indicate overall resistance to ground.

C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

I.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

I.7 REGULATORY REQUIREMENTS

A. Conform to requirements of CEC 2016.

B. Products: Listed and classified by Underwriters Laboratories, Inc.

II **PART 2 PRODUCTS**

II.1 ROD ELECTRODES

A. Manufacturers:

1. Appleton Electric Company.

2. General Electric Supply Company.

3. Thomas and Betts Corp.

4. Substitutions: Refer to Section 01 60 00 - Material and Equipment.

B. Material: Copper or Copper-clad steel.

C. Diameter: 3/4 inch.

D. Length: 10 feet.

II.2 MECHANICAL CONNECTORS

A. Manufacturers:

1. Appleton Electric Company.

2. General Electric Supply Company.

3. Thomas and Betts Corp.

4. Substitutions: Refer to Section 01 60 00 - Material and Equipment.

B. Material: Bronze.

II.3 GROUNDING CONNECTIONS

A. Grounding connections that are buried shall be made by cad weld. The welds shall be made strictly in accordance with the weld manufacturer’s written recommendations.

II.4 WIRE

A. Material: Stranded copper.

B. Grounding Electrode Conductor: Size to meet and NEC requirements and as shown on plans.

III PART 3 EXECUTION

III.1 EXAMINATION

A. Section 01015 - General Requirements.

B. Verify that final backfill and compaction has been completed before driving rod electrodes.

III.2 INSTALLATION

A. Section 01 40 00 - Quality Control: Manufacturer's instructions.

B. Install rod electrodes at locations indicated.

C. Provide bonding to meet Regulatory Requirement.

D. Equipment Grounding Conductor: Provide separate, insulated conductor within each feeder raceway. Terminate each end on suitable lug, bus, or bushing.

END OF SECTION

SECTION 26 05 29

SUPPORTING DEVICES

I PART 1 GENERAL

I.1. WORK INCLUDES

A. Conduit and equipment supports.

B. Lighting fixtures supports.

C. Anchors and fastening hardware.

I.2. REFERENCES

A. NECA - National Contractors Association.

B. NEC – National Electrical Code, 2017 edition.

I.3. SUBMITTALS

A. Submit under provisions of Sections 01 10 00 and 01 33 00.

B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under regulatory requirements. Include instructions for handling, protection, preparation, and installation of product.

I.4. REGULATORY REQUIREMENTS

A. Conform to requirements of the NEC 2017.

B. Furnish products listed and classified by Underwriters Laboratories (UL). All supporting devices shall be suitable for the intended purpose as specified.

I.5. QUALITY ASSURANCE

Support devices shall be adequate for weight of equipment and conduit, including wiring, which they carry.

II PART 2 PRODUCTS

II.1. MATERIAL

A. Support Straps: Galvanized or painted steel. Support straps shall be designed to fit conduit snugly.

B. Material and finishes: Provide supporting devices of material with adequate corrosion resistance.

C. Supporting device type and sizes: provide fasteners suitable in type and sizes to carry the full load of the equipment and conduit. The supports shall be seismic resistant and shall be approved by the Project Manager.

III PART 3 EXECUTION

III.1.INSTALLATION

A. Install supporting devices in accordance with the manufacturer's instructions.

B. Fasten conduit clamps, and outlet and junction boxes to building structure using preset inserts.

C. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

D. Do not use powder-actuated anchors.

E. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

F. Install surface-mounted cabinets and control panel enclosure with a minimum of four anchors.

G. Do not drill or cut any of the existing structural members.

END OF SECTION

SECTION 26 05 33

CONDUIT

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Metal conduit

B. Liquid tight flexible metal conduit

C. Electrical metallic tubing

D. Nonmetal conduit

E. Fittings and conduit bodies

I.2 RELATED SECTIONS

A. Section 26 05 35 - Boxes

B. Section 26 05-26 - Grounding and Bonding

C. Section 26 05 29 - Supporting Devices

D. Section 26 05 53 - Electrical Identification

I.3 REFERENCES

A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.

B. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated.

C. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

D. NEC – National Electrical Code 2017 edition.

E. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

F. NECA "Standard of Installation."

I.4 DESIGN REQUIREMENTS

Conduit Size: Per NEC 2017.

I.5 SUBMITTALS

A. Submit under provisions of Sections 01 10 00 and 01 33 00.

B. Product Data: Provide for metallic conduit, liquid tight flexible metal conduit, electrical metallic tubing, nonmetallic conduit, fittings, and conduit body.

I.6 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 70 00.

B. Accurately record actual routing of conduits larger than one (1/2) inch

I.7 REGULATORY REQUIREMENTS

A. Conform to requirements of the CEC 2016.

B. Furnish products listed and classified by Underwriters Laboratories, Inc.

I.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle Products under provisions of Section 01 60 00.

B. Inspect conduit on site for damage.

C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

D. Protect PVC conduit from sunlight.

I.9 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Verify routing and termination locations of conduit prior to rough-in.

C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

II **PART 2 PRODUCTS**

II.1 CONDUIT REQUIREMENTS

A. Underground Installations: Use thick wall polyvinyl chloride (PVC) conduit, schedule 80 as shown on plans.

B. Outdoor Wet Locations, Above Grade: Use rigid steel conduit only.

C. Indoor Dry Locations: Use electrical metallic tubing in walls and above ceiling and rigid steel conduit if exposed.

II.2 METAL CONDUIT

A. Manufacturers:

1. HUBBELL CO.

2. CARLON CO.

3. RACO CO.

4. Substitutions: Under provisions of Sections 01 10 00 and 01 60 00.

B. Rigid Steel Conduit: ANSI C80.1.

C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; material to match conduit.

D. Description: Electrical Metallic Conduit (EMT) shall be cold rolled steel with zinc coating on the outside and enamel or lacquer coating on the inside. EMT conduit fittings shall be compression ring or gripping ring type. EMT to comply with ANSI C80.3 AND UL797.

II.3 LIQUID TIGHT FLEXIBLE METAL CONDUIT

A. Manufacturers:

1. ALFLEX CORP.

2. CAROL CABLE CO.

3. ELECRI-FLEX CO.

4. Substitutions: Under provisions of Sections 01 10 00 & 01 60 00.

B. Description: Interlocked steel construction with PVC jacket.

C. Fittings: ANSI/NEMA FB 1.

D. Shall not be used more than six feet.

II.4 NON METALLIC CONDUIT

A. Manufacturers:

1. CARLON CO.

2. MIDWEST PLASTIC INC.

3. PACIFIC PLASTIC INC.

4. Substitutions: Under provisions of Sections 01 10 00 and 01 60 00.

B. Description: NEMA TC 2; Schedule 80 PVC. The nonmetallic conduit shall be rigid polyvinyl chloride (PVC) conduit and shall be manufactured from high impact, non-conducting, self extinguishing polyvinyl chloride material.

C. Fittings and Conduit Bodies: NEMA TC. All PVC joints shall be solvent cemented as recommended by the conduit manufacturer. Conduit bends of 30 degrees or greater shall be factory made long radius sweep. Bends of less than 30 degrees shall be made using an approved heating box.

III **PART 3 EXECUTION**

III.1 INSTALLATION

A. Install conduit in accordance with NECA "Standard of Installation."

B. Install nonmetallic conduit in accordance with manufacturer's instructions.

C. Arrange supports to prevent misalignment during wiring installation.

D. Fasten conduit supports to building structure and surfaces under provisions of Section 26 05 29.

E. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports

F. Do not attach conduit to ceiling support wires.

G. Arrange conduit to maintain headroom and present neat appearance.

H. Route exposed conduit parallel and perpendicular to walls.

I. Route conduit installed above accessible ceilings parallel and perpendicular to walls.

J. Maintain adequate clearance between conduit and piping.

K. Cut conduit square using saw or pipe cutter; de-burr cut ends.

L. Bring conduit to shoulder of fittings; fasten securely.

M. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of

cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.

N. Use conduit hubs to fasten conduit to sheet metal boxes and to cast boxes.

O. Install no more than equivalent of three 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction. Use hydraulic one-shot bender to fabricate factory elbows for bends in metal conduit larger than 2 inch in size.

P. Provide suitable pull string (3/16 inch) in each empty conduit except sleeves and nipples.

Q. Use suitable caps to protect installed conduit against entrance of dirt and moisture.

R. Encase all high voltage PVC Conduit in concrete as required by the utility company.

S. Ground and bond conduit under provisions of Section 26 05 26.

III.2 INTERFACE WITH OTHER PRODUCTS

Install conduit to preserve fire resistance rating of partitions and other elements.

END OF SECTION

SECTION 26 05 35

BOXES

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Underground Pre-cast concrete pull box.

B. Pull box traffic cover.

C. Pull and junction boxes

I.2 RELATED SECTIONS

Section 26 27 26 - Wiring Devices.

I.3 REFERENCES

A. ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.

B. ANSI/NEMA OS 1 - Pull Boxes, Covers, and Box Supports.

C. NEC – National Electrical Code, 2017 edition.

I.4 PROJECT AS-BUILT DRAWINGS

A. Submit under provisions of Sections 01 10 00 and 01 70 00

B. Accurately record actual locations of pre-cast concrete pull boxes.

I.5 REGULATORY REQUIREMENTS

A. Conform to requirements of NEC 2017.

B. Furnish products listed and classified by Underwriters Laboratories, Inc.

I.6 PROJECT CONDITIONS

A. Verify field measurements as shown on Drawings.

B. Verify requirements and exact location of the pull box with Project Manager at the job site.

C. Install at location required for the service equipment to serve intended purpose.

II **PART 2 PRODUCTS**

II.1 UNDERGROUND PRIMARY PULL BOX

A. Pull box manufacturers:

1. BROOKS COMPANY.

2. UNIVERSAL CONCRETE PRODUCTS.

3. CHRISTY MASONRY PRODUCTS.

4. Substitution: Submit under Sections 01 10 00 and 01 60 00.

B. Pull box description: The underground pull box shall be pre-cast reinforced concrete with nominal dimensions as shown on plans.

C. Pull Box Covers: The box covers shall be steel bolt down and rated AASHTO H-20. The metal covers shall be secured to the boxes with adequate bolts and nuts. Box covers shall be inscribed with the word “ELECTRIC” using 2” high letters.

D. Provide concrete inserts for mounting cable support brackets.

II.2 OUTLET AND WIRING DEVICES BOXES

A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel.

III **PART 3 EXECUTION**

III.1 INSTALLATION

A. Install underground pull boxes as required for cable pulling, equipment connections and compliance with regulatory requirements. No underground splices allowed.

B. Install pull boxes plumb and independent of conduit.

C. Orient boxes to accommodate wiring devices.

D. Coordinate mounting height and locations of junction and pull boxes.

E. During non-work hours and at location where installation of conduits and ducts is temporarily suspended or terminated, close ends of ducts with cap or plug fitted to prevent entry of water or debris.

F. Support boxes to building structural members independently of conduit.

III.2 INTERFACE WITH OTHER PRODUCTS

Coordinate mounting heights and locations of junction boxes in the field.

END OF SECTION

SECTION 26 05 53

ELECTRICAL IDENTIFICATION

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Nameplates and labels.

B. Wire and cable markers.

I.2 REFERENCES

A. CEC – California Electrical Code 2016 Edition.

I.3 SUBMITTALS

A. Submit under provisions of Sections 01 10 00 and 01 33 00.

B. Product Data: Provide catalog data for nameplates, labels, and markers.

C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under regulatory requirements. Include instructions for storage, handling, protection, examination, preparation and installation of Product.

I.4 REGULATORY REQUIREMENTS

A. NEC- National Electrical code NEC 2017.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. (UL)

II PART 2 PRODUCTS

II.1 NAMEPLATES AND LABELS

A. Nameplates: Engraved three-layer laminated plastic with white letters on black background and fastened with corrosion-resistant screws. Use of mounting cement is not acceptable.

B. Locations:
1. Panel Board.
2. Disconnect switches.
3. Receptacles.

C. Letter Size:
1. Use 1/4 inch letters for identifying individual equipment.

II.2 WIRE MARKERS

A. Description: Split sleeve or shrinkable tubing type wire markers.

B. Locations: Each conductor at each electrical panel and at each load connection.

C. Legend: For all circuits, branch circuit number as indicated on the plan.

D. Example: PNL-A, CKT# 21

III PART 3 EXECUTION

III.1 PREPARATION

Degrease and clean surfaces to receive nameplates and labels.

III.2 APPLICATION

A. Install nameplate and label parallel to equipment lines.

B. Secure nameplate to equipment front using rivets.

C. Secure nameplate to outside surface of door on new electrical equipment.

END OF SECTION

SECTION 26 27 16

ELECTRICAL CABINETS AND ENCLOSURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Enclosures.
   2. Cabinets.
   3. Accessories.

1.2 REFERENCES

A. NEMA 250 - 2014 - Enclosures for Electrical Equipment (1000 Volts Maximum).

B. NEMA ICS 4 - 2015 - Industrial Controls and Systems: Terminal Blocks.

C. NEC- National Electric Code, 2017 edition

1.3 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data
   1. Provide manufacturer's standard data for enclosures and cabinets.

C. Quality Assurance/Control Submittals
   1. Manufacturer's Instructions
      a. Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements.

PART 2 PRODUCTS

2.1 ENCLOSURES

A. Construction: NEMA 250, Type 1 steel enclosure.
   1. 14 gauge minimum, cold-rolled sheet steel, unless otherwise indicated in the Contract Documents.
   2. Cover: Continuous hinge, held closed by flush latch operable by key. Provide interior metal panel for mounting terminal blocks and electrical components; finish with white enamel.
   3. Enclosure Finish: Manufacturer's standard gray enamel.

2.2 CABINETS

A. Description
   1. Galvanized Steel, 24 inches 36 inches 6 inches deep unless otherwise indicated in the Contract Documents.

2. Backboard: Provide 3/4 inch thick plywood backboard for mounting terminal blocks. Paint matte white.
3. Doors: Steel, flush or surface type as indicated with concealed hinge, and flush lock keyed to match branch circuit panelboard. Finish with gray baked enamel.
4. Knockouts: Manufacturer's standard.
5. Provide metal barriers to separate compartments containing control wiring operating at less than 50 volts from power wiring.
6. Provide accessory feet for free-standing equipment.
7. Provide six of each type cabinet key.

B. Construction NEMA Type 4:
1. 14 gauge minimum, cold-rolled sheet steel.
2. Seams continuously welded and ground smooth. Exterior surfaces shall be free from holes, seams, dents, weld marks, loose scale, or other imperfections and shall not be welded for the attachment of wiring or devices where such holes or fastenings will be visible.
3. Rolled lip around all sides of enclosure opening to exclude liquids and contaminants.
4. All exterior hardware shall be stainless steel.
5. Stainless steel door clamps on three sides of door with lock kit.
6. Door removed by pulling stainless steel continuous hinge pin.
7. Door and body stiffeners in larger enclosures.
8. Collar studs for mounting optional panels.
9. Finish: Gray polyester powder coating inside and out over phosphatized surfaces.

C. Construction NEMA Type 4X
1. Same as NEMA Type 4, except Type 304 stainless steel, unpainted.

2.3 ACCESSORIES

A. Terminal Blocks
1. NEMA ICS 4.
2. Power Terminals: Unit construction type with closed back and tubular pressure screw connectors, black, rated 600 volts; current rating for circuit, 25 amps minimum.
3. Signal and Control Terminals: Modular construction type, suitable for channel mounting, with tubular pressure screw connectors, black, rated 300 volts; current rating 20 amps minimum.
4. Provide ground bus terminal block, with each connector bonded to enclosure.

B. Wiring Duct
1. Body: Rigid vinyl (PVC), size for 40 percent fill maximum.
2. Cover: Hi-impact rigid vinyl, angled and interlocking lips on duct cover and sidewalls permit cover to be snapped on.

PART 3 EXECUTION

3.1 APPLICATION

A. Enclosure Types for Non-hazardous Locations
   1. Indoor locations - Provide NEMA type 1.
      a. Exceptions: Provide NEMA type 4x in food handling areas located in central kitchen, retherm kitchens, food service satellites and cafeterias.
   2. Outdoor Locations: Provide NEMA type 4.
      a. NEMA type 3R not permitted.

3.2 INSTALLATION

A. Install Products in accordance with manufacturers' instructions.

B. Install cabinets, cabinet fronts, and enclosures plumb.

C. Anchor securely to wall and structural supports at each corner.

D. Install in accordance with Section 26 05 29.

END OF SECTION

SECTION 26 27 26

WIRING DEVICES

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Duplex receptacle outlets.

B. Manual light switches.

C. Device plates and box covers.

D. Occupancy sensors.

I.2 RELATED SECTIONS

Section 26 05 35 - Boxes.

I.3 REFERENCES

A. NEMA WD 1 - General Purpose Wiring Devices.

B. NEMA WD 6 - Wiring Device Configurations.

I.4 SUBMITTALS

A. Submit under provisions of Sections 01 10 00 and 01 33 00.

B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

C. Manufacturer's Instructions:

1. Indicate application conditions and limitations of use stipulated by product testing agency specified under regulatory requirements.

2. Include instructions for storage, handling, protection, examination, preparation, operation and installation of product.

I.5 QUALIFICATIONS

Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three (3) years documented experience.

I.6 REGULATORY REQUIREMENTS

A. NEC – National Electrical Code, 2017 edition.

B. Furnish products listed by U.L.

II **PART 2 PRODUCTS**

II.1 RECEPTACLES, OCCUPANCY SENSORS

A. Receptacles manufacturers:

1. Leviton Company.

2. Pass and Seymour Inc.

3. Slater Electric Inc.

4. Substitution: Provide under Section 01 60 00.

B. Duplex receptacle description: Duplex receptacles shall be 20-Ampere, 120-Volt, AC, straight blades Type L5-20R, with two USB port specification grade.

C. Manual light switches: Manual light switches shall be 20-Amperes, 120-Volt, AC specifications grade rocker light switches.

D. Occupancy sensors as light switches: The occupancy sensors shall have 20-ampere auxiliary relay pack, 120-volt, 20-ampere power pack. The sensors shall be passive infra-red type with adjustable time delay up to thirty (30) minutes and 360-dgree field of view, with a minimum coverage area of 1200 square feet. The sensors shall have push-button manual override control.

II.2 RECEPTACLE PLATES

A. The receptacle outlets, light switches cover plate: Receptacle outlets, light switches cover plates shall be smooth plastic fabricated from high impact polycarbonate.

B. Substitutions: Under provisions of Section 01 60 00.

III **PART 3 EXECUTION**

III.1 EXAMINATION

A. Verify existing conditions in the field.

B. Coordinate exact outlet box height in the field.

C. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

III.2 PREPARATION

Clean debris from outlet boxes.

III.3 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Connect wiring device grounding terminal to outlet box with bonding jumper.

C. Install cover plates on all straight blade duplex receptacle outlets and light switches.

D. Connect wiring devices by wrapping conductor around screw terminal.

III.4 INTERFACE WITH OTHER PRODUCTS

A. Coordinate locations of lighting and power outlet boxes as indicated on drawings.

B. Install duplex receptacle outlets where shown on plans.

III.5 FIELD QUALITY CONTROL

A. Inspect each wiring device for defects.

B. Verify that each wiring device is energized.

C. Test each receptacle device for proper polarity.

III.6 ADJUSTING

Adjust devices and cover plates to be flush and level.

END OF SECTION

SECTION 26 51 00

LIGHTING FIXTURES

I PART 1 GENERAL

I.1 SECTION INCLUDES

A. Interior lighting fixtures.

B. Lighting fixture Lamps.

C. Lighting fixture accessories.

D. Lighting fixtures warranty.

I.2 RELATED SECTIONS

A. Section 26 05 33 - Conduit.

B. Section 26 05 19 - Building wire and Cable.

C. Section 26 05 35 - Boxes.

I.3 REFERENCES

A. ANSI C82.1 - Ballasts for Fluorescent Lamps -Specifications.

B. ANSI/NFPA 101 - Life Safety Code.

C. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

D. NEC – National Electrical Code, 2017 edition.

I.4 SUBMITTALS

A. Product Data: Provide dimensions, ratings, and performance data.

B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.

C. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.

D. Submittal procedures refer to section 01 33 00 of the specifications.

I.5 PROJECT AS-BUILT DRAWINGS

A. Accurately record actual location of each lighting fixture.

I.6 QUALIFICATIONS

Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three (3) years documented experience.

I.7 REGULATORY REQUIREMENTS

A. Conform to requirements of the NEC 2017 edition.

B. Conform to requirements of NFPA 101.

C. Furnish products listed and classified by Underwriters' Laboratories, Inc.

I.8 EXTRA MATERIALS

A. Provide required lamps for each lighting fixture.

II **PART 2 PRODUCTS**

II.1 LIGHTING FIXTURES

A. Shown on plan drawings.

II.2 BALLASTS

A. Ballast Manufacturers:

1. General Electric Company.
2. Advance Industries Company.
3. Universal MFG CO.
4. Substitutions: Approved equal.
5. Description: ANSI C82.1, high power factor type electronic ballast.
6. Provide electronic ballast with solid state discrete components in all fluorescent light fixtures.
7. Voltage: 120-Volts.

8. Source Quality Control: Certify ballast design and construction by Certified Ballast Manufacturers, Inc.

II.4 LIGHTING FIXTURE LAMPS

A. Lamp Manufacturers:

1. General Electric Company.

2. Sylvania Lamp Products.

3. Philips Lamp Manufacturing Company.

4. Substitution: Approved equal.

B. Description: All lamps shall be new, energy efficient, and shall be suitable for the specified lighting fixtures.

II.5 LIGHTING FIXTURE MOUNTING ACCESSORIES

All lighting fixture accessories, such as stem hangers, chain hangers, beam clamps, ceiling spacers, end plates, reflectors, and any other mounting accessories shall be factory made. All indoor light fixture mounting shall be seismic resistant.

III **PART 3 EXECUTION**

III.1 EXAMINATION

Examine each lighting fixture to determine suitability for lamps specified.

III.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install recessed-mount lighting fixtures plumb and adjust to align with ceiling tiles and with each other. Secure to prevent movement.

C. Install ceiling mounted lighting fixture at locations shown on Drawings.

D. Install accessories furnished with each lighting fixture.

E. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within lighting fixture.

F. Bond products and metal accessories to branch circuit equipment grounding conductor.

G. Install specified lamps in each lighting fixture.

III.3 FIELD QUALITY CONTROL

Operate all lighting fixtures after installation and connection. Inspect for proper connection and operation.

III.4 ADJUSTING

A. Furnish and install new lamps for all new lighting fixtures that have failed lamps at Substantial Completion.

III.5 CLEANING

A. Clean electrical parts to remove conductive and deleterious materials.

B. Remove dirt and debris from enclosure.

C. Clean photometric control surfaces as recommended by manufacturer.

D. Clean finishes and touch up damage.

III.6 DEMONSTRATION

A. Provide minimum of two (2) hours demonstration of lighting fixtures operation.

III.7 LIGHT FIXTURES WARRANTY

All new light fixtures shall have one (1) full year warranty against manufacturer's defect related to ballasts, lamps and sockets.

END OF SECTION

SECTION 28 46 00

FIRE DETECTION AND ALARM

PART 1 GENERAL

1.1 SUMMARY

A. Section includes fire alarm control panels, manual fire alarm stations, automatic smoke and heat detectors, fire alarm signaling appliances, and auxiliary fire alarm equipment and power and signal wire and cable.

B. Related Sections:
1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
2. Section 26 05 53 – Electrical Identification.
3. Section 26 05 19 - Building Wire and Cable.

1.2 REFERENCES

A. National Fire Protection Association:
1. NFPA 72 - National Fire Alarm Code.
2. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.
3. Air National Guard Design Policy, ANG ETL 01-1-1(Latest Edition).

1.3 SYSTEM DESCRIPTION

A. Fire Alarm System: NFPA 72, manual and automatic local fire alarm system with connections to municipal system.

B. Alarm Sequence of Operation: Actuation of initiating device causes the following system operations:
1. Local fire alarm signaling devices sound and display with march time signal.
2. Non-coded signal transmits to municipal connection.
3. Location of alarm zone indicates on fire alarm control panel.
4. Signal transmits by zone to building smoke removal system.
5. Signal transmits to building mechanical controls, shutting down fans and operating dampers.

C. Drill Sequence of Operation: Manual drill function causes alarm mode sequence of operation.

D. Trouble Sequence of Operation: System or circuit trouble causes the following system operations:
   1. Visual and audible trouble alarm indicates by zone at fire alarm control panel.
   2. Trouble signal transmits to municipal connection and remote station.

E. Zoning: As indicated on Drawings.

F. Record events in the system memory.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings requirements:

   1. Building data information.
   2. Scope of project.
   3. Current California state fire marshal (CSFM) listing sheets for all components.
   4. Manufacturer’s specification sheet on all fire alarm equipment.
   5. Symbol of all fire alarm devices being installed.
   6. Floor plan showing fire alarm devices 1/8 inch scale.
   7. Floor plans showing room identification1/8 inch scale.
   8. Location of all fire rated walls on floor plan with a corresponding wall legend.
   9. Sequence of operation matrix table.
   10. Single line riser diagram.
   11. Point to point wiring diagram.
   12. Battery calculation.
   13. Voltage drop calculation.
   14. Identification of type of wiring used.
   15. Elevation detail of manual fire alarm box and visual devices.
   16. Design number and detail for through penetration fire stop system.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of fire alarm equipment.

C. Operation and Maintenance Data: Submit manufacturer’s standard operating and maintenance instructions.

1.6 QUALITY ASSURANCE

A. Installer Qualification: Personnel shall be trained and certified by manufacturer for installation of units required for this project.

B. Electrical Components, Devices, and Accessories: Listed and labled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience, and with service facilities within 100 miles of project.

B. Installer: Certified fire alarm installer with service facilities within 100 miles of Project.

C. Design fire alarm under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of California.

1.8 MAINTENANCE SERVICE

A. Section 01 70 00 - Execution and Closeout Requirements: Maintenance service.

B. Furnish service and maintenance of fire alarm equipment for one year from Date of Substantial Completion.

1.9 MAINTENANCE MATERIALS

A. Section 01 70 00 - Execution and Closeout Requirements: Spare parts and maintenance products.

B. Furnish ten manual station break-glass rods.

C. Furnish six keys of each type.

1.10 EXTRA MATERIALS

A. Section 01 70 00 - Execution and Closeout Requirements: Spare parts and maintenance products.

B. Furnish three of each type of automatic smoke detector.

PART 2 PRODUCTS

2.1 ALL ITEMS OF THE FIRE ALARM SYSTEM

A. Manufacturers:
1. Notifier; a GE-Honeywell Company.
2. Silent Knight; a GE-Honeywell Company.
3. Federal Signal Corporation.
4. Edwards System Technology Inc.

5. Grinnell Fire Protection; a Tyco International Company.
6. Substitutions: Section 01 60 00 - Product Requirements.

B. Product Description: Modular fire alarm control panel with surface wall-mounted enclosure.

C. Power supply: Adequate to serve control panel modules, remote detectors, remote annunciators, smoke dampers, relays, and alarm signaling devices. Include battery-operated emergency power supply with capacity for operating system in standby mode for 48 hours followed by alarm mode for 10 minutes.

D. System Supervision: Component or power supply failure places system in trouble mode.

E. System trouble signal initiation: Shall be by one or more of the following devices or action:

1. Open circuits, shorts and ground of wiring for initiating devices, signaling line and notification-appliance circuits.

2. Opening, tampering, or removal of alarm-initiating and supervisory signal initiating devices.

3. Loss of primary power at the FACP.

4. Ground or a single break in FACP internal circuits.

5. Abnormal ac voltage at the FACP.

6. A break in standby battery circuitry.

7. Failure of battery charging.

8. Abnormal position of any switch at the FACP or annunciator.

F. Initiating Device Circuits: Supervised zone module with alarm and trouble indication; occurrence of single ground or open condition places circuit in trouble mode but does not disable circuit from initiating alarm.

G. Indicating Appliance Circuits: Supervised march time signal module, sufficient for signal devices connected to system; occurrence of single ground or open condition places circuit in trouble mode but does not disable circuit from signaling alarm.

H. Remote Station Signal Transmitter: Electrically supervised digital alarm communicator transmitter, capable of transmitting alarm and trouble signals over telephone lines to central station receiver.

I. Auxiliary Relays: Sufficient SPDT auxiliary relay contacts for each detection zone to provide accessory functions specified.

2.2 MANUAL FIRE ALARM STATIONS

A. Product Description: Manual double-action station with break-glass rod. With addressable module, arranged to communicate manual-station status (normal, alarm, or trouble) to FACP.

B. Mounting: Surface.

C. Type: Non-coded.

D. Back box: Manufacturer's standard.

E. Station Reset: Key-or wrench-operated switch.

2.3 SPOT HEAT DETECTOR

A. Product Description: Combination rate-of-rise and fixed temperature, spot heat detector.

B. Temperature Rating: 135 degrees F.

C. Rate-of-Rise: 15 degrees F.

D. Plug-in base interchangable with smoke-detector base.

E. Integral Addressable Module.

2.4 CEILING SMOKE DETECTOR

A. Product Description: NFPA 72, photoelectric type ceiling smoke detector with the following features:
1. Adjustable sensitivity.
2. Plug-in base.
3. Auxiliary relay contact.
4. Integral thermal element rated 135 degrees F.
5. Visual indication of detector actuation.
6. Comply with UL 268.
7. Integral Addressable Module.

B. Mounting: 4 inch outlet box.

C. Furnish four-wire detector with separate power supply and signal circuits.

2.5 ALARM BELLS

A. Product Description: NFPA 72, vibrating, electric bell with the following features:
   1. Operating mechanism behind dome.
   2. Integral strobe lamp and flasher with red lettered "FIRE" on white lens.
   3. Size: 10 inch.
   4. Sound Rating: 94 dB at 10 feet.

2.6 ALARM LIGHTS

A. Product Description: NFPA 72, strobe lamp and flasher with red lettered "FIRE" on white lens.

B. Rated Light Output: 75candela.

C. Strob Leads: Factory connected to screw terminals.

2.7 ALARM HORN

A. Product Description: NFPA 72, surface type fire alarm horn with the following features:
   1. Sound Rating: 90 dB at 10 feet.
   2. Integral strobe lamp and flasher with red lettered "FIRE" on white lens.

2.8 WIRE AND CABLE

A. Manufacturers:
   1. Comtran Corporation.
   2. Helix/HiTemp Cable, Inc; a Draka USA Company.
   3. Substitutions: Section 01 60 00 - Product Requirements

B. Product Description: Power limited fire-protective signaling cable, copper conductor, 300 volts insulation rated 105 degrees C.

C. Non-Power-limited Circuits: Solid-copper conductors with 600-V rated, 75 deg C, color-coded insulation.

D. Cable Located Exposed in Plenums: Power limited fire-protective signaling cable classified for fire and smoke characteristics, copper conductor, 300 volts insulation rated 105 degrees C, suitable for use in air handling ducts, hollow spaces used as ducts, and plenums.

E. Fire alarm circuit conductors have insulation color or code as follows:
   1. Power Branch Circuit Conductors: Black, red, white.
   2. Initiating Device Circuit: Black, red.
   3. Detector Power Supply: Violet, brown.
   4. Signal Device Circuit: Blue (positive), white (negative).
   5. Municipal Trip Circuit: Orange, orange.
   6. Municipal Fire Alarm Loop: Black, white.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify products and systems receiving devices are ready for installation.

3.2 EXISTING WORK

A. Remove exposed abandoned fire alarm wiring, including abandoned wiring above accessible ceiling finishes. Cut cable flush with walls and floors, and patch surfaces.

B. Disconnect and remove abandoned fire alarm equipment.

3.3 INSTALLATION

A. Install manual station with operating handle 4 feet 6 inches above floor.

B. Install audible and visual signal devices 7 feet 6 inches above floor.

C. Install 16 AWG minimum size conductors for fire alarm detection and signal circuit conductors in conduit.

D. Automatic Detector Installation: Conform to NFPA 72.

E. Ground and bond fire alarm equipment and circuits in accordance with Section 26 05 26.

F. HVAC: Locate detectors not closer than 3 feet from air-supply diffuser or return-air opening.

G. FACP: Surface mount with tops of cabinets not more than 72 inches above the finished floor.

H. Smoke and Heat Detectors spacing: Smooth ceiling spacing shall not exceed 30 feet.

3.4 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements, 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

B. Test in accordance with NFPA 72 and local fire department requirements.

3.5 MANUFACTURER'S FIELD SERVICES

A. Section 01 40 00 - Quality Requirements: Manufacturer’s field services.

B. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.

3.6 DEMONSTRATION AND TRAINING

A. Furnish four hours of instruction each for four persons, to be conducted at project site with manufacturer's representative.

END OF SECTION

APPENDIX I – SPECIAL REPORTS

APPENDIX II – SUBMITTAL LOG

List of Required Submittals										
Project:	Camp Roberts - Barracks Renovation									
SPEC. SECTION	DESCRIPTION OF ITEM TO BE SUBMITTED	DATA	SHOP DWG	SAMPLE	TEST REPORT	CERTIFICATE	GUARANTEE	HAS REQUIREMENT BEEN MET?	DATE	REVIEWER
01 30 00	Schedule of Values		X			X				
01 32 00	Conctruction Schedule	X								
01 35 00	SWPP Plan	X								
01 74 19	Construction Waste Plan		X			X				
01 78 00	Closeout Documents	X	X		X	X	X			
02 83 33	Lead Plan	X			X	X				
Architectural		X			X					
07 14 00	Fluid Applied Waterproofing	X								
07 21 00	Insulation	X								
07 90 00	Joint Protection	X								
07 42 13	Metal Wall Panels	X								
08 11 00	Doors & Frames	X	X							
08 70 00	Door Hardware	X	X							
09 21 61	Gypsum Board Assembly	X	X							
09 30 13	Painting & Coating	X		X			X			
9 77 33	Fbiberglass Reinforced Panels	X								
10 21 13.19	Plastic Toilet Compartments	X	X	X						
Plumbing										
22 05 23	Pipes, Fittings & Valves	X								
22 05 29	Hangars & Supports	X								
22 44 00	Plumbing Fixtures	X								

List of Required Submittals										
Project:	Camp Roberts - Barracks Renovation									
SPEC. SECTION	DESCRIPTION OF ITEM TO BE SUBMITTED	DATA	SHOP DWG	SAMPLE	TEST REPORT	CERTIFICATE	GUARANTEE	HAS REQUIREMENT BEEN MET?	DATE	REVIEWER
Mechanical										
23 33 16	Fire Dampers									
23 80 00	Mechanical Ventilation	X								
Electrical										
26 05 19	Wire and Cable	X								
26 05 26	Grounding	X								
26 05 33	Conduit	X								
26 05 35	Boxes	X								
26 05 53	Electrfcical Identification	X	X							
26 27 16	Electrical Cabinets and Enclosures	X	X							
26 27 26	Wiring Devices	X								
26 51 00	Lighting Fixtures	X								
28 46 00	Fire Detection and Alarm	X	X		X	X				

APPENDIX III – INSPECTION CHECKLIST

California Military Department

Project: _____

Project Manager: _____

Job Start Date: _____/_____/_____

Job End Date: _____/_____/_____

BUILDING INSPECTION RECORD

This card must be posted in a conspicuous place

(FOR INSPECTIONS, CONTACT THE CONTRACT OFFICERS REPRESENTATIVE & INSPECTOR VIA EMAIL 24 HRS PRIOR)

Inspection	*Date*	*Inspector*
Electrical Inspections		
Site Underground Electrical Duct Bank		
Lite Pole Underground Conduit		
Lite Pole Base		
Underground Secondary Conduit		
UFER / Service Grounding, Bonding		
Underground / Under Slab Conduit		
Switchgear / Panels		
Wall Rough Electrical		
Ceiling / T-Bar Electrical		
Lighting Interior / Exterior		
Miscellaneous Electrical		
ELECTRICAL FINAL		

Mechanical Inspections		
Ground / Under floor Mechanical		
Rough Mechanical		
Process Piping Pressure Test		
Furnace / Air Conditioner Replacement		
Fire / Smoke Damper		
Commercial Hood		
Miscellaneous Mechanical		
Grease Ducts		
Air Ducts - Prior to Insulation		
MECHANICAL FINAL		

Plumbing Inspections		
Water Service		
Sewer Service		
Ground / Under Floor Plumbing		
Underground Secondary Conduit		
Rough Plumbing		
DWV Test		
Roof Drain / Overflow Test		
Gas Service		
Gas Test		
Water Heater Replacement		
Miscellaneous Plumbing		
PLUMBING FINAL		

Foundation / Slab / Concrete Inspections		
Setback / Foundation / Forms		
Pier / Column Footings		
Wire / Membrane / Slab		
Closure Strips		
Floor Deck Slab		
Column Base Grout		
Grade Beams		
Retaining Wall Footings		
Retaining Wall Bond Beams		
Walkway / Ramp Pre-Pour		
Miscellaneous Concrete Pours		

Inspection	*Date*	*Inspector*
Structural / Finish Inspections		
Stem Wall / Girder / Floor Joist		
Floor Insulation		
Tilt-Up Panels		
Block Wall Bond Beams		
Party Wall Rock Nail		
Exterior Wall Shear		
Floor / Deck Sheathing		
Roof / Deck Sheathing		
Fireplace Throat		
Additional / Missed Anchors		
Interior Shear Walls		
Exhaust / Elevator Shaft Walls		
Floor Framing / Trusses		
Roof Framing / Trusses		
Rough Frame		
Wall / Ceiling Insulation		
Lath		
Scratch Coat		
Draft Stops		
Ceiling T-Bar		
Sheetrock Nail		
Pre-Roof		
Racks		
Miscellaneous Structural / Finish		

FINAL MILITARY DEPARTMENT SIGNOFF

PRIOR TO CALLING FOR FINAL INSPECTION THE BELOW DEPARTMENT OFFICIALS MUST SIGN.

PLEASE MAKE A COPY OF THIS CARD FOR YOUR RECORDS AND RETURN THIS CARD TO THE GOVERNMENT COR.

	Date	*Signature*
Post DPW		
Area Coordinator		
Architect of Record		
Inspector of Record		
Government COR		
CMD Final Inspection		

Contact Numbers

Contractor Superintendent	
Name:	Phone:
Contractor Safety Officer	
Name:	Phone:
Government Inspector	
Name:	Phone:
Government COR	
Name:	Phone:

Proponent for this Form is

CMD - J9

9800 Goethe Rd, Sacramento, CA 95826

NO INSPECTIONS WILL BE MADE UNLESS APPROVED PLANS ARE ON JOBSITE

Section 01 30 10 – Administrative Requirements

COLLABORATION SOFTWARE

1. SUMMARY
    a. Contractor shall utilize web-based construction project management collaboration software commonly known as Procore (www.procore.com) to submit, track, distribute and fully collaborate on project documentation and action items. Wherein this specification references Procore it shall mean the California Military Department (CMD) Procore account.
    b. The intent of utilizing a web-based construction management application is to reduce cost and schedule risk, improve quality and safety, and maintain a healthy team dynamic by improving information flow, reducing non-productive activities, reducing rework and decreasing turnaround times.
2. SOFTWARE USAGE (including but not limited to)
    a. Daily Log
        i. Using the Daily log tool within Procore, Contractor shall provide a separate daily log entry for the Superintendent, Site Safety and Health Officer and Quality Control team (as defined elsewhere in this contract). Should contractor already have an established process for documenting Daily work activities, Safety and QCM, the CMD may, at its sole discretion, permit the use of some or all of the contractors' reports provided they are uploaded daily into Procore Daily log tool as directed by the Department.
        ii. Contractor shall upload pictures daily when work is performed. A reasonable number of pictures shall be taken to illustrate the work of the project but in any event no less than 10 photos daily, if work is interior and exterior there shall be 10 of each area of work. Photos shall be made available to the entire project team, loaded directly into the Procore platform, using the “Photos” tool and provided relevant naming convention to permit search features at a later date. These uploads shall be in addition to those required in the Section 01 30 00 (if addressed) and elsewhere in the contract.
    b. Directory
        i. Contractor shall input and update (as required) the Procore project directory to include all key project team members. As directed by the CMD, subcontractors may not be required to participate within the Procore project. Should CMD require participation of subcontractors withing Procore, participation will be at no additional cost or expense.
    c. Deficiency Tracking
        i. Contractor shall respond promptly to deficiencies and observations identified in PROCORE and do so in accordance with the terms and conditions of this contract.
    d. Documents
        i. Contractor will, as directed by the Department, utilize the Procore “Documents” storage location for miscellaneous project documents. Contractor shall not upload documents unless directed by the Department. Documents loaded shall have a naming convention of title/subject to permit search functions of the Procore system.
        ii. Contractor shall use proper version control and check out files, without compromising access to all previous revisions.

e. Drawings

    i. Project Drawings will be located in the Drawings tool of Procore. Any drawing revisions will be made in Procore and it shall be contractors' sole responsibility to stays abreast of any changes including contract modifications. Contractor shall, as directed by the Department, maintain the contractually required “as built” drawings in the Procore.

f. Invoicing

    i. If requested by the Department, the Contractor shall utilize Procore Invoicing tool for invoice submission. Invoicing shall be submitted as further defined in this contract using AIA forms uploaded as attachments to each submission.

g. Inspections

    i. Contractor shall utilize the Procore platform as directed by CMD for all project inspection requests. Inspection process shall be as defined elsewhere the contract documents.

h. Meetings

    i. Contractor shall utilize Procore Meetings tool to create, edit and post meeting minutes. Prior Meeting minutes shall remain accessible through the duration of the project. At the sole discretion of the department, the contractor may be permitted to utilize existing meeting practices if they meet the intent of the government, in which case contractor shall ensure a record copy of any such meeting is posted in Procore as directed by the department.

    ii. Contractor will record and distribute meeting minutes and action items via the Meetings tool within the Procore software.

i. Mobile Accessibility

    i. Contractor shall provide at least one mobile (Apple or Android) tablet or computer (phone is not acceptable) with the Procore App installed for the use of Contractor’s team for the duration of the project. Contractor is responsible for ensuring a reliable internet connection for the device.

j. Photos

    i. Contractor shall utilize Procore Photos tool or other tools as directed to upload and view photos from web and mobile.

    ii. Contractor shall utilize Procore to markup or comment on photos to clarify the intent of RFI’s etc.

k. Punchlist

    i. All punch list items will be managed through the Procore software.

    ii. Contractor shall utilize Procore to create and manage punch list items utilizing mobile products and link them to specific locations on the drawings.

    iii. Punchlist items will be created by the Contractor while walking with the CMD and applicable consultants.

    iv. Contractor shall utilize Procore to distribute punch list items and to mark them as resolved with photographic proof of resolution as required.

    v. Unless otherwise agreed in writing, Punchlist Items may not be closed while a representative from the CMD or applicable consultant acting on behalf of CMD is not present.

l. Requests for Information (RFIs)

i. Contractor shall utilize the RFI tool within Procore to create and process RFIs with assignees, due dates and attachments.

ii. Contractor shall fully complete the RFI tool request form, posting the RFI to the drawing(s) and link all relevant specifications, photos, etc. in the Procore RFI tool whenever submitting RFI's to the CMD. Failure to do so will result in rejection of the review and be deemed a review by the CMD as defined elsewhere in the contract documents.

iii. If project includes design, drawings will be provided to the CMD in accordance with the following requirements:

https://support.procore.com/faq/how-can-i-improve-the-accuracy-of-ocr-on-my-drawings

m. Schedule

i. Contractor shall provide native files as required by Procore and as defined elsewhere in the contract documents. Procore accepts typical scheduling software such as Microsoft Project, Primavera P3, or Primavera P6.

n. Specifications

i. Project Specifications will be uploaded into Procore. Any project revisions will be made in Procore and it shall be the contractors' sole responsibility to stays abreast of any changes including contract modifications.

o. Submittals

i. Contractor shall maintain the submittal register in Procore of all submittals as directed by the CMD.

ii. Contactor shall submit all submittals through the Procore "Submittals" tool utilizing the multi-step approval workflows predefined by the CMD and in accordance with the terms provided elsewhere in the contract documents.

iii. Contractor shall fill out the submittals completely. A failure to do so will result in automatic rejections and be deemed a "review" as provided elsewhere in the contract.

3. TECHNOLOGY

a. Contractor shall have PDF and the Microsoft suite software as they are a requirement of Procore. Attachments to RFIs, Submittals, Meetings, etc. should be uploaded in PDF as required by Procore.

4. TRAINING AND SUPPORT

a. Contractor shall designate a minimum of one primary and one backup staff person to administer the contractors' Procore responsibilities of this project. Those personnel will be trained as defined below and shall not rely on the CMD staff for training.

b. The Contractor shall ensure adequate training of all staff utilizing the Procore software. Selected staff must complete all required training necessary to fully function in the system and on this project. Training is offered in the form of self-paced learning videos as well as interactive webinars. Training is free and can be found at:

https://education.procore.com/page/procore-certification-general-contractor-client

c. The contractor shall host a kickoff meeting with the CMD and applicable team members at the beginning of the project to discuss how the software will be used, routing & naming protocols, etc. Project Subcontractors should not be part of the Procore platform unless otherwise directed by the Department.

5. PROCEDURES
    a. RFIs and Submittals
        i. The Contractor will be responsible for submitting all RFIs and Submittals through the Procore software tools and assigning them to the appropriate parties using predetermined workflows. All data fields shall be filled out completely and routed as defined in the project kickoff/Job Start meeting.
        ii. All project team members including Architects / Engineers / Consultants etc. are responsible for posting all responses to these items via the Procore software, including uploading all relevant attachments.
        iii. The Contractor will, as directed by CMD, distribute responses to all affected subcontractors and confirm agreement with the response by “close and distribute” action on the item.
    b. Construction Documentation
        i. The Contractor will construct pursuant to Drawings, Specifications and Documents in the software and ensure that the current version of all applicable construction documentation is available to the entire team within Procore software.
        ii. The Contractor will ensure that all RFIs which modify the current drawings are posted/linked to the drawings and available in the Procore software immediately upon response from the department.
6. COST
    a. The Contractor’s bid proposal shall be inclusive of full utilization of the Procore software costs. The program is hosted by the CMD and no adjustment to the contract will be made for utilization.

ABBREVIATIONS

A	
AB	ANCHOR BOLT
AC, A/C	AIR CONDITIONER
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
APPROX	APPROXIMATE
AUX	AUXILIARY
B	
BCW	BARE COPPER WIRE
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
C	
CERT	CERTIFIED
CI	CAST IRON
CJ	CONTROL JOINT
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CO	CLEANOUT
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONST	CONSTRUCTION
COR	CONTRACTING OFFICER'S REPRESENTATIVE
COTF	CLEANOUT THRU FLOOR
COTW	CLEANOUT THRU WALL
CR	CURB RETURN
CTR	CENTER
Cu	COPPER
CW	COLD WATER
D	
DBL	DOUBLE
DED	DEDICATED
DEG	DEGREE
DEMO	DEMOLISH, DEMOLITION
DTL	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DS	DOWN SPOUT
DWG	DRAWING
E	
EA	EACH
EC	EVAPORATIVE COOLER
ELECT	ELECTRICAL
EMERG	EMERGENCY
(E)	EXISTING
EXIST	EXISTING
EJ	EXPANSION JOINT
EXT	EXTERIOR
F	
FACP	FIRE ALARM CONTROL PANEL
FC	FACE OF CURB
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FRP	FIBERGLASS REINFORCED PANEL
FT	FEET
FTG	FOOTING
G	
GA	GAUGE
GALV	GALVANIZED
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFE	GOVERNMENT FURNISHED EQUIPMENT
GWB	GYPSUM WALL BOARD
H	
H.C.M.	HOLLOW CORE METAL
HT	HEIGHT
HTG	HEATING
HVAC	HEATING/ VENTILATING AIR CONDITIONING
HW	HOT WATER
I	
IN	INCHES
INSUL	INSULATION
INT	INTERIOR
K	
KV	KILO VOLT
KVA	KILO VOLT AMPERE
L	
LAV	LAVATORY
LB	POUND
M	
MAS	MASONRY
MAX	MAXIMUM
MECH	MECHANICAL
MFG	MANUFACTURER
MIN	MINIMUM
MUA	MAKE-UP AIR
N	
(N)	NEW
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NSP	NEW STANDARD PLAN
NTS	NOT TO SCALE
O	
OC	ON CENTER
OH	OVERHEAD
O.S.A.	OUTSIDE AIR
P	
PMF	PRESSED METAL FRAME
PNL	PANEL
P.O.C.	POINT OF CONNECTION
PSF	
PSI	POUNDS PER SQUARE INCH
Q	
QTY	QUANTITY
R	
RAD	RADIUS
RD	ROOF DRAIN
RECPT	RECEPTACLE
REQ'D	REQUIRED
REV	REVISION (REVISED)
RGS	RIGID GALVANIZED STEEL
RSP	REVISED STANDARD PLAN
S	
SS	SANITARY SEWER / SERVICE SINK
SA	SUPPLY AIR
SC	SOLID CORE
SCHED	SCHEDULE
SECT	SECTION
SHR	SHOWER
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION
SS	STAINLESS STEEL
T	
TBC	TOP BACK OF CURB
TBD	TO BE DETERMINED
TEL	TELEPHONE
THK	THICK
TP	TRAP PRIMER
TS	TIMER SWITCH
TYP	TYPICAL
U	
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UTIL	UTILITY
V	
VAR	VARIABLE, VARIES
VB	VAPOR BARRIER
V	VENT OR VOLT
VERT	VERTICAL
VR	VERTICAL RISER
VTR	VENT THRU ROOF
W	
WC	WATER CLOSET
WD	WOOD
WHA	WATER HAMMER ARRESTOR
WP (WP)	WEATHER PROOF
WT	WEIGHT
X	
XFMR	TRANSFORMER
Y	
YD	YARD

BUILDING CODE INFORMATION

BUILDING CONSTRUCTION TYPE:	TYPE V-B
OCCUPANCY CLASSIFICATION:	R-2
S.F. / OCCUPANCY	5,160
NUMBER OF STORIES:	2
ACTUAL BUILDING HEIGHT:	23'-6"
BUILDING AREA (S.F.):	5,160
AREA OF PROJECT (S.F.):	5,160 S.F.
ALLOWABLE AREA PER CBC:	N/A
AREA / HEIGHT INCREASE:	N/A
FIRE SPRINKLERED:	NONE
FIRE ALARM:	YES
FIRE PROTECTION SYSTEMS:	NONE
SMOKE CONTROL SYSTEM:	NONE
BUILDING CODES:	• 2015 INTERNATIONAL BUILDING CODE • 2017 NATIONAL ELECTRICAL CODE • 2015 INTERNATIONAL MECHANICAL CODE • 2015 INTERNATIONAL PLUMBING CODE • 2015 INTERNATIONAL FIRE CODE □ 2016 NAPA 13- INSTALLATION OF FIRE SPRINKLERS* □ 2016 NAPA 72- NATIONAL FIRE ALARM AND SIGNALING CODE* □ 2016 NAPA 17A

GENERAL NOTES

1. CONTRACTOR SHALL VISIT SITE AND VERIFY ALL DIMENSIONS AND CONDITIONS OF WORK AREA PRIOR TO ORDERING OR FABRICATING ANY MATERIALS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO UTILITIES INCURRED DURING THE PROGRESS OF THE WORK OF THIS PROJECT. THIS DAMAGE INCLUDES, BUT IS NOT LIMITED TO DAMAGE TO ELECTRICAL RUNS, SEWER, GAS OR WATER PIPING AND CABLE TV WIRES/CABLES. INSPECT ALL SURFACES OF ALL AREAS OF THE WORK PRIOR TO INITIATING ANY TASKS WHICH MAY RESULT IN SUCH DAMAGE.
3. CONTRACTOR SHALL REVIEW THE PLANS AND SPECIFICATIONS PRIOR TO STARTING ANY WORK ON THIS PROJECT. ANY ERRORS AND / OR OMISSIONS, ERRORS IN DIMENSIONS OR ANY CONDITION WHICH WILL NOT PERMIT CONSTRUCTION OF THE WORK SHOWN ON THESE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER. CONTRACTOR SHALL NOT BEGIN WORK UNTIL PROJECT MANAGER HAS CLARIFIED ALL SUCH CONCERNS TO THE SATISFACTION OF ALL PARTIES.
4. ALL MATERIALS DEMOLISHED AS PART OF THE WORK OF THIS PROJECT SHALL BE REMOVED FROM SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND ALL STATE AND FEDERAL REGULATIONS.
5. CONTRACTOR IS RESPONSIBLE TO PROVIDE ADEQUATE PUBLIC SAFETY & TRAFFICE CONTROL. SAFE VEHICULAR & PEDESTRIAN ACCESS SHALL BE PROVIDED AT ALL TIMES DURING TIMES DURING CONSTRUCTION.
6. CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION HE OR SHE IS RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES FOR VERIFICATION AT THE CONSTRUCTION SITE OF THE LOCATION OF ALL UNDERGROUND FACILITIES WHERE SUCH FACILITIES MAY POSSIBLY CONFLICT WITH THE PLACEMENT OF THE IMPROVEMENTS SHOWN ON THESE PLANS. CONTACT "UNDERGROUND SERVICE ALERT" AT 800-227-2600 TWO (2) DAYS MINIMUM TO FOURTEEN (14) DAYS MAXIMUM BEFORE ANY EXCAVATION IS STARTED.
7. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS, AND FEES REQUIRED OR RELATED TO THIS WORK.
8. CONTRACTOR SHALL VERIFY ALL OPENINGS IN THE FIELD PRIOR TO FABRICATION OF ALL DOORS AND FRAMES.
9. UNLESS OTHERWISE NOTED, ALL SEALANT OR FILLING MATERIALS TO MATCH ADJACENT SURFACES.
10. INSTALL ALL METAL CORNER BEADS AT THE EXPOSED WALLBOARD EDGES. INSTALL CASING BEADS WHEVER WALLBOARD, PLASTER, ETC. ABUTS A DISSIMILAR FINISH MATERIALS.
11. ALL PENETRATIONS THROUGH EXTERIOR WALL SHALL BE SEALED TO PREVENT AIR INFILTRATION.
12. IN CASE OF CONFLICT BETWEEN THE WORKING DRAWINGS & SPECIFICATIONS, SPECIFICATIONS SHALL GOVERN.
13. ALL MATERIALS MUST BE ASBESTOS FREE.
14. DETAILS MARKED "TYPICAL", SHALL APPLY IN ALL CASES UNLESS SPECIFICALLY INDICATED OTHERWISE.
15. WRITTEN DIMENSIONS ON DRAWINGS SHALL GOVERN. DO NOT SCALE THE DRAWINGS.

LEGEND

9" x 9" — NECK SIZE, IN.
SR-2 — SUPPLY OR RETURN TYPE
150 CFM — CFM

RETURN REGISTER
OR — SUPPLY REGISTER / DIFFUSER
EXHAUST FAN OR GRILLE
FLEX DUCT
RIGID DUCT W/ BALANCE DAMPER
AIR FLOW
GAS
HOT WATER
COLD WATER
A—# IN 3/4"C — NEW EXPOSED HOMERUN W/ DESTINATION INDICATED
EXPOSED CONDUIT
UNDER SLAB CONDUIT
UNDERGROUND/DUCT BANK CONDUIT
CONCEALED CONDUIT

DETAIL SYMBOL
DETAIL NUMBER
SHEET NUMBER WHERE DETAIL APPEARS
DOOR SYMBOL
DOOR TYPE
DOOR NUMBER
SECTION OR ELEVATION SYMBOL (OR COMBINATION)
SECTION OR ELEVATION NUMBER
SHEET NUMBER WHERE SECTION OR ELEVATION APPEARS
WALL MOUNTED MOTION SENSOR
GROUND ROD
OR — DISCONNECT SWITCH
DUPLEX RECEPTACLE
JUNCTION BOX
CEILING MOUNTED EXHAUST FAN
CIRCUIT BREAKER
TRANSFORMER

$ — SINGLE POLE SWITCH
$3 — 3-WAY SWITCH
$T — TIMER SWITCH
ELECTRICAL PANEL
(S) — TEMPERATURE SENSOR
(T) — THERMOSTAT
TELEPHONE JACK / DATA PORT
FLUORESCENT LIGHT FIXTURE
WALL MOUNT FIXTURE
EXIT LIGHT
COMBINATION EXIT & EMERGENCY LIGHT
EMERGENCY EXIT
TELEPHONE JACK
(SD) — FIRE DAMPER DETECTOR

SCOPE OF WORK

THE SCOPE OF WORK FOR THIS PROJECT IS TO RENOVATE (E) 24 BARRACKS (BUILDINGS 4212-4219, 4302-4309, AND 4312-4319). SEE PLANS & SPECIFICATIONS.

SHEET INDEX

Sheet List Table

Sheet Number	Sheet Title
T1	TITLE SHEET
ARCH	
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A2	TYPICAL BARRACKS MODIFED FLOOR PLANS
A3	TYPICAL ENLARGED LATRINE FLOOR PLAN & NOTES
A4	TYPICAL LATRAIN ELEVATIONS AND NOTES
A5	TYPICAL BUILDING SECTION, DETAILS & NOTES
A6	TYPICAL DETAILS
A7	TYPICAL BARRACKS DOOR, FINISH SCHEDULES & DETAIL
MECHANICAL	
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E4	TYP. FIRE ALARM SYMBOLS, LEGEND, ABBREVS & DIAGRAM
E5	TYPICAL FIRE ALARM PLANS

CALIFORNIA ARMORY MAP



LOCATION MAP
SCALE: NONE

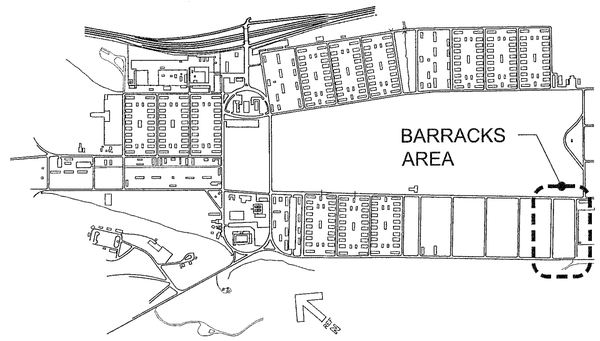


California Military Department

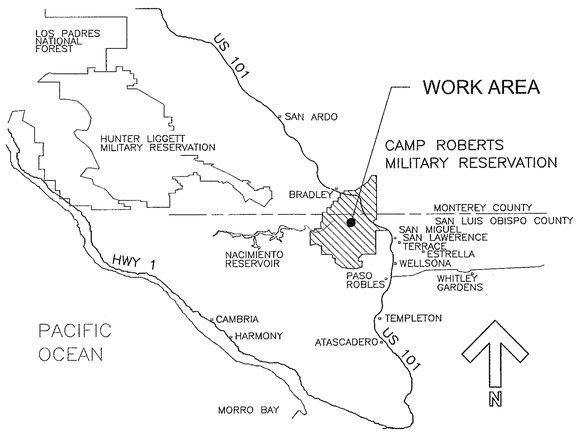


BARRACKS RENOVATION

CAMP ROBERTS, SAN MIGUEL, CA 93451-5000



SITE PLAN
SCALE: NONE



VICINITY MAP
SCALE: NONE

REVISIONS	SYMBOL	DATE	REMARKS	BY:

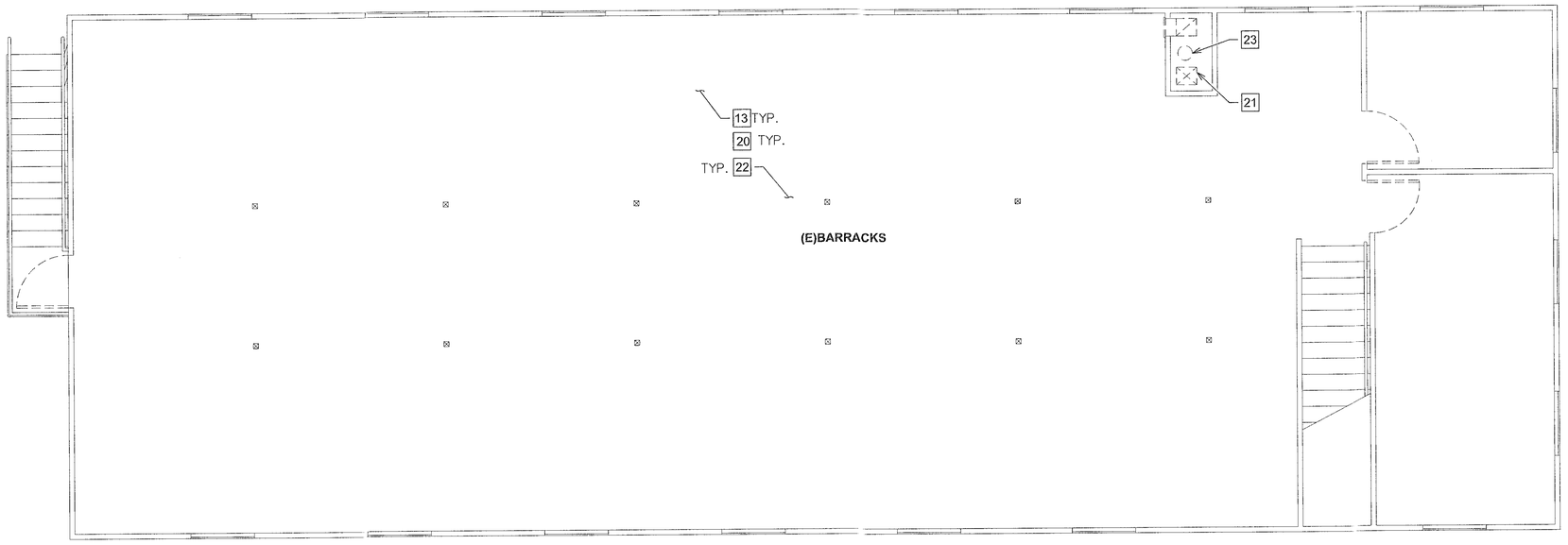
DRAWN BY: MC
DESIGNED BY: NG
CHECKED BY: NG
APPROVED BY: NG
DATE: APR 11, 2019

PROJECT NUMBER: 06R1904-27

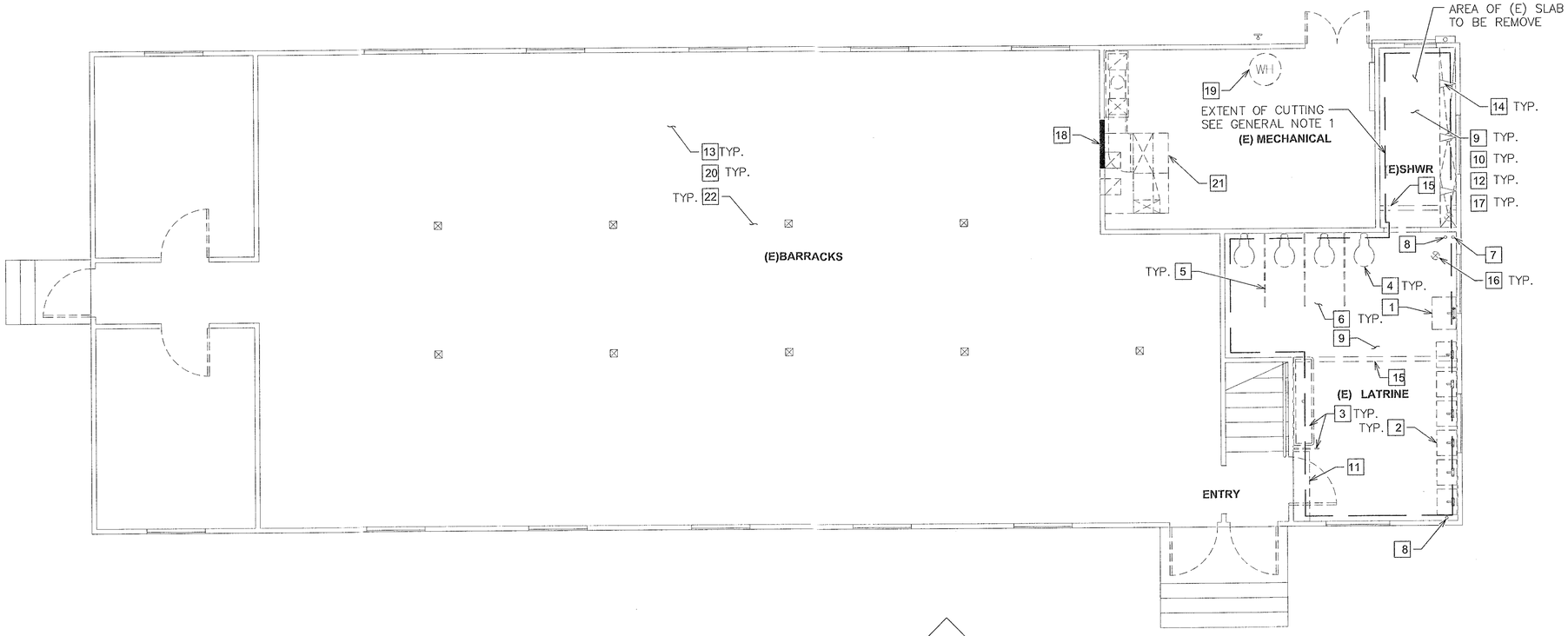
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
MILITARY DEPARTMENT
STATE OF CALIFORNIA

SHEET TITLE: TITLE SHEET

SHEET NUMBER: T1



TYPICAL DEMOLITION BARRACKS SECOND FLOOR PLAN
Scale: 1/4"=1'-0"



TYPICAL DEMOLITION BARRACKS FIRST FLOOR PLAN
Scale: 1/4"=1'-0"

REF
N

KEYNOTES:

1. REMOVE (E) WASH BASIN, FIXTURES AND PLUMBING. SEE PLUMBING.
2. REMOVE (E) LAVATORIES, FIXTURES, AND PLUMBING BACK TO POINTS OF CONNECTION AT VENT/DRAIN LINE & WATER LINE.
3. REMOVE (E) URINAL, FIXTURES. PLUMBING AND PARTITION. SEE PLUMBING.
4. REMOVE (E) WATER CLOSETS, FIXTURES AND PLUMBING. SEE PLUMBING.
5. REMOVE (E) TOILET PARTITIONS, ANCHORS AND FASTENERS.
6. REMOVE ENTIRE CONCRETE SLAB IN LATRINE INCLUDING SHOWER AREA AND ENCASED PIPING.
7. CHIP EXTERIOR STEM WALL TO REMOVE (E) WATER SUPPLY PIPING. SEE PLUMBING.
8. REMOVE (E) VENT PIPES. SEE PLUMBING.
9. REMOVE ALL (E) 1x SIDING FROM INTERIOR OF LATRINE AND SHOWER.
10. GROUT (E) JOINT AT PERIMETER OF SHOWER AREA AT THE FLOOR / STEM WALL JUNCTURE, TYP.
11. REMOVE (E) CONC STEP(S).
12. REMOVE ALL (E) METAL SIDING FROM INTERIOR OF SHOWER AREA, INCLUDING CEILING AND OPENING EXPOSING THE (E) STUD FRAMING.
13. REMOVE (E) FLOOR TILE, MASTIC, WOOD UNDERLAYMENT AND (E) BASEBOARD (FOR TILE REMOVAL UNDER BASEBOARD). DOWN TO ORIGINAL LINOLEUM ON STRIP WOOD FLOOR.
14. REMOVE (E) SHOWER FIXTURES AND ASSOCIATED WATER LINES. SEE PLUMBING.
15. (E) OVERHEAD WOOD BEAM.
16. REMOVE (E) FLOOR DRAINS. SEE PLUMBING.
17. VERIFY (E) CONSTRUCTION CONDITIONS PRIOR TO REMOVING WOOD SHEATHING FROM THE INTERIOR OF EXTERIOR WALLS IN SHOWER. COORDINATE DEMO WITH C.O.R.
18. CUT AN OPENING IN (E) WALL TO ACCOMMODATE A NEW DOOR. SEE DOOR SCHEDULE.
19. REMOVE (E) WATER HEATER. SEE PLUMBING.
20. REMOVE (E) CEILING FOR ENTIRE BUILDING.
21. REMOVE (E) HVAC. SEE MECHANICAL.
22. REMOVE (E) PERIMETER BASEBOARD, TILE & UNDERLAYMENT.
23. REMOVE (E) CLAY/METAL VENT PIPE, SEE PLUMBING.

NOTES:

1. CUT (E) FLOOR SLAB AS SHOWN. CUT SHALL BE 4" AWAY FROM WALLS TO AVOID (E) FOOTING.
2. REMOVE ALL (E) INTERIOR FINISHES FOR THE ENTIRE BUILDING, INCLUDING WALL, FLOORING & CEILING UNLESS OTHERWISE NOTED.
3. REMOVE ALL (E) BATHROOM ACCESSORIES & FIXTURES UON.
4. SEE MECHANICAL/PLUMPING DRAWINGS FOR DEMOLITION.
5. SEE NOTES ON ELECTRICAL DRAWINGS FOR DEMOLITION.

LEGENDS

(E) WALLS

OBJECTS TO BE REMOVED

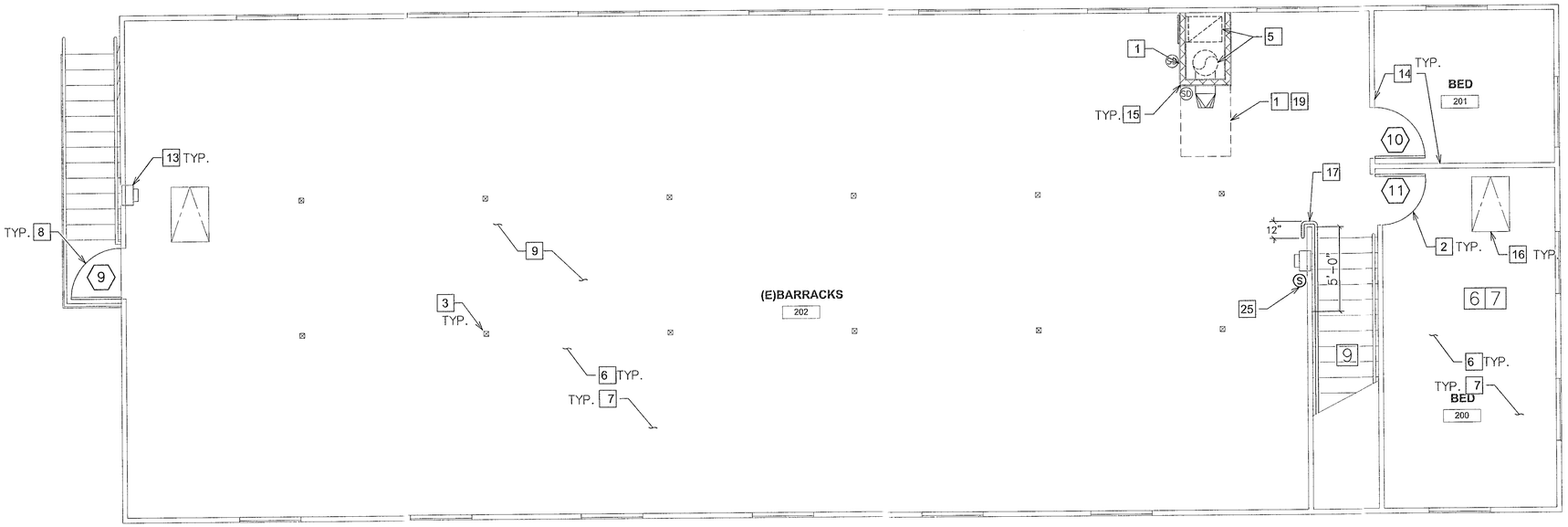
LICENSED ARCHITECT — MICHAEL CHIN — No. 24997 — Exp. 7-19 — STATE OF CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS
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.	.	.		

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
MC	NG	NG	NG

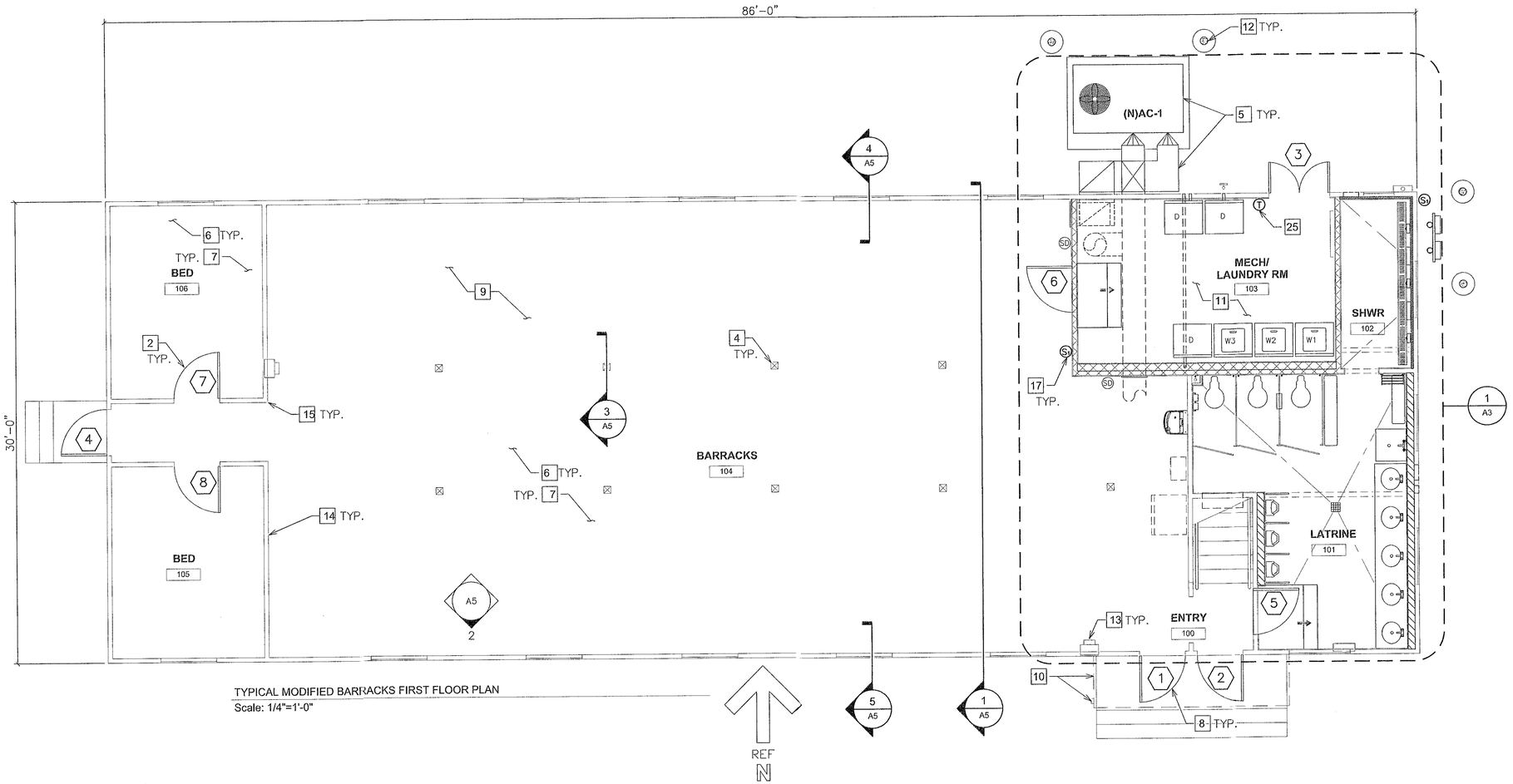
SHEET TITLE: TYPICAL BARRACKS DEMOLITION FLOOR PLANS
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
PROJECT NUMBER: 06R1904-27
LOCATION: CAMP ROBERTS, CALIFORNIA
DATE: APR 11, 2019
STATE OF CALIFORNIA — MILITARY DEPARTMENT

SHEET NUMBER: A1



TYPICAL MODIFIED BARRACKS SECOND FLOOR PLAN

Scale: 1/4"=1'-0"



TYPICAL MODIFIED BARRACKS FIRST FLOOR PLAN

Scale: 1/4"=1'-0"

KEYNOTES:

1. INSTALL 5/8" TYPE X GYP. BD. ON ALL SURFACES OF DUCT ENCLOSURE.
2. REPLACE ALL (E) INTERIOR DOORS AND FRAMES W/ KNOCK-DOWN FRAME AND ASSOCIATED HARDWARE. DOORS SHALL LEAVE 3/4" SPACE AT BOTTOM OF DOOR FOR RETURN AIR. BEST LOCKS TO INCLUDE CORE.
3. (E) 4x4 POSTS – TYP. INSTALL 1x BASEBOARD AROUND (E) POST IF NO (E) BASEBOARD IS PRESENT.
4. (E) 6x6 POSTS – TYP. INSTALL 1x BASEBOARD AROUND (E) POST IF NO (E) BASEBOARD IS PRESENT.
5. INSTALL HVAC, SEE MECHANICAL.
6. INSTALL 5/8" STURD-I-FLOOR UNDERLAYMENT BASE T&G PLYWOOD, PLUGGED & SANDED OVER (E) WOOD 2x FLOOR SHEATHING. USE RING SHANK NAILS AT 6 & 12 PATTERN.
7. INSTALL POLYUREA COATING SYSTEM (PRIMER, POLYUREA COAT AND PIGMENTED TOP COAT) OVER PREPARED STURDI-FLOOR SUBSTRATE. EXTEND COATING TO TOP OF BASEBOARD.
8. REPLACE ALL (E) EXTERIOR DOOR AND FRAMES. BEST LOCKS TO INCLUDE CORES. ALL EXTERIOR DOORS TO BE REFRAMED TO NEW WIDTHS AND TO ALLOW INSTALLATION OF TRIMMERS UNDER 4x HEADERS. ALSO GLAZING, THRESHOLD WITH SWEEP, FLASHING, WEATHER STRIPPING. PROVIDE SHOP DRAWING OF FRAMING/FLASHING DETAIL.
9. INSTALL CEILING FOR ENTIRE BUILDING. SEE A5.
10. REPAIR (E) CANOPY AS NECESSARY TO ENSURE (E) DOWNSPOUT PROVIDES ADEQUATE CLEARANCE FOR DOOR SWING.
11. 1 HR RATED CEILING W/ 2 LAYERS OF 5/8" TYPE X GYP BD ATTACHED TO (E) CEILING FRAMING IN MECH/LAUNDARY ROOM.
12. BOLLARD, SEE DETAIL 3/M3.
13. FRAME FOR AND INSTALL SEMI-RECESSED 20 LBS FIRE EXTINGUISHER CABINETS. CABINETS TO BE AMBASSADOR OR EQUAL.
14. INSTALL INTERIOR WALLS WITH R-11 ACOUSTICAL INSULATION.
15. INSTALL CORNER GUARD, HEIGHT OF WAINSCOTING, PAINTED GALVANIZED AT ALL OUTSIDE CORNERS.
16. 24"x36" ATTIC ACCESS FRAME, DOOR, WITH LOCK, NON-FIRE RATED.
17. THERMOSTAT SENSORS & THERMOSTAT, SEE ELECTRICAL.
19. INSTALL SOFFIT TO ACCOMMODATE SUPPLY DUCT. SEE MECHANICAL.

LEGENDS

- (E) WOOD FRAMED WALLS
- 2x6 (E) 2x — 1 HR RATED WALL – (E) WOOD STUD WALL W/ FURRED WALL W/ 2x6 STUDS @ 16" O.C. W/ 5/8" TYPE X GYP BD ON EACH SIDE W/ R-13 INSULATION.
- (E) 2x — 1 HR RATED WALL – (E) WOOD STUD WALL W/ 5/8" TYPE X GYP BD ON EACH SIDE W/ R-13 INSULATION
- 2x — WOOD FRAMED FURRED WALL W/ 2x6 STUDS @ 16" O.C. FULL HEIGHT UON. 5/8" WATER RESISTANT GYP BD OVER 5/8" CDX STRUCT 1 PLYWOOD IN LATRINE
- 2x — WOOD FRAMED FURRED WALL W/ 2x FLAT STUDS @ 16" O.C. SHEATH WITH 5/8" CCX STRUCT 1 PLYWOOD W/ POLYUREA COATING OVER AT EXTERIOR WALLS IN SHOWER
- (X) DOOR TAG, SEE DOOR SCHEDULE.

LICENSED ARCHITECT — MICHAEL CANNON — No. 24997 — Exp. 7-19 — STATE OF CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS
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DRAWN BY: MC
DESIGNED BY: NG
CHECKED BY: NG
APPROVED BY: NG

SHEET TITLE: TYPICAL BARRACKS MODIFED FLOOR PLANS
PROJECT: CAMP ROBERTS – BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
PROJECT NUMBER: 06R1904-27
DATE: APR 11, 2019
MILITARY DEPARTMENT
STATE OF CALIFORNIA

SHEET NUMBER A2

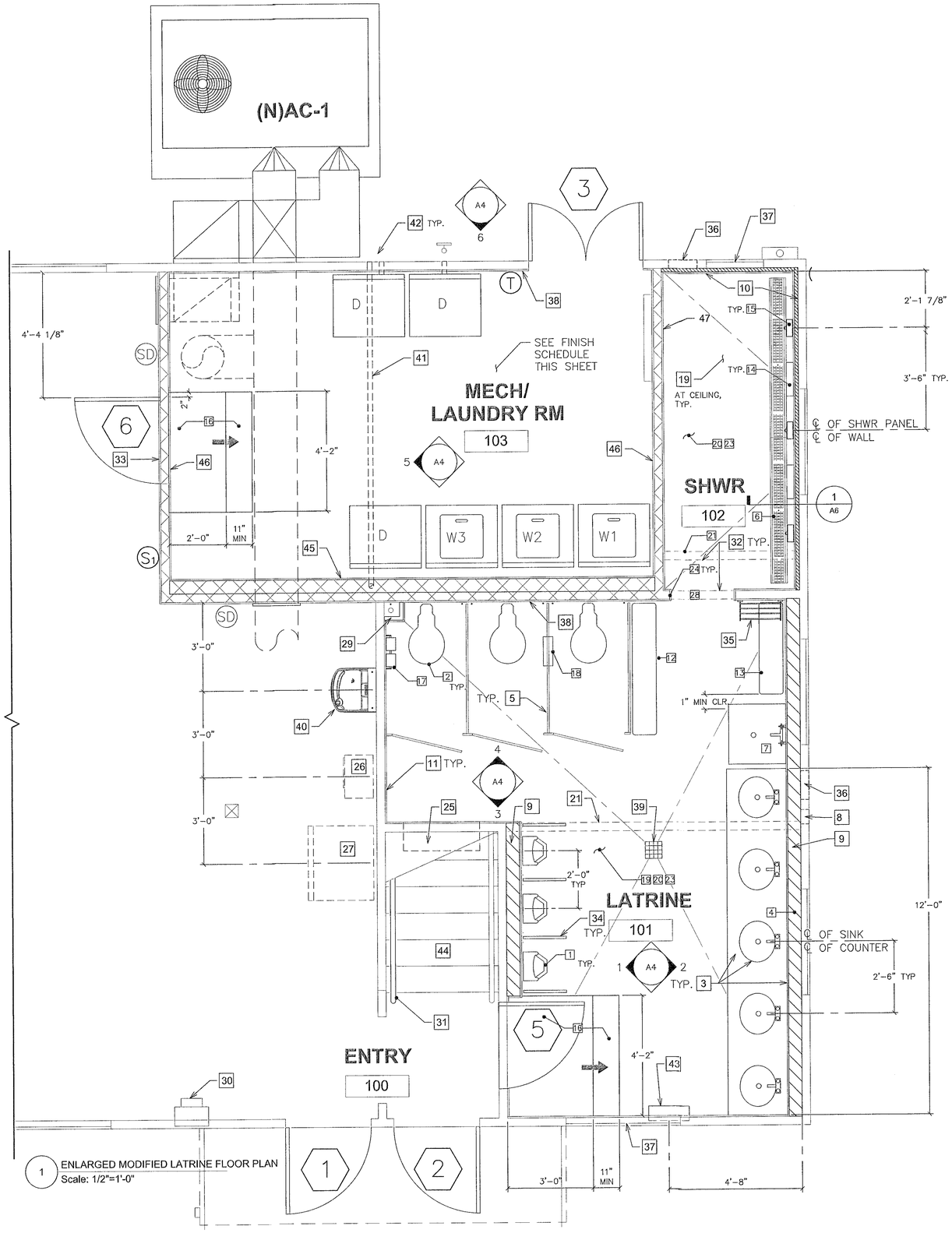
3 OF 19

KEYNOTES:

1. WALL MOUNTED URINALS AND ASSOCIATED PLUMBING FIXTURES.
2. WATER CLOSETS AND ASSOCIATED PLUMBING FIXTURES.
3. CORIAN OR EQUAL COUNTERTOP W/ INTEGRAL UNDER MOUNT LAVATORIES (OVER 3/4" PLYWOOD BASE) AND ASSOCIATED PLUMBING FIXTURES AND 18"x30" MIRRORS.
4. CONTINUOUS 6" DEEP SOLID SURFACE SHELF, WIDTH TO MATCH LAV COUNTERTOP.
5. H.D.P.E. TOILET PARTITIONS W/ ASSOCIATED HARDWARE.
6. 16 Ga. STAINLESS STEEL TROUGH LINER W/ REMOVABLE GRATE. SECURE LINER TO (E) CONC TROUGH W/ SIKAFLEX 1-A OR SONNEBORN NP-1 SEALANT. COORDINATE DRAIN LOCATION IN SHOWER. SEE DETAIL 2 & 3/A6.
7. FLOOR MOUNTED MOP SINK AND ASSOCIATED PLUMBING FIXTURES.
8. HF, WALL HYDRANT, SEE PLUMBING.
9. WOOD FRAMED FURRED WALL W/ 0.09" WHITE FRP, SEE ELEVATIONS FOR HEIGHT. TRIM SHALL BE BRUSHED ANODIZED ALUMINUM TRIM. SEE WALL LEGEND.
10. WOOD FRAMED FURRED WALL, SEE WALL LEGEND.
11. 5/8" WATER RESISTANT GYP BD OVER 5/8" CDX STRUCT 1 PLYWOOD OVER (E) WOOD STUDS. COVER W/ 0.09" WHITE FRP, SEE ELEVATIONS FOR HEIGHT.
12. 10" WIDE x 4'-6" LONG H.D.P.E. BENCH @ 17" AFF., USE ALUM. SUPPORT LEGS.
13. 10" WIDE x 38" LONG H.D.P.E. BENCH @ 17" AFF. USE ALUM. SUPPORT LEGS. BENCH SHALL BE 1" SET BACK FROM MOP SINK.
14. 14" WIDE H.D.P.E. SHELVES W/ HEAVY DUTY SHELF SUPPORTS.
15. SURFACE MOUNTED SHOWER PANEL.
16. CONC. LANDING AND RISER(S) W/ 3,000 PSI MIX SACKS.
17. SURFACE MOUNTED TOILET TISSUE DISPENSER FOR TWO ROLLS. BOBRICK B-686 OR EQUAL.
18. PARTITION MOUNTED TOILET TISSUE DISPENSER FOR TWO ROLLS. BOBRICK B-386 OR EQUAL.
19. 2x4 BLOCKING @ 16" O.C. BETWEEN (E) CEILING JOISTS IN LATRINE & SHOWER. SEE SHEET A4.
20. INSTALL POLYUREA COATING SYSTEM ON (E) EXPOSED CONCRETE SURFACES IN LATRINE AND SHOWER AREA.
21. (E) OVERHEAD WOOD BEAM. WRAP IN DRYWALL AND FINISH TO MATCH.
22. SHEATH SHOWER INTERIOR WALLS W/ 5/8" CCX STRUCT 1 PLYWOOD W/ POLYUREA COATING. SEE SHEET A4.
23. INSTALL 4" CONC SLAB IN LATRINE AND SHOWER AREA. SEE SHEET A4.
24. CORNER GUARDS TO BE USED TO EDGE FRP SURROUND WALL AND CEILING. TRANSITION BETWEEN FRP & POLYUREA.
25. REFRAMED TO ALLOW INSTALLATION OF JANITORIAL STORAGE SHELVES FLUSH MOUNT RECESSED, 24 GA, 304 S.S. WITH 2 ADJUSTABLE SHELVES, CENTERED ON WALL. ADJUST FRAMING TO SUPPORT SHELF UNIT. 4x6 HEADER. SEE DETAIL 5/A6.
26. FUTURE MICROWAVE, NIC.
27. FUTURE REFRIGERATOR, NIC.
28. THRESHOLD/JAMB/HEADER TO BE COATED WITH POLYUREA AT SHOWER ENTRY.
29. FRAMED CHASE FOR EXPOSED VENT.
30. FIRE EXTINGUISHER CABINET. SEE SHEET A2 FOR MORE INFO AND LOCATIONS.
31. FABRICATE AND INSTALL METAL HANDRAIL W/ POWER COAT FINISH. PROVIDE 2x BACKING AT ALL MOUNTS. SEE DETAIL 7/A6.
32. GROUT (E) CURB/FLOOR JUNCTURE IN SHOWER AREA. SEAL W/ WATERPROOF SHOWER SEALANT.
33. FRAMED OPENING FOR A DOOR. SEE DOOR SCHEDULE.
34. SOLID PLASTIC (HDPE) PRIVACY PARTITION
35. TOWEL SHELVES W/ TOWEL BARS.
36. EXHAUST FANS, SEE MECHANICAL.
37. PRIVACY FILM ON LATRINE WINDOW SOLYX SX-3146 OR EQL.
38. 5/8" WATER RESISTANT GYP BD OVER 5/8" CDX STRUCT 1 PLYWOOD OVER (E) WOOD STUDS. COVER W/ 0.09" WHITE FULL HEIGHT FRP.
39. FLOOR DRAIN, SEE PLUMBING.
40. BOTTLE FILLING STATION & COOLER, SEE PLUMBING.
41. DRYER VENT DUCT, 4" ABOVE CEILING.
42. DRYER WALL VENTS
43. RECESSED WASTE RECEPTACLE
44. REPLACE ALL STRINGERS AND DAMAGED STAIRWAY FRAMING. EXTENT OF DAMAGE TO BE DETERMINED UPON DEMO OF TREADS & RISERS. REPLACE (E) TREADS AND RISERS W/ 5/8" STURD-I-FLOOR. ALL PORTIONS OF THE STAIR SHALL BE COATED W/ POLYUREA. THE UPPER APPROACH TO THE STAIRS AND THE BOTTOM TREAD SHALL BE MARKED BY A STRIPE PROVIDING CLEAR VISUAL CONTRAST PER CBC 2010. EDGE STAIRS WITH 1"x WOOD BASEBOARD FLOOR TO TOP OF BASEBOARD. SEE DETAIL 6/A6.
45. 1 HR RATED WALL W/ FURRED WALL, SEE WALL LEGEND. INSTALL 0.09" WHITE FRP @5'-0" AFF ON ALL WALLS IN LAUNDRY ROOM.
46. 1 HR RATED WALL, SEE WALL LEGEND. INSTALL 0.09" WHITE FRP @ 5'-0" AFF.

NOTES:

1. FOR ADDITIONAL LATRINE/SHOWER INFORMATION, SEE SHEET A4.
2. PROVIDE 2x BLOCKING AT ALL MOUNTS. SEE DETAIL 7/A6 SIM.
3. WALL LEGEND, SEE SHEET A2.
4. DOOR SCHEDULE, SEE SHEET A7.



1 ENLARGED MODIFIED LATRINE FLOOR PLAN
Scale: 1/2"=1'-0"

REF N

LICENSED ARCHITECT — No.24997 Exp.7-19 — STATE OF CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS

DRAWN BY: MC
DESIGNED BY: NG
CHECKED BY: NG
APPROVED BY: NG
APR 11, 2019

SHEET TITLE: TYPICAL ENLARGED LATRINE FLOOR PLAN & NOTES
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
PROJECT NUMBER: 06R1904-27
LOCATION: CAMP ROBERTS, CALIFORNIA
DATE:
STATE OF CALIFORNIA — MILITARY DEPARTMENT

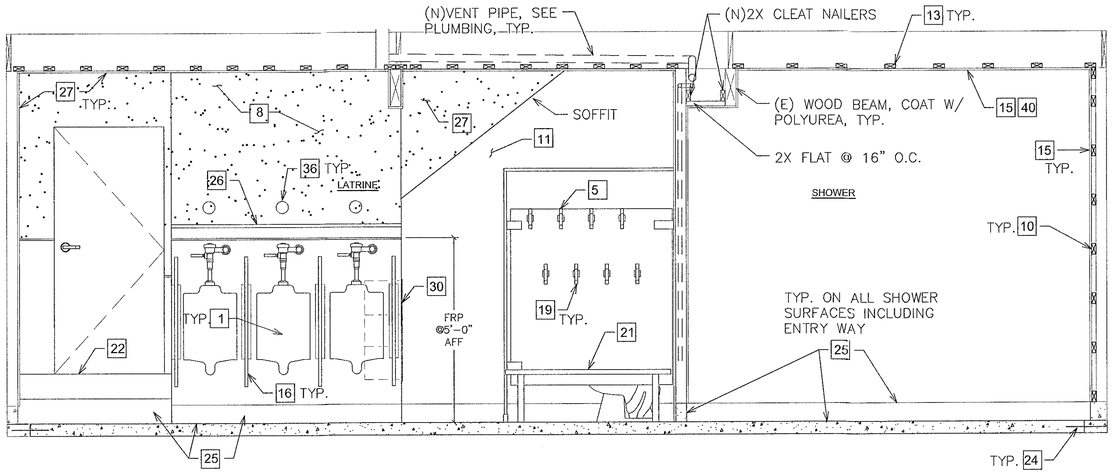
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KEYNOTES:

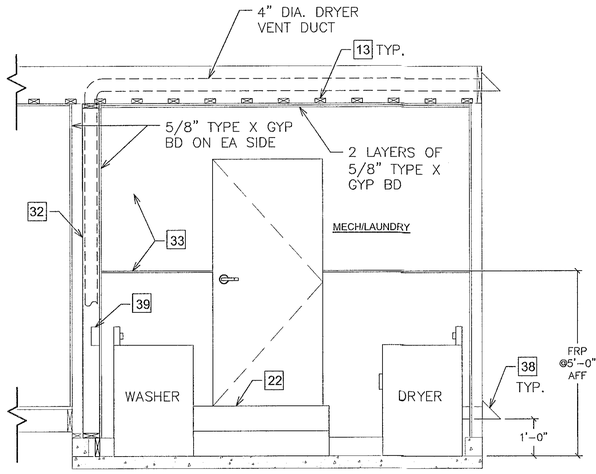
1. WALL MOUNTED URINALS AND ASSOCIATED PLUMBING FIXTURES. PROVIDE WOOD BACKING NAILERS AT ALL URINAL LOCATIONS.
2. WATER CLOSETS AND ASSOCIATED PLUMBING FIXTURES.
3. CORIAN OR EQUAL COUNTERTOP W/ BACKSPLASH AND INTEGRAL LAVATORIES (OVER 3/4" PLYWOOD BASE) AND ASSOCIATED PLUMBING FIXTURES.
4. 6" WIDE SINGLE PIECE SOLID SURFACE SHELF (TO MATCH COUNTERTOP) ON TOP OF TOP PLATE OF 2x WALL.
5. H.D.P.E. TOILET PARTITIONS W/ ASSOCIATED HARDWARE. DOORS SHALL HAVE 2 COAT HOOKS (HIGH & LOW) INSTALLED ON INTERIOR.
6. PAPER TOWEL DISPENSER, SINGLE FOLD WITH KEY GLUED IN UNIT. BOBRICK MODEL B-263 OR EQUAL.
7. FLOOR MOUNTED MOP SINK AND ASSOCIATED PLUMBING FIXTURES.
8. WOOD FRAMED FURRED WALL, SEE WALL LEGEND.
9. 5/8" WATER RESISTANT GYP BD OVER 5/8" CDX STRUCT 1 PLYWOOD OVER (E) WOOD STUDS. COVER W/ 0.09" WHITE FRP. SEE ELEVATIONS FOR HEIGHT. TRIM SHALL BE BRUSHED ANODIZED ALUMINUM TRIM.
10. WOOD FURRED W/ 2x4 STUDS INSTALLED FLAT HORIZONTALLY AT 16" O.C. ON EXTERIOR WALLS. R-13 INSULATION IS TYPICAL AT ALL EXTERIOR WALLS. SEE DETAIL 1/A6.
11. SHEATH WALLS W/ 5/8" CDX STRUCT 1 PLYWOOD OVER (E) WOOD STUDS. COVER W/ FRP FULL HEIGHT.
12. EXHAUST FAN, SEE MECHANICAL.
13. 2x4 NAILERS BETWEEN (E) CEILING JOISTS @ 12" O.C. FOR GYP. BD. ATTACHMENT. IN LATRINE & SHOWER.
14. 18"x30" FRAMED MIRRORS.
15. SHEATH SHOWER INTERIOR W/ 5/8" CCX PLYWOOD (KNOTS FILLED AND SANDED ONE SIDE) ON WALLS AND CEILING. TAPE JOINTS AND COAT W/ POLYUREA COATING ON WALLS ONLY.
16. 12" X 42" SOLID PLASTIC (HDPE) URINAL PARTITION W/ 24" LONG STAINLESS STEEL BRACKETS HARDWARE ON EACH SIDE. MOUNT @12" AFF. UON.
17. SURFACE MOUNTED SHOWER PANEL. SEE PLUMBING.
18. 18" WIDE WALL MOUNT TOWEL SHELF W/ TOWEL BAR. TAYMOR OR EQUAL, HIGH & LOW.
19. WALL MOUNTED HOOK - BOBRICK B6827 OR EQUAL.
20. 14" WIDE HDPE SHELVES W/ HEAVY DUTY SHELF SUPPORTS. MOUNT SHELVES, CENTERED BETWEEN SHOWER HEADS. PITCH OUT FOR WATER RUN OFF.
21. BENCHES, SEE SHEET A3.
22. CONC. LANDING W/ STEPS.
23. L3" x 3" x 1/4" x 24"x18" LONG (EACH LEG) BRACKET. PROVIDE 5 EACH. ONE BRACKET AT EACH END OF COUNTERTOP AND 3 INTERMEDIATE LOCATIONS BETWEEN SINKS. SECURE TO FRAMING W/ 1/4" MACHINE BOLTS @ 6" O.C. MAX AND WITHIN 2" OF END OF EACH LEG. BOLTED TO (E) FRAMING WALL. PAINT OR POWER COAT WHITE.
24. 4" CONC. SLAB W/ DOWELS IN (E) STEM WALL AND EPOXY INTO PLACE IN LATRINE & SHOWER. DOWELS SHALL EXTEND INTO CONC. SLAB 6". TIE DOWELS TO 6"X6"X16 GA. WELDED WIRE FABRIC.
25. APPROVED POLYUREA COATING ON EXPOSED CONC FLOOR AND CURB SURFACES, PLYWOOD WALL SURFACES AND WOOD BASEBOARD SURFACES IN ACCORDANCE WITH THE APPROVED MANUFACTURER'S WRITTEN INSTRUCTIONS.
26. 6" WIDE STAINLESS STEEL SHELF ABOVE URINALS. IN A WAY THAT THE JOINT BETWEEN THE GYP. BD. AND THE FRP IS COVERED WITH THE SHELF MOUNTING. (MOUNTING HARDWARE FLUSH ON GYP BD ABOVE FRP).
27. 5/8" WATER RESISTANT GYP. BD. OVER (E) OR WOOD FRAMED WALL AND CEILING. USE MOISTURE RESISTANT TAPE AND SETTING COMPOUND.
28. STAINLESS STEEL SOAP DISPENSER (BOBRICK MODEL 2112 OR EQUAL).
29. (E) WINDOWS
30. RECESSED JANITORIAL STORAGE SHELVING, SEE DETAIL 5/A6. COORDINATE W/ C.O.R. FOR MOUNTING HEIGHT.
31. RECESSED WASTE RECEPTACLE
32. 1 HR RATED WALL, SEE WALL LEGEND.
33. 5/8" WATER RESISTANT GYP BD OVER (E) WOOD STUDS. COVER W/ 0.09" WHITE FRP. TRIM SHALL BE BRUSHED ANODIZED ALUMINUM TRIM.
34. PRIVACY FILM ON LATRINE WINDOW SOLYX SX-3146 OR EQL.
35. HF, WALL HYDRANT, SEE PLUMBING.
36. CLEANOUT TO WALL, SEE PLUMBING.
37. WALL HYDRANT, HF-2, SEE PLUMBING.
38. DRYER WALL VENTS, SEE PLUMBING.
39. WASHER BOXES, TYP. 3, SEE PLUMBING.
40. INSTALL MOLD RESISTANT GYP BD ON SHOWER CEILING.

NOTES:

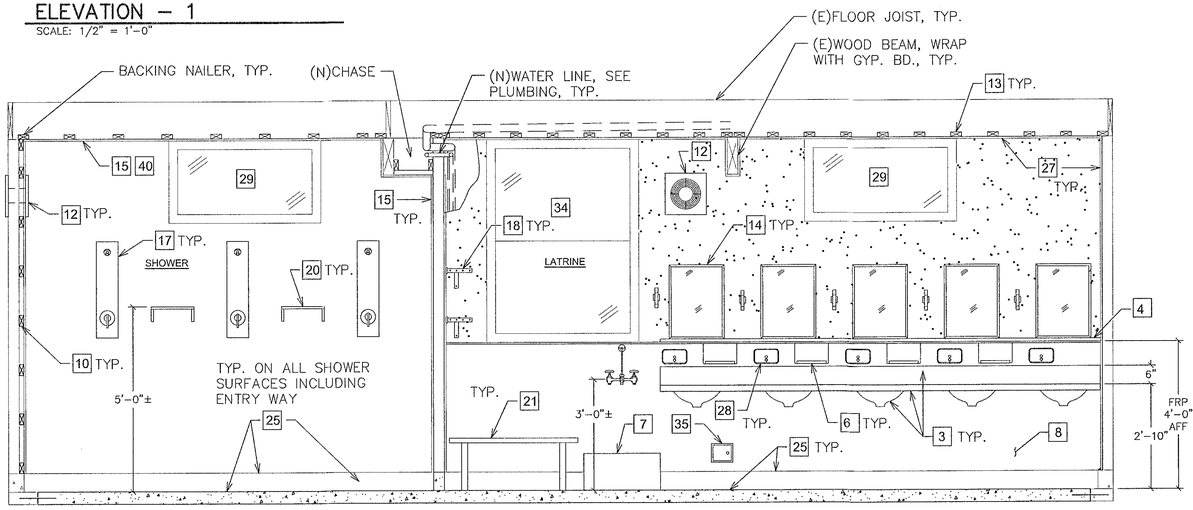
1. PROVIDE STAINLESS STEEL TRIM RINGS AROUND PLUMBING PENETRATIONS IN WALLS THAT ARE EXPOSED. IN CASES WHERE A RING WON'T WORK, GAPS BETWEEN PIPES & FRP SHALL BE CAULKED.
2. RUN WATER AND VENT LINE FROM FURRED WALL SPACE INTO SHOWER CHASE TO DESTINATIONS. SEE PLUMBING.
3. FRAMED (E) EXPOSED PIPING WITH GYP. BD. IN LATRINE.
4. FOR ADDITIONAL LATRINE/SHOWER INFORMATION, SEE SHEET A3.
5. WALL LEGEND, SEE SHEET A2.



ELEVATION - 1
SCALE: 1/2" = 1'-0"



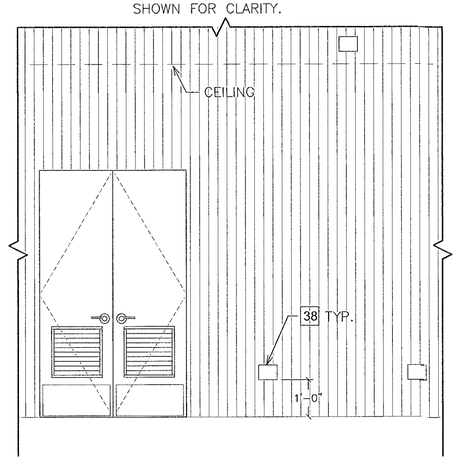
ELEVATION - 5
SCALE: 1/2" = 1'-0"



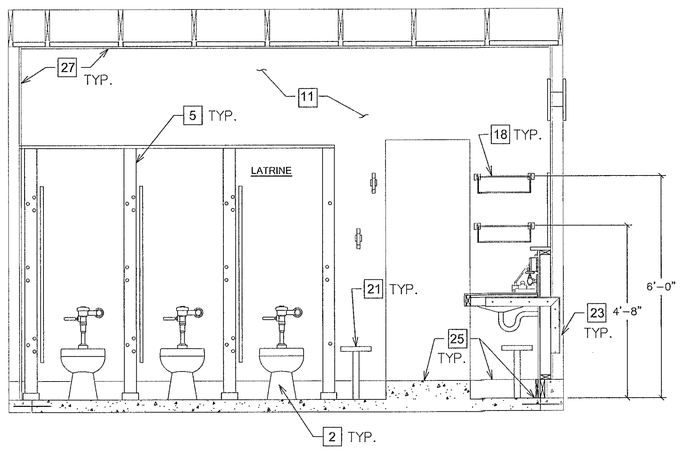
ELEVATION - 2
SCALE: 1/2" = 1'-0"

NOTES:

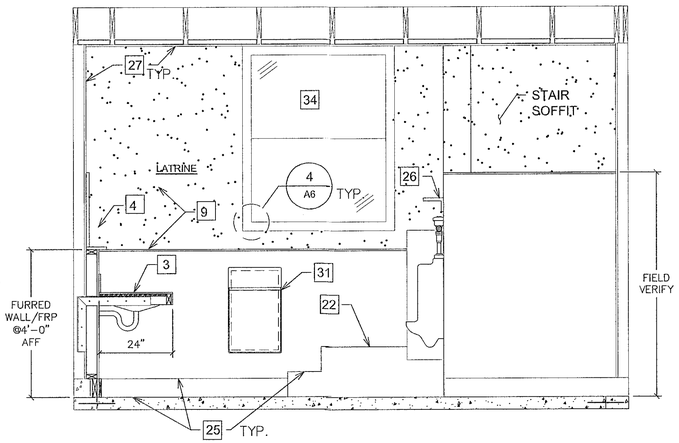
1. HVAC & DUCT ARE NOT SHOWN FOR CLARITY.



ELEVATION - 6
SCALE: 1/2" = 1'-0"



ELEVATION - 4
SCALE: 1/2" = 1'-0"



ELEVATION - 3
SCALE: 1/2" = 1'-0"

LICENSED ARCHITECT REGISTERED DANIEL C. GIANNINI No. C-24997 Exp. 7-19 STATE OF CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS	MC	NG	NG	NG
					DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:

PROJECT NUMBER 06R1904-27 — APR 11, 2019

SHEET TITLE: TYPICAL LATRINE ELEVATIONS AND NOTES

PROJECT: CAMP ROBERTS - BARRACKS RENOVATION

LOCATION: CAMP ROBERTS, CALIFORNIA

STATE OF CALIFORNIA — MILITARY DEPARTMENT

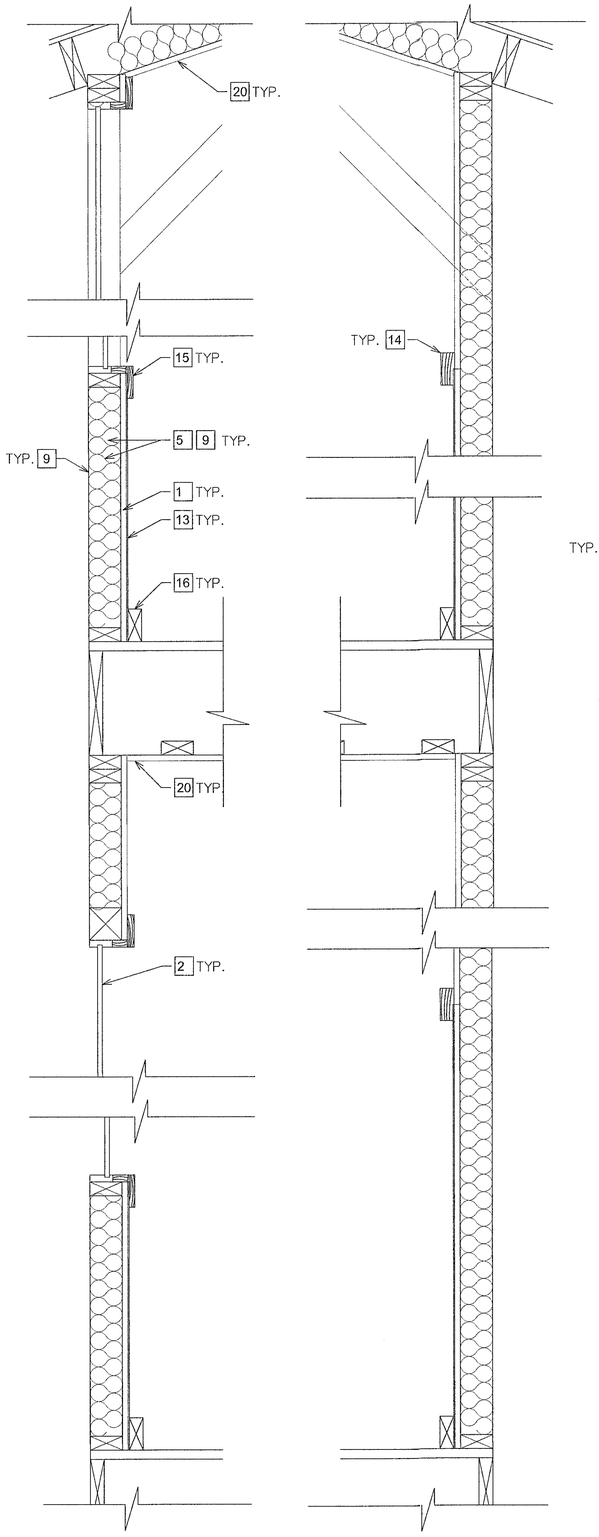
SHEET NUMBER A4

KEYNOTES:

1. 5/8" GYP. BD. OVER (E) 2x FRAMING
2. (E) DUAL PANE WINDOW – N.I.C.
3. (R-38 FOIL BACKED INSULATION IN CEILING.
4. HVAC DUCT, SEE MECHANICAL.
5. R-13 FOIL BACKED INSULATION
6. R-15 HIGH DENSITY INSULATION
7. (E) DIAGONAL SUBFLOOR.
8. (E) 4x4 POSTS
9. (E) 2x4 STUDS @ 24" O.C.
10. (E) 6x6 POST & BEAM.
11. 1" AIR GAP MIN. CORRUGATED POLYSTYRENE RIGID FOAM, MAINTAINED WITH 10 MIL VISQUEEN OR EQUAL. TO EXTEND FROM EAVE TO ABOVE ATTIC INSULATION.
12. (E) GRADE
13. 0.09" THK. FRP OVER 5/8" CCX STRUCT 1 PLYWOOD OVER (E) 2x WOOD FRAMING. COLOR TO BE IVORY.
14. 2x4 FASTEN WITH #8 x 3" COARSE DRYWALL SCREWS CENTERED ON FRP/GYP BD JUNCTURE. RABBET 2x4 TO FIT OVER FRP. PAINT PRIOR TO INSTALLATION. BOTTOM PORTION TO PLYWOOD BACKING AND TOP PORTION TO INTERMEDIATE STUDS. SEE DETAIL 8/A6.
15. 1x4 SELECT CLEAR PINE WINDOW TRIM. REMOVE (E) QUARTER-ROUND TRIM PRIOR TO TRIM INSTALLATION PAINT TRIMS.
16. 2x4 DOUGLAS FIR BASEBOARD. USE SAME PATTERN FOR FASTENING CHAIR RAIL. USE 16d TO NAIL BASEBOARD.
17. INSTALL POLYUREA FLOOR COATING OVER 5/8" STURD-I-FLOOR UNDERLAYMENT BASE T&G PLYWOOD.
18. 2x NAILERS BETWEEN (E) CEILING JOISTS @ 12" O.C. FOR GYP. BD. ATTACHMENT, UON.
19. 1/2" LIGHTWEIGHT GYP. BD. ON ALL SURFACES OF DUCT ENCLOSURE.
20. 1/2" LIGHTWEIGHT GYPSUM BOARD OVER (E) WOOD FRAMING.
21. (E) 4x4 POSTS – TYP. INSTALL 1x4 BASEBOARD AROUND (E) POST IF NO (E) BASEBOARD IS PRESENT, USE FINISH NAILS.
22. (E) 6x6 POSTS, TYP. INSTALL 1x BASEBOARD AROUND (E) POSTS.
23. POLYUREA COATING SYSTEM (PRIMER, POLYUREA COAT AND PIGMENTED TOP COAT) OVER PREPARED STURDI-FLOOR SUBSTRATE. EXTEND COATING TO TOP OF BASEBOARD.
24. (E) FLOOR JOIST BLOCKING.
25. SHAPE BRACE AS NECESSARY FOR DRYWALL.
26. (HVAC DUCTING IN ATTIC, SEE MECHANICAL.

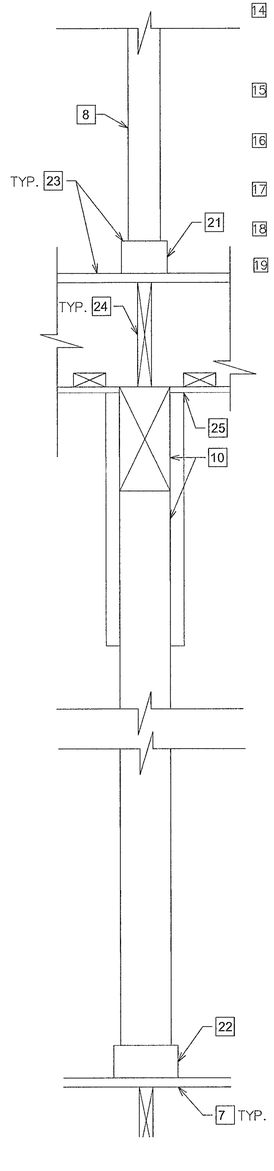
NOTES:

1. FOR ADDITIONAL INFORMATION, SEE SHEET A2.

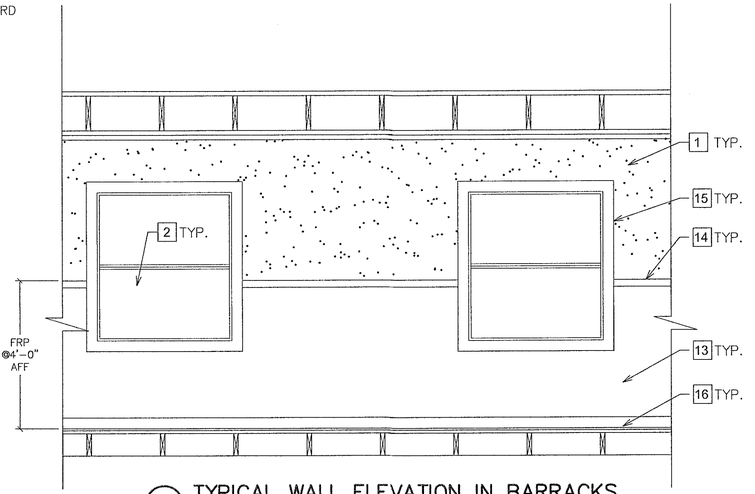


5 TYP WINDOW SECTION
SCALE: 1-1/2"= 1'-0"

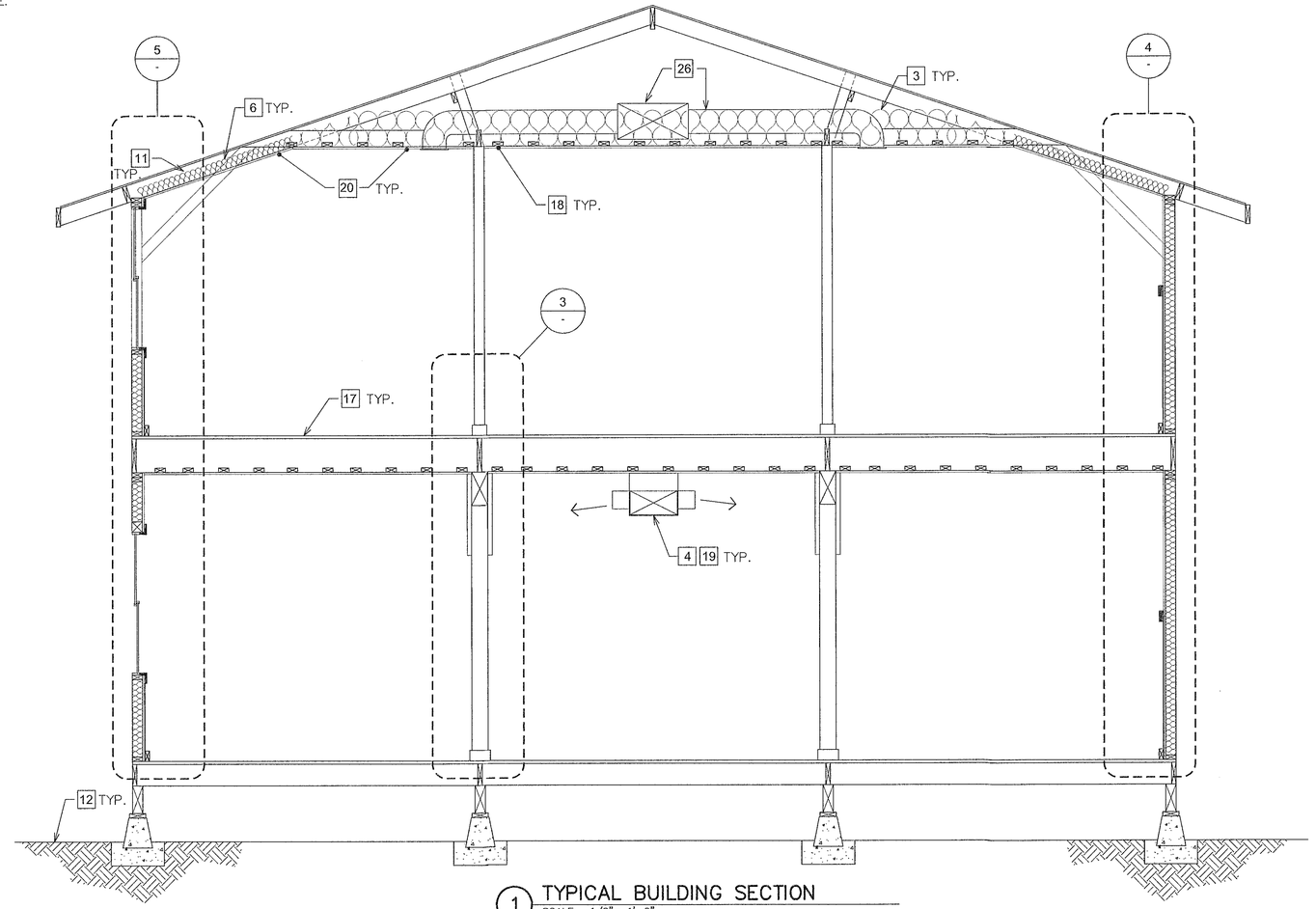
4 TYP WALL SECTION
SCALE: 1-1/2"= 1'-0"



3 TYP WALL SECTION
SCALE: 1-1/2"= 1'-0"



2 TYPICAL WALL ELEVATION IN BARRACKS
SCALE: 1/2"= 1'-0"



1 TYPICAL BUILDING SECTION
SCALE: 1/2"= 1'-0"

LICENSED ARCHITECT
MICHAEL GANNING
No. 24997
Exp. 7-19
STATE OF CALIFORNIA

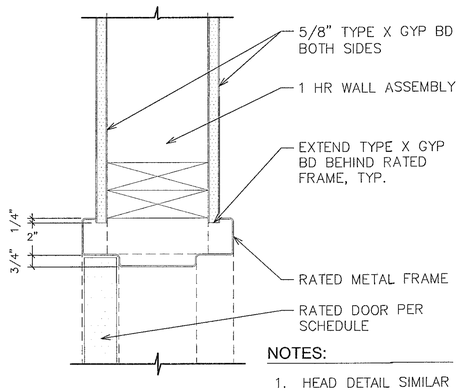
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DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
MC	NG	NG	NG

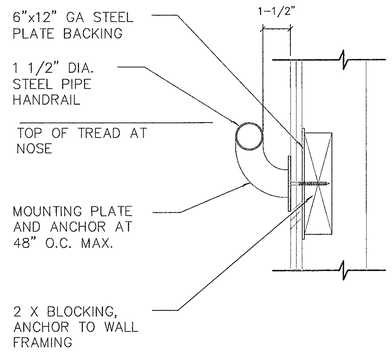
SHEET TITLE: TYPICAL BUILDING SECTION, DETAILS & NOTES
PROJECT: CAMP ROBERTS – BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
PROJECT NUMBER: 06R1904-27
DATE: APR 11, 2019
STATE OF CALIFORNIA
MILITARY DEPARTMENT

SHEET NUMBER
A5

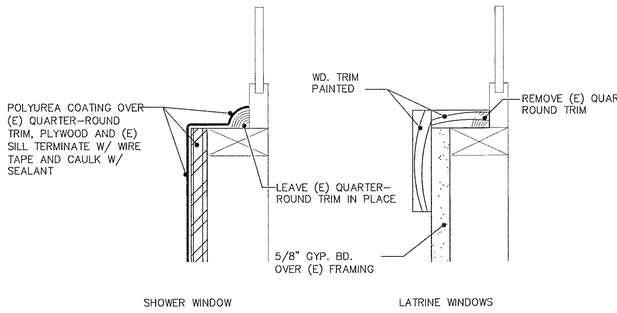
6 OF 19



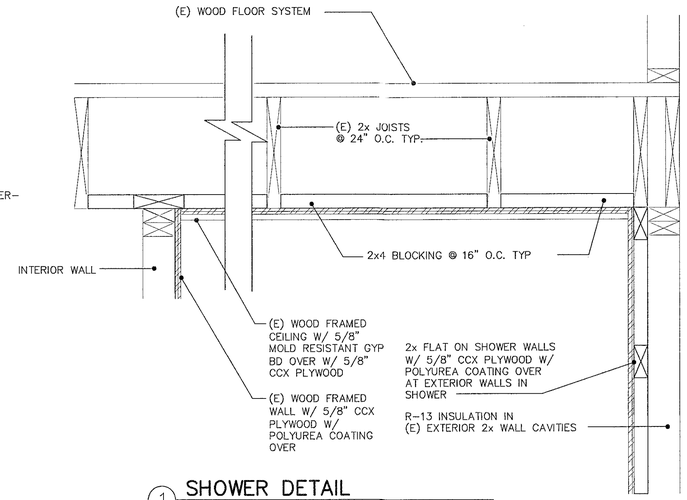
10 RATED DOOR JAMB, HEAD SIMILAR
SCALE: 3"=1'-0"



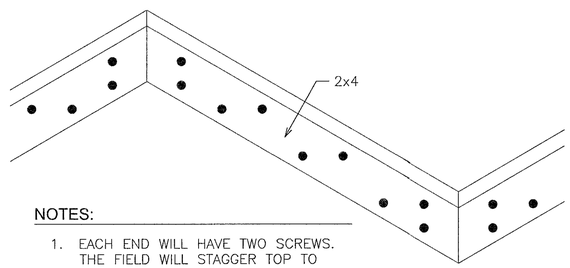
7 HANDRAIL SUPPORT
SCALE: 3"=1'-0"



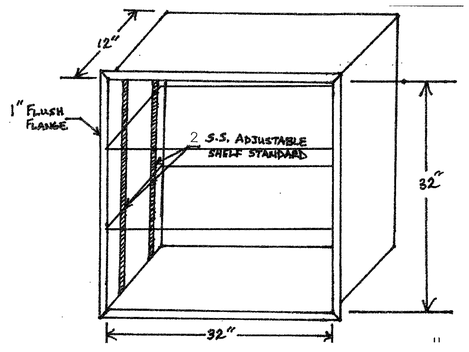
4 WINDOW SILL TREATMENT
SCALE: NONE



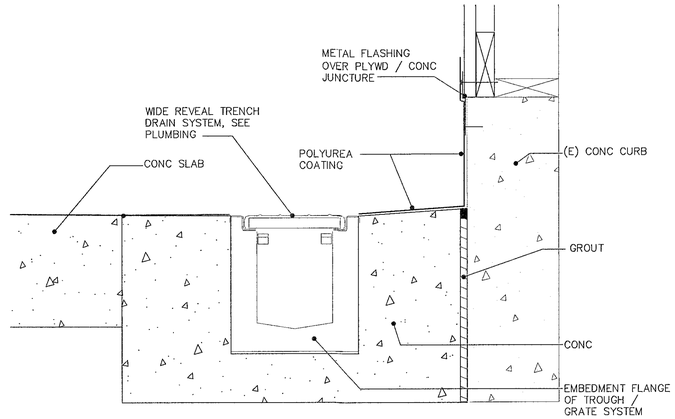
1 SHOWER DETAIL
SCALE: 1/2" = 1'-0"



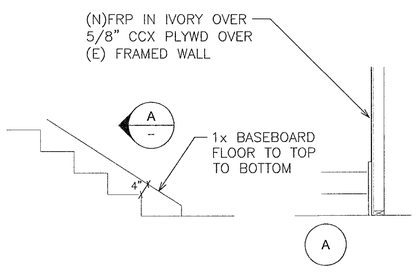
8 DETAIL
SCALE: NONE



5 RECESSED JANITORIAL STORAGE SHELVING
SCALE: NONE

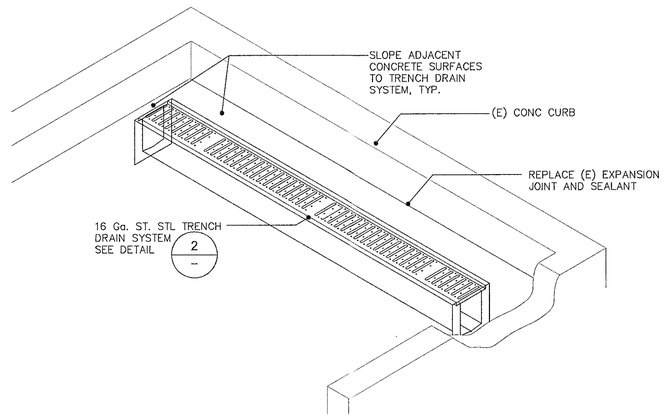


2 TROUGH DETAIL
SCALE: 1/2" = 1'-0"



NOTES:
1. STAIR BASEBOARD TRIM FOR EXTENT OF POLYUREA/POLYASPARTIC FLOORING.

6 STAIR SECTION
SCALE: NONE



3 TROUGH ISO
SCALE: NONE

LICENSED ARCHITECT NG 24997 Exp. 7-19 STATE OF CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS
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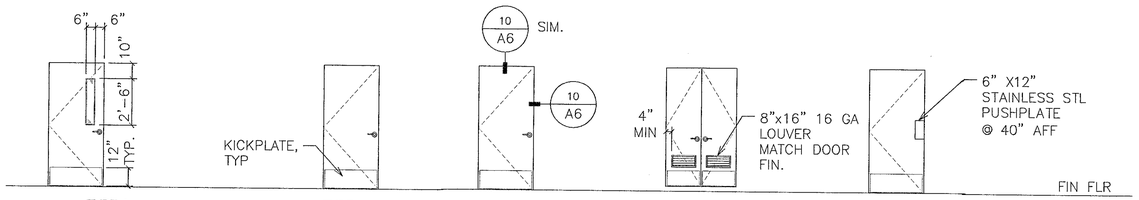
DRAWN BY: NG
DESIGNED BY: MC
CHECKED BY: NG
APPROVED BY: NG

SHEET TITLE: TYPICAL DETAILS
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
PROJECT NUMBER: 06R1904-27
DATE: APR 11, 2019
STATE OF CALIFORNIA
MILITARY DEPARTMENT

SHEET NUMBER A6

DOOR TYPES

1/4"=1'-0"



TYPE A
DOOR WITH VISION PANEL TEMPERED WIRE GLASS

TYPE B
FLUSH DOOR

TYPE C
RATED DOOR

TYPE D
DOOR WITH LOUVER SEE NOTE 1

TYPE E
FLUSH DOOR

RATED DOOR NOTES:

ALL RATED DOORS ARE TO BE POSITIVE LATCHING & SELF-CLOSING 2016 CBC SECTION 716.5.9

"LABEL" SHALL MEAN "FIRE ASSEMBLY" AS DEFINED IN 2016 CBC SECTION 716.5.8.3

FIRE DOORS AND FIRE WINDOWSSHALL HAVE AN APPROVED LABEL OR LISTING MARK INDICATING THE FIRE PROTECTION RATING, WHICH IS PERMAMNENTLY AFFIXED AT THE FACTORY WHERE FABRICATION ASSEMBLY ARE DONE. 2016 CBC SECTION 716.5.7.1 AND 716.5..8.3.

ALL 20 MINUTE RATED SHALL ASSEMBLIES BE PROVIDED WITH APPROVED GASKETING MATERIAL SO INSTALLED TO PROVIDE A SEAL WHERE THE DOOR MEETS THE STOP ON BOTH SIDES AND ACROSS THE TOP. THE DOOR AND FRAME SHALL BEAR AN APPROVED LABEL OR OTHER IDENTIFICATION SHOWING THE RATING THEREOF, FOLLOWED BY THE LETTER "S" 2016 CBC SECTION 716.5.3.

FIRE RATED DOOR FRAMES SHALL BE INSTALLED STRICTLY PER MANUFACTURER'S PRINTED INSTRUCTIONS. MANUFACTURER'S PRINTED INSTRUCTIONS SHALL BE MADE AVAILABLE TO THE INSPECTING AUTHORITIES 2016 CBC SECTION 716.5.7.

NOTES:

1. PROVIDE INSECT, WEATHERPROOF, FLAME AND EMBER INTRUSION PREVENTION SCREENING ON ALL DOOR LOUVERS, UON.
2. CONTRACTOR SHALL VERIFY ALL DOOR OPENING SIZES AND CONDITIONS PRIOR TO ORDERING OR FABRICATING ANY MATERIALS.

FINISH SCHEDULE

ROOM NAME	FLOOR	BASE	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING	NOTES
ENTRY 100	F1	B1	–	W2/W5/WA1	W2/W5/WA1	–	C1	–
LATRINE 101	F2	B2	W1/W2/WA1	W2/W4/WA1	W2/W4/WA1	W2/W4/WA1	C2	SEE ELEVATIONS
SHOWER 102	F2	B2	W3	W3	W3	W3	C4	SEE ELEVATIONS
MECH/LAUNDRY ROOM 103	F2	B2	W2/W4/WA1	W1/W2/W4/WA1	W1/W2/W4/WA1	W1/W2/W4/WA1	C3	SEE ELEVATIONS
BARRACKS 104	F1	B1	W1/W2/W5/WA1 (AT LAUNDRY WALL ONLY) W2/W5/WA1	W1/W2/W5/WA1 (AT LAUNDRY WALL ONLY) W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	C1	–
BED 105	F1	B1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	C1	–
BED 106	F1	B1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	C1	–
HALLWAY 107	F1	B1	W2/W5/WA1	–	W2/W5/WA1	W2/W5/WA1	C1	–
BED 200	F1	B1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	C1	–
BED 201	F1	B1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	C1	–
BARRACKS 202	F1	B1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	W2/W5/WA1	C1	SEE KEYNOTE 1/A2 FOR DUCT ENCLOSURE

NOTES:

FOR PAINTING SEE SECTION 09 90 00 OF THE SPECIFICATIONS.

COLOR SELECTIONS:

WALLS: KELLY MOORE (ARIZONA HEAT) SEMI-GLOSS IN LATRINE & MECH/LAUNDRY ROOM WHERE ELSE EGG SHELL
DOORS/FRAMES: KELLY MOORE (ARIZONA HEAT)
CEILING: KELLY MOORE (WHITE SHADOW) SEMI-GLOSS IN LATRINE, SHOWER & MECH/LAUNDRY ROOM WHERE ELSE EGG SHELL

KEY TO FINISHES:

FLOORING
- F1 POLYUREA COATING OVER STURD-I-FLOOR SUBSTRATE
- F2 POLYUREA COATING OVER CONCRETE SLAB

WALLS
- W1 5/8" TYPE X GYP. BD.
- W2 5/8" CDX STRUCT 1 PLYWOOD
- W3 POLYUREA COATING OVER 5/8" CCX PLYWOOD
- W4 5/8" WATER RESISTANT GYP. BD. TAPED & TEXTURED W/ SEMI-GLOSS, LEVEL 4 FINISH
- W5 5/8" GYP BD, TAPED & TEXTURED (SMOOTH FINISH)

BASE
- B1 2x4 DOUGLAS FIR BASE BOARD
- B2 POLYUREA COATING OVER EXPOSED CONCRETE CURB

CEILING PAINT:
- C1 1/2" LIGHTWEIGHT GYPSUM BOARD
- C2 5/8" WATER RESISTANT GYP BD TAPED & TEXTURED W/ SEMI-GLOSS, LEVEL 4 FINISH
- C3 2 LAYERS 5/8" TYPE X GYP BD
- C4 5/8" MOLD RESISTANT GYP BD OVER 5/8" CCX PLYWOOD

WAINSCOT:
WA1 FIBERGLASS REINFORCED PANELS (FRP), SEE ELEVATIONS FOR HEIGHT.

DOOR AND FRAME SCHEDULE

DOOR NUMBER	ROOM	DOOR TYPE	DOOR WIDTH (W)*	DOOR HEIGHT (H)*	DOOR THICKNESS	DOOR MATERIAL	DOOR FIRE RATING	DOOR FRAME TYPE	DOOR FINISH	DOOR PAIR	DOOR VISION PANEL	DOOR HARDWARE	REMARKS & ABBREVATIONS
1	ENTRY	A	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	X	1	PANIC HARDWARE
2	ENTRY	A	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	X	1	PANIC HARDWARE
3	MECH/LAUNDRY	D	2'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	X	–	5	–
4	BARRACKS (EXIT)	A	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	X	1	PANIC HARDWARE
5	LATRINE	E	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	–	4	–
6	BARRACKS TO LAUNDRY	C	3'-0"	6'-8"	1¾"	16 GA HM	60 MIN	HM	PT	–	–	3	–
7	BARRACKS	B	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	–	2	–
8	BARRACKS	B	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	–	2	–
9	BARRACKS (2ND FLR EXIT)	A	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	X	1	–
10	BARRACKS (2ND FLR)	B	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	–	2	–
11	BARRACKS (2ND FLR)	B	3'-0"	6'-8"	1¾"	16 GA HM	–	HM	PT	–	–	2	–

HM HOLLOW METAL, CECO FRAME, SERIES SU STEEL FRAME
PT PAINTED

HARDWARE

GROUP 1
1 MORTISE LOCKET VON DUPRIN 99L SERIES SET W/ LEVER TRIM
1-1/2 PAIR BUTT HINGES HAGER OR EQL.
1 SPRING PIVOT HINGE
2 STAINLESS STL. KICKPLATES TRIMCO OR EQL
1 DOOR STOP TRIMCO #1211 OR EQL.
1 DOOR SWEEP PEMKO #293100VNB OR EQL.

GROUP 2
1 LEVER LOCKSET KEYED BEST 9K SERIES OR EQL (POSITIVE LATCHING)
1-1/2 PAIR BUTT HINGES HAGER OR EQL.
2 STAINLESS STL. KICKPLATES TRIMCO OR EQL
1 DOOR STOP TRIMCO #1211 OR EQL.

GROUP 3
1 LEVER LOCKSET BEST 9K SERIES OR EQL. (POSITIVE LATCHING)
1-1/2 PAIR BUTT HINGES HAGER OR EQL.
2 STAINLESS STL. KICKPLATES TRIMCO OR EQL.
1 PEMKO S88D SMOKE GASKET OR EQL.
1 LCN SURFACE MOUNT CLOSER 5010 OR EQL.

GROUP 4
1 PUSH PLATE ROCKWOOD 107x73BL_BSP OR EQL.
1 PULL PLATE ROCKWOOD 107x73B_BSPOR EQL
1-1/2 PAIR BUTT HINGES HAGER OR EQL.
2 STAINLESS STL. KICKPLATES TRIMCO OR EQL
1 DOOR STOP TRIMCO #1211 OR EQL.
1 LCN SURFACE MOUNT CLOSER 5010 OR EQL.

GROUP 5
1 LEVER LOCKSET BEST 9K SERIES OR EQL.
1 DUMMY TRIM W/LATCH RECIEVER
3 PAIR BUTT HINGES HAGER OR EQL.
2 STAINLESS STL. KICKPLATES (EXT. SIDE)
2 DOOR STOP TRIMCO #1211 OR EQL.
1 DOOR SWEEP PEMKO #293100VNB OR EQL.
1 HEAD & FOOT BOLT
1 ASTRAGAL

LICENSED ARCHITECT
PRIOR TO PLANNING
No. C-24997
Exp. 7-19
STATE OF CALIFORNIA

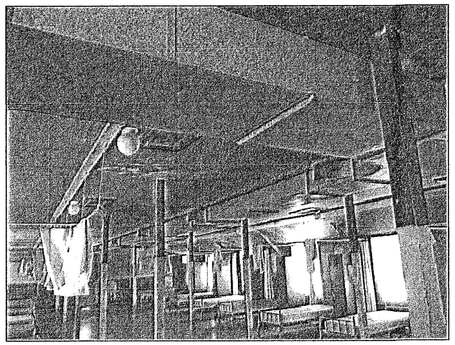
BY:				
REMARKS				
DATE				
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REVISIONS				
	NG	MC	NG	NG
	DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:

SHEET TITLE: TYPICAL BARRACKS DOOR, FINISH SCHEDULES & DETAIL
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
PROJECT NUMBER: 06R1904-27
LOCATION: CAMP ROBERTS, CALIFORNIA
DATE: APR 11, 2019
STATE OF CALIFORNIA MILITARY DEPARTMENT

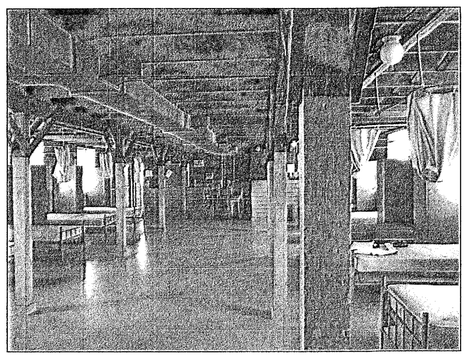
SHEET NUMBER
A7

NOTES:

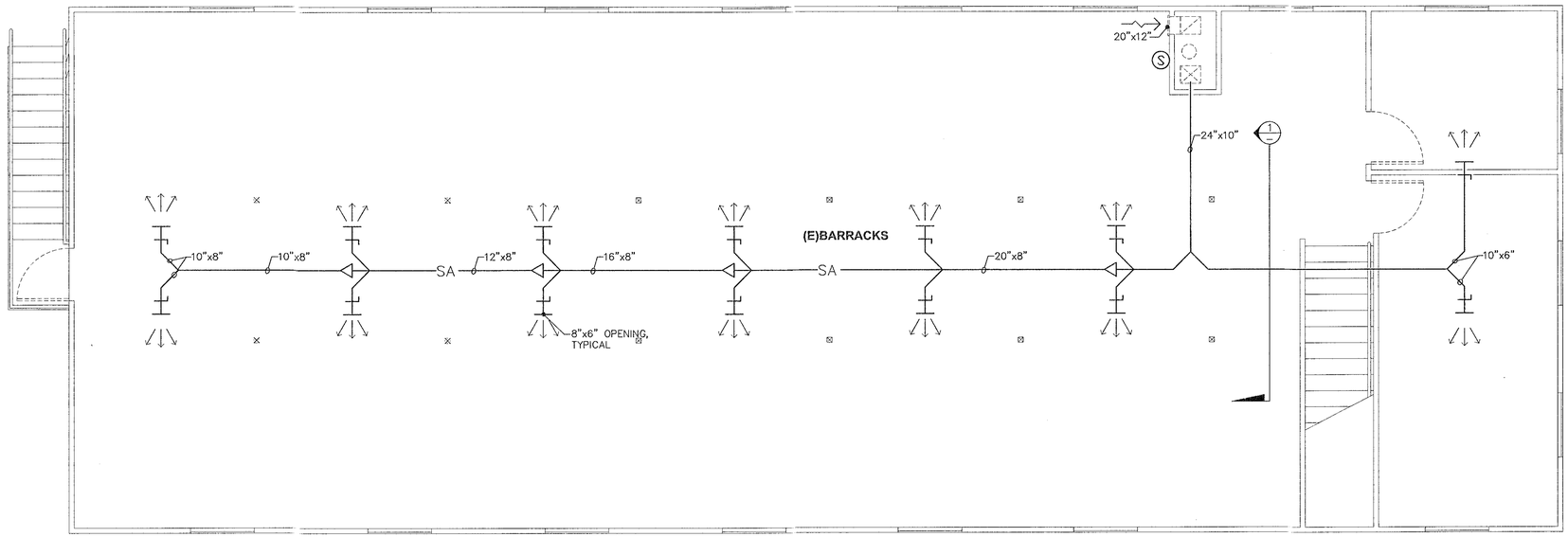
1. REMOVE ALL EXISTING DUCT WORK, FLUES AND DISPOSE, AS DIRECTED BY COR.
2. REMOVE EXISTING THERMOSTATS, WIRING AND DISPOSE, AS DIRECTED BY COR.
3. REMOVE EXISTING MECHANICAL EQUIPMENT IN MECHANICAL ROOM AND CONTACT CONTACT THE DEPT. OF PUBLIC WORKS FOR RE-USE OR DISPOSE.
4. REPAIR ALL INCIDENTAL DAMAGE TO WALLS, CEILINGS OR FLOORS AS A RESULT OF DEMOLITION WORK.



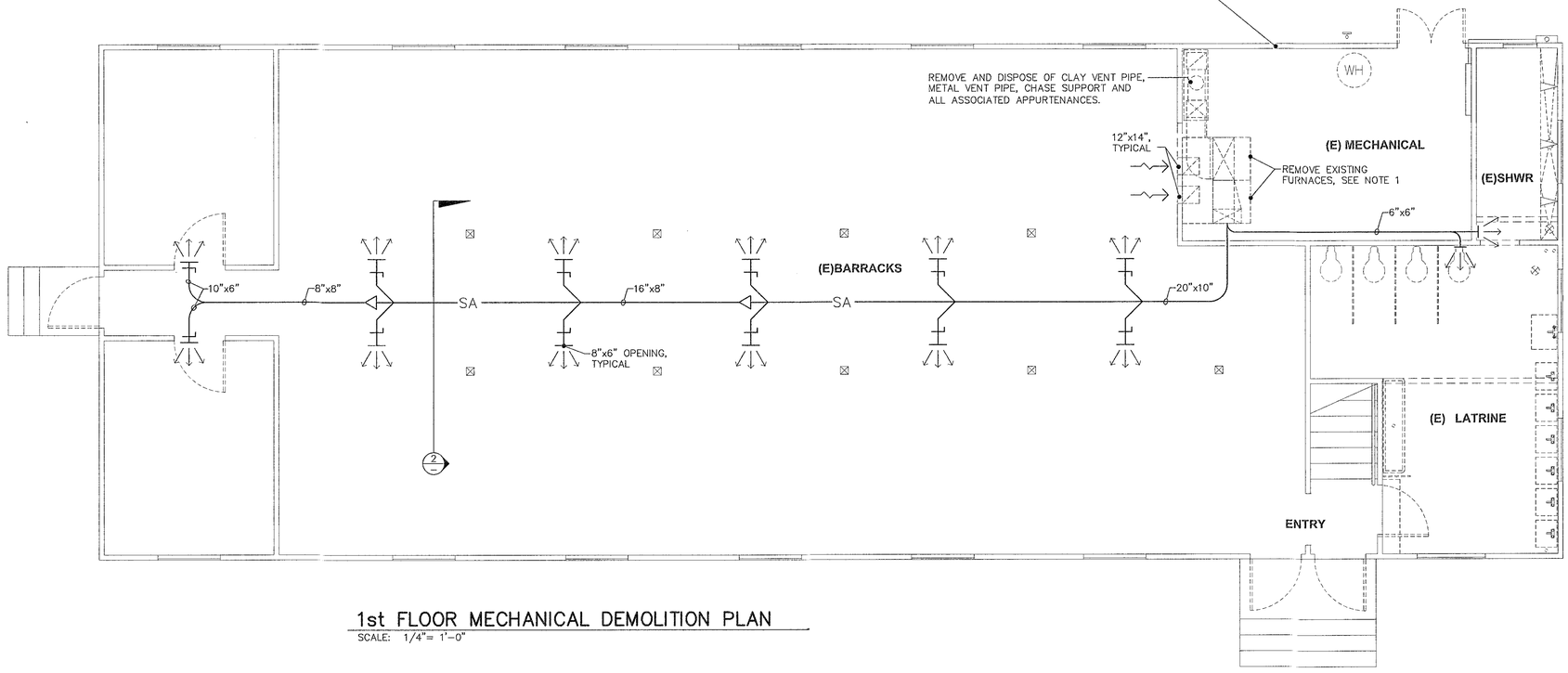
1 TYPICAL DUCTING (2nd FLOOR)
SCALE: NONE



2 TYPICAL DUCTING (1st FLOOR)
SCALE: NONE



2nd FLOOR MECHANICAL DEMOLITION PLAN
SCALE: 1/4"= 1'-0"



1st FLOOR MECHANICAL DEMOLITION PLAN
SCALE: 1/4"= 1'-0"

REVISIONS | SYMBOL | DATE | REMARKS | BY:

DRAWN BY: MS
DESIGNED BY: MS
CHECKED BY: NG
APPROVED BY: NG

SHEET TITLE: TYPICAL MECHANICAL DEMOLITION FLOOR PLANS
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
PROJECT NUMBER: 06R1904-27
DATE: APR 11, 2019
STATE OF CALIFORNIA
MILITARY DEPARTMENT

SHEET NUMBER
M1

NOTES:

1. VERIFY EXISTING BUILDING DIMENSIONS AND LOCATION OF OBSTRUCTIONS BEFORE SIZING OR INSTALLATION OF EQUIPMENT OR DUCTING.
2. VERIFY ADEQUATE SUPPORT FOR DUCTING, SUBMIT FOR APPROVAL.
3. ROUTE DUCTING AS SHOWN, REROUTE TO AVOID ALL OBSTRUCTIONS. MOUNT ROOM DIFFUSERS FLUSH TO WALL.
4. ALL NEW RIGID DUCTING IS GALVANIZED, ALL FLEX-DUCT IS R6 MIN. RATED, ALL INTERIOR RIGID DUCTING SHALL HAVE INSULATION INSIDE THE DUCTING. FLEXIBLE DUCTING SHALL NOT EXCEED 10 FEET.
5. INSTALL UPSTAIRS RETURN GRILLE SUCH THAT TOP OF GRILLE IS 2" BELOW THE CEILING. IN ADDITION, INSTALL A PLENUM BOX BETWEEN ALL DUCTS AND GRILLES OR DIFFUSERS. SEE DETAIL 2 SHEET M3 FOR PLENUM BOX DETAIL.
6. ALL EXTERIOR AND ATTIC DUCT SHALL BE INSULATED.
7. CONTRACTOR SHALL BALANCE SYSTEM UPON COMPLETION.
8. PROVIDE AND INSTALL ACCESS DOORS TO ALL ABOVE CEILING DAMPERS.
9. INSTALL THERMOSTAT AND SENSORS TO CONTROL THE FIRST AND SECOND FLOOR TEMPERATURES SIMULTANEOUSLY USING DAMPERS ON THE SUPPLY DUCTS TO EACH FLOOR.
10. PROVIDE AND INSTALL COMBINATION FIRE/ SMOKE DAMPERS AT ALL DUCT PENETRATIONS OF THE MECHANICAL ROOM WALLS. PROVIDE AND INSTALL ALL ELECTRICAL REQUIRED TO CONNECT THE FIRE DAMPERS TO THE FIRE ALARM CONTROL PANEL AND THE AIR CONDITIONER TO ENSURE THAT THE AIR CONDITIONER WILL SHUT-OFF UPON ACTIVATION OF THE COMBINATION FIRE/ SMOKE DAMPER. SEE SHEET M3 FOR ADDITIONAL DETAILS.
11. MECHANICAL ROOM DOORS SHALL BE LOUVERED TO PROVIDE COMBUSTION AIR AND AND MAKE UP AIR FOR DRYERS.

SCHEDULE OF EQUIPMENT

AC-1 HIGH EFFICIENCY PACKAGED AIR CONDITIONER, 103,000 BTUH NOMINAL COOLING 93,000 BTUH SENSIBLE COOLING AT 105° F AMBIENT, 80° F DB, 67° F WB, 150,000 BTUH INPUT HEATING, 3,400 CFM @ 0.6" S.P., NATURAL GAS, 12.6 EER MIN., HORIZONTAL DISCHARGE, SCROLL COMPRESSORS, MANUAL OUTSIDE AIR DAMPER, SET AT 400 CFM AND ECONOMIZER WITH DRY BULB SENSING, HINGED ACCESS PANEL WITH 2" PLEATED FILTERS, UNIT MOUNTED DISCONNECT, POWERED CONVENIENCE OUTLET AND RETURN AIR SMOKE DETECTOR. SHALL BE 208V-3PH-60 Hz. "TRANE", YHC 102 E3 OR APPROVED EQUAL. SHALL INCLUDE CONDENSER HAIL GUARD.

SG-1 SUPPLY GRILLE, WALL TYPE, DOUBLE DEFLECTION 3/4" BLADE SPACING STEEL CONSTRUCTION, ADJUSTABLE HORIZONTAL FRONT BLADES AND WHITE FINISH. SHALL BE "HART AND COOLEY", MODEL 831, OR APPROVED EQUAL.

SG-2 CEILING SUPPLY DIFFUSER, 4-WAY, EXTRUDED ALUMINUM BRIGHT WHITE FINISH, STEP DOWN BEVELED MARGIN, OPPOSED BLADE DAMPER, MODULAR CORE. SHALL BE HART AND COOLEY, MODEL MCDSD OR APPROVED EQUAL.

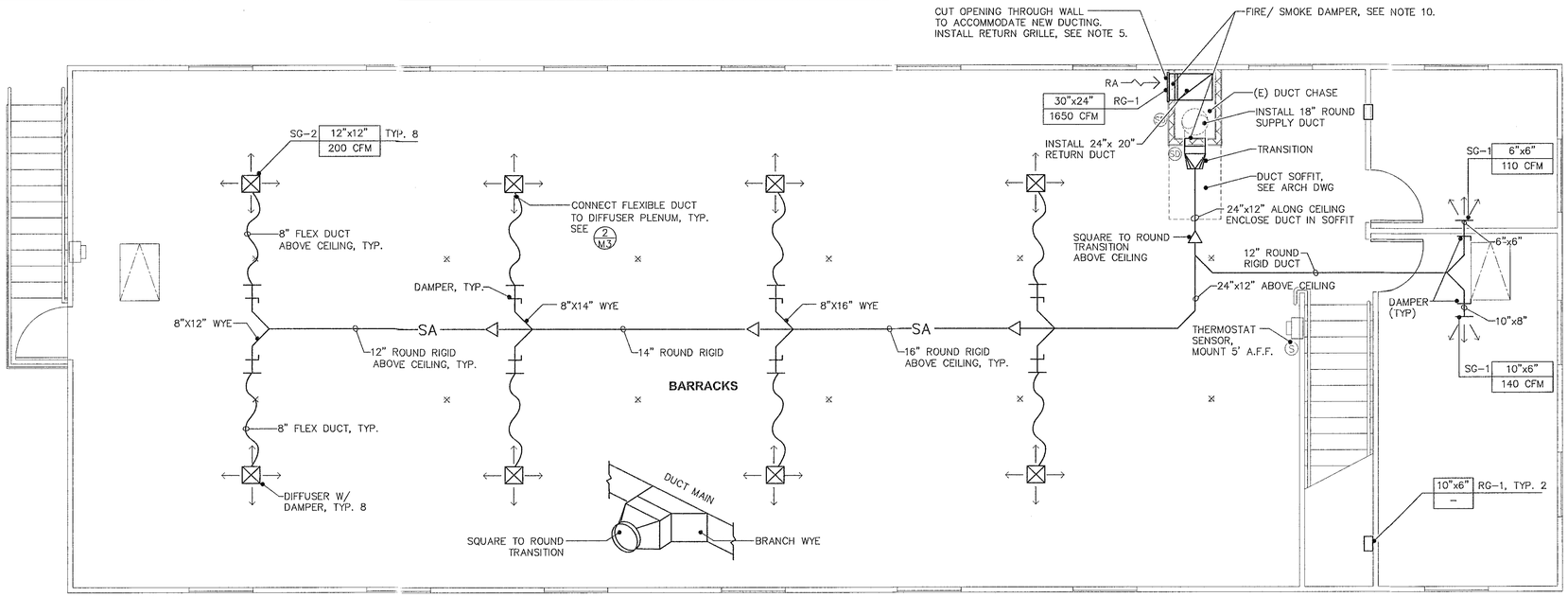
BD-1 BALANCE DAMPER, MANUAL TYPE, SINGLE BLADE, HEAVY DUTY GALVANIZED METAL FOR RECTANGULAR DUCTS, DAMPER SHALL HAVE LOCKING QUADRANT. SHALL BE "DAYTON", OR APPROVED EQUAL.

RG-1 RETURN GRILLE, WALL TYPE, BLADES PARALLEL TO LONG DIMENSION, 1/2" SPACING, 45 DEG. DEFLECTION, NON-FILTER, STEEL CONSTRUCTION, SHALL BE HART AND COOLEY, MODEL RG-1 OR APPROVED EQUAL.

T - THERMOSTAT SHALL BE 7- DAY PROGRAMMABLE WITH AUTO CHANGEOVER, CONTROL TO, OR MONITOR A SECOND REMOTE SENSOR, CAN AVERAGE UP TO 8 WIRED OR WIRELESS REMOTE SENSORS, DISPLAY BOTH HEATING AND COOLING SET POINTS AND ROOM TEMPERATURE SIMULTANEOUSLY, SERVICE FILTER AND SERVICE LAMP INDICATORS, BACKLIT DISPLAY AND KEYS. PROVIDE AND INSTALL THERMOSTAT IN A RECESSED WALL BOX WITH LOCKING COVER. SHALL BE VENSTAR, MODEL T2900, TRANE OR APPROVED EQUAL.

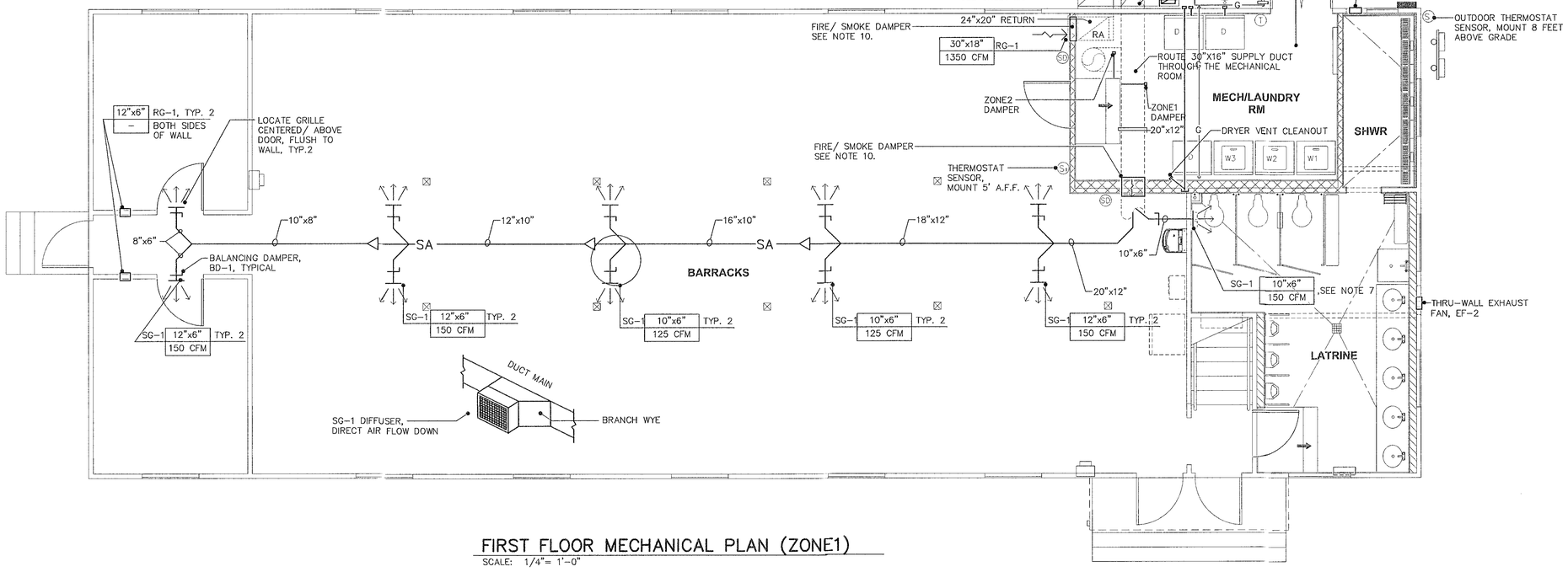
EF-1 THROUGH WALL EXHAUST FAN, 180 CFM @ 0.0" S.P., SHALL FIT WALL WIDTH FROM 4-1/2" TO 9-1/2" THICK, POLYMERIC FAN BLADE, BUILT-IN BACKDRAFT DAMPER. SHALL BE BROAN, MODEL 509 OR APPROVED EQUAL. FAN SHALL BE CONTROLLED BY A 1-HOUR SPRING WOUND TIMER SWITCH. SHALL BE INTERMATIC OR APPROVED EQUAL.

EF-2 THROUGH WALL EXHAUST FAN, 270 CFM @ 0.0" S.P., SHALL FIT WALL WIDTH FROM 4-1/2" TO 9-1/2" THICK, POLYMERIC FAN BLADE, BUILT-IN BACKDRAFT DAMPER. SHALL BE BROAN, MODEL 508 OR APPROVED EQUAL. FAN SHALL BE CONTROLLED BY A 1-HOUR SPRING WOUND TIMER SWITCH. SHALL BE INTERMATIC OR APPROVED EQUAL.



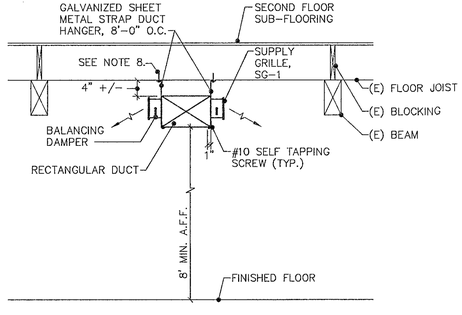
SECOND FLOOR MECHANICAL PLAN (ZONE2)

SCALE: 1/4" = 1'-0"



FIRST FLOOR MECHANICAL PLAN (ZONE1)

SCALE: 1/4"= 1'-0"



FIRST FLOOR DUCT DETAIL "A"

NOT TO SCALE:

NOTES:

1. INSTALL 4" FROM CEILING AT FIRST FLOOR.
2. ADDITIONAL BRACING MAY BE REQUIRED PER SMACNA
3. STRAP DUCT HANGER SHALL BE 1" x 16 GA., PAIRED STRAPS.

REGISTERED PROFESSIONAL ENGINEER MICHAEL SCAVENSKY 23043 MECHANICAL CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS	M/S	DRAWN BY:
.	.	.	△		M/S	DESIGNED BY:
.	.	.	△		NG	CHECKED BY:
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SHEET TITLE: TYPICAL MECHANICAL MODIFIED FLOOR PLANS

PROJECT: CAMP ROBERTS - BARRACKS RENOVATION

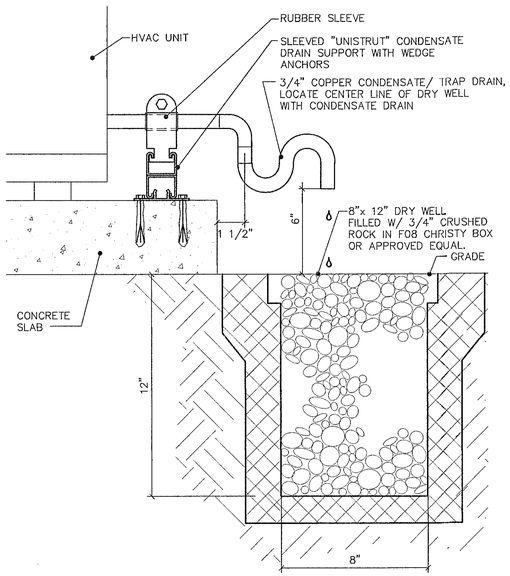
LOCATION: CAMP ROBERTS, CALIFORNIA

PROJECT NUMBER: 06R1904-27

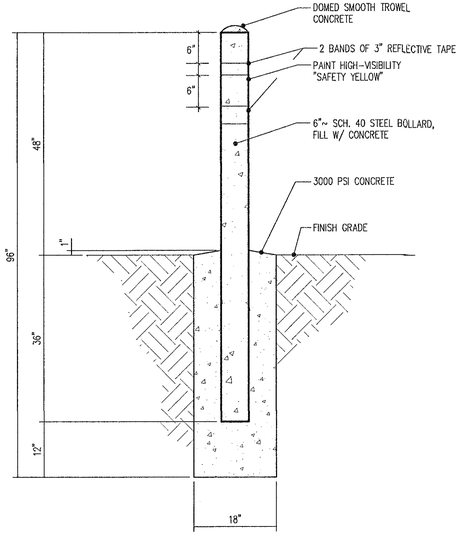
DATE: APR 29, 2019

STATE OF CALIFORNIA MILITARY DEPARTMENT

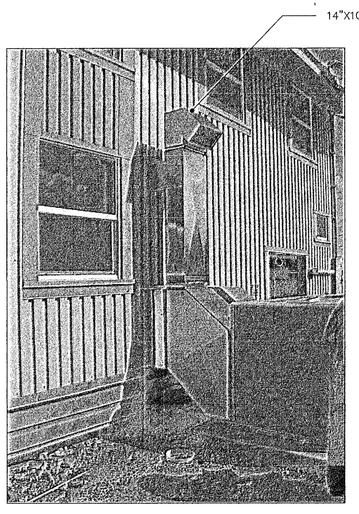
SHEET NUMBER M2



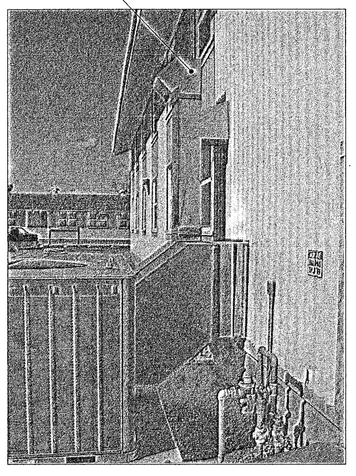
5 DRY WELL DETAIL
SCALE: 3"= 1'-0"



3 BOLLARD DETAIL
SCALE: 3/4"= 1'-0"

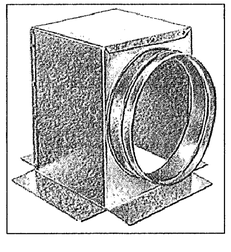


OUTSIDE AIR INTAKE

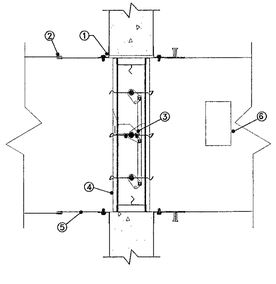


OUTSIDE AIR INTAKE

4 DUCTING DETAILS
SCALE: NONE



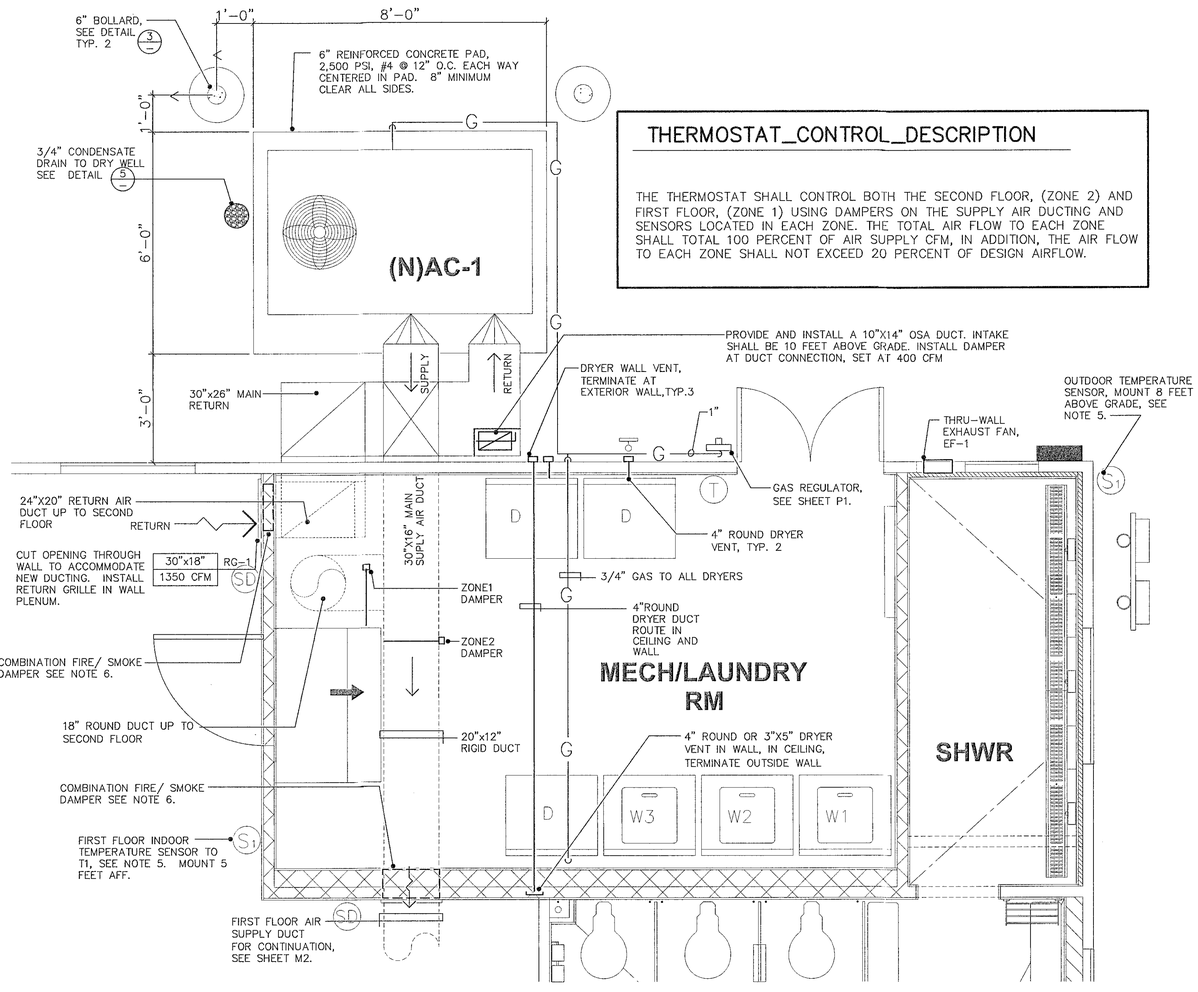
2 SECOND FLOOR DIFFUSER PLENUM
NO SCALE



4 FIRE/ SMOKE DAMPER
NO SCALE

FIRE DAMPER NOTES:

1. 1-1/2" x 1-1/2" GA. RETAINING ANGLE ALL SIDES.
2. SLEEVE OR DUCT CONNECTION.
3. RESETABLE LINK.
4. COMBINATION FIRE SMOKE DAMPER.
5. DAMPER SLEEVE.
6. DAMPER ACTUATOR



1 (N) MECHANICAL ROOM LAYOUT
SCALE: 1/2"= 1'-0"

THERMOSTAT_CONTROL_DESCRIPTION

THE THERMOSTAT SHALL CONTROL BOTH THE SECOND FLOOR, (ZONE 2) AND FIRST FLOOR, (ZONE 1) USING DAMPERS ON THE SUPPLY AIR DUCTING AND SENSORS LOCATED IN EACH ZONE. THE TOTAL AIR FLOW TO EACH ZONE SHALL TOTAL 100 PERCENT OF AIR SUPPLY CFM, IN ADDITION, THE AIR FLOW TO EACH ZONE SHALL NOT EXCEED 20 PERCENT OF DESIGN AIRFLOW.

NOTES:

1. REMOVE ALL EXISTING DUCT WORK AND DISPOSE, AS DIRECTED BY COR.
2. REMOVE EXISTING THERMOSTATS, WIRING AND DISPOSE, AS DIRECTED BY COR.
3. FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS BEFORE STARTING WORK, ORDERING OR FABRICATING MATERIALS.
4. SEISMIC GAS SHUT-OFF VALVE SHALL BE HORIZONTAL TYPE AND RE-SETTABLE. SHALL BE CALIFORNIA SEISMIC SHUT-OFF VALVE, MODEL 302 OR APPROVED EQUAL. ENSURE GAS DIRT LEG IS INSTALL PRIOR TO HVAC UNIT.
5. INDOOR SENSORS ARE TO BE LOCATED AS SHOWN, 5 FEET AFF. OUTDOOR SENSOR SHALL BE LOCATED AS SHOWN, 8 FEET ABOVE GRADE. SENSORS ARE INCLUDED AS PART OF THE THERMOSTAT.
6. PROVIDE AND INSTALL COMBINATION FIRE/ SMOKE DAMPERS AT ALL DUCT PENETRATIONS OF THE FIRE RATED WALLS, SHALL INCLUDE ALL ELECTRICAL, DAMPER ACCESS AND ACCESS DOORS, ACTUATORS, SMOKE SENSORS AND CONNECTION TO FIRE CONTROL PANEL AND ALL ASSOCIATED APPURTENANCES REQUIRED FOR A FULLY OPERATIONAL SYSTEM. UPON ACTIVATION THE AC-1 SHALL SHUT-OFF COMPLETELY. SHALL MEET ALL NFPA CODE REQUIREMENTS.
7. DUCT FIRE DAMPER SHALL BE A FIRE/SMOKE DAMPER, 1.5-HOUR RATING, TRIPLE-V BLADE, 16 GA. GALVANIZED STEEL, CLOSURE TEMPERATURE 165 F, RRL CLOSURE DEVICE, STEEL BLADES. SHALL HAVE UL 555 FIRE RESISTANCE RATING AND SHALL MEET THE REQUIREMENTS OF THE CSFM. SHALL INCLUDE MANUALLY RESETTABLE FIRE CLOSURE DEVICE, 120VAC CIRCUIT. SHALL BE POTTORFF, MODEL FSD-172 OR APPROVED EQUAL. PROVIDE AND INSTALL ACCESS OPENING IN DUCT AND WALL AS REQUIRED TO PROVIDE ACCESS TO MANUALLY RESET DAMPER.

PROFESSIONAL ENGINEER
MICHAEL SOLARSKY
28536
MECHANICAL
REGISTERED
CALIFORNIA

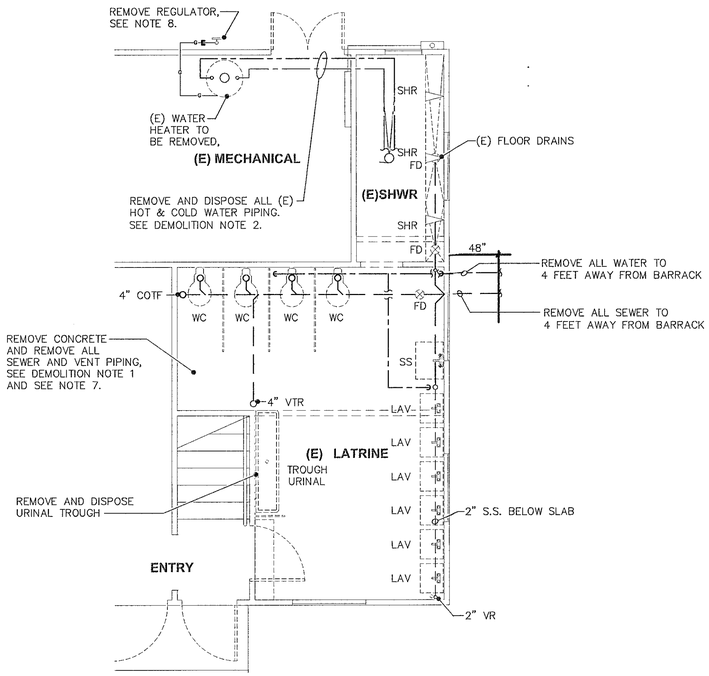
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DRAWN BY: MS
DESIGNED BY: MS
CHECKED BY: NG
APPROVED BY: NG

SHEET TITLE: TYPICAL MECHANICAL ROOM LAYOUT AND DETAILS
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
PROJECT NUMBER: 06R1904-27
DATE: APR 11, 2019
STATE OF CALIFORNIA MILITARY DEPARTMENT

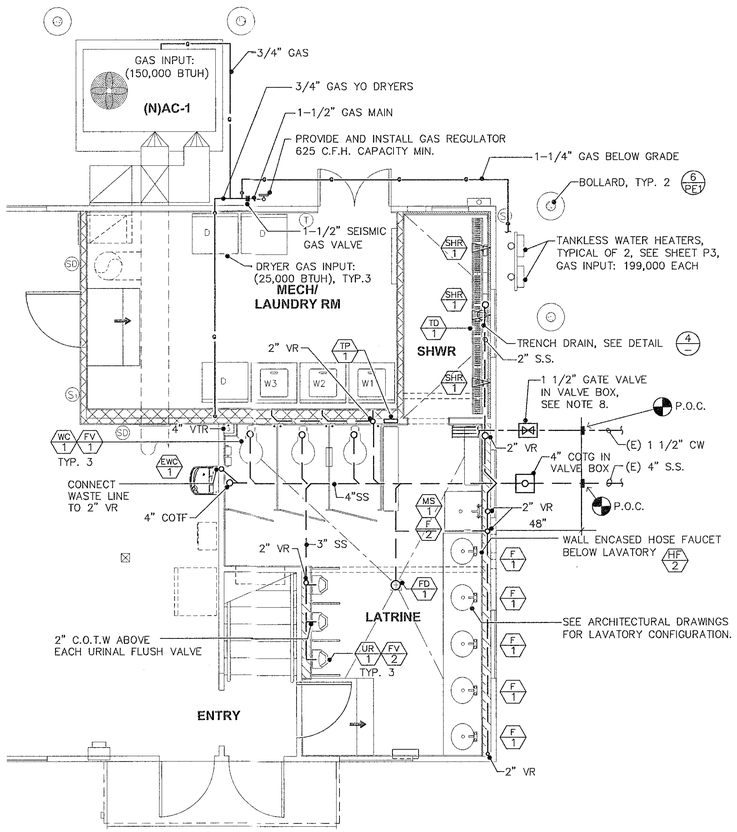
SHEET NUMBER M3

11 OF 19



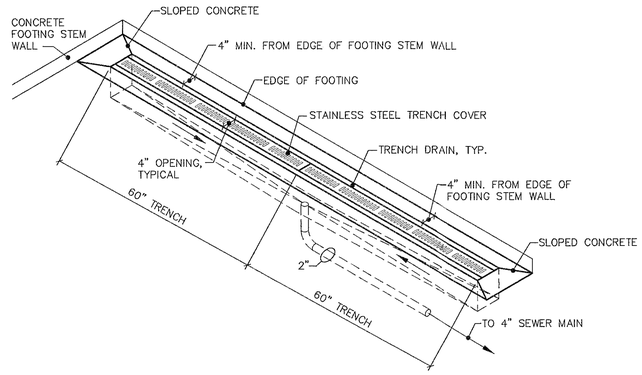
1 (E) LATRINE DEMOLITION PLAN

SCALE: 1/4"= 1'-0"



2 PLUMBING PLAN (1st FLOOR)

SCALE: 1/4"= 1'-0"



4 TRENCH DRAIN DETAIL

SCALE: NONE

DEMOLITION NOTES:

1. REMOVE AND DISPOSE OF ALL PLUMBING FIXTURES INCLUDING FLOOR DRAINS, CLEANOUTS AND WATER HEATER FROM 48" OUTSIDE EDGE BARRACKS TO ALL VENTS PIPE THROUGH ROOF, EXCEPT WHERE NOTED. SALVAGE WATER HEATER PER C.O.R.
2. REMOVE AND DISPOSE OF ALL HOT AND COLD WATER PIPING INCLUDING VALVES AND ALL ASSOCIATED APPURTENANCES FROM ALL LATRINE FIXTURES TO 48" BEYOND BARRACKS EXTERIOR.
3. REMOVE AND DISPOSE OF ALL SEWER AND VENT PIPING, INCLUDING ALL FLOOR DRAINS AND CLEAN OUTS FROM ALL LATRINE FIXTURES TO 48" BEYOND BARRACKS EXTERIOR.
4. CONTRACTOR IS RESPONSIBLE FOR THE FIELD VERIFICATION OF UTILITY RUNS, UNDER GROUND AND ABOVE GROUND PIPING. CONTRACTOR IS RESPONSIBLE FOR COSTS RELATING TO THE RELOCATION OF, DAMAGE TO OR REPAIR OF EXISTING UTILITY RUNS WHICH ARE DAMAGED AS A RESULT OF WORK IN OR AROUND THE PREMISES.
5. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. NO ADDITIONAL COMPENSATION WILL BE MADE FOR ANY EXTRAS DUE TO CONTRACTORS FAILURE TO VISIT THE JOBSITE AND/OR PREDETERMINE EXISTING CONDITIONS. ANY DISCREPANCIES MUST BE IMMEDIATELY REPORTED TO THE ARCHITECT OF RECORD FOR RESOLUTION, NO EXCEPTIONS.
6. MAINTAIN THE EXISTING VENT THROUGH ROOF OPENINGS WHERE NEW VENTS MAY BE ROUTED.
7. SAW CUT CONCRETE FLOOR AND BLOCK WALLS AS REQUIRED TO REMOVE FLOOR DRAINS, CLEANOUTS, WATER, SEWER AND VENT PIPING. WHERE FOOTING PENETRATIONS OCCUR, SLOPE SEWER AWAY OR RE-ROUTE PIPING TO AVOID RE-BAR.
8. REMOVE ALL EXISTING GAS FROM EQUIPMENT TO MAIN INCLUDING REGULATOR.

REMODEL NOTES:

1. THE CONTRACTOR IS TO PROVIDE AND INSTALL ALL NEW PLUMBING FIXTURES AS SHOWN ON THE NEW PLUMBING PLAN. IN ADDITION, PROVIDE AND INSTALL ALL NEW SEWER AND VENT PIPING, NEW HOT AND COLD WATER SUPPLY PIPING AND ALL ASSOCIATED APPURTENANCES TO ALL THE PLUMBING FIXTURES WITHIN THE PROJECT AREA. IN ADDITION, PROVIDE AND INSTALL NEW ELECTRIC WATER COOLERS WHERE SHOWN ON THE PLANS.
2. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS BEFORE SUBMITTING BID.
3. PROVIDE AND INSTALL ALL NEW SEWER AND VENT PIPING SHALL FROM 48" BEYOND THE EXTERIOR OF THE BARRACKS TO EACH FIXTURE, INCLUDING FLOOR DRAINS AND CLEANOUTS AND EXTEND TO ALL VENTING THROUGH THE ROOF. UTILIZE (E) ROOF PENETRATIONS WHERE FEASIBLE.
4. ALL COLD WATER SUPPLY PIPING SHALL EXTEND FROM THE EXTERIOR OF THE BUILDING TO ALL FIXTURES. ALL HOT WATER SUPPLY PIPING SHALL EXTEND FROM THE TANKLESS HOT WATER HEATERS TO ALL FIXTURES REQUIRING HOT WATER. NEW COLD WATER PIPING SHALL CONNECT TO (E) WHERE SHOWN.
5. INSULATE ALL WATER LINES, BOTH COLD AND HOT WATER.
6. SAW CUT CONCRETE FLOORS AND CMU BLOCK WALLS AS REQUIRED TO INSTALL HOT AND COLD WATER SUPPLY PIPING, SEWER AND VENT PIPING INCLUDING FLOOR DRAINS, FLOOR SINKS AND CLEANOUTS.
7. PROVIDE AND INSTALL PROPERLY SIZED WATER HAMMER ARRESTORS AT THE END OF EACH MAIN BRANCH OF HOT AND COLD WATER SUPPLY TO THE FIXTURES. PROVIDE AND INSTALL ACCESS DOORS FOR WATER HAMMER ARRESTORS IN WALLS AND CEILINGS.
8. PROVIDE AND INSTALL NEW GAS PIPING FROM GAS MAIN TO ALL BUILDING GAS FIRED EQUIPMENT. PROVIDE AND INSTALL NEW GAS REGULATOR, 625 C.F.H. CAPACITY MINIMUM. SIZE GAS PIPING AS SHOWN ON THE PLANS. SEE MECHANICAL PLANS FOR ADDITIONAL GAS LOADS.
9. PROVIDE AND INSTALL NEW TRAP PRIMERS FOR EACH FLOOR SINK, SHOWER AND FLOOR DRAIN INCLUDING WATER SUPPLY PIPING TO THE TRAP PRIMERS AND WATER SUPPLY PIPING TO THE FLOOR DRAIN, SHOWER AND FLOOR SINK. PROVIDE AND INSTALL ACCESS DOORS AT EACH TRAP PRIMER AS REQUIRED.
10. PROVIDE AND INSTALL NEW TANKLESS WATER HEATERS. ENSURE A 10 FOOT RADIUS FROM ALL FRESH AIR INTAKES. ROUTE TPV AND CONDENSATE TO 6" ABOVE GRADE.
11. INSTALL VALVE BOX, 9"x12" WITH CAST IRON COVER STAMPED "WATER" OR "SEWER" AS APPLICABLE. SHALL BE "CHRISTY BOX" OR APPROVED EQUAL
12. CHECK (E) SANITARY SEWER FOR OBSTRUCTIONS USING VIDEO LINE INSPECTION OR OTHER CAMERA SYSTEM.
13. ALL WALL PENETRATIONS OF THE MECHANICAL ROOM SHALL HAVE FIRE RATED CAULKING.

7. ROUTE WATER LINE FROM TRAP PRIMER TO FLOOR DRAIN(S) AND TRENCH DRAIN TRAPS.

PROFESSIONAL ENGINEER
REGISTERED
MICHAEL S. SLAVENSKY
No. M 29788
MECHANICAL
CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS	MS	DRAWN BY:
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SHEET TITLE: TYPICAL PLUMBING DEMOLITION FLOOR PLANS

PROJECT: CAMP ROBERTS - BARRACKS RENOVATION

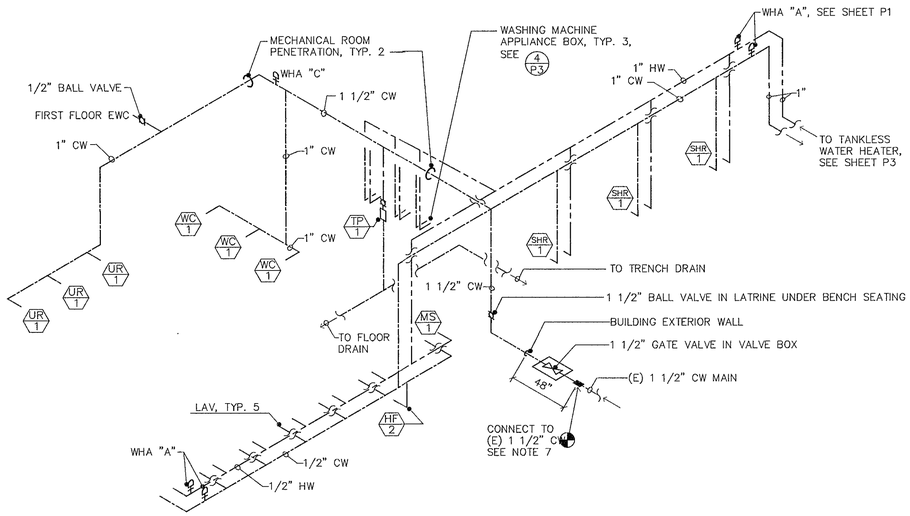
LOCATION: CAMP ROBERTS, CALIFORNIA

PROJECT NUMBER: 06R1904-27

DATE: APR 11, 2019

STATE OF CALIFORNIA — MILITARY DEPARTMENT

SHEET NUMBER: P1

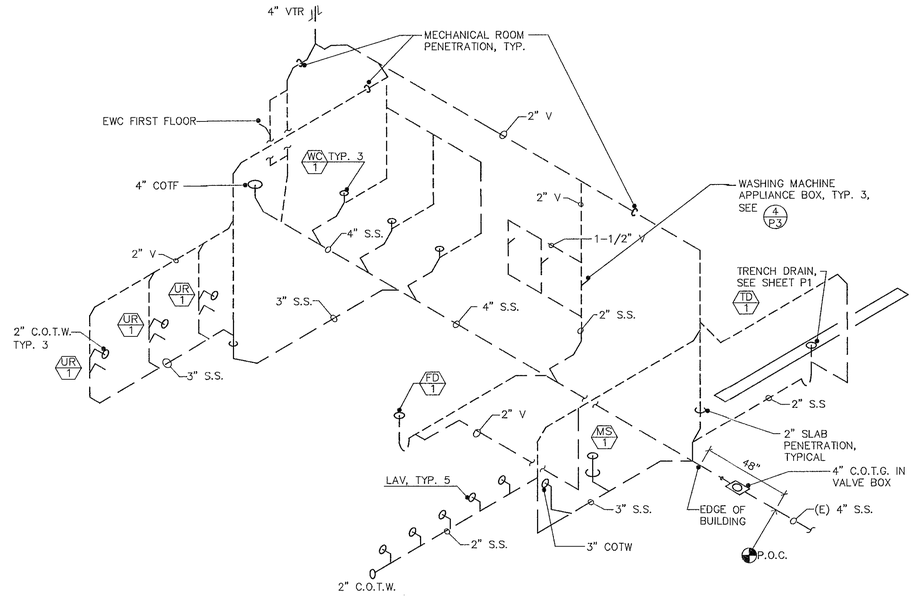


2 WATER ISOMETRIC

SCALE: NONE

NOTE:

1. SEE ARCHITECTURAL DRAWING FOR PREFERRED ROUTING OF SEWER, VENT AND WATER PIPING.
2. PROVIDE SHUT-OFF VALVE AND ACCESS DOOR AT TRAP PRIMER.
3. ISOMETRIC VIEWS ARE APPROXIMATE, VERIFY BEFORE MAKING, MANUFACTURING OR ORDERING MATERIAL.
4. CONSULT WITH C.O.R BEFORE ABANDONING ANY SEWER PIPING IN PLACE.



1 SEWER ISOMETRIC

SCALE: NONE

PLUMBING FIXTURE SCHEDULE

TAG #	TYPE NUMBER	SS	V	CW	HW	GAS	REMARKS	
EWC 1	ELECTRIC WATER COOLER	2"	1-1/2"	1/2"	–	–		SINGLE STATION, WALL MOUNTED, 8.0 GPH, ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION WITH TOUCHLESS ACTIVATION, LED LIGHT AT WATER DISPENSER. SHALL BE "ELKAY", MODEL LZS8WSLP OR APPROVED EQUAL. PROVIDE AND INSTALL WITH NEW WATER FILTER.SEE ARCHITECTURAL DRAWINGS.
TD 1	TRENCH DRAIN	2"	2"	–	–	–	2, 6	TRENCH DRAIN SHALL BE 4 INCH OPENING, CAST IN PLACE, STAINLESS STEEL, STAINLESS STEEL SLOTTED TRENCH COVER, MODULAR CHANNEL SECTIONS. SHALL BE "ZURN", MODEL Z890 OR APPROVED EQUAL.
FD 1	FLOOR DRAIN	2"	1-1/2"	–	–	–	2, 6	5-3/16" SQUARE NICKEL PLATED STRAINER, CAST IRON BODY, TRAP PRIMER CONNECTION. SHALL BE SQUARE. SHALL BE "ZURN" MODEL FD2322-NH2 OR APPROVED EQUAL.
F 1	LAVATORY FAUCET	2"	1-1/4"	1/2"	1/2"	–	1, 5	SINGLE LEVER FAUCET, 4" ON CENTER, CHROME FINISH, WASHER-LESS CERAMIC DISC VALVE CARTRIDGE, A.D.A. COMPLIANT. SHALL BE "AMERICAN STANDARD", MODEL 23385.500 OR APPROVED EQUAL.
WHA 1	WATER HAMMER ARRESTOR	–	–	TBD	–	–	7, 8	WATER HAMMER ARRESTOR SHALL BE STAINLESS STEEL BODY WITH BELLOWS OR PISTON. ARRESTOR COMPRESSION CHAMBERS SHALL BE PNEUMATICALLY CHARGED. SHALL BE WATTS, OR APPROVED EQUAL AND SIZED PER 2013 C.P.C. 609.10..
SHR 1	SHOWER (VALVES)	–	–	1/2"	1/2"	–		SHOWER SHALL BE CONCEALED SHOWER TYPE, STAINLESS STEEL PANELS, SWIVEL SHOWER HEAD AND SOAP DISH. PARTS SHALL BE CHROME PLATED. VALVE SHALL BE PRESSURE-BALANCING LEVER STYLE HANDLE. SHALL BE "POWERS", HYDRO PANEL II, MODEL 450-4002.
UR 1	URINAL	2"	1-1/2"	1/2"	–	–	1, 4	AMERICAN STANDARD, "WASH BROOK", 6590.503, OR APPROVED EQUAL. FLUSH VALVE SHALL BE EXPOSED TYPE, 0.125 GPF, 3/4" TOP SPUD. SHALL BE MOEN 186-0.125 OR APPROVED EQUAL.
WC 1	WATER CLOSET FLOOR MOUNTED	4"	2"	1-1/4"	–	–	1, 3, 4	AMERICAN STANDARD, MADERA, 3043.001, 16 1/2" HEIGHT OR APPROVED EQUAL. FLUSH VALVE SHALL BE EXPOSED TYPE, 1.28 GPF, SHALL BE "ZURN", Z6000AV-HET OR APPROVED EQUAL. PROVIDE AND INSTALL OPEN FRONT SEAT.
TP 1	TRAP PRIMER	–	–	1/2"	–	–	8	AUTOMATIC TRAP PRIMER, PISTON TYPE, 1/2" INLET AND OUTLET, SOLDER PIPE CONNECTION. SHALL BE "ZURN", MODEL Z1022 OR APPROVED EQUAL.
WHA -	WATER HAMMER ARRESTOR	–	–	TBD	–	–	7, 8	WATER HAMMER ARRESTOR SHALL BE COPPER BODY WITH BELLOWS OR PISTON. ARRESTOR COMPRESSION CHAMBERS SHALL BE PNEUMATICALLY CHARGED. SHALL BE WATTS, OR APPROVED EQUAL AND SIZED PER 2013 C.P.C. 609.10..
HF 1	HOSE FAUCET	–	–	1/2"	–	–		SHALL BE BRASS HOSE BIBB, 1/2" WITH BACK FLOW PREVENTER.
HF 2	HOSE FAUCET		–	–	1/2"	–	–	SHALL BE ENCASED HOSE FAUCET, SELF DRAINING FOR INTERIOR WALL INSTALLATION. SHALL BE "ZURN", MODEL EL Z1350-C OR APPROVED EQUAL.
MS 1		2"	1-1/2"	–	–	–	2	MOP SINK, STAINLESS STEEL, FLOOR MOUNTED. SHALL BE "ADVANCE TABCO, MODEL 9-OP-20 OR APPROVED EQUAL. SHALL INCLUDE 3" P-TRAP AND STRAINER FOR MOP SINK, EXPOSED YOKE WALL WALL-MOUNTED UTILITY FAUCET. SHALL BE "AMERICAN STANDARD", MODEL 8340.235 OR APPROVED EQUAL.

REMARKS:

1. NOT USED.
2. WITH TRAP PRIMER CONNECTION.
3. INCLUDE OPEN FRONT SEAT.
4. INCLUDE FLUSH VALVE.
5. INCLUDE A.D.A. LOW FLOW FILTER(S).
6. INSTALL TRAP PRIMERS AT ALL FLOOR DRAINS AND WASTE RECEPTOR.
7. INSTALL WATER HAMMER ARRESTORS AT THE END OF EACH WATER SUPPLY BRANCH. PROVIDE & INSTALL ACCESS DOOR AS REQUIRED.
8. PROVIDE & INSTALL ACCESS DOOR AT EACH WATER HAMMER ARRESTOR AND AT EACH TRAP PRIMER FOR ACCESS.

PROFESSIONAL ENGINEER REGISTERED MECHANICAL ENGINEER CALIFORNIA
RUSSELL S. SZAVENSKY
No. M27783

BY:	REMARKS	DATE	SYMBOL	REVISIONS	H/S	DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
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SHEET TITLE: TYPICAL PLUMBING ISOMETRIC VIEWS

PROJECT: CAMP ROBERTS - BARRACKS RENOVATION

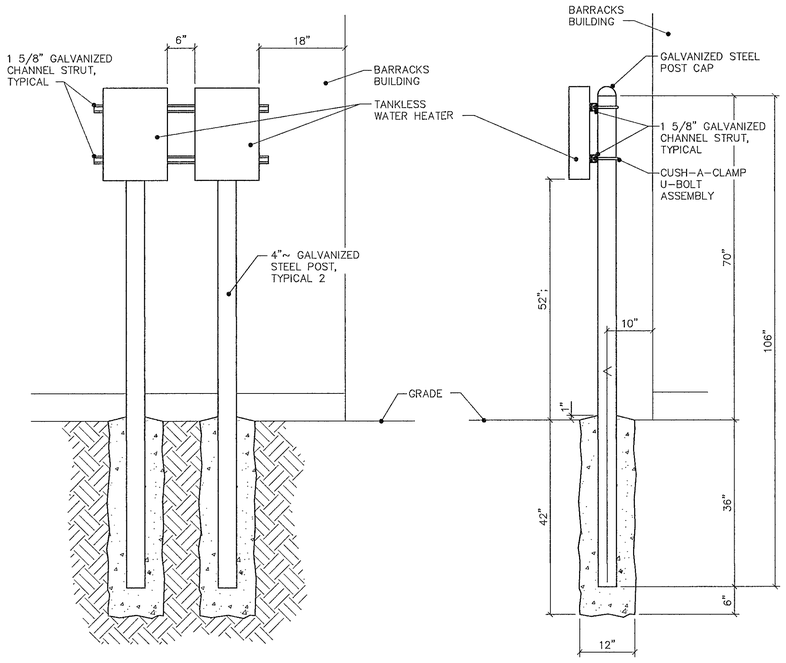
LOCATION: CAMP ROBERTS, CALIFORNIA

PROJECT NUMBER: 06R1904-27

DATE: APR 11, 2019

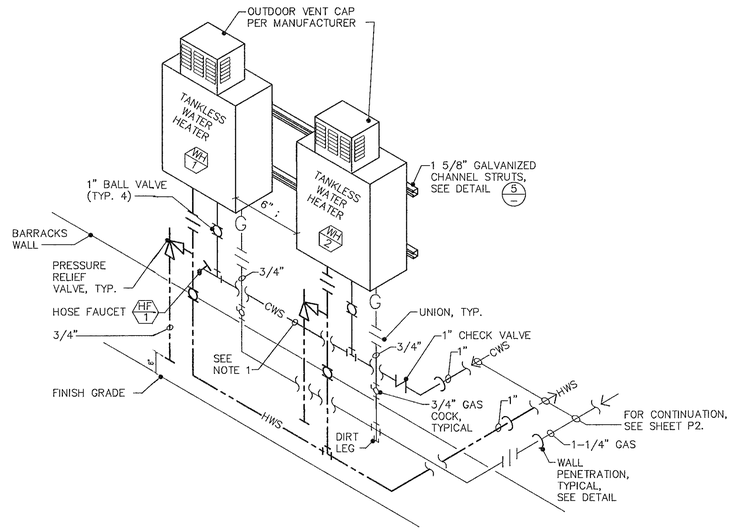
STATE OF CALIFORNIA — MILITARY DEPARTMENT

SHEET NUMBER: P2



FRONT VIEW SIDE VIEW

5 TANKLESS WATER HEATER SUPPORT
SCALE: 3/4"= 1'-0"



1 TANKLESS WATER HEATER DETAIL & (N) WATER ISOMETRIC
SCALE: NONE
SEE NOTE 2

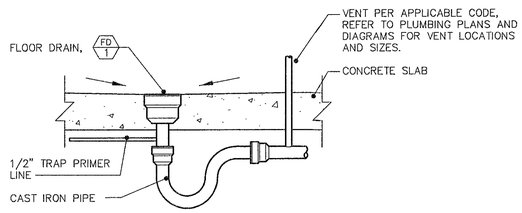
EQUIPMENT SCHEDULE:

WH 1 WH 2 TANKLESS GAS WATER HEATER, 199,000 BTUH MAXIMUM, 16,000 BTUH MINIMUM, 8.4 GAL/MIN. @ 45F TEMPERATURE RISE, CONDENSING, OUT DOOR INSTALLATION. INSTALL COMPLETE WITH ALL REQUIRED ACCESSORIES, FOR DE-SCALING, INCLUDING BUT NOT LIMITED TO PRESSURE RELIEF VALVE, ISOLATION VALVES, AIR INTAKE CONTROLS, VENT PIPING DRAIN, WATER AND GAS SUPPLY VALVES. INSTALLATION AND CLEARANCES SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND SHALL COMPLY WITH 2015 IPC. PLUMB IN PARALLEL, TANK-LESS WATER HEATERS SHALL BE "NORITZ", MODEL NCC1991 OR APPROVED EQUAL.

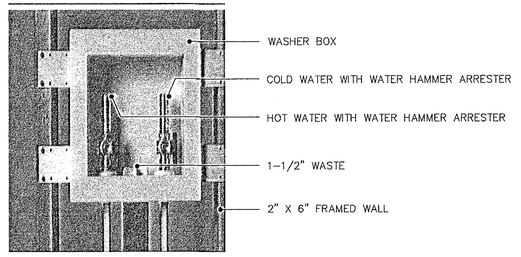
HF 1 HOSE FAUCET, SHALL BE COMPRESSION TYPE, ANGLE PATTERN, WHEEL HANDLE, 3/4 - INCH FEMALE THREAD WITH HOSE BEND. BRONZE BODY ROUGH FINISH, NON-REMOVABLE THREADED OUTLET VACUUM BREAKER. SHALL BE "NIBCO", MODEL No. 63-CL OR APPROVED EQUAL.

NOTE:

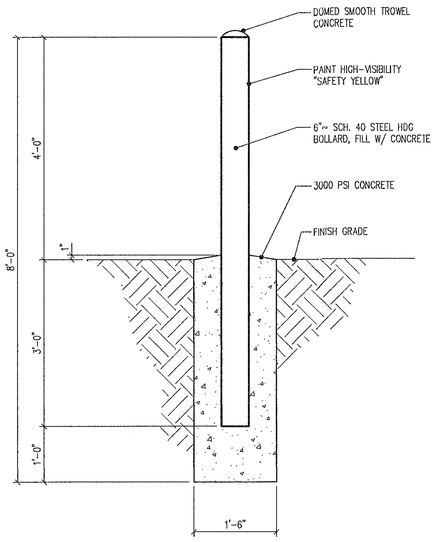
1. INSULATE ALL EXTERIOR WATER LINES WITH WRAPPED FLEXIBLE ELASTOMERIC INSULATION.



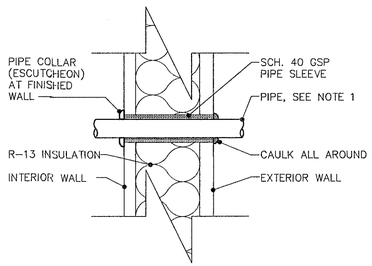
3 FLOOR DRAIN DETAIL
SCALE: NONE



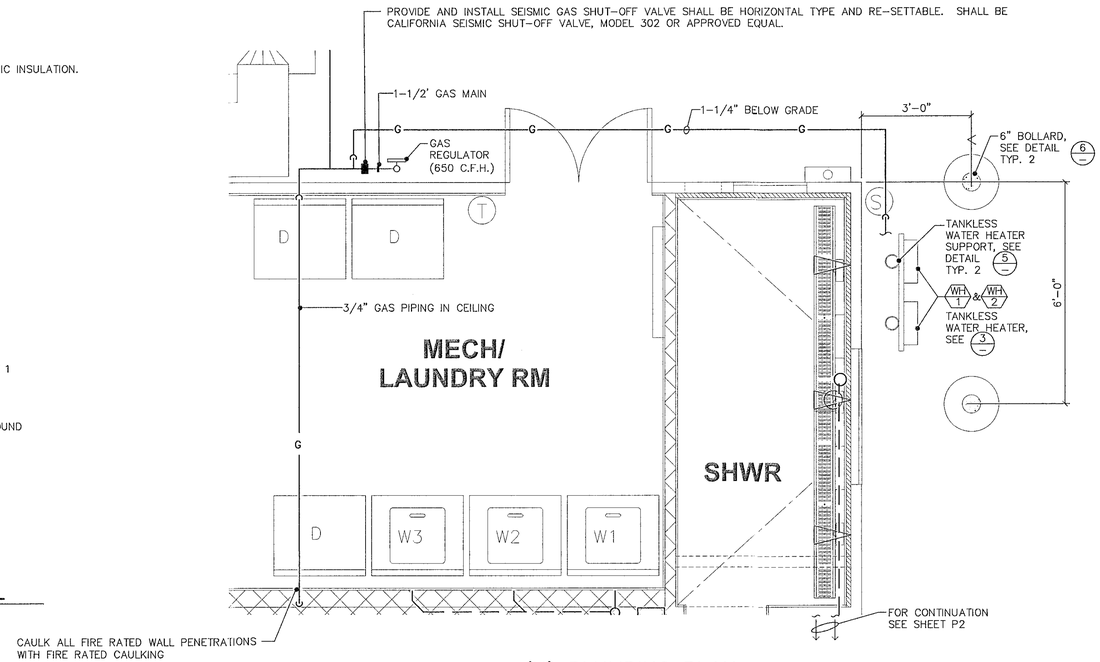
4 WASHER BOX
SCALE: NONE



2 BOLLARD DETAIL
SCALE: 3/4"= 1'-0"



7 PIPE WALL PENETRATION DETAIL
SCALE: 3"= 1'-0"



2 (N) PLUMBING PLAN
SCALE: 1/2"= 1'-0"

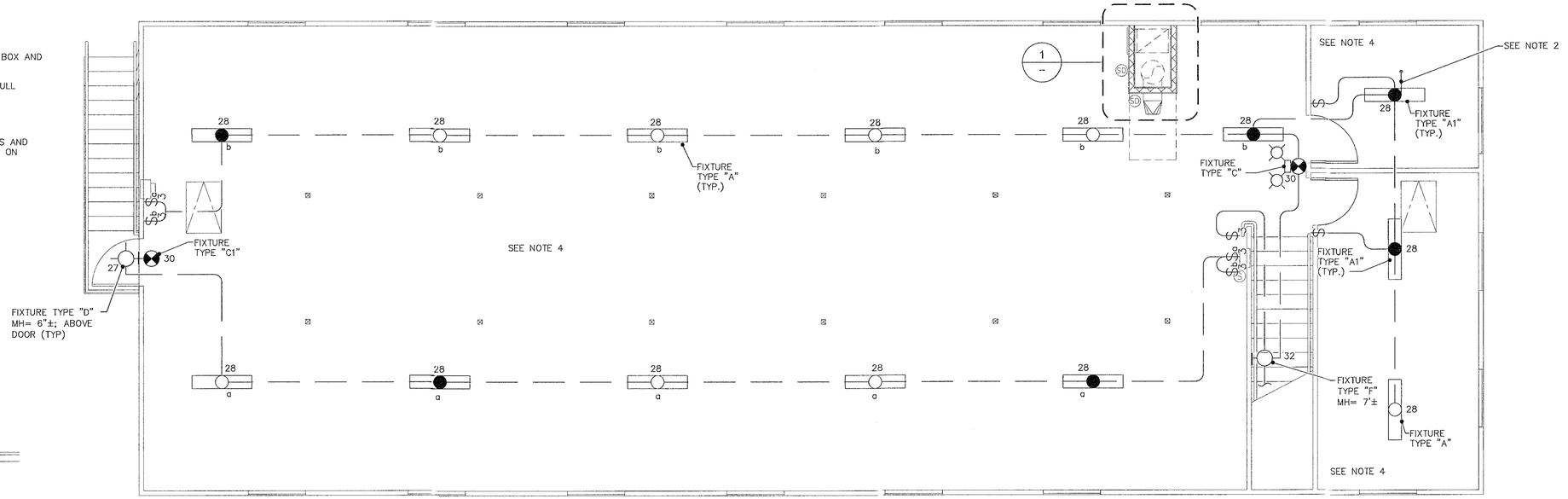
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DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
MS	MS	NG	NG

SHEET TITLE: TYPICAL WATER HEATER REPLACEMENT
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
PROJECT NUMBER 06R1904-27
DATE: APR 11, 2019
STATE OF CALIFORNIA MILITARY DEPARTMENT
SHEET NUMBER P3
14 OF 19

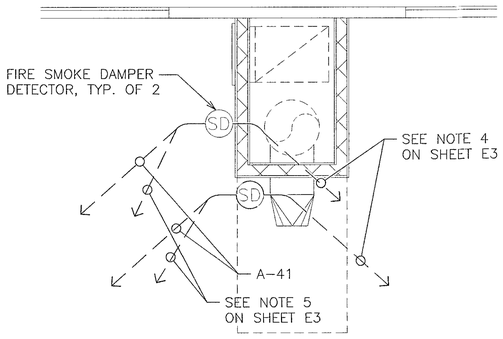
NOTES:

1. RUN 3/4"C, FOR CKT #A27 AND A32 TO (E) PANEL BOARD "A" VIA (E) PULL BOX AND 3" CONDUIT IN THE MECHANICAL ROOM.
2. RUN 3/4"C, FOR CKT #A30 & A32 DOWN TO (E) PANEL BOARD "A" VIA (E) PULL BOX AND 3" CONDUIT IN MECHANICAL ROOM.
3. FOR PANEL AND FIXTURE SCHEDULE, SEE SHEET E3.
4. CONTRACTOR SHALL DISCONNECT & REMOVE ALL (E) LIGHT FIXTURES, SWITCHES AND RECEPTACLES WITH ALL ASSOCIATED WIRES & CONDUITS. REPLACE AS SHOWN ON THIS DRAWING.



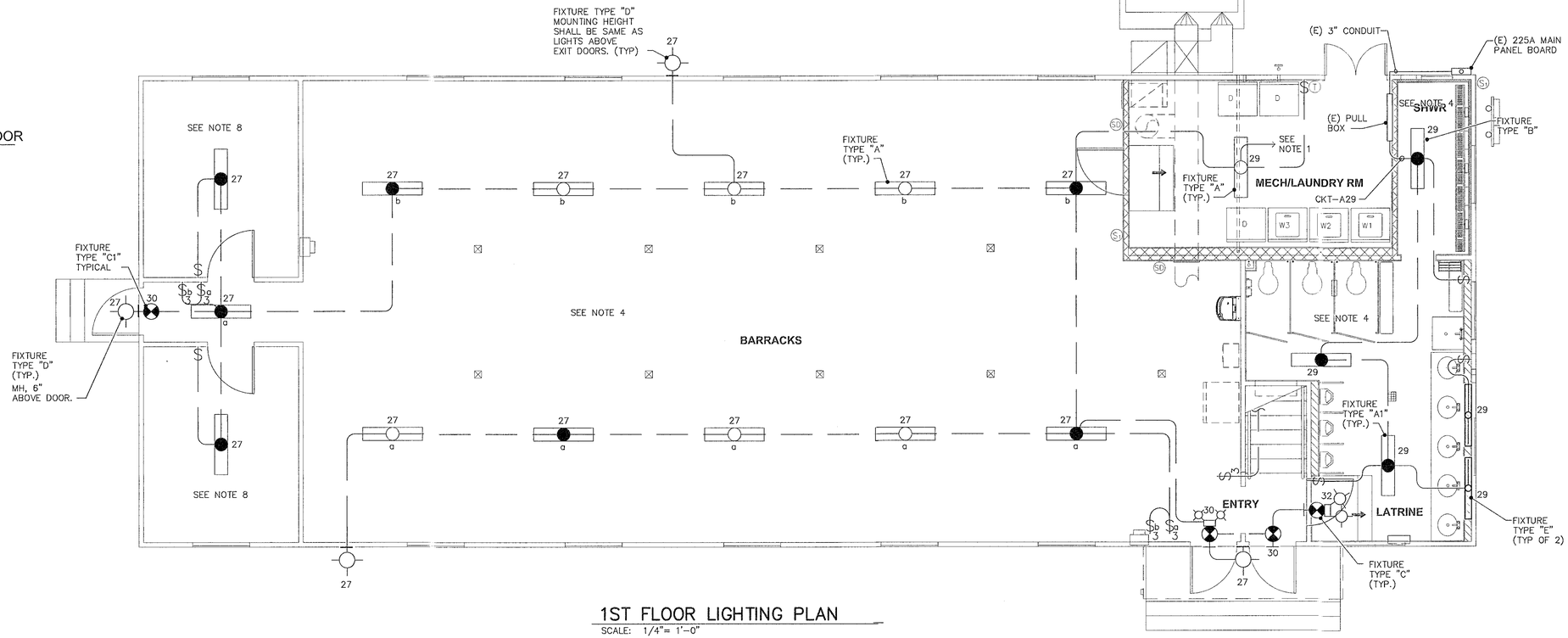
2ND FLOOR LIGHTING PLAN

SCALE: 1/4"= 1'-0"



1 FIRE SMOKE DAMPER DETECTOR @ 2ND FLOOR

Scale: 1/2"=1'-0"



1ST FLOOR LIGHTING PLAN

SCALE: 1/4"= 1'-0"

LICENSED ARCHITECT — JEFFREY M. CHANNING — No. 24997 — Exp. 7-19 — STATE OF CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS			
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DRAWN BY:
DESIGNED BY:
CHECKED BY:
APPROVED BY:

SHEET TITLE: TYPICAL BARRACKS LIGHTING PLANS

PROJECT: CAMP ROBERTS - BARRACKS RENOVATION

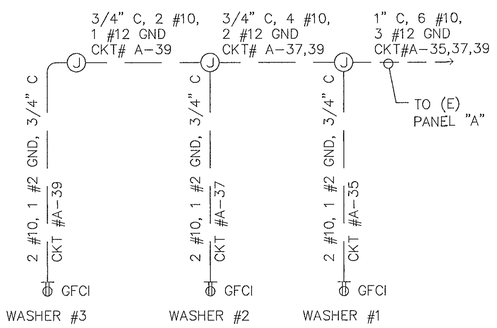
LOCATION: CAMP ROBERTS, CALIFORNIA

PROJECT NUMBER: 06R1904-27

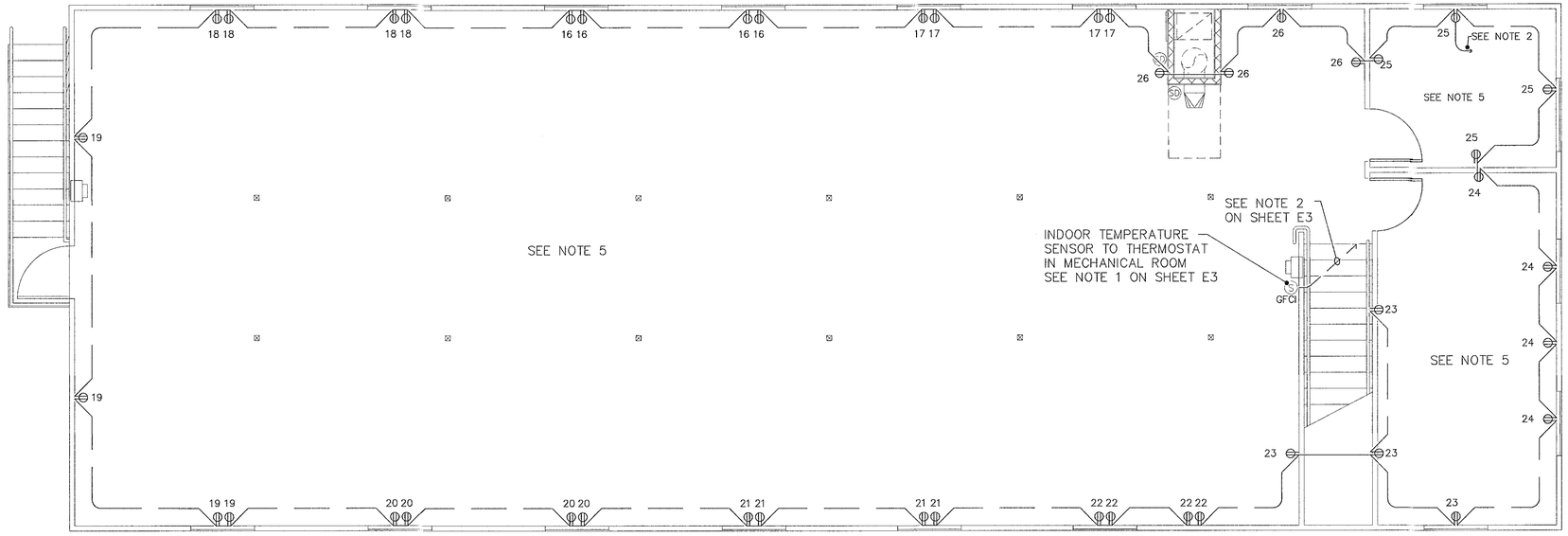
DATE: APR 11, 2019

STATE OF CALIFORNIA — MILITARY DEPARTMENT

SHEET NUMBER: E1



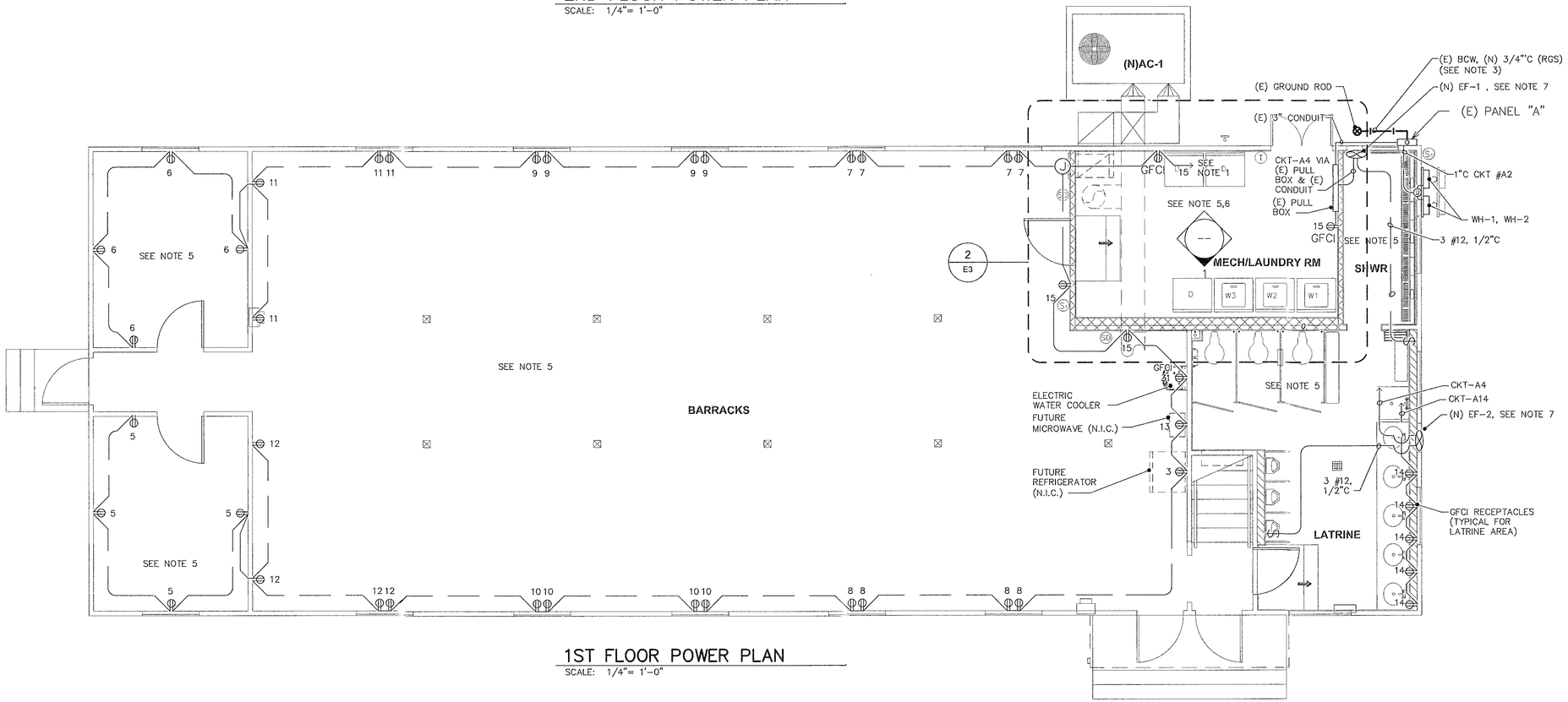
1 DETAIL
Scale: NTS



2ND FLOOR POWER PLAN
SCALE: 1/4"= 1'-0"

PLAN NOTES:

1. RUN 1 1/2"C FOR CKT #A3, A5 THRU A15 & A31 TO (E) PANEL BOARD "A" VIA (E) PULL BOX AND 3" CONDUIT IN MECHANICAL ROOM.
2. RUN 1 1/2"C, FOR CKT #A16 THRU A26 & A33 DOWN TO (E) PANEL BOARD "A" VIA (E) PULL BOX AND 3" CONDUIT IN MECHANICAL ROOM.
3. REPLACE (E) EMT CONDUIT WITH NEW RIGID GALVANIZED CONDUIT (RGS). REUSE BARE COPPER WIRE GROUNDING.
4. FOR PANEL AND FIXTURE SCHEDULE, SEE SHEET E3.
5. CONTRACTOR SHALL DISCONNECT & REMOVE ALL (E) LIGHT FIXTURES, SWITCHES AND RECEPTACLES WITH ALL ASSOCIATED WIRES & CONDUITS. REPLACE AS SHOWN ON THIS DRAWING.
6. DISCONNECT, REPLACE AND RECONNECT (E) PULL BOX WITH NEW ONE. SIZE AS REQUIRED.
7. PROVIDE TIMER SWITCHES FOR EF-1 AND EF-2. SEE MECHANICAL DRAWINGS FOR TIMER SWITCH INFORMATION.



1ST FLOOR POWER PLAN
SCALE: 1/4"= 1'-0"

BY:	REMARKS	DATE	SYMBOL	REVISIONS	PK	DRAWN BY:
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PROJECT NUMBER 06R1904-27

DATE: APR 11, 2019

SHEET TITLE: TYPICAL BARRACKS POWER PLANS & DETAIL

PROJECT: CAMP ROBERTS - BARRACKS RENOVATION

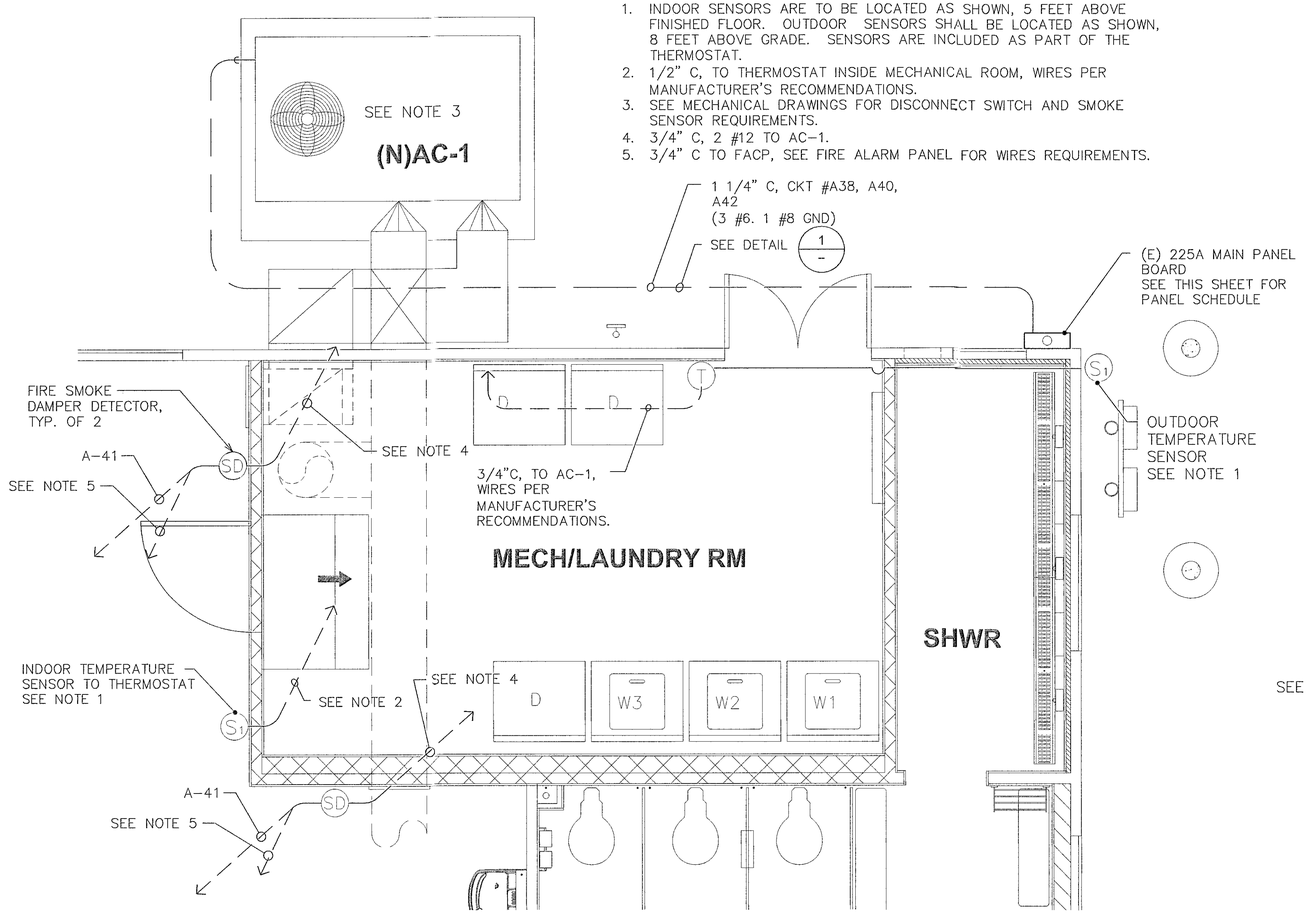
LOCATION: CAMP ROBERTS, CALIFORNIA

STATE OF CALIFORNIA — MILITARY DEPARTMENT

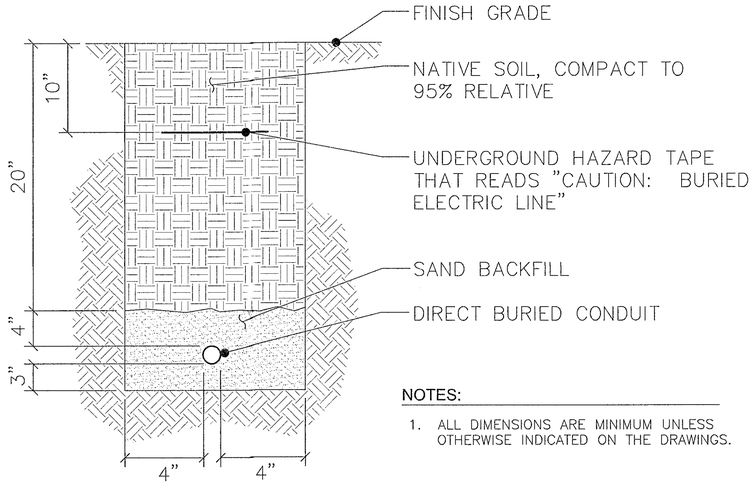
SHEET NUMBER E2

NOTES:

1. INDOOR SENSORS ARE TO BE LOCATED AS SHOWN, 5 FEET ABOVE FINISHED FLOOR. OUTDOOR SENSORS SHALL BE LOCATED AS SHOWN, 8 FEET ABOVE GRADE. SENSORS ARE INCLUDED AS PART OF THE THERMOSTAT.
2. 1/2" C, TO THERMOSTAT INSIDE MECHANICAL ROOM, WIRES PER MANUFACTURER'S RECOMMENDATIONS.
3. SEE MECHANICAL DRAWINGS FOR DISCONNECT SWITCH AND SMOKE SENSOR REQUIREMENTS.
4. 3/4" C, 2 #12 TO AC-1.
5. 3/4" C TO FACP, SEE FIRE ALARM PANEL FOR WIRES REQUIREMENTS.



2 ENLARGED MECHANICAL ROOM FLOOR PLAN
Scale: 1/2"=1'-0"



NOTES:

1. ALL DIMENSIONS ARE MINIMUM UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

1 DIRECT BURIED CONDUIT
Scale: NONE

MAIN: 225 AMP

VOLTS: 120/208, 3 PHASE

(E) PANEL "A"

LOCATION: BARRACKS BLDG. (EXTERIOR)

DESCRIPTION	AMPS øA	AMPS øB	AMPS øC	BRK	CKT	ABC	CKT	BRK	AMPS øA	AMPS øB	AMPS øC	DESCRIPTION
FACP	6			20/1	1		2	20/1	2			WATER HEATERS 1 & 2
REFRIGERATOR		7		20/1	3		4	20/1		4		EF-1 & EF-2
RECEPT'S. 1st FLR. OFFICE			6	20/1	5		6	20/1			6	RECEPT'S. 1st FLR. OFFICE
RECEPTACLES 1st FLOOR	12			20/1	7		8	20/1	12			RECEPTACLES 1st FLOOR
RECEPTACLES 1st FLOOR		12		20/1	9		10	20/1		12		RECEPTACLES 1st FLOOR
RECEPTACLES 1st FLOOR			12	20/1	11		12	20/1			12	RECEPTACLES 1st FLOOR
MICRO-WAVE	5			20/1	13		14	20/1	7.5			RECEPTACLES LATRINE
RECEPTACLES MECH. ROOM		6		20/1	15		16	20/1		12		RECEPTACLES 2nd FLOOR
RECEPTACLES 2nd FLOOR			12	20/1	17		18	20/1			12	RECEPTACLES 2nd FLOOR
RECEPTACLES 2nd FLOOR	12			20/1	19		20	20/1	12			RECEPTACLES 2nd FLOOR
RECEPTACLES 2nd FLOOR		12		20/1	21		22	20/1		12		RECEPTACLES 2nd FLOOR
RECEPTACLES 2nd FLOOR			6	20/1	23		24	20/1			6	RECPTS. 2nd FLOOR OFFICE
RECEPT'S. 2nd FLR. BEDRM.	6			20/1	25		26	20/1	6			RECEPTACLES 2nd FLOOR
LIGHTS 1st FLOOR		11		20/1	27		28	20/1		10		LIGHTS 2nd FLOOR
LIGHTS LATRINE & MECH. RM.			6	20/1	29		30	20/1			6	LIGHTS STAIRS & EMERGENGY
ELECTRIC WATER COOLER 1st FLOOR (EWC)	5			20/1	31		32	20/1				SPARE
SPARE				20/1	33		34	20/1				SPARE
WASHER # 1			15	20/1	35		36	20/1				SPARE
WASHER # 2	15			20/1	37		38	50/	41			AC-1
WASHER # 3		15		20/1	39		40			41		
FIRE SMOKE DAMPERS			2	20/1	41		42	3			41	

SEE NOTE 2

øA	øB	øC	
141.5	154	142	TOTAL AMPS/ø

(E) PANEL SCHEDULE "A"
SCALE: NONE

NOTES:

1. MINIMUM WIRE SIZE SHALL BE 2# 12, 1# 12 GND, 3/4" C FOR . EACH 20 A CIRCUIT UNLESS OTHER WISE NOTED.
2. PROVIDE 3-20A, 1P CIRCUIT BREAKER FOR CIRCUIT 35, 37, 39.

LIGHTING FIXTURE SCHEDULE

TYPE	VOLTAGE	DESCRIPTION	CATALOG NUMBER
A	MVOLT	12"x48" SURFACE MOUNTED LED WRAPAROUND, WHITE ENAMEL END PLATES.	LITHONIA- LBL4-4800LM-80CR1-40K-MINI 1 ZT-MVOLT-USPOM OR APPROVED EQUAL
A1	MVOLT	12"x48" SURFACE MOUNTED LED WRAPAROUND, EMERGENCY POWER PACK, WHITE ENAMEL END PLATES.	LITHONIA- LBL4-4800LM-80CR1-40K-MINI 1 ZT-MVOLT-EL14L-USPOM OR APPROVED EQUAL
B	MVOLT	48" SURFACE MOUNTED LED WITH EMERGENCY POWER PACK, GASKET, FIBERGLASS HOUSING, FIXTURE SHALL BE SUITABLE FOR WET LOCATION	LITHONIA- FEM-L48-6000LM-LPPFL-WD-MVOLT-GZ10-50K-80CR1-E15WCP-WLFEND2 OR APPROVE EQUAL.
C	120	THERMOPLASTIC EXIT/ UNIT COMBINATION LIGHT TYPE WITH SELF-DIAGNOSTIC SEALED MAINTENANCE-FREE NICKEL-CADMIUM BATTERY.	LITHONIA- LHQM-LED-P-W-1-R-120-N OR APPROVED EQUAL
C1	120	THERMOPLASTIC EXIT/ UNIT COMBINATION LIGHT TYPE WITH SELF-DIAGNOSTIC SEALED MAINTENANCE-FREE NICKEL-CADMIUM BATTERY.	LITHONIA- LQM-LED-S-W-3-R-120-EL-N-SD-M6 OR APPROVED EQUAL
D	120	WALL PACK LED	LITHONIA- TWH-LED-30C-1000-50K-T3M-120-PE-DDBXD-USPOM OR APPROVED EQUAL
E	MVOLT	LINEAR T8 FLUORESCENT WITH ONE-PIECE WHITR DIFFUSER, WALL MOUNTED. SUITABLE FOR BATHROOMS, 3-FOOT UNIT WITH TWO LAMPS.	LITHONIA- 11935-RE-MVOLT-GEB10RS. OR APPROVED EQUAL.
F	MVOLT	WALL MOUNTED LED W/ SEALED & GASKETED OPTICAL SYSTEM. FINISH SHALL BE BLACK CORROSION-RESISTANT POLYESTER ENAMEL.	LITHONIA- TWS-LED-P1-50K-MVOLT-PE. OR APPROVED EQUAL.

MICHAEL PAUL KOSCA
ARCHITECT
No. 24997
Exp. 7-19
STATE OF CALIFORNIA

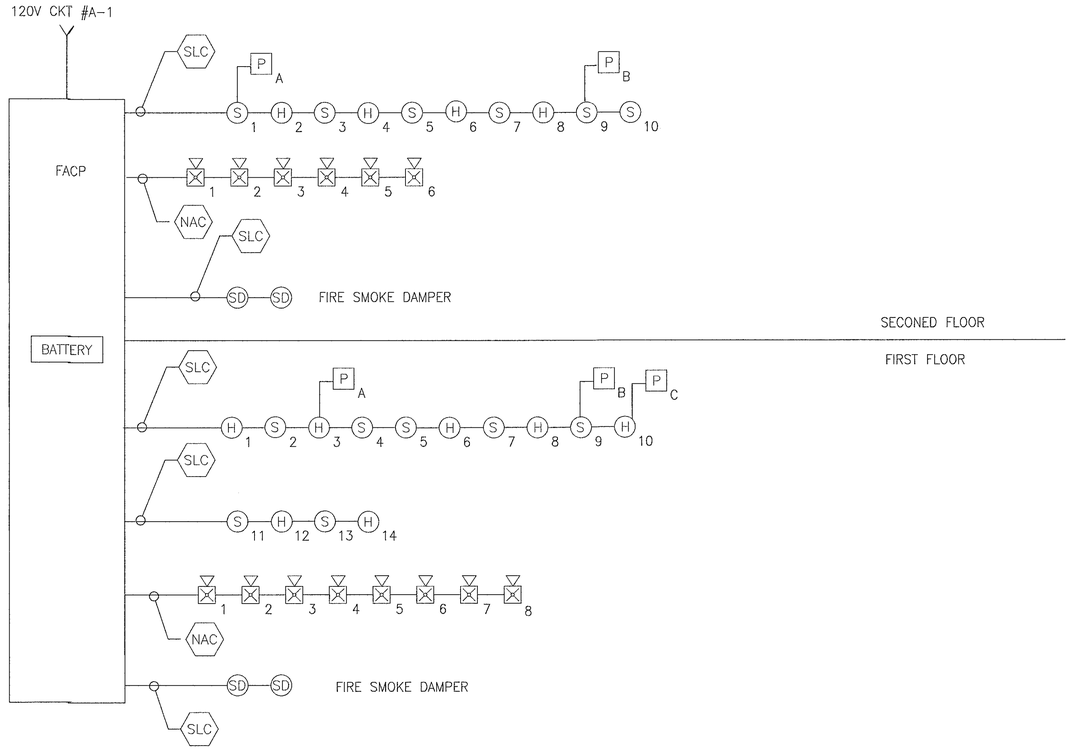
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SHEET TITLE: TYP. ENLARGED FLOOR PLAN, DETAIL & FIXTURE SCHEDULES
PROJECT: CAMP ROBERTS - BARRACKS RENOVATION
PROJECT NUMBER: 06R1904-27
LOCATION: CAMP ROBERTS, CALIFORNIA
STATE OF CALIFORNIA MILITARY DEPARTMENT
DATE: APR 11, 2019

SHEET NUMBER E3

SHEET NOTES:

1. WIRING / RACEWAY ARE SHOWN DIAGRAMMATICALLY, PROVIDE CONDUIT AS NECESSARY TO SUIT FIELD CONDITION, PROVIDE SEPARATE WIRING LOOPS (ZONE) PER GROUP OF PULL STATIONS, SMOKE DETECTORS AND HORN / STROBES.
2. A. THE FIRE ALARM SYSTEM SHALL CONFORM TO THE 2016 CEC ARTICLE 760 AND THE 2016 CFC 105.7, AND CBC 907.
   B. ALL PLANS AND SHOP DRAWINGS SHALL USE THE SYMBOLS IDENTIFIED IN NFPA 170 2012 EDITION STANDARD FOR FIRE SAFETY AND EMERGENCY SYMBOLS CFC 907.1.2(14).
   C. AUDIBILITY AND VISIBILITY OF NOTIFICATION APPLIANCES TO BE FIELD VERIFIED. RELOCATION OF APPLIANCES AND / OR REQUIREMENT OF ADDITIONAL APPLIANCES MAY BE BASED ON FIELD TESTING.
3. PROVIDE CABLE SUPPORT IN FIRE ALARM TERMINAL CABINETS PER N.E.C.
4. FACP AND OTHER PANELS SHALL BE MOUNTED WITH CLEARANCE FOR OBSERVATION AND TESTING, AND ALL FIRE ALARM JUNCTION BOXES SHALL BE MARKED FOR IDENTIFICATION.
5. NO WIRING OTHER THAN DIRECTLY ASSOCIATED WITH FIRE ALARM DETECTION ALARM OR AUXILIARY FIRE PROTECTION FUNCTIONS SHALL BE PERMITTED IN THE ALARM CONDUITS.
6. ALL WIRING SHALL BE CHECKED AND TESTED TO ENSURE THAT THERE ARE NO GROUNDS, OPEN OR SHORTS.
7. WIRING SHALL NOT BE LOOPED THROUGH DEVICES. WIRE SHALL BE CUT FOR IN AND OUT.
8. WHENEVER TWO OR MORE STROBE APPLIANCES ARE VISIBLE FROM ANY GIVEN LOCATION, THOSE STROBES SHALL BE SYNCHRONIZED.
9. ALL DEVICES IN THE ALARM SYSTEM SHALL BE COMPATIBLE AND INSTALLED TO MANUFACTURES SPECIFICATION.
10. AT COMPLETION OF THE PROJECT, A COPY OF "AS BUILT" DRAWINGS SHALL BE PROVIDED TO THE OWNER ALONG WITH WRITTEN OPERATION INSTRUCTION AND MAINTENANCE/TESTING INFORMATION.



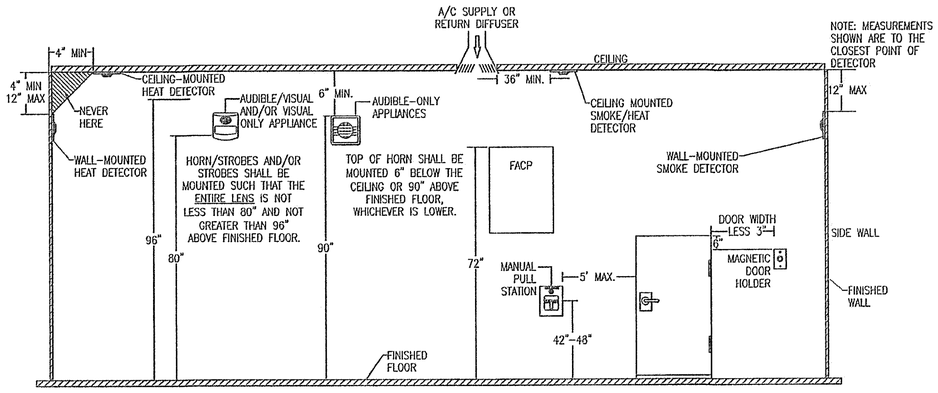
1 FIRE ALARM RISER DIAGRAM
Scale: NONE

NOTES:

1. SEE FLOOR PLAN FOR TOTAL QUANTITY OF FIRE ALARM DEVICES.

REQUIREMENTS FOR FIRE ALARM PLAN REVIEW

A. BUILDING DATA INFORMATION.
B. SCOPE OF PROJECT.
C. CURRENT CALIFORNIA STATE FIRE MARSHAL (CSFM) LISTING SHEETS FOR ALL COMPONENTS.
D. MANUFACTURER'S SPECIFICATION SHEET ON ALL FIRE ALARM EQUIPMENT.
E. SYMBOL OF ALL FIRE ALARM DEVICES BEING INSTALLED.
F. FLOOR PLAN SHOWING FIRE ALARM DEVICES 1/8 INCH SCALE.
G. FLOOR PLAN SHOWING ROOM IDENTIFICATION 1/8 INCH SCALE.
I. LOCATION OF ALL FIRE RATED WALLS ON FLOOR PLAN WITH A CORRESPONDING WALL LEGEND.
J. SEQUENCE OF OPERATION MATRIX TABLE.
K. SINGLE LINE RISER DIAGRAM.
L. POINT TO POINT WIRING DIAGRAM.
M. BATTERY CALCULATION.
N. VOLTAGE DROP CALCULATION.
O. IDENTIFICATION OF TYPE OF WIRING USED.
P. ELEVATION DETAIL OF MANUAL FIRE ALARM BOX AND VISUAL DEVICES.
Q. DESIGN NUMBER AND DETAIL FOR THROUGH PENETRATION FIRESTOP SYSTEM.



FIRE ALARM DEVICE MOUNTING HEIGHTS

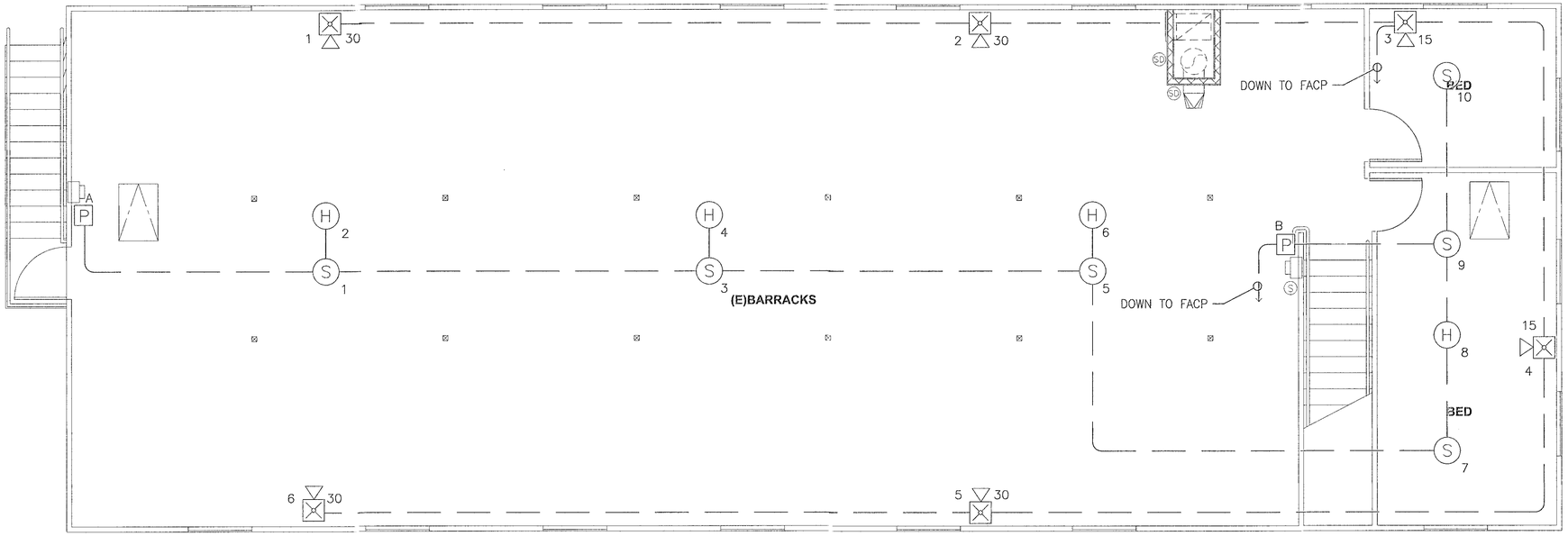
SCALE: NOT TO SCALE

LICENSED ARCHITECT — JOSEPH MAGNANINI — No. 24997 Exp. 7-19 — STATE OF CALIFORNIA

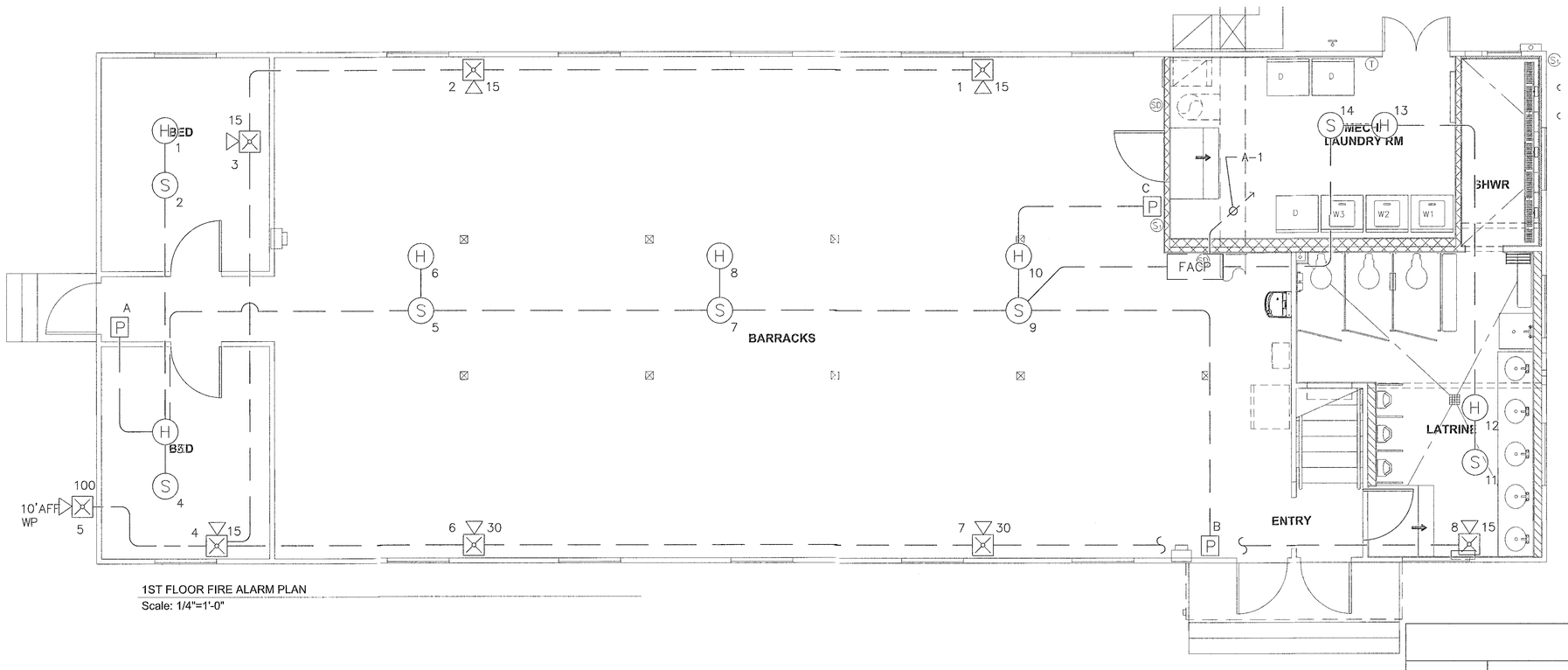
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SHEET TITLE: TYP. FIRE ALARM SYMBOLS, LEGEND, ABBREVS & DIAGRAM
PROJECT: CAMP ROBERTS – BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
PROJECT NUMBER: 06R1904-27
DATE: APR 11, 2019
STATE OF CALIFORNIA — MILITARY DEPARTMENT

SHEET NUMBER: E4



2ND FLOOR FIRE ALARM PLAN
Scale: 1/4"=1'-0"



1ST FLOOR FIRE ALARM PLAN
Scale: 1/4"=1'-0"

FIRE ALARM SYMBOL LEGEND:

FACP	FIRE ALARM CONTROL PANEL
H	INTELLIGENT HEAT DETECTOR
S	INTELLIGENT AREA TYPE SMOKE DETECTOR – PHOTO
P	INTELLIGENT MANUAL PULL STATION – NON CODED
	WALL MOUNTED HORN/STROBE

X — 30 dB — STROBE CANDELA
DEVICE NUMBER

1–#18/2 TWP
- WIRE TYPE ABBREVIATED
- CONDUCTOR COUNT
- WIRE SIZE
- #OF CABLES (IF OMITTED ONLY 1 CABLE NEEDED)

ABBREVIATION	DESCRIPTION
AWG	AMERICAN WIRE GAUGE
TWP	TWISTED PAIR
TWSP	TWISTED SHIELDED PAIR
FPLP	FIRE POWER LIMITED PLENUM
FPLR	FIRE POWER LIMITED RISER

CIRCUIT LEGEND

CALLOUT	PRODUCT DESCRIPTION	CIRCUIT TYPE	WIRE TYPE & QTY	CLASS
SLC	FPLP, 300V, INSULATED 105°C	SIGNALING LINE CIRCUIT	1–#16/2 TWP FPLP	CLASS A
NAC	THHN, 600V, INSULATED 90°C	NOTIFICATION CIRCUIT	2–#14–THHN	CLASS B

LICENSED ARCHITECT — NICHOLAS GIANNINI — No. 24997 — Exp. 7-19 — STATE OF CALIFORNIA

BY:	REMARKS	DATE	SYMBOL	REVISIONS
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DRAWN BY: PK
DESIGNED BY: PK
CHECKED BY: NG
APPROVED BY: NG

SHEET TITLE: TYPICAL FIRE ALARM PLANS
PROJECT: CAMP ROBERTS – BARRACKS RENOVATION
LOCATION: CAMP ROBERTS, CALIFORNIA
PROJECT NUMBER: 06R1904–27
DATE: APR 11, 2019
STATE OF CALIFORNIA — MILITARY DEPARTMENT

SHEET NUMBER: E5

19 OF 19

SCOPE OF WORK

PROVIDE NEW FIRE ALARM SYSTEM FOR THE (E) BARRACKS, PROVIDE IPC AT THE PANEL FOR FUTURE NETWORK CONNECTION.

BUILDING CODE INFORMATION

BUILDING CONSTRUCTION TYPE:	TYPE V-B
OCCUPANCY CLASSIFICATION:	R-2
S.F. / OCCUPANCY	5,160
NUMBER OF STORIES:	2
ACTUAL BUILDING HEIGHT:	23'-6"
BUILDING AREA (S.F.):	5,160
AREA OF PROJECT (S.F.):	5,160 S.F.
FIRE SPRINKLERED:	YES
FIRE ALARM:	YES

APPLICABLE CODES:

- UFC 1-300-09N, DESIGN PROCEDURES
- UFC 3-600-01, FIRE PROTECTION ENGINEERING FOR FACILITIES
- NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE
- CALIFORNIA BUILDING CODE
- CALIFORNIA FIRE CODE

APPLICABLE CODES (LATEST ADOPTED VERSIONS)

ABBREVIATIONS:

FACU	FIRE ALARM CONTROL UNIT
FATC	FIRE ALARM TERMINAL CABINET
ANN	FIRE ALARM ANNUNCIATOR
SLC	SIGNALING LINE CIRCUIT
NAC	NOTIFICATION APPLIANCE CIRCUIT
UP	CONDUIT / WIRES GOING UP
DN	CONDUIT / WIRE GOING DOWN
NIC	NOT IN CONTRACT
(E)	EXISTING
(N)	NEW
WP	WEATHERPROOF
EOL	END OF LINE
ELECT	ELECTRICAL PANEL
N/A	NOT APPLICABLE
BFP	BACKFLOW PREVENTER

SHEET INDEX:

FA00 - GENERAL NOTES AND SEQUENCE OF OPERATIONS

FA10 - FIRE ALARM PLANS

FA20 - RISER DIAGRAM

FA30 -POINT TO POINT WIRE DIAGRAM

FA40 - DETAILS

SYSTEM OUTPUTS

		CONTROL UNIT ANNUNCIATION						NOTIFICATION								REQUIRED FIRE SAFETY CONTROL								
		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE COMMON TROUBLE SIGNAL	ACTUATE NOTIFICATION APPLIANCES		TRANSMIT FIRE ALARM SIGNAL TO CENTRAL MONITORING STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL MONITORING STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL MONITORING STATION	PRECEDING SIGNAL FOR CARBON MONOXIDE SHALL BE TWO ROUNDS OF 520 HZ TEMPORAL 4 SIGNAL				TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION	TRANSMIT CARBON MONOXIDE DETECTOR ALARM SIGNAL		
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		
FA SYSTEM INPUTS	1	MANUAL FIRE ALARM BOX	●	●					●		●													
	2																							
	3	FIRE SPRINKLERS - WATER FLOW SWITCH	●	●					●		●													
	4	FIRE SPRINKLERS - VALVE TAMPER SWITCH			●	●						●												
	5	CONTROL EQUIPMENT SMOKE DETECTION	●	●					●		●													
	6	CARBON MONOXIDE DETECTION																						
	7																							
	8																							
	9																							
	10																							
	11																							
	12																							
	13	GENERATOR AUTO										●												
	14	GENERATOR ALARM										●												
	15	GENERATOR RUNING										●												
	16																							
	17	FIRE ALARM AC POWER FAILURE					●	●					●											
	18	FIRE ALARM SYSTEM LOW BATTERY					●	●					●											
	19																							
	20	OPEN CIRCUIT					●	●					●											
	21	GROUND CIRCUIT					●	●					●											
	22	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●					●											
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		

SYSTEM INPUTS

SEQUENCE OF OPERATION MATRIX

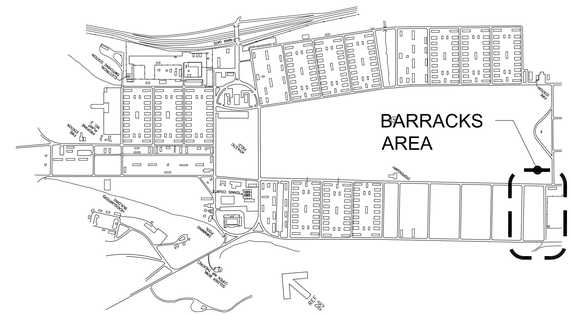
GENERAL NOTES:

1. THE ENTIRE BUILDING SHALL BE PROTECTED WITH AUTOMATIC FIRE ALARM SYSTEM INSTALLED IN ACCORDANCE WITH UFC CRITERIA AND NFPA 72.
2. ALL NEW FIRE ALARM SYSTEM EQUIPMENT SHALL BE U.L. APPROVED.
3. ALL CONDUIT TO BE ¾" UNLESS OTHERWISE SPECIFIED.
4. ALL WIRE WILL BE 16 AWG TFN, 14 AWG THHN, OR 12 AWG THHN, 600V, AND WILL BE RUN IN CONDUIT.
5. VERTICAL SUPPORT FOR CONDUCTORS IN A RACEWAY WILL BE PROVIDED.
6. ALL ELECTRICAL WORK ABOVE 24VDC WILL BE DONE BY ELECTRICAL CONTRACTOR.
7. WIRING SHALL NOT BE LOOPED THROUGH DEVICES; WIRE MUST BE CUT FOR IN AND OUT.
8. ALL JUNCTION BOXES SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. AND SHALL HAVE THEIR COVERS PAINTED RED WHERE APPLICABLE.
9. OUTDOOR CONTROL VALVES SHALL BE SECURE WITH LOCK AND CHAIN . INDOOR VALVES SHALL BE PROVIDED WITH TAMPER SWITCHES.
10. ALL EXTERIOR MOUNTED EQUIPMENT SHALL BE LISTED AS WEATHERPROOF INCLUDING BUT NOT LIMITED TO, VISUAL, AUDIO, SUPERVISORY AND INITIATING DEVICES. THEY SHALL BE NOTED ON THE PRINT WITH "WP" DESIGNATION FOR WEATHERPROOF. THEIR ELECTRICAL TERMINATION COUNTER PARTS SHALL ALSO BE LISTED AS SUCH AND ALSO NOTED IN THE JOB SPECIFICATIONS.
11. UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE AUTHORITY HAVING JURISDICTION.
12. A MINIMUM OF 48 HOURS NOTICE SHALL BE REQUIRED FOR ANY INSPECTION AND/OR TESTING.
13. FIRE ALARM DRAWINGS ARE SCHEMATIC IN NATURE ONLY. CONTRACTOR TO ROUTE CONDUIT AS FIELD CONDITIONS ALLOW.
14. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL FIELD CHANGES WITH COLLINGS & ASSOCIATES. WIRING AND SYSTEM SOFTWARE ARE DIRECTLY AFFECTED BY THE CONDUIT RUNS SHOWN. IF CONDITIONS REQUIRE CHANGES TO THE CONDUIT RUNS INDICATED ON THESE PRINTS, PLEASE CONTACT COLLINGS & ASSOCIATES TO COORDINATE THE CHANGES. PROBLEMS CAUSED BY UNDOCUMENTED OR UNCOORDINATED CHANGES WILL NOT BE THE RESPONSIBILITY OF COLLINGS & ASSOCIATES.
15. ALL EXISTING JUNCTION BOXES, PULL BOXES, BACK BOXES, AND CONDUIT TO REMAIN.
16. ALL JUNCTION BOXES TO BE PAINTED RED TO MATCH THE EXISTING.
17. THE CONTRACTOR SHALL BE A FACTORY-AUTHORIZED REPRESENTATIVE IN ORDER TO PERFORM ANY WORK ON THE FIRE ALARM SYSTEM. PROVIDE A RECORD COPY OF THE SITE SPECIFIC SOFTWARE AT THE TIME OF FINAL ACCEPTANCE TESTING IN ACCORDANCE WITH NFPA 72, SECTION 4.5.2.3(3). PROVIDE SECURITY PASSWORD/CODE TO ALLOW AUTHORIZED TECHNICIANS TO MODIFY THE SOFTWARE DATABASE. A FACTORY DEFAULT PASSWORD/CODE IS ACCEPTABLE. ALL CABINET LOCK KEY TYPES SHALL BE "T45" AND SHALL BE APPROVED BY THE NAVFAC FPE AND PUBLIC WORKS DEPARTMENT.
18. LOCK ON BREAKER AND A DEDICATED EMERGENCY PANEL AT THE SERVICE ENTRANCE FOR ALL FIRE PROTECTION SERVICE POWER SHALL BE PROVIDED. ELECTRICAL POWER SERVICE SHALL BE ON A DEDICATED BRANCH CIRCUIT. THE CIRCUIT AND CONNECTORS SHALL BE MECHANICALLY PROTECTED. CIRCUIT DISCONNECTING MEANS SHALL HAVE A RED MARKING, SHALL HAVE A LISTED BREAKER LOCKING DEVICE, SHALL BE ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL, AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL". THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL PANEL.

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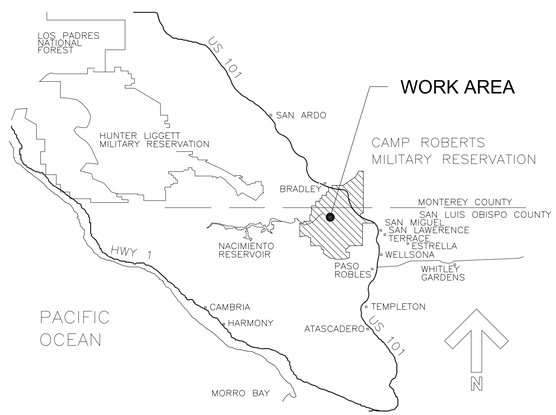
BARRACKS RENOVATION

CAMP ROBERTS, SAN MIGUEL, CA 93451-5000



SITE PLAN

SCALE: NONE



VICINITY MAP

SCALE: NONE

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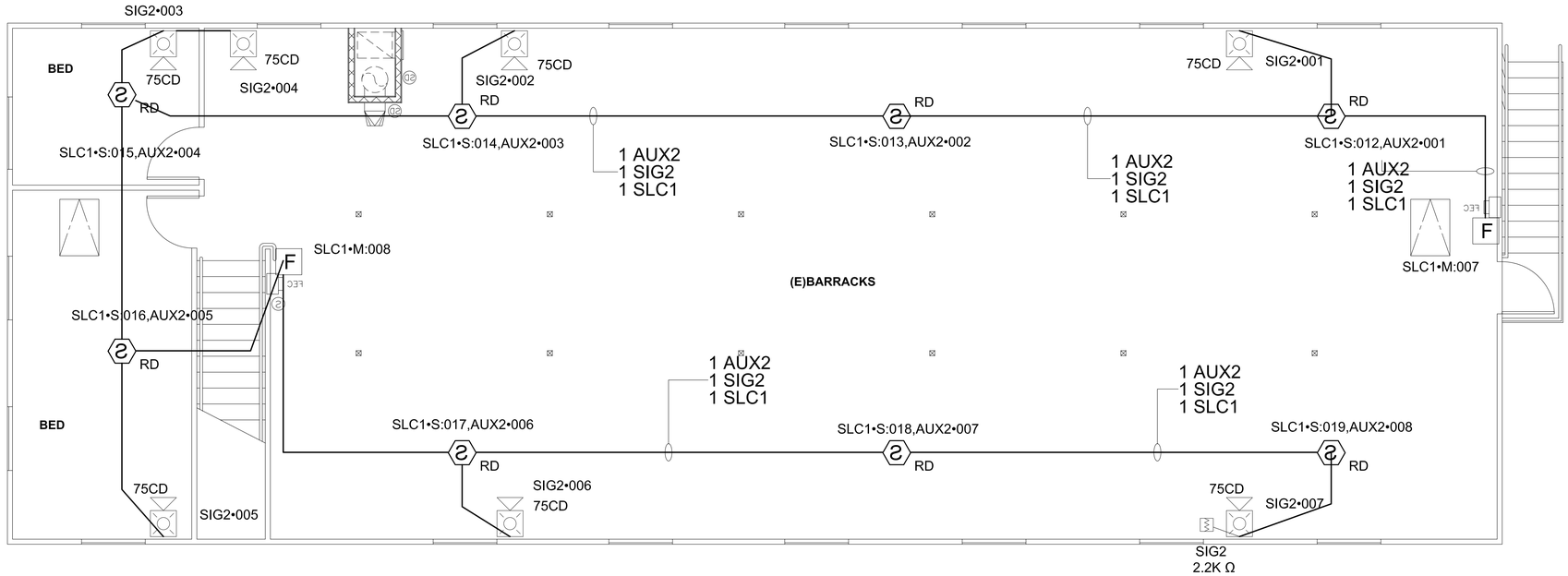
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Project CAMP ROBERTS BARRACKS RENOVATION

Sheet FA00

100% CD

Plot By: Felipe Moreno Plot Date: 3/9/2020 File Name:P:\Clients\Engineers\Yamabe & Horn\Camp Roberts Barracks\C&A Drawings\CAD\FA\0681904-27_FA_3-9-2020.dwg

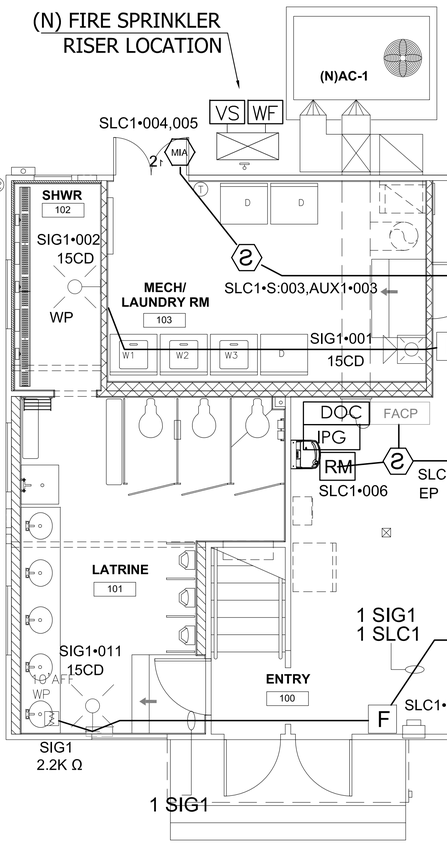


N

FIRE ALARM SYSTEM PLAN
2ND FLOOR

SCALE : 1/4" = 1'-0"

0 2' 4' 8' 12'



N

FIRE ALARM SYSTEM PLAN
1ST FLOOR

SCALE : 1/4" = 1'-0"

0 2' 4' 8' 12'

FIRE ALARM EQUIPMENT SCHEDULE

SYMBOL	QTY.	DESCRIPTION	MODEL #	MANUFACTURER	CSFM NO.
FACU	1	FIRE ALARM CONTROL UNIT	NFS-320	NOTIFIER	7165-0028:0243
	1	A-SIZE DOOR W/ WINDOW; BLACK	DR-A4	NOTIFIER	7165-0028:0243
	1	ACKBOX: 1 CHASSIS; BLACK	SBB-A4	NOTIFIER	7165-0028:0243
	1	BATTERY DRESS PLATE FOR CAB-4 SERIES	BP2-4	NOTIFIER	7165-0028:0243
	1	BLANK MODULE DRESS PLATE	BMP-1	NOTIFIER	7165-0028:0243
	1	CENTRAL PROCESSING UNIT FOR NFS-320SYS	CPU-320SYS	NOTIFIER	7165-0028:0243
	1	DRESS PLATE USED WHEN CPU-320SYS	DP-DISP2	NOTIFIER	7165-0028:0243
	1	UNIVERSAL DIGITAL ALARM COMMUNICATOR TRANSMITTER-2	UDACT-2	NOTIFIER	7165-0028:0243
	1	BACKUP BATTERIES	18AH-BAT-12180	NOTIFIER	
IPG	1	DIGITAL CELLULAR FIRE COMMUNICATION	IPGSM-COM	NOTIFIER	7300-1645:0183
DOC	1	DOCUMENT CABINET	FDB	SPACE AGE	
15	1	WALL MOUNT STROBES 15 CANDELA	SWL	SYSTEM SENSOR	7125-1653:0504
WP 15	1	OUTDOOR WALL MOUNT STROBES 110 CANDELA	SWK	SYSTEM SENSOR	
75	4	WALL MOUNT HORN/ STROBES 75 CANDELA	P2WL	SYSTEM SENSOR	7135-1653:0503
110 WP	1	OUTDOOR WALL MOUNT HORN/ STROBES 110 CANDELA	P2WK	SYSTEM SENSOR	
F	4	MANUAL PULL STATION	NBG-12LX	NOTIFIER	7150-0028:0199
EP	1	CONTROL EQUIPMENT SMOKE DETECTION	FCO-851(A)	NOTIFIER	7272-0028:0264
	1	LOW FREQUENCY DETECTOR SOUNDER BASE	B200SR-LF	SYSTEM SENSOR	7300-1653:0238
RD	17	MULTI-CRITERIA - ROOM SMOKE DETECTION	FCO-851(A)	NOTIFIER	7272-0028:0264
	17	LOW FREQUENCY DETECTOR SOUNDER BASE	B200SR-LF	SYSTEM SENSOR	7300-1653:0238
	1	MULTI-CRITERIA - ROOM SMOKE DETECTION	FCO-851(A)	NOTIFIER	7272-0028:0264
RM	1	RELAY MODULE	FRM-1(A)	SYSTEM SENSOR	7300-0028:0219
AM 2	1	DOUBLE MONITOR MODULE	FDM-1(A)	SYSTEM SENSOR	7300-0028:0219
WF	1	WATER FLOW	WFD	SYSTEM SENSOR	7770-1653:0231
VS	1	TAMPER SWITCH	OSY2	SYSTEM SENSOR	7770-1653:0118
J	JUNCTION BOX				
	NEW CONDUIT (1" DIAM. UNLESS OTHERWISE NOTED) EXPOSED AT LATERAL RUNS ONLY, CONCEALED IN WALLS AT DROPS SERVING WALL MOUNTED DEVICES.				

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Date 3/9/2020
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Sht Title FIRE ALARM PLANS
Project CAMP ROBERTS
BARRACKS RENOVATION

Sheet
FA10
100% CD

Plot By: Felipe Moreno Plot Date: 3/9/2020 File Name:P:\Clients\Engineers\Yamabe & Horn\Camp Roberts Barracks\C&A Drawings\CAD\FA\06R1904-27_FA_3-9-2020.dwg

Battery Calculations for Panel: P1

Part No:NFS-320 - NFS-320 INTELLIGENT ADDRESSABLE FIRE ALARM SYSTEM

Job number: 1

Part No.	Qty.	Description	Standby	Total Standby	Alarm	Total Alarm
		Panel Equipment				
NFS-320 MAIN BOARD	1	MAINBOARD FOR NFS-320 SYSTEM	250.0000mA	250.0000mA	390.0000mA	390.0000mA
			Total Panel Stby	250.0000mA	Total Panel Alarm	390.0000mA
		Peripheral Devices				
NBG-12LX	5	PULL STATION, NBG-12L, FLASHSCAN, ADDRESSABLE (Signaling line)	0.0038mA	0.0188mA	5.0000mA	25.0000mA
FCO-851	19	MULTI-CRITERIA FIRE/CO DETECTOR, ADDRESSABLE (Signaling line)	0.3000mA	5.7000mA	7.0000mA	133.0000mA
FDM-1	1	DUAL MONITOR MODULE, ADDRESSABLE (Signaling line)	0.7500mA	0.7500mA	5.7000mA	5.7000mA
FRM-1	1	RELAY MODULE, INTELL. ADDRESSABLE (Signaling line)	0.2300mA	0.2300mA	6.5000mA	6.5000mA
P2WL	13	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL (Notification) 75CD 90dB	0.0000mA	0.0000mA	139.0000mA	1807.0000mA
P2WL	1	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL (Notification) 15CD 90dB	0.0000mA	0.0000mA	73.0000mA	73.0000mA
SWL	2	L-SERIES STROBE, WHITE, WALL (Notification) 15CD	0.0000mA	0.0000mA	43.0000mA	86.0000mA
SWK	1	STROBE, 2 WIRE, M-C, WHITE, WALL, WP (Notification) 15CD	0.0000mA	0.0000mA	66.0000mA	66.0000mA
P2WK	1	HORN/STROBE, 2 WIRE, M-C, WHITE, OUTDOOR (Notification) 75CD 85dB	0.0000mA	0.0000mA	163.0000mA	163.0000mA
976090	2	End of line resistors, Pkg of 10 (EOL)	0.0000mA	0.0000mA	0.0000mA	0.0000mA
B200SR-LF	19	INTELLIGENT SOUNDER BASE - LF (NF) (Power) 85dB	0.5000mA	9.5000mA	125.0000mA	2375.0000mA
			Total Peripheral Stby	16.1987mA	Total Periph Alarm	4740.2000mA
			Total Standby Amps	266.1987mA	Total Alarm Amps	5130.2000mA

Standby time: 24 Hrs	6.389Ah
Alarm time: 5 Min	0.428Ah
Battery requirement:	6.816Ah
Requirement with compensation:	8.18Ah

Compensation Factors - Standby: 1.2 Alarm: 1.2

Circuit Calculations Panel: P1 Card: 00 Circuit:SIG1

Circuit Name: SIG1
Circuit Type: Notification Terminal Voltage: 20.4V:DC Amperage: 1.5000A
Cable: 14/2 SOL JKT FPLR 1M RL RED #14
Calculations based on Running Total Length.
Design Criteria: Ambient temperature: 167°F Max. operating voltage drop: 18%

Device	Part No	Appliance Desc	Distance	Current	Voltage	Voltage Drop
	NFS-320	Panel			20.4V	
001	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 15CD	14'-2	73.0000mA	20.3008V	(0.0992V)
002	SWK	STROBE, 2 WIRE, M-C, WHITE, WALL, WP, 15CD	22'-8	66.0000mA	20.2914V	(0.0093V)
011	SWL	L-SERIES STROBE, WHITE, WALL, 15CD	179'-11	43.0000mA	19.7353V	(0.5672V)
	976090	End of line resistors, Pkg of 10	3'-2	0.0000mA	19.7353V	(0V)
010	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	6'-7	139.0000mA	19.738V	(0.006V)
007	P2WK	HORN/STROBE, 2 WIRE, M-C, WHITE, OUTDOOR, 75CD	25'-11	163.0000mA	19.806V	(0.026V)
009	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	6'-7	139.0000mA	19.7827V	(0.006V)
006	SWL	L-SERIES STROBE, WHITE, WALL, 15CD	4'-6	43.0000mA	19.8613V	(0.0013V)
008	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	11'-5	139.0000mA	19.8227V	(0.0094V)
005	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	9'-6	139.0000mA	19.8868V	(0.0085V)
004	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	6'-8	139.0000mA	19.9981V	(0.006V)
003	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	6'-9	139.0000mA	20.23V	(0.006V)
			297'-10	1222.0000mA		

Total Current: 1222.0000mA
(Total VDrop Percent:3.26%) Total Voltage Drop : 0.6647V

Circuit Calculations Panel: P1 Card: 00 Circuit:SIG2

Circuit Name: SIG2
Circuit Type: Notification Terminal Voltage: 20.4V:DC Amperage: 1.5000A
Cable: 14/2 SOL JKT FPLR 1M RL RED #14
Calculations based on Running Total Length.
Design Criteria: Ambient temperature: 167°F Max. operating voltage drop: 18%

Device	Part No	Appliance Desc	Distance	Current	Voltage	Voltage Drop
	NFS-320	Panel			20.4V	
006	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	261'-6	139.0000mA	19.1778V	(1.2222V)
007	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	66'-2	139.0000mA	19.1275V	(0.0572V)
	976090	End of line resistors, Pkg of 10	2'-10	0.0000mA	19.1275V	(0V)
003	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	6'-8	139.0000mA	19.2803V	(0.0119V)
004	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	5'-1	139.0000mA	19.276V	(0.0043V)
005	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	14'-5	139.0000mA	19.2393V	(0.0119V)
002	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	8'-8	139.0000mA	19.3827V	(0.0077V)
001	P2WL	L-SERIES 2-WIRE, HORN STROBE, WHITE, WALL, 75CD	11'-2	139.0000mA	19.6677V	(0.0094V)
			376'-6	973.0000mA		

Total Current: 973.0000mA
(Total VDrop Percent:6.24%) Total Voltage Drop : 1.2725V

Circuit Calculations Panel: P1 Card: 00 Circuit:AUX1

Circuit Name: AUX1
Circuit Type: Power/Non-resettable Terminal Voltage: 20.2V:DC Amperage: 1.2500A
Cable: 14/2 SOL JKT FPLR 1M RL RED #14
Calculations based on Running Total Length.
Design Criteria: Ambient temperature: 167°F Max. operating voltage drop: 18%

Device	Part No	Appliance Desc	Distance	Current	Voltage	Voltage Drop
	NFS-320	Panel			20.2V	
001	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	2'-9	90.0000mA	20.1818V	(0.0182V)
002	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	20'-2	90.0000mA	20.0712V	(0.1105V)
003	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	19'-3	90.0000mA	20.0607V	(0.0105V)
004	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	19'-6	90.0000mA	19.9828V	(0.0884V)
005	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	19'-6	90.0000mA	19.9055V	(0.0774V)
006	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	21'-7	90.0000mA	19.8325V	(0.0729V)
007	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	8'-2	90.0000mA	19.8104V	(0.0221V)
008	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	7'-9	90.0000mA	19.7927V	(0.0177V)
009	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	21'-7	90.0000mA	19.7563V	(0.0365V)
010	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	19'-6	90.0000mA	19.7342V	(0.0221V)
011	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	19'-6	90.0000mA	19.7231V	(0.0111V)
			179'-3	990.0000mA		

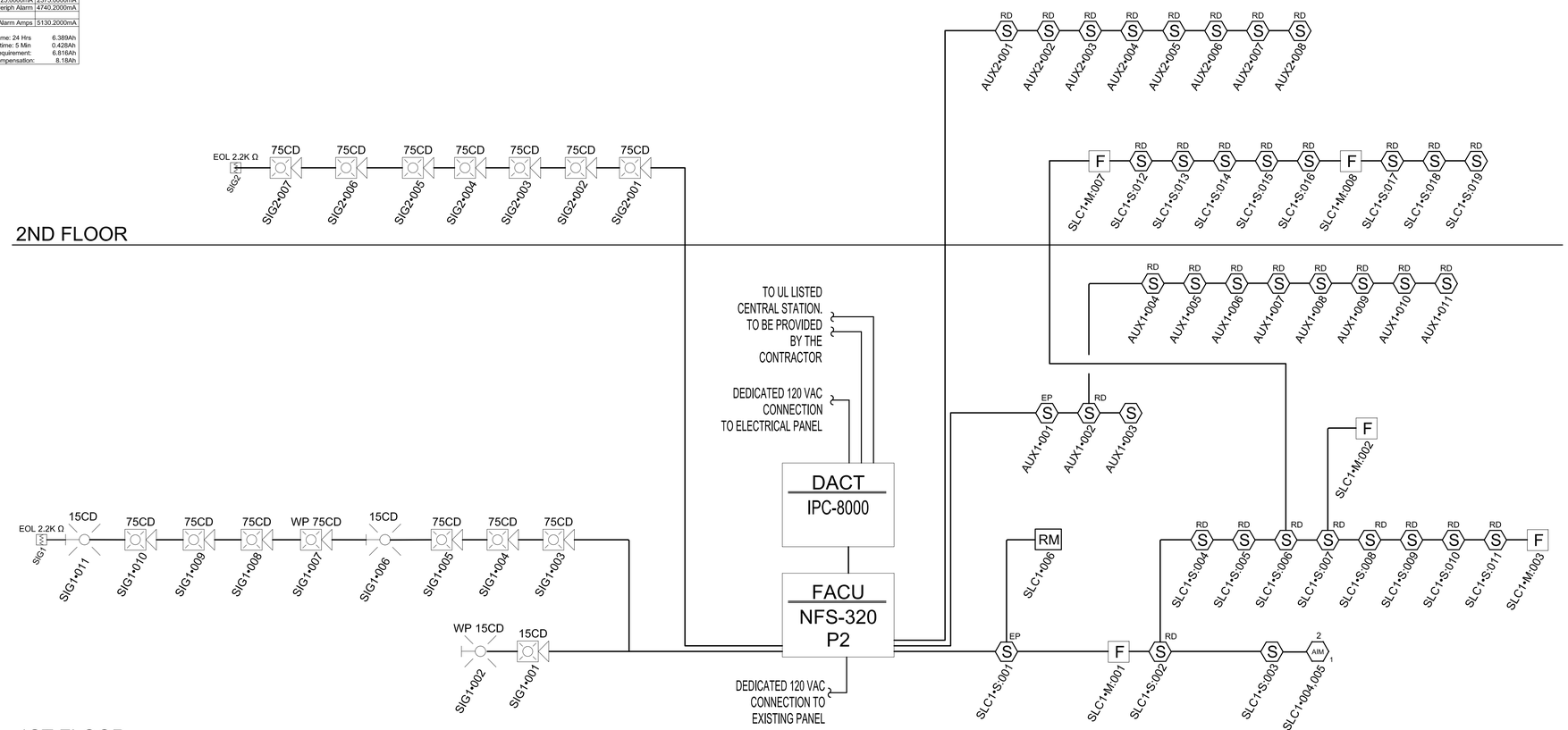
Total Current: 990.0000mA
(Total VDrop Percent:2.36%) Total Voltage Drop : 0.4769V

Circuit Calculations Panel: P1 Card: 00 Circuit:AUX2

Circuit Name: AUX2
Circuit Type: Power/Resettable Terminal Voltage: 20.2V:DC Amperage: 1.2500A
Cable: 14/2 SOL JKT FPLR 1M RL RED #14
Calculations based on Running Total Length.
Design Criteria: Ambient temperature: 167°F Max. operating voltage drop: 18%

Device	Part No	Appliance Desc	Distance	Current	Voltage	Voltage Drop
	NFS-320	Panel			20.2V	
001	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	119'-8	90.0000mA	19.6651V	(0.5349V)
002	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	27'-6	90.0000mA	19.5568V	(0.1083V)
003	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	27'-6	90.0000mA	19.4639V	(0.0929V)
004	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	22'-11	90.0000mA	19.4004V	(0.0635V)
005	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	16'-3	90.0000mA	19.365V	(0.0354V)
006	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	39'-4	90.0000mA	19.3004V	(0.0647V)
007	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	27'-6	90.0000mA	19.2694V	(0.0309V)
008	B200SR-LF	INTELLIGENT SOUNDER BASE - LF (NF)	27'-6	90.0000mA	19.2539V	(0.0155V)
			308'-2	720.0000mA		

Total Current: 720.0000mA
(Total VDrop Percent:4.68%) Total Voltage Drop : 0.9461V



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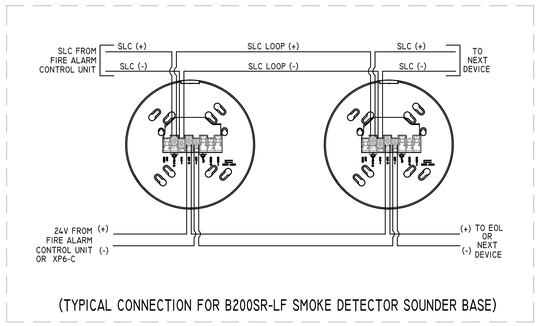
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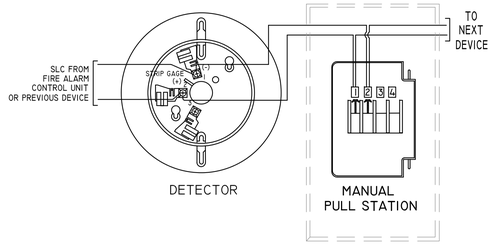
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Project CAMP ROBERTS BARRACKS RENOVATION

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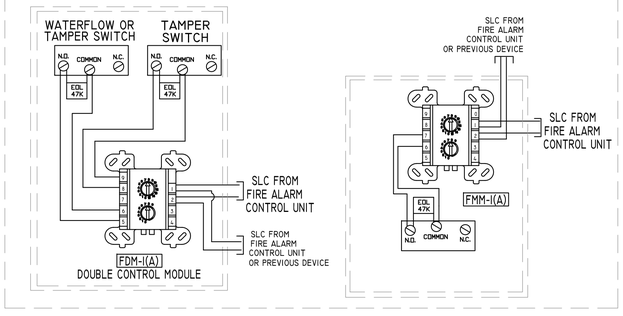
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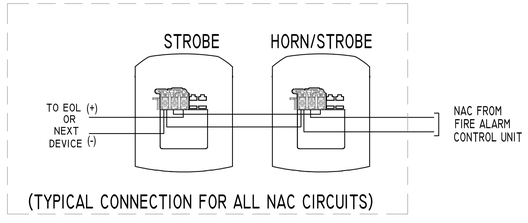


(TYPICAL CONNECTION FOR B200SR-LF SMOKE DETECTOR SOUNDER BASE)

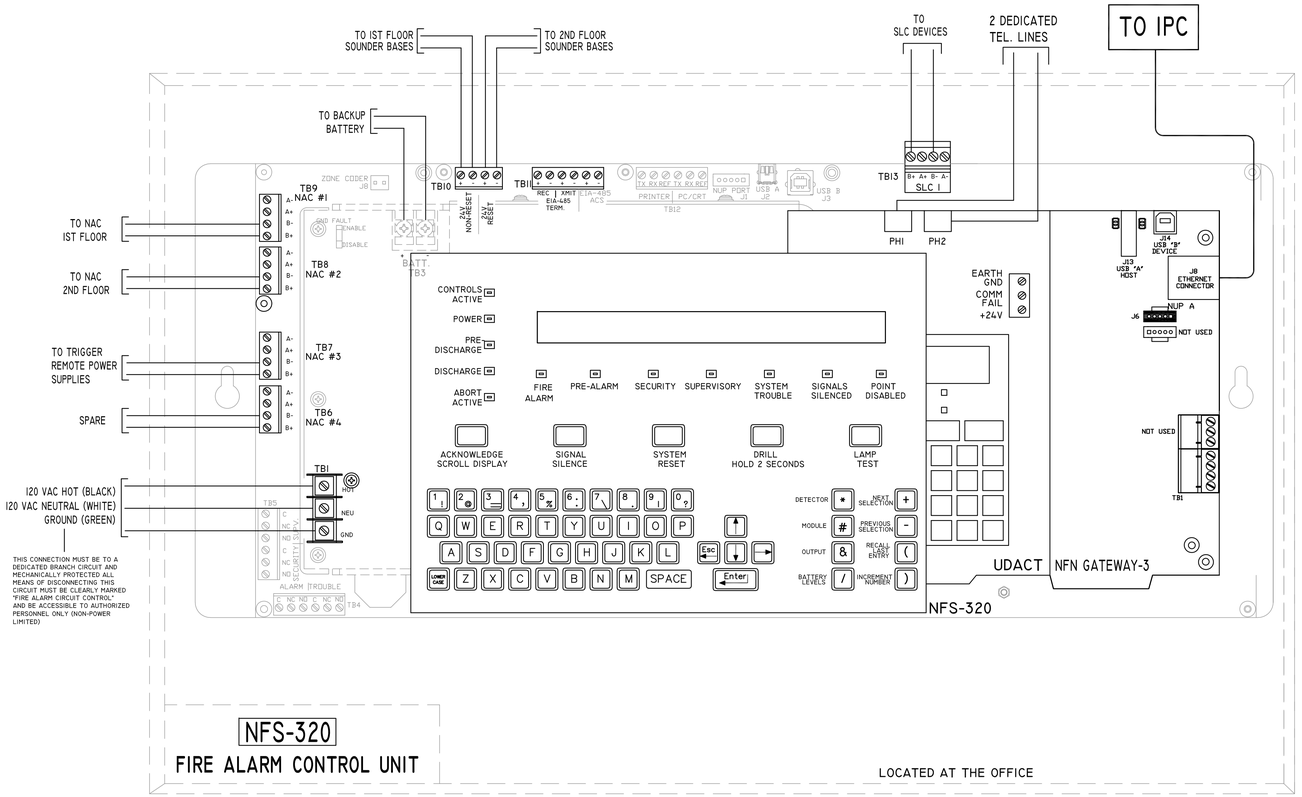


(TYPICAL CONNECTION FOR THE SLC CIRCUITS)





(TYPICAL CONNECTION FOR ALL NAC CIRCUITS)



NFS-320
FIRE ALARM CONTROL UNIT

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Chkd. ____ RR ____ Date 3/9/2020

Sht Title POINT TO POINT WIRE DIAGRAM

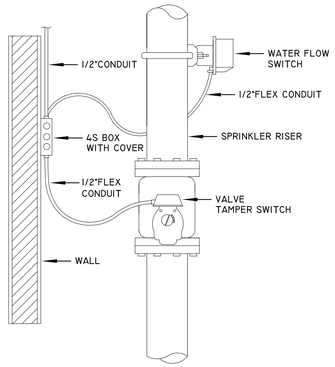
Project CAMP ROBERTS
BARRACKS RENOVATION

Sheet

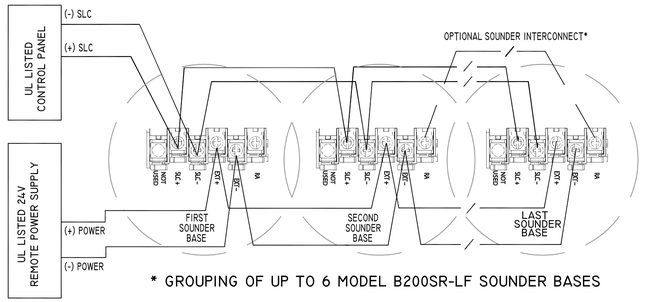
FA30

100% CD

Plot By: Felipe Moreno Plot Date: 3/9/2020 File Name:P:\Clients\Engineers\Yamabe & Horn\Camp Roberts Barracks\C&A Drawings\CAD\FA\06190427_FA_3-9-2020.dwg



12 WATERFLOW AND VALVE TAMPER SWITCH
TYPICAL INSTALLATION DETAIL — NOT TO SCALE



DETECTOR ACTIVATES SOUNDER BASE(S) - (COMPLIES WITH UL268)

UL HAS APPROVED GROUPING FOR UP TO SIX B200SR-LF SOUNDER BASES. WHEN WIRED AS A GROUP, ANY DETECTOR IN THE GROUP THAT HAS BEEN ACTIVATED BY THE PANEL WILL CAUSE OTHER B200SR UNITS IN THE GROUP TO SOUND. THIS TYPE OF "LOCAL" GROUPING IS ACCOMPLISHED BY WIRING THE GROUPED DEVICES TOGETHER USING TERMINAL 6, SOUNDER BASE INTERCONNECT, AS SHOWN IN THE DIAGRAM.

11 B200SR-LF SMOKE DETECTOR SOUNDER BASE
TYPICAL INSTALLATION DETAIL — NOT TO SCALE

INSTALLATION & MOUNTING NOTES:

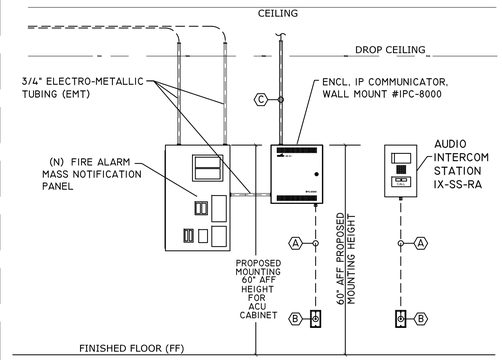
1. IDENTIFY & MARK PROPOSED LOCATION IPC-8000 PANEL.
2. MOUNT IPC-8000 PANEL WITH (4) 1/4" X 3" TOGGLE BOLTS & (4) 1/4" FLAT WASHERS AT PROPOSED LOCATION AS SHOWN.
3. INSTALLATION REMAINING COMPONENTS OF IPC-8000 PANEL AS PER MFGR INSTALLATION INSTRUCTIONS.
4. INSTALL BATTERIES AS PER MFGR INSTALLATION INSTRUCTIONS.
5. INSTALLATION CONTRACTOR (IC) IS RESPONSIBLE FOR ALL NECESSARY MATERIALS TO INSTALL WAVES EQUIPMENT.
6. INSTALLATION CONTRACTOR (IC) IS RESPONSIBLE FOR PROVIDING NETWORK CABLE AND CONNECTORS PER LOCAL CODES.
7. INSTALLATION CONTRACTOR (IC) IS RESPONSIBLE FOR COORDINATING WITH END USER NETWORK DROPS.

(A) NETWORK CABLE, CAT 5E (SUPPLIED BY INSTALLATION CONTRACTOR)

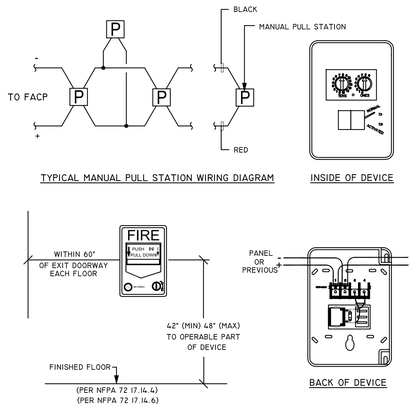
(B) NETWORK DROP PROVIDED BY INSTALLATION CONTRACTOR TO BUILDING NETWORK CONNECTION

(C) 120 VAC, 20 AMP. CONNECTION TO ELECTRICAL PANEL IN THE ELECT. ROOM

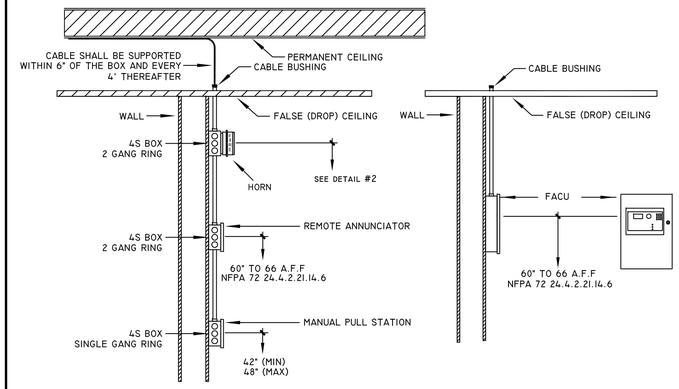
THIS DETAIL IS FOR REFERENCE ONLY, LOCATIONS MAY CHANGE ACCORDING TO FIELD CONDITIONS.



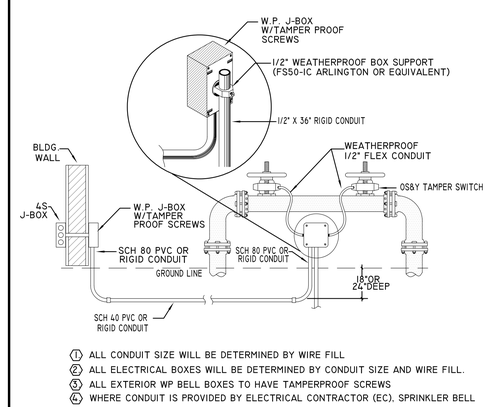
10 IPC-8000 & IX-SS-RA MOUNTING DETAIL
TYPICAL MOUNT INSTALLATION DETAIL — NOT TO SCALE



8 ADDRESSABLE MANUAL PULL STATION
TYPICAL INSTALLATION DETAIL — NOT TO SCALE



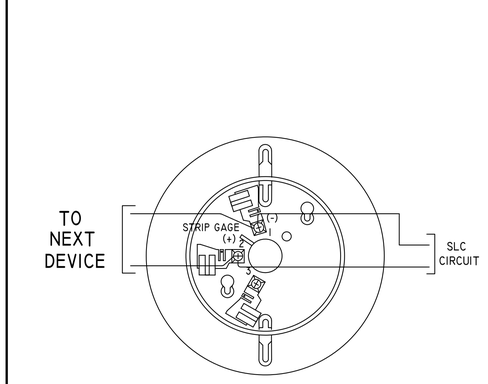
7 TYPICAL WALL MOUNT DEVICES
TYPICAL INSTALLATION DETAIL — NOT TO SCALE



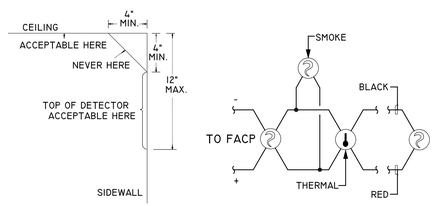
1. ALL CONDUIT SIZE WILL BE DETERMINED BY WIRE FILL
2. ALL ELECTRICAL BOXES WILL BE DETERMINED BY CONDUIT SIZE AND WIRE FILL.
3. ALL EXTERIOR WP BELL BOXES TO HAVE TAMPERPROOF SCREWS
4. WHERE CONDUIT IS PROVIDED BY ELECTRICAL CONTRACTOR (EC), SPRINKLER BELL

WEATHER PROOF BACKBOX TO BE PROVIDED TO EC FOR INSTALLATION.

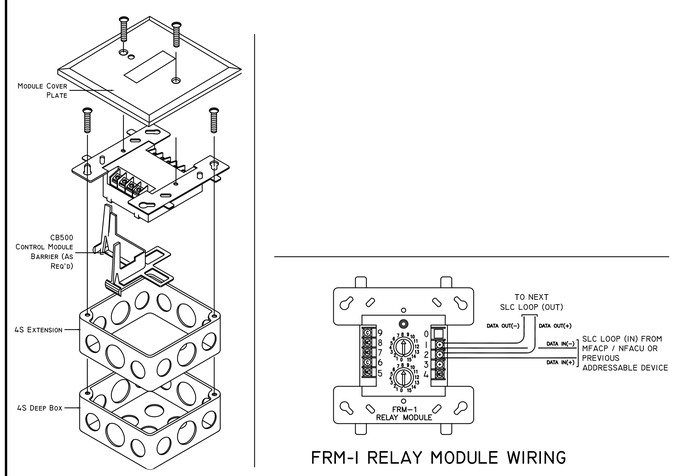
6 TAMPER SWITCH ON A OS&Y GATE VALVE
TYPICAL MOUNT INSTALLATION DETAIL — NOT TO SCALE



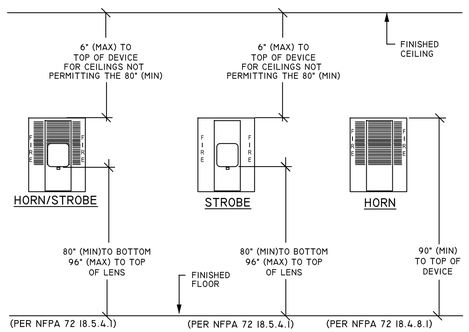
5 SMOKE DETECTOR
TYPICAL INSTALLATION DETAIL — NOT TO SCALE



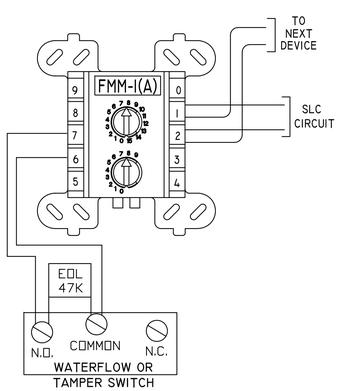
4 ADDRESSABLE DETECTOR MOUNTING
TYPICAL INSTALLATION DETAIL — NOT TO SCALE



3 FRM-1 CONTROL AND RELAY MODULES
TYPICAL INSTALLATION DETAIL — NOT TO SCALE



2 HORN/STROBE, HORN & STROBE
TYPICAL INSTALLATION DETAIL — NOT TO SCALE



1 MONITOR MODULE
TYPICAL INSTALLATION DETAIL — NOT TO SCALE

CAL GUARD
CALIFORNIA MILITARY DEPARTMENT
EST 1850

STATE OF CALIFORNIA
MILITARY DEPARTMENT

CALIFORNIA ARMY
NATIONAL GUARD

CAMP ROBERTS
SAN MIGUEL, CA

Revisions	Descrip.	Date	By

REGISTERED PROFESSIONAL ENGINEER — RYAN S. RABON — No. 66111 — CIVIL — STATE OF CALIFORNIA

Yamabe & Horn Engineering, Inc.
CIVIL ENGINEERS • LAND SURVEYORS
2985 N. BURL AVENUE SUITE 101 FRESNO, CA 93727
TEL (559) 244-3123 WEBSITE YANDHENGR.COM

Chkd. RR Date 3/9/2020

Sht Title FIRE ALARM DETAILS

Project CAMP ROBERTS BARRACKS RENOVATION

Sheet FA40

100% CD

Plot By: Felipe Moreno Plot Date: 3/9/2020 File Name:P:\Clients\Engineers\Yamabe & Horn\Camp Roberts Barracks\C&A Drawings\CAD\FA\IO\681904-27_FA_3-9-2020.dwg

Enviro Tracking #:	ARNG Record of Environmental Consideration	State ARNG
	Enter information in the yellow shaded areas.	

1. PROJECT NAME:

Barracks Remodel Buildings 4207, 4208, 5006, 5118, and 6408

2. PROJECT NUMBER: (MILCON if applicable)	3. DATE PREPARED: 2 April 2026

4. START DATE of PROPOSED ACTION (dd-mmm-yy): 02-Nov-26 Note: This must be a future date

5. PROGRAMMED FISCAL YEAR: FY26

6. END DATE (if applicable): 1-Nov-26

7. DESCRIPTION AND LOCATION OF THE PROPOSED ACTION:

a. Location (Include a detailed map, if applicable):

Project is located in the cantonment of Camp Roberts at buildings 4207, 4208, 5005, 5118, and 6408.

b. Description:

Barracks to be remodeled are in poor condition and require repairs. Ground disturbance will be required to replace sewer and water laterals less than 20' from building maximum depth 5'. Lay-down and work area 100' from all sides of building 230' x 280'. Project will include interior remodel and lead and

8. CHOOSE **ONE** OF THE FOLLOWING:

☐ An existing environmental assessment* adequately covers the scope of this project. Attach FNSI if EA was completed by another federal agency (non-ARNG).

EA Date (dd-mmm-yy): Lead Agency:

☐ An existing environmental impact statement* adequately covers the scope of this project.

EIS Date (dd-mmm-yy): Lead Agency:

☒ After reviewing the screening criteria and completing the ARNG environmental checklist, this project qualifies for a

Categorical Exclusion Code: G-1: Routine repair and maintenance of buildings, airfields, groun
See 32 CFR 651 App. B

Categorical Exclusion Code:
See 32 CFR 651 App. B

Categorical Exclusion Code:
See 32 CFR 651 App. B

☐ This project is exempt from NEPA requirements under the provisions of:

Cite superseding law:

*Copies of the referenced EA or EIS can be found in the ARNG Environmental Office within each state.

9. REMARKS:

Michael Stonecipher Digitally signed by Michael Stonecipher Date: 2026.04.06 10:34:10 -07'00'

Signature of Proponent (Requester)

Michael Stonecipher

Printed Name of Proponent (Requester)

Date Signed

DOUGLAS BRYCESON Digitally signed by DOUGLAS BRYCESON Date: 2026.04.06 11:45:46 -07'00'

Environmental Program Manager

Douglas Bryceson

Printed Name of Env. Program Manager

Date Signed

Proponent Information:

10. Proponent: Camp Roberts DPW

11. Address: 3034 Camp Roberts, CA 93451-5000

12. POC: Michael Stoencipher

13. Comm. Voice: 805-238-8987

14. Proponent POC e-mail: michael.stonecipher@cmd.ca.gov

ENVIRONMENTAL DETERMINATION

Project Name: Barracks Remodel Buildings 4207, 4208, 5006, 5118 and 6408

Project Description: The proposed action is located at buildings 4207, 4208, 5005, 5118 and 6408 in the cantonment of Camp Roberts. Remodel barracks. Barracks are in poor condition and require repairs. Ground disturbance will be required to replace sewer and water laterals less than 20' from building maximum depth 5'. Laydown and work area 100' from all sides of building 230' x 280'. Project will include interior remodel and lead and asbestos abatement, full project details as in the attached SOW for the project.

Date: 2 April 2026

Project specific conditions needed? YES XXX

This project/ training activity has been reviewed in accordance with the National Environmental Policy Act (NEPA) and determined to qualify for a Categorical Exclusion (CX). *G1, Repair and Maintenance Activities*

☒ **A Record of Environmental Consideration is REQUIRED (attached)**

This determination is **CONDITIONAL.** The following conditions **MUST** be implemented for the project to qualify for a CX. **Failure to comply with these conditions will invalidate this environmental review and violate NEPA.**

REQUIRED CONDITIONS:

Special Status Species

☒ **San Joaquin Kit Fox (SJKF) Survey:**
A survey for potential kit fox dens will need to take place before the project can begin. Please contact Chelsea Fetcher, 805-238-8548, at least 2 weeks before project start to coordinate a survey. If dens are found they will be marked with pink pin flags and will not be disturbed. If these dens cannot be avoided, the Environmental Office will be contacted to schedule 3 consecutive nights of den dusting. (CR INRMP, BO# 2022-0079826 (2023), CR Reg. 350-1)

Sensitive Habitats/Species

☒ **Nesting Bird Survey:**
A nesting bird survey will be conducted within two weeks from the start of construction/training. Please contact Chelsea Fetcher, 805-238-8548, at least 2 weeks before project start to coordinate a survey. If nesting bird(s) are found, an appropriate setback buffer will be determined and no construction activities will occur in this setback area until the birds have fledged and are no longer reliant on the nest.

ENVIRONMENTAL DETERMINATION

Project Name: Barracks Remodel Buildings 4207, 4208, 5006, 5118 and 6408

Hazardous Waste Removal and Disposal

☒ **Asbestos Containing Material Abatement (ACM):**
All project activities involving Asbestos Containing Material (ACM) abatement will be conducted by a certified contractor in compliance with all applicable federal, state, and local regulations

☒ **Lead-based Paint (LBP) Abatement:**
All project activities involving Lead-based Paint (LBP) abatement will be conducted by a certified contractor in compliance with all applicable federal, state, and local regulations.

☒ **Hazardous Waste:**
All hazardous materials and hazardous wastes shall be handled, stored, and disposed in accordance with the CAARNG Hazardous Materials and Waste Management Plan. At a minimum, containers shall be properly labeled, stored in secondary containment, and segregated according to material compatibility. The Environmental Office must be contacted prior to establishing any new HM/HW storage location.

☒ **Hazardous Waste Disposal:**
Contactor must coordinate with the compliance manager for pre-shipment inspection of hazardous wastes. Contractor must provide unsigned manifests and LDR forms for review 3 days prior to shipment. Contact Environmental Office, John Morrow, 805-238-8922, for manifest signature.

Solid Waste

☒ **Report Project Solid Waste:**
In order to meet state and federal requirements (CA AB 75; Executive Order 13514), the proponent and project contractor shall keep record of all project waste generated, by weight, to include total project waste generated and total project waste diverted. The proponent shall ensure that copies of all waste tickets or weights of project waste be reported to the CA ARNG Environmental Directorate solid Waste Program Manager at the conclusion of project activities: email: **brian.a.pierskalla.nfg@army.mil** and John.Morrow@cmd.ca.gov .

Other Project Specific Requirements

☒ **Follow written conditions:**
All excavations left open overnight must be covered or a wildlife escape ramp must be provided to allow for wildlife to exit the excavation before work continues.

ENVIRONMENTAL DETERMINATION

Project Name: Barracks Remodel Buildings 4207, 4208, 5006, 5118 and 6408

Project Proponent (Signature/Date): Michael Stonecipher Digitally signed by Michael Stonecipher Date: 2026.04.06 10:34:41 -07'00'

Michael Stonecipher
Construction Supervisor I
DPW, Camp Roberts

Determined by (Signature/Date): DOUGLAS BRYCESON Digitally signed by DOUGLAS BRYCESON Date: 2026.04.06 11:46:02 -07'00'

Douglas Bryceson
Branch Chief, Environmental Programs

MILITARY DEPARTMENT
OFFICE OF THE ADJUTANT GENERAL
10601 Bear Hollow Drive
Rancho Cordova, California 95670

SCOPE OF WORK
BARRACKS RENOVATION
CAMP ROBERTS, CA.
11 March 2026

SCOPE OF WORK: Work will take place at Camp Roberts, CA and consists of all necessary labor and for an all-inclusive renovation of Barrack Building 4207, 4208, 5006, 5118, and 6408. Work shall include but not limited to the following: Removal and safe storage of all interior furniture during construction and installation once construction is complete. Lead & Asbestos testing and removal. Replace the interior, exterior lighting and electrical system. Replace latrine plumbing & fixtures with replacement fixtures, new toilet partitions and water heating system. Replace all interior and exterior doors to include roll up doors for mechanical rooms. Add wall insulation. Replace the existing heating system with a new system that includes air conditioning and new ducts. Refurbish the interior with painted gypsum board wall finishes to include level 2 drywall finish for mechanical room. Refinish floor with polyurethane/polyaspartic floor finish throughout to include all surfaces in the shower. The new Fire Protection system includes strobes, signage, smoke detectors, pull stations, conduits, fire panels, sprinklers and a fire riser. All work shall comply with this Statement of Work, Fire protection Drawings by Collins & Associates dated April 2, 2020, Drawings provided by Yamabe & Horn Engineering Dated March 9, 2020, and Drawings Provided by the State Military Department dated April 11, 2019.

There is Lead Based Paint (LBP) wood and possible Asbestos Containing Material (ACM) within each building. The contractor is responsible for testing and handling LBP and ACM in accordance with applicable regulations. Test results must be submitted for approval prior to disposal. Component removal and encapsulation where allowed is an acceptable method for remediation. There will not be roofing work except as incidental to other work.

Contractor will have 365 Calendar Days from notice to proceed to complete this project.

An approved Safety Plan with appointment letters for Site Superintendent, Quality Control and Site Safety Officer are required as submittals. Material submittals for all materials are required. Site Superintendent and Safety Officer (can be one person) or an approved alternate, are required to always be on site that work is being performed.

All work shall comply with trade standards local, State of California, and federal regulations. Project will also comply with applicable UBC/CBC codes and UFCs. The following UFCs listed below will be followed:

UFC 1-200-01 GENERAL BUILDING REQUIRMENTS
UFGS 02 82 00 Asbestos Remediation
UFGS 02 83 00 Lead Remediation
DOD INST 6055.1 AND APPLICABLE CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (CAL-OSHA) SAFETY AND HEALTH STANDARDS.

The contractor shall possess a current and in good standing California License Board issued a B-General Contractor License. The contractor must possess or sub-contract to a C-22 Asbestos Abatement Contractor for all Asbestos Abatement work.

By submitting a bid, the contractor confirms that all quantities have been verified and that the quantities used in preparing this bid are the actual quantities of the work to be accomplished under the contract.

Each building has differing existing conditions. It is the contractor's responsibility to assess the amount of effort to demolish existing finishes, wall covering, ceiling material, flooring, and framing to prepare for repair and to include these costs in their proposals. The amount of effort and materials to build back may vary due to existing conditions and costs will be included in the proposal.

FURNITURE:
Contractor to disassemble remove and store all existing furniture from 1st and 2nd floors and store into contractor provided non stackable lockable weatherproof containers (Sea train 20'-40' Type). Once the project is complete the contractor will install, assemble and clean all removed furniture back into barracks' first and second floors. The contractor is responsible for replacing any furniture damaged during removal and installation.

LATRINES:
Work described within the plans and specifications addresses the renovation of the latrine area. Remove and replace latrine concrete floor to include shower area. Poly to be wrapped up the wall to create a 6" coved base. FRP to be held up 6" off finished floor. Vent pipe will need to be re-routed in the attic to tie new vent into the existing roof penetration. New penetration should not be made. Pipe to be wrapped with drywall and finished to match

DOORS AND FLOORS:
Mastic, tile and flooring are assumed to contain asbestos. The contractor is responsible for testing and disposal in accordance with applicable regulations. Existing painted surfaces may contain LBP. The contractor is responsible for testing and disposal in accordance with applicable regulations.

Remove only VCT and one layer of underlayment down to original linoleum flooring. Do not remove existing flooring past original strip flooring. Encapsulate existing linoleum with plywood underlayment. Plywood is to be 5/8" thick, Sturd-i-floor underlayment rated and is to be tongue and groove. Prepare surface of underlayment to receive Polyurea/Polyaspartic flooring by a combination of filling, floating, and tape. Cove horizontal to vertical transition using a ¼' bead of tooled caulk. Apply Polyurea/Polyaspartic in accordance with specifications. Polyurea is to wrap up baseboard on walls and post on both floors and stairs.

Underlayment is to be new 5/8" tongue and groove, plugged and sanded, underlayment rated sturd-i-floor plywood.

Size of new exterior doors are to be 3'-0" x 6'-8". Doors and frames installed are to include panic hardware, lock sets, closure, kick plate, vision panel with glazing, hold open device, threshold with sweep and flashing, and weather stripping. Vision lite dimension is to be 4" wide x 25" high. Replace with all new exterior metal door trim, flash and seal. Provide a shop drawing detailing trim, flashing and weather seal of frame to existing metal siding.

PAINT:
Paint new exterior metal doors & frames with:
- Prime coat : Devoe Bar-Rust 235V or equal
- Second coat: Devoe 4216 or equal

Finish coat: Devoe 1407 or equal

Paint any wood trim with:
Prime coat: Glidden Professional 3210 Gripper or equal
Second and third coats: Glidden Professional Ultra 1407 or equal

Damaged stringers and stairway framing will be assessed following demolition. Upon demolition of existing treads and risers and inspection will be made to determine extent of stringer and framing repairs to be made. Following installation of new treads and risers, provide and install 1" thick (nominal) wood base scribed to trim around treads and risers up plywood wainscoting four inches above thread.

Specifications 02 83 33 regarding lead removal. The contractor is responsible for testing for lead and to handle and dispose of as necessary to accomplish the work.

INTERIORS:

Replace all Identified Knee Braces and Support Braces with like Material.

Provide and install corner guards on outside corners over plywood and FRP wainscoting on first and second floor. Corner guards are to be like those used on previous barracks interior renovations and are available for inspection.

Trim knee braces at support posts that interfere with gypsum board landing against the support beams. Cut and install blocking from dimensional lumber to provide complete perimeter nailing of the gypsum board. Caulk or otherwise seal where gypsum board butts against structural beams that project beneath the ceiling line. Finish the gypsum board to a level 4 finish, spray texture and paint to match existing wall finish.

In the second-floor ceiling at the ends of the buildings install 2 each standard size (approximately 24" x 36") attic access metal frame and door panel, lockable, non-fire rated. Paint to match the ceiling. Include all framing, blocking and fasteners recommended by the manufacture of the new panels.

Fabricate and install a metal handrail on the stairwell. Handrails are to be like those used on previous barracks interior renovations and are available for inspection. Metal handrail shall be fabricated in one piece from 1-1/4 inch diameter, schedule 40 pipe. The lower end shall have a return to the wall to prevent straps from catching the rail. The upper end shall wrap around the wall and have a return to the wall. There shall be 5 integral mounting points welded to the rail for installation. The rail shall be mounted 3'-0" above the stair tread. There shall be a 1-1/2-inch clearance between the rail and the wall. Provide and install blocking for rail mounting points. The mounting points shall be firmly fastened to the wall with 3/8" x 3-inch lag bolts. The railing shall have a powder coat finish. All welds shall be ground smooth.

Remove and dispose of clay vent pipe, metal vent pipe, framing and hangers, from the mechanical room, vent chase, and roof jack if existing. The clay pipe has been tested and, in the past, has NOT tested positive for asbestos containing material. It is the contractor's responsibility to ensure all materials that contain hazardous materials are abated properly.

Frame for and install 2 each one per floor an "Ambassador" steel fire extinguisher (FEC) cabinet or equal, locate one at the double doors on first floor and one next to the fire escape door on the

second floor. Fire extinguisher cabinets are to be like those used on previous barracks interior renovations and are available for inspection. The FEC shall be steel construction, full flat glass door, pull handle with standard lock, able to hold up-to a 20-pound Extinguisher. Trim and paint, to match finished schedule. The extinguishers are to be provided.

The work called out in this Scope of Work and the Referenced Plans and Specifications has been performed on barracks previously renovated. It is the intent to have a finished product that is comparable in fit and finish. A previously renovated Barracks, as an example of the finished product, is available for inspection at the Job Walk and can be made available for inspection during the project.

Contractors, employees and sub-contractors shall comply with Real ID Act.
The Contractor shall be registered and participate with the Department of Industrial Relations (DIR) electronic certified payroll reporting (eCPR) for contracts over $1,000.

1. BACKGROUND: Camp Roberts is an operating Military Installation and Airfield that meets Department of Defense standards to provide Support and training facilities for military units and other National, State and Local Organizations, to include Emergency Operations.

2. LOCATION: Work site is at Camp Roberts, in Monterey & San Luis Obispo County, California 93451.

3. PRINCIPLE FEATURES: Work performed shall include the following items:

3.1 <u>ASBESTOS-LEAD BASE PAINT ABATEMENT:</u>

3.1.1 The building has not been tested for lead based paint (LBP) and asbestos containing material (ACM). The contractor shall provide a report to identify LBP, ACM and other hazardous material such as mold, etc. The contractor shall employ a third party to oversee and certify abatement completion.

3.1.2 Camp Roberts, DPW, the Project Manager and CM, will have direct contact with the third-party organization contracted to conduct oversight and always have access during the project. A copy of all disposal manifests and close out documents shall be provided to the CM prior to the authorization of final payment. Manifest shall be signed by John Morrow, or the post environmental representative.

3.1.3 Contractor shall collect a representative composite sample of all wood and metal in all paint colors. All building components shall be represented proportionally in the sample. Samples shall be analyzed for hazardous waste profiling including at a minimum, TTLC, STLC, and TCLP (lead only), sufficient to meet the needs of the disposal facility. If the facility requires additional sampling and analysis, the contractor shall provide it as well.

3.1.4 There following materials are located throughout and are to be considered Asbestos Containing Materials (ACM) and shall be disposed of according to all IAW applicable regulations.

1. TSI pipe insulation
2. 9-inch vinyl composition floor tile
3. Floor mastics (Black)

4. Window glazing
5. Gypsum wallboard
6. Wall plaster
7. Fibrous woven wire insulation
8. Cementitious-transite paneling and transite pipes
9. Thermal Systems Insulation/mud elbows/fibrous jacketing on pipes, boilers, and furnace units
10. Any unforeseen piping or vents.
11. Gaskets inside pipeline flanges, sprinkler systems and toilets
12. Interior painted surfaces, walls and baseboards
13. Roofing-Mastic including vents and ducting

3.1.5 LBPs are assumed to be on all painted surfaces throughout the interior and exterior of the building.

NOTE: All ACMs and LBP waste shall be disposed of IAW applicable local, State, and Federal laws and regulations to an offsite facility that can accept the special waste. Provide the government copies of weigh master receipts identifying types of waste disposed and recycled. Provide an estimate of weight or volume of concrete for recycling purposes.

3.1.6 An approved Safety and Abatement Plan with appointment letters for Site Superintendent, Quality Control and Site Safety Officer are required as submittals. Site Superintendent and Safety Officer (can be one person) or an appointed alternate are required to always be on site when work is to be performed. CALOSHA, will be always adhered to.

3.1.7 Prime Contractor shall retain the services under this contract; of a third party to monitor hazardous work and to provide close out package confirming the facility has been cleared of all Lead and Asbestos materials.

3.1.8 All work for this contract shall follow all conditions specified.

3.1.8 Environmental Determination shall be included as part of this SOW and takes precedence over all other sections in this SOW if any conflict arises.

3.1.9 Contractor shall prepare a Construction Waste Management Plan (CWMP) to address the handling and disposal of all hazardous and non-hazardous waste. CWMP shall be approved by the Military Department’s Contracting Officer prior to commencement of work.

3.1.10 Contractor shall remove all Hazardous materials, and any other materials that are rotted or damaged. Clear the entire interior of the building of all obstructions or debris. The result is a smooth surface to build back on.

3.1.11 Contractor shall remove and dispose of the existing brick chimney.

3.1.12 All demolition and construction waste will be transported off post to a certified 50% recycling waste facility or Hazmat facility where applicable. Provide the government copies of weigh master receipts and manifests identifying type of waste disposed. Submission of recycled weight tickets, including costs, via email to the Solid Waste Manager and cc to Senior Environmental Scientist. The current Solid Waste Manager is

Brian Pierskalla, email brian.a.pierskalla.nfg@army.mil, current Senior Environmental Scientist is John Morrow, email john.a.morrow12.nfg@army.mil. We need them within 10 business days of the close of the contract. If there are multiple shipments, a spreadsheet with date, weight, recycle facility name, cost, total weight and total cost.

3.2 DEMOLITION:

3.2.1 All Concrete material is to be disposed / recycled at contractor's expense Remove and recycle all existing HVAC and metal ducts from the building. Remove and dispose of all plumbing fixtures, pipes, waste drains, and shower enclosures in the latrine. Remove and dispose of all existing electrical back to the main electrical panel. Leave existing gutter boxes in the mechanical room for future use.

3.2.2 Remove and dispose of all drywalls, acoustic board, and wall coverings other than lumber, down to the wood framing members on the walls and ceilings.

Remove all nails, screws, and fasteners from demolished areas to provide a smooth surface to build back upon. Remove and dispose of all types of insulation within walls and ceiling. Ceiling insulation is typically blow-in.

3.2.3 Remove the ship lap or tongue and groove board from wall as necessary to access for, insulation, rough plumbing and electrical. It is not necessary to remove all the wood ship lap or tongue and groove lumber from all of the walls.

3.2.4 Remove existing flooring and underlayment down to the original linoleum

3.2.5 Remove existing interior and exterior doors, jambs, casing, thresholds and dispose of existing threshold at interior and exterior doors.

3.2.6 Remove the door to latrine and necessary framing to prepare for build back remove knee braces from latrine.

3.2.7 Remove interior window trim as necessary for building back.

3.2.8 Remove all nails, screws, and fasteners from demolished areas to provide a smooth surface to build back upon. Remove and dispose of all types of insulation within walls and ceiling. Ceiling insulation is typically blow-in.

3.2.9 Soffit material is to be vented. Trim and enclose where the edge of soffit and overhang attaches to existing wood or metal siding, fascia, and rake with metal that matches soffit material. Provide and install full metal clad on all fascia boards.

3.3 CLOSE OUT AND WARRANTY:

3.3.1 Provide a two (2) year applicators performance and labor warranty, which shall cover workmanship and repair or replacement at no cost to the Government.

3.3.2 Close out packet shall include Contractor and Manufacturer's warranty certificates for all labor and materials.

4. GENERAL NOTES:

4.1 Per "The Federal Facilities Act 1992" the contracted work shall conform to the applicable local building codes, and ordinances, and regulations listed in the contract specifications, or on the construction documents (plans), and required by the local building authorities. The governing codes, rules, and regulations are collectively referred to as "The Codes". The Contractor shall report any inconsistencies, conflicts, or omissions that may be discovered, to the Project Manager for interpretation prior to performing the work.

4.2 Contractor shall be responsible for making him/herself familiar with all surface utilities, pipes and structures, within the Limits of Construction. The contractor shall take sole responsibility for cost incurred due to damage and replacement of said utilities.

4.3 The Contractor shall field verify all conditions and dimensions of the job site and report all discrepancies and/or unusual conditions to the Project Manager prior to finalized bids or commencement of any construction.

4.4 The Contractor must obtain any required permits, bonds, special inspections and tests from the building department as required prior to the start of construction, unless noted otherwise. This shall include all fees and comply with governing authorities' requirements for construction and inspections. This project will be performed on government property and prevailing wages apply.

4.5 The Contractor shall provide a named Field Superintendent and a list of all subcontractors to be used and submit the list to the Project Manager within 10 working days upon award of the contract.

> 4.5.1 The assigned Field Superintendent shall be present whenever scheduled work is to occur.
>
> 4.5.2 The Contracting Officer is the only person who can approve a change in subcontractor.

4.6 The Contractor shall notify the Project Manager in writing of anticipated mobilization with prospective construction schedule notating keystone events and critical path, 10 working days in advance.

4.7 The Contractor (if necessary) to provide temporary services including barricade construction, power, lighting, and telephone, shall coordinate 10 working days prior to their installation and use with the Project Manager. The Contractor shall remove temporary services prior to completion and clean space as specified in the project.

4.8 Contractor shall not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or differences exist that may not have been known during design.

> 4.8.1 Such conditions shall be immediately brought to the attention of the Project Manager.
>
> 4.8.2 The Contractor shall assume full responsibility for all revisions due to a failure to give notification.

4.9 The Contractor shall maintain required documents and up-to-date Construction Documents at job site.

4.10 The Contractor shall assume sole and complete responsibility for job site condition during this project including the safety of all personnel and properties.

4.10.1 This requirement shall apply continuously and not to be limited to normal work hours.

4.10.2 The Contractor shall provide public protection as necessary and required by governing agencies. (ADA, ICBO, UBC, UFC, UMC, UPC, NEC & NFPA)

4.11The Project Manager, Assistant Project Manager, DPW, and inspectors from pertinent agencies shall be always permitted access to the job site during normal working hours.

4.12 Details are intended to show the intent of the design. Minor modification may be required to suit the field dimensions or conditions, and such modifications shall be included as part of the work of the contract. Notification of all parties is required.

4.13 The Contractor shall maintain handbook, operating manuals, paperwork, and keys in an organized manner and within a safe place.

4.13.1 These shall be turned over to the Project Manager along with certificate of occupancy, lien waivers, warranties, and guarantees upon completion of said contract.

4.14 Contractor will notify the Project Manager of an anticipated final inspection date 5 working days in advance in writing.

5. QUALIFICATIONS:

5.1 Contractor/Applicator: Company specializing in performing the work, will have a current and valid B- General Contractors license issued by the State of California, Consumer Affair, Contractor State License Board (CLSB). The contractor must possess a C-22 Asbestos Abatement license or sub-contract to a C-22 contractor for all asbestos abatement work.

6. SUBMITTALS:

6.1 The Contractor shall submit for approval all necessary residual equipment for the operation of the completed project, after award of contract, including all manufacturer's catalogs and specifications to the Project Manager.

6.2 Submit product data for all materials used in the work for this project Thirty (30) working days prior to mobilization.

7. MATERIALS/EQUIPMENT:

7.1 Unless otherwise specified all materials and equipment used will be as specified in this scope of work and on the approved drawing (plans) and follow the Made in America ACT.

7.2 All materials shall be new and equipment in use for this contract shall be in good & safe working order.

7.3 Unless noted otherwise on the construction documents (plans) or in the contract specifications as being N.I.C. or existing; all items, materials, etc., and the installation of same are part of the contract defined by the construction documents (plans) and contract specifications.

8. PRE-CONSTRUCTION CONFERENCE:

8.1 Convene a minimum of five (5) working days prior to commencement of work.

8.2 Review requirements for preparation and installation procedures, coordinating and scheduling required with related work and conditions that could possibly interfere with successful performance of the work.

8.3 Personnel clearance issues will be discussed and finalized at the pre-construction meeting

9. HOURS OF OPERATION:

9.1 Onsite work under this contract shall be accomplished between 7:00 AM and 3:30 PM, Monday through Friday, except on holidays, unless otherwise approved by Project Manager.

9.2 Physical work of contract shall commence within 10 (ten) days of receipt of Notice to Proceed and be complete no more than 20 working days after work starts.

9.2.1 All work shall be performed in such a manner that there will be minimum interruption or interference with the proper execution of government business.

10. SECURITY REGULATIONS:

10.1 Unless otherwise directed by the entrance gate officer and/or Contract Manager, the Contractor, Contractor's employees and subcontractors shall enter the facility through the main entrance.

10.2 In order to maintain facility safety and security, periodic fire prevention inspections and site searches may become necessary, and Contractor must furnish keys to facility authorities to access all locked areas on the worksite. The State shall in no way be responsible for the Contractor's loss due to fire.

10.3 Due to security procedures, the Contractor, Contractor's employees, and subcontractors may be delayed at the facility vehicle/pedestrian gates. Any loss of time checking in and out of the facility gates shall be borne by the Contractor.

10.4 Contractor, Contractor's employees and subcontractors shall observe all security rules and regulations and comply with all instructions given by facility authorities.

10.5 Contractor, Contractor's employees and subcontractors shall not cause undue interference with the operations of the facility.

11. GATE CLEARANCE:

11.1 Contractor and Contractor's employee(s) and/or subcontractor(s) must be cleared access prior to entry onto base. Minimum 3 days prior to entry onto base, Contractor to provide Project Manager names of all personnel entering base for security clearance and security approval for entry.

11.2 Possession of the following is required for entry onto base:

11.2.1 Current vehicle registration.

11.2.2 Proof of vehicle insurance.

11.2.3 One of the following identifications

FEDERALLY ISSUED IDENTIFICATION

a. U.S. Passport
b. U.S. Passport Card
c. PIV or Federally-issued Personal Identification Verification – Interoperable (PIV-I) Cards
d. Driver's License issued by the U.S. Department of State
e. Border Crossing Card (Form DSP-150)
f. DHS "Trusted Traveler" Cards (Global Entry, NEXUS, SENTRI, FAST)
g. U.S. Military ID (all members of the U.S. Armed Forces [including retirees and dependent ID card holders]) and veterans. (Visit the Department of Defense's Common Access Card website for more information)
h. Veterans Health Identification Card issued by the U. S. Department of Veterans Affairs
i. U.S. Permanent Resident Card (Form I-551)
j. U.S. Certificate of Naturalization or Certificate of Citizenship (Form N- 550)
k. Employment Authorization Document issued by DHS (Form I-766)
l. U.S. Refugee Travel Document or other travel document or evidence of immigration status issued by DHS containing a photograph (Permit to Re- enter Form I-327 and Refugee Travel Document Form I-571)
m. Transportation Worker Identification Credential (TWIC)
n. Merchant Mariner Card issued by DHS/United States Coast Guard (USCG)

STATE-ISSUED IDENTIFICATION

a. A REAL ID Driver's License issued by a state that meets the REAL ID standards
b. State prisoner identification cards
c. Interim Driver's License issued by a state that meets the REAL ID standards or has an extension
d. Native American Tribal Photo ID
e. Foreign government-issued passport

f. PIV-I cards (issued by non-Federal Government entities)

12. EXECUTION:

12.1 Verify that surfaces and site conditions are ready to receive work.

12.2 Contractor shall coordinate with DPW Electrical Department prior to all electrical clearances to minimize customer interruptions.

12.3 Contractor shall verify that the system has been inspected by the CM in accordance with intent of contract.

12.4 Contractor shall schedule with CM for work-in-progress inspection at beginning of work, 50% of work, and at completion of the work.

12.5 Contractor shall promptly schedule with CM a final inspection, to certify that materials installed comply in all respects with the requirements of this specification; and were installed in strict accordance with Federal, State, and Local regulations as well as manufacturer's instructions/requirements for the specified system.

12.6 Workmanship:

12.6.1 All work shall be accomplished with a foreman, journeymen and laborers who are thoroughly skilled in the application of specified materials; with all workmanship done in such a manner as to fulfill the requirements of the drawings and specifications.

12.6.2 The Contractor shall maintain a competent foreman, English speaking, to continuously supervise the work, with authority to discard unsuitable materials and remove unsatisfactory workmen from the project.

12.6.3 Certify this requirement to the Officer Representative in writing.

12.3 All work of others that is damaged in the execution of work under this contract shall be replaced or restored to the original condition by the Contractor at the Contractor's expense.

13. DELIVERY, STORAGE, and HANDLING:

13.1 Material shall be delivered to job site in new, dry, manufacturers' original unopened containers with seals and labels intact, clearly showing catalog number, product description approved inspection agency label, where and by whom manufactured and in quantities sufficient to assure continuous work.

13.2 Assure that materials are kept clean, and away from excessive heat, cold and moisture; do not remove labels or tear off protective covering until ready for application and inspected by the Project Manager. Unless otherwise specified by material manufacturer storage and handling instructions, store all materials in an enclosed area where the temperature is above 50 degrees and below 90 degrees Fahrenheit.

13.3 Material shall not be stored directly on the ground or improved surface.

14. ENVIRONMENTAL REQUIREMENTS:

14.1 Do not apply material during unsuitable weather when ambient temperature per manufacturer's instructions.

14.2 Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

15. COORDINATION:

15.1 The Contractor shall be responsible for any coordination with other subcontractors as required to accomplish construction operations.

16. QUALITY ASSURANCE:

16.1 Regulatory Requirements:

16.1.1 Where the cited references contain more than one detail for a specific purpose, the most stringent condition shall govern.

16.2 Field inspections will be performed, with emphasis on the manufacturer's requirements.

16.3 Deficiencies identified during field inspections shall be corrected within two (2) working days and will be inspected at Final Inspection.

16.4 Notification to all parties concerned must be received not less than one (1) business day prior to required attendance.

17. CLEAN UP:

17.1 The Contractor shall clean up all debris and discarded materials resulting from the operations of the day, prior to the completion of each workday.

17.2 Broom clean exterior surface adjacent to premises (paths and walkways used during construction).

17.3 Remove all stickers, glues, adhesives, and clean all surfaces prior to acceptance.

18. DISPOSITION OF MATERIALS:

18.1 All materials to be handled, transported, and disposed of in accordance with all applicable Federal, State, and Local regulations. Materials to be placed in proper containers and trucked off –site to an approved landfill. No open burning will be allowed.

18.2 Contractor shall make own arrangements for disposal of debris or other waste material away from Camp Roberts at own expense and assume total responsibility for proper disposal of all materials in accordance with local, State and Federal regulations.

18.3 Debris from project will be removed daily, and at no time allowed to block any thoroughfare. The premises shall be cleaned to satisfaction of the Project Manager.

19. WARRANTIES:

19.1 Provide a two (2) year labor and material warranty, which shall cover workmanship, labor and materials to repair or replace at no cost to the Government.

20. SAFETY REQUIREMENTS:

20.1 Accident Prevention:

20.1.1 In order to provide safety controls for protection to the life and health of employees and other people, for prevention of damage to property, materials, supplies and equipment and for avoidance of work interruption of this contract, the Contractor shall comply with all applicable OSHA laws, etc.

20.1.2 The Contractor will maintain and provide an accurate record of exposure data, all accidents resulting in death, traumatic injury, occupational disease and damage to property, materials, supplies, and equipment incident to work performed under this contract.

20.1.3 The Contractor shall provide an exact copy of the record within 24 hours, upon request of the Project Manager for the length of the contract and its warranty period.

20.2 Occupational Safety and Health Administration:

20.2.1 Safety standards set forth by OSHA shall be maintained and followed by the Contractor, subcontractor(s) and work crews at all times.

20.3 Fire Prevention:

20.3.1 Contractor shall comply with the California Fire Code, Current Edition.

20.4 Rules of Safety:

20.4.1 All rules of safety that are or may be imposed upon the Contractor by Federal, State or Municipal Code, CALOSHA and the applicable Army regulations shall be effectively carried out in the performance of the contract.

20.4.2 The Contractor shall be responsible for safety precautions during construction.

20.4.3 Contractor shall comply with all building and safety codes and shall report any non-compliance of these specifications or manufactured installation procedures to Project Manager prior to beginning work.

20.4.4 The Contractor shall complete Form 3394 and submit it to the Project Manager within three (3) calendar days of an accident involving personal injury or property damage.

21. POLLUTION ABATEMENT:

21.1 The contractor shall comply with all Federal, State and Local environmental laws and regulations.

21.2 The contractor shall avoid any disposal practices that will place the Government in a controversial position with Local and Federal environmental agencies.

22. CLOSE OUT & INVOICES:

22.1 All invoices must be submitted to the Project Manager and the Contract Manager for verification before they can be processed by the Military Department. The contractor can only bill for work that is complete and once a month.

END OF SCOPE

CALCULATION SUMMARY

Project Name : Barrack Renovation Buildings 4212-4219, 4302-4309, and 4312-4319

Project Location: Camp Roberts

Drawing No. :

City:

Design Areas

Design Area Name	Calc. Mode (Model)	Occupancy	Area of Application	Total Water	Pressure @ Source	Min. Density	Min. Pressure	Min. Flow	Calculated Heads	Hose Streams	Margin To Source
			(ft^2)	(gpm)	(psi)	(gpm/ft^2)	(psi)	(gpm)	#	(gpm)	(psi)
1	Demand (HW)	13R	1024	152.9	Required 33.6	0.051	7	13	4	100	46.2
2	Demand (HW)	13R	1024	163.2	Required 43.2	0.051	7	13	4	100	36.7



File: E:\C&A\Camp Roberts Barracks\C&A Drawings\CAD\FS\06R1904-27_FS_100%_4-27-2020.dwg

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HYDRAULIC CALCULATIONS
for

Job Information

Project Name : Barrack Renovation Buildings 4212-4219, 4302-4309, and 4312-4319

Contract No. :

City:

Project Location: Camp Roberts

Date: 4/27/2020

Contractor Information

Name of Contractor:

Address:

City: VENTURA, CA 93003

Phone Number: 805-658-0003

E-mail:

Name of Designer: COLLINGS & ASSOCIATES

Authority Having Jurisdiction:

Design

Remote Area Name	1
Remote Area Location	2nd FLOOR
Occupancy Classification	13R
Density (gpm/ft²)	0.051
Area of Application (ft²)	1024
Coverage per Sprinkler (ft²)	256
Number of Calculated Sprinklers	4
In-Rack Demand (gpm)	0
Special Heads	
Hose Streams (gpm)	100
Total Water Required (incl. Hose Streams) (gpm)	152.9
Required Pressure at Source (psi)	33.6
Type of System	Wet
Volume - Entire System (gal)	53.4 gal

Water Supply Information

Date	MM/DD/YYYY
Location	FIRE HYDRANT #2
Source	W1

Notes

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Hydraulic Analysis for : 1

Calculation Info

Calculation Mode	Demand
Hydraulic Model	Hazen-Williams
Fluid Name	Water @ 60F (15.6C)
Fluid Weight, (lb/ft³)	N/A for Hazen-Williams calculation.
Fluid Dynamic Viscosity, (lb·s/ft²)	N/A for Hazen-Williams calculation.

Water Supply Parameters

Supply 1 : W1

Flow (gpm)	Pressure (psi)
0	80
1195	75

Supply Analysis

Node at Source	Static Pressure (psi)	Residual Pressure (psi)	Flow (gpm)	Available Pressure (psi)	Total Demand (gpm)	Required Pressure (psi)
W1	80	75	1195	79.9	152.9	33.6

Hoses

Inside Hose Flow / Standpipe Demand (gpm)	
Outside Hose Flow (gpm)	
Additional Outside Hose Flow (gpm)	100
Other (custom defined) Hose Flow (gpm)	
Total Hose Flow (gpm)	100

Sprinklers

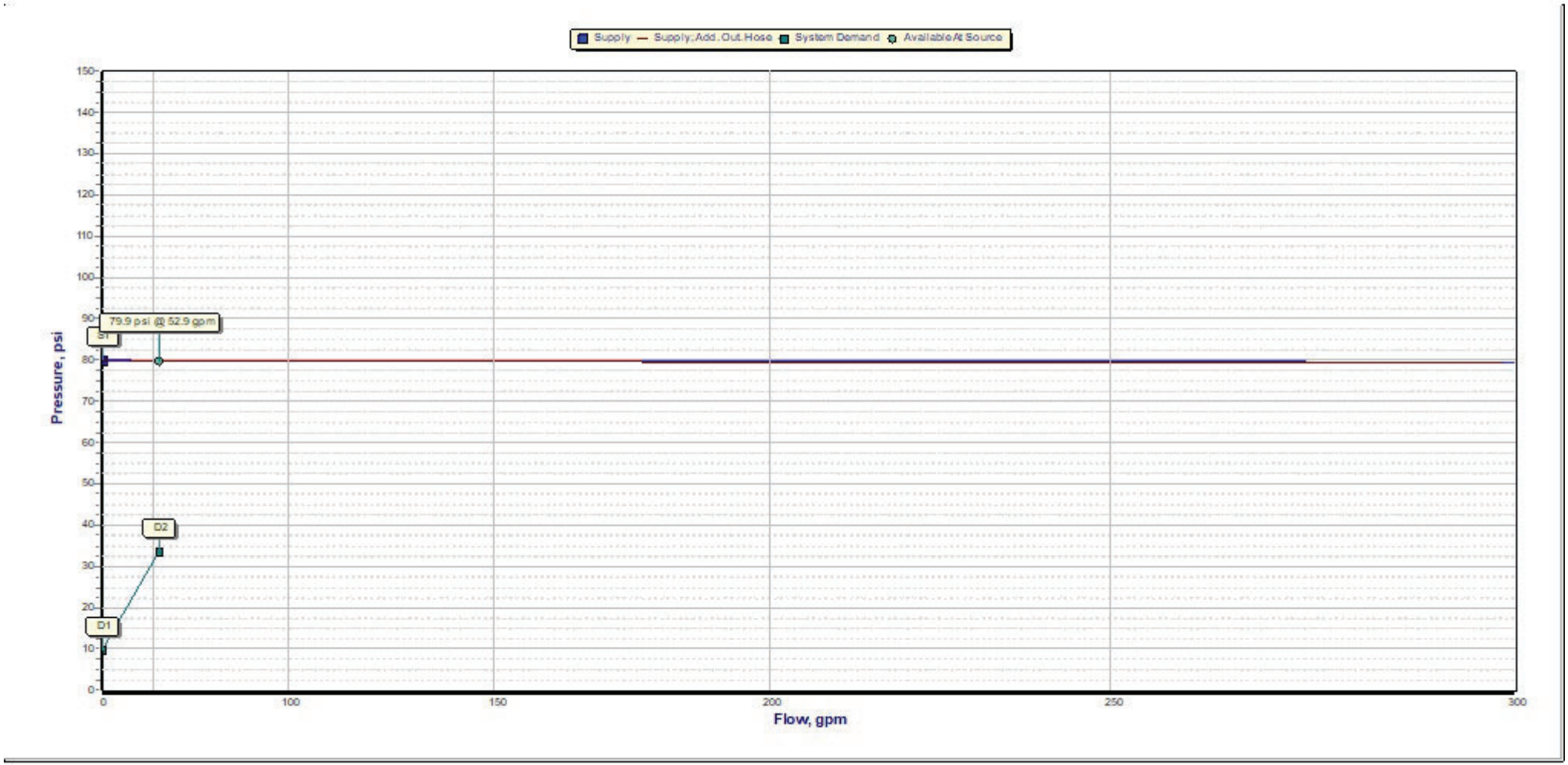
Ovehead Sprinkler Flow (gpm)	52.9
InRack Sprinkler Flow (gpm)	0
Other (custom defined) Sprinkler Flow (gpm)	0
Total Sprinkler Flow (gpm)	52.9

Other

Required Margin of Safety (psi)	0
W1 - Pressure (psi)	33.6
W1 - Flow (gpm)	52.9
Demand w/o System Pump(s)	N/A

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Hydraulic Analysis for : 1



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Hydraulic Analysis for : 1

Graph Labels

Label	Description	Values	
		Flow (gpm)	Pressure (psi)
S1	Supply point #1 - Static	0	80
S2	Supply point #2 - Residual	1195	75
D1	Elevation Pressure	0	9.7
D2	System Demand	52.9	33.6

Curve Intersections & Safety Margins

Curve Name	Intersection		Safety Margin	
	Pressure (psi)	Flow (gpm)	Pressure (psi)	@ Flow (gpm)
Supply	80	94.6	46.2	152.9
Supply; Add. Out. Hose	79.8	94.5	46.2	152.9

Open Heads

Head Ref.	Head Type	Coverage	K-Factor	Required			Calculated		
				Density	Flow	Pressure	Density	Flow	Pressure
		(ft²)	(gpm/psi½)	(gpm/ft²)	(gpm)	(psi)	(gpm/ft²)	(gpm)	(psi)
101	Overhead Sprinkler	256	4.9	0.05	12.8	7	0.051	13	7
102	Overhead Sprinkler	256	4.9	0.05	12.8	7	0.052	13.4	7.5
103	Overhead Sprinkler	256	4.9	0.05	12.8	7	0.051	13	7.1
104	Overhead Sprinkler	256	4.9	0.05	12.8	7	0.053	13.5	7.6

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PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
Path No: 1									
101	19.42	4.9	13	1	1x(BM.Tee-Run)=1	14.43	150	7	
001	20		13	1.101	1x(BM.90)=7	8	0.0304	-0.3	
						22.43		0.7	
001	20		13.4	1	1x(BM.Tee-Br)=5	58.42	150	7.4	
006	20		26.4	1.101		5	0.1132	0	
						63.42		7.2	
006	20		0	1.5	3x(BM.Tee-Run)=3	15.63	150	14.6	
012	20		26.4	1.598		3	0.0184	0	
						18.63		0.3	
012	20		26.5	1.5	1x(us.90)=5.82	4.48	150	15	
014	17.5		52.9	1.598	1x(BM.90)=8	13.82	0.0668	1.1	
						18.31		1.2	
014	17.5		0	1.5	1x(us.90)=4	5.85	120	17.3	
015	17.5		52.9	1.61		4	0.0974	0	
						9.85		1	
015	17.5		0	2.5		11.33	120	18.2	
017-O	6.17		52.9	2.635		0	0.0088	4.9	
						11.33		0.1	
017-O	6.17		0	2.5		0.67	0	23.2	CV-1 FR
017-I	5.5		52.9	0		0	0.5719	0.3	Check
						0.67		0.4	***
017-I	5.5		0	2.5		0.68	120	23.9	
018-O	4.82		52.9	2.635		0	0.0088	0.3	
						0.68		0	
018-O	4.82		0	2.5		0.32	0	24.2	BtflyJPL
018-I	4.5		52.9	0		0	0.2436	0.1	***
						0.32		0.1	
018-I	4.5		0	4		3	120	24.4	
019	1.5		52.9	4.26		0	0.0009	1.3	
						3		0	
019	1.5		0	4	1x(us.90)=18.33	4.5	140	25.7	
020	-3		52.9	4.3		18.33	0.0006	1.9	
						22.83		0.0	
020	-3		0	4	2x(us.90)=38.86	13.48	150	27.7	
022	-3		52.9	4.24		38.86	0.0006	0	
						52.35		0.0	
022	-3		0	4	1x(us.90)=13.17	7.68	120	27.7	
024-O	3		52.9	4.26		13.17	0.0009	-2.6	
						20.85		0.0	
024-O	3		0	4		1.83	0	25.1	Ames3000SS
024-I	3		52.9	0		0	3.2067	0	***
						1.83		5.9	
024-I	3		0	4	2x(us.90)=26.33	6.46	120	31	
026	-3		52.9	4.26		26.33	0.0009	2.6	
						32.79		0.0	
026	-3		0	4		17.57	150	33.6	
027-O	-3		52.9	4.24		0	0.0006	0	
						17.57		0.0	

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PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
Path No: 1									
027-O	-3		0	4		0.75	0	33.6	Gate A2360
027-I	-3		52.9	0		0	0.0016	0	***
						0.75		0	
027-I	-3		0	4		1.61	150	33.6	
W1	-3		52.9	4.24		0	0.0006	0	
						1.61		0	
W1								**33.6**	
Path No: 2									
103	19.42	4.9	13	1	1x(BM.Tee-Run)=1	14.43	150	7.1	
154	20		13	1.101	1x(BM.90)=7	8	0.0306	-0.3	
						22.43		0.7	
154	20		13.5	1	2x(BM.Tee-Run)=2	58.42	150	7.5	
012	20		26.5	1.101	1x(BM.Tee-Br)=5	7	0.114	0	
						65.42		7.5	
012								**15**	
Path No: 3									
102	19.42	4.9	13.4	1	1x(BM.Tee-Br)=5	0.58	150	7.5	
001	20		13.4	1.101		5	0.0324	-0.3	
						5.58		0.2	
001								**7.4**	
Path No: 4									
104	19.42	4.9	13.5	1	1x(BM.Tee-Br)=5	0.58	150	7.6	
154	20		13.5	1.101		5	0.0326	-0.3	
						5.58		0.2	
154								**7.5**	

* Pressures are balanced to a high degree of accuracy. Values may vary by 0.1 psi due to display rounding.

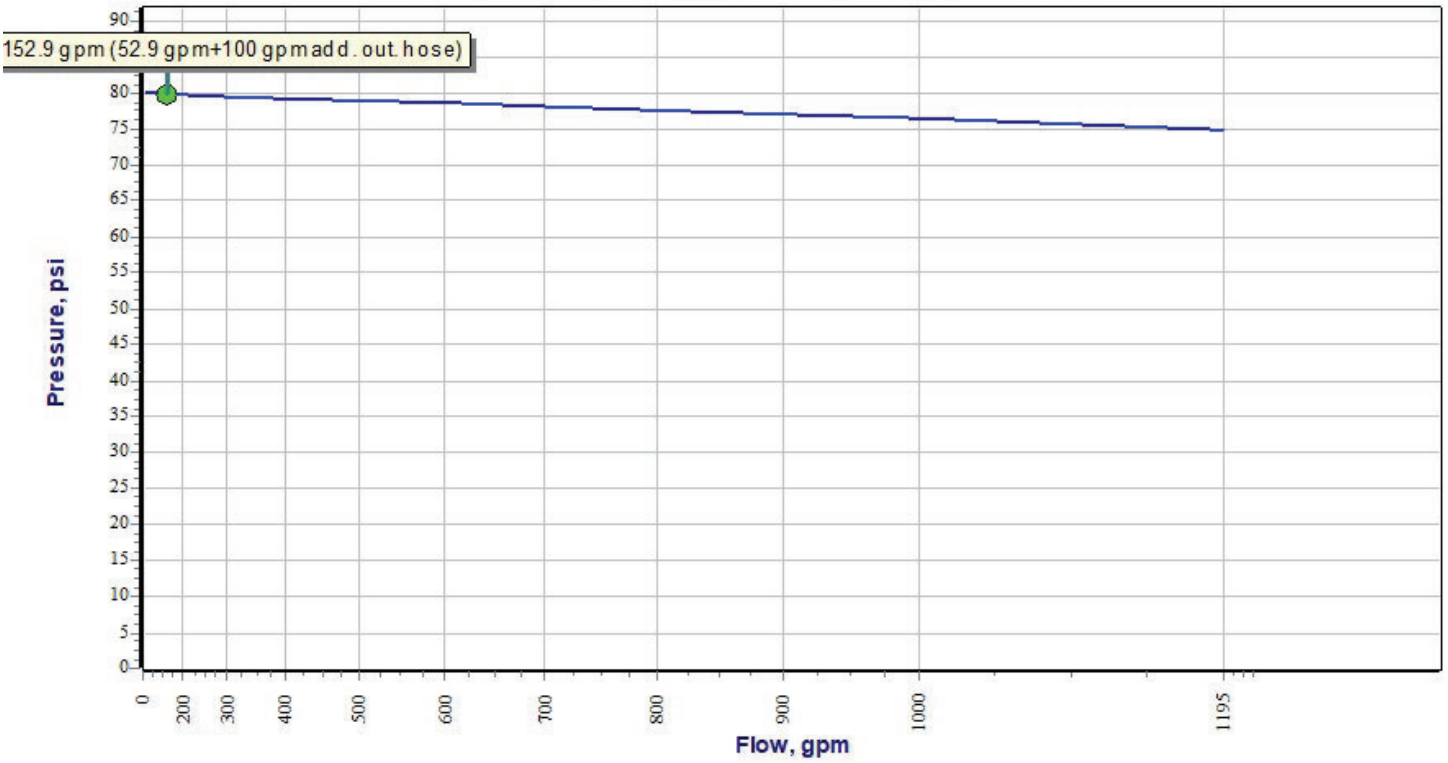
* Maximum Velocity of 8.93 ft/s occurs in the following pipe(s): (012-154)

*** Device pressure loss (gain in the case of pumps) is calculated from the device's curve. If the device curve is printed with this report, it will appear below. The length of the device as shown in the table above comes from the CAD drawing. The friction loss per unit of length is calculated based upon the length and the curve-based loss/gain value. Internal ID and C Factor values are irrelevant as the device is not represented as an addition to any pipe, but is an individual item whose loss/gain is based solely on the curve data.

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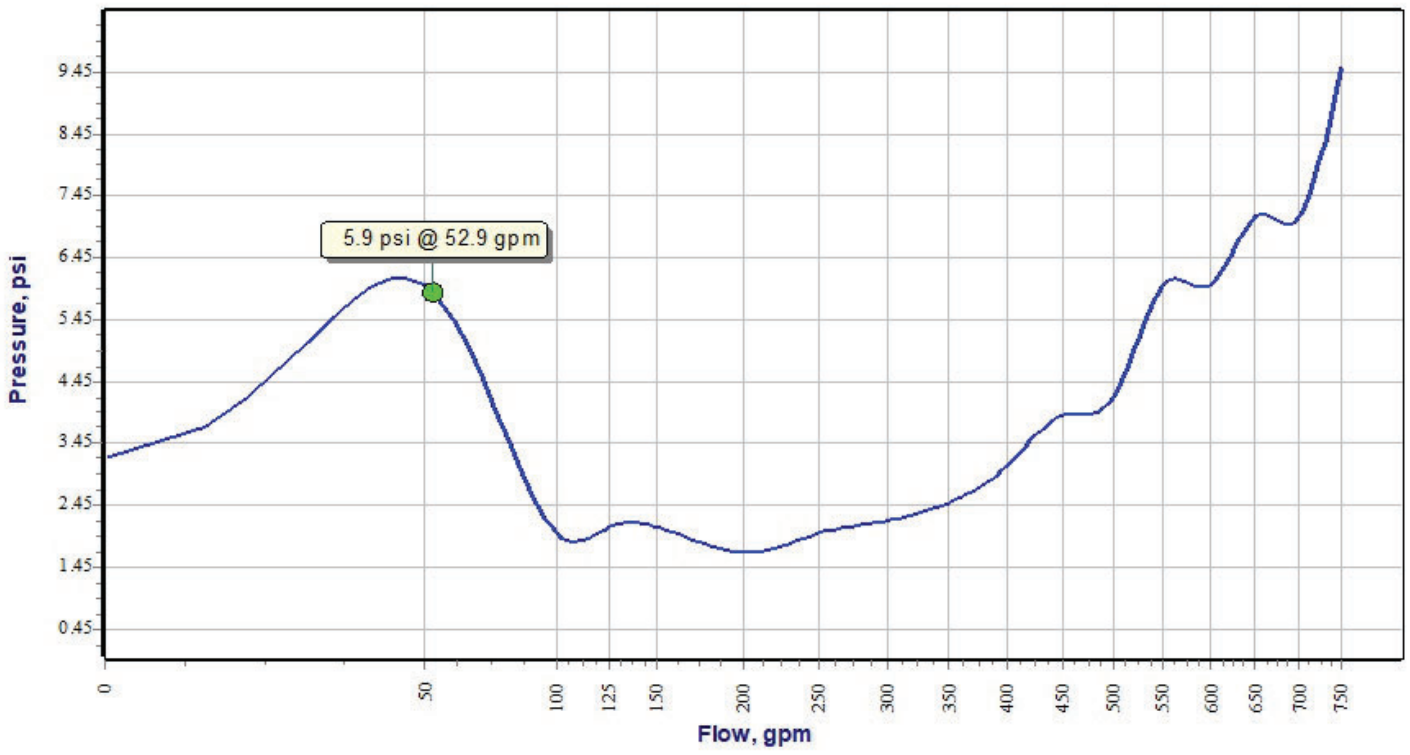
Pressure vs. Flow Function

Design Area: 1; Supply Ref.: W1; Supply Name:W1



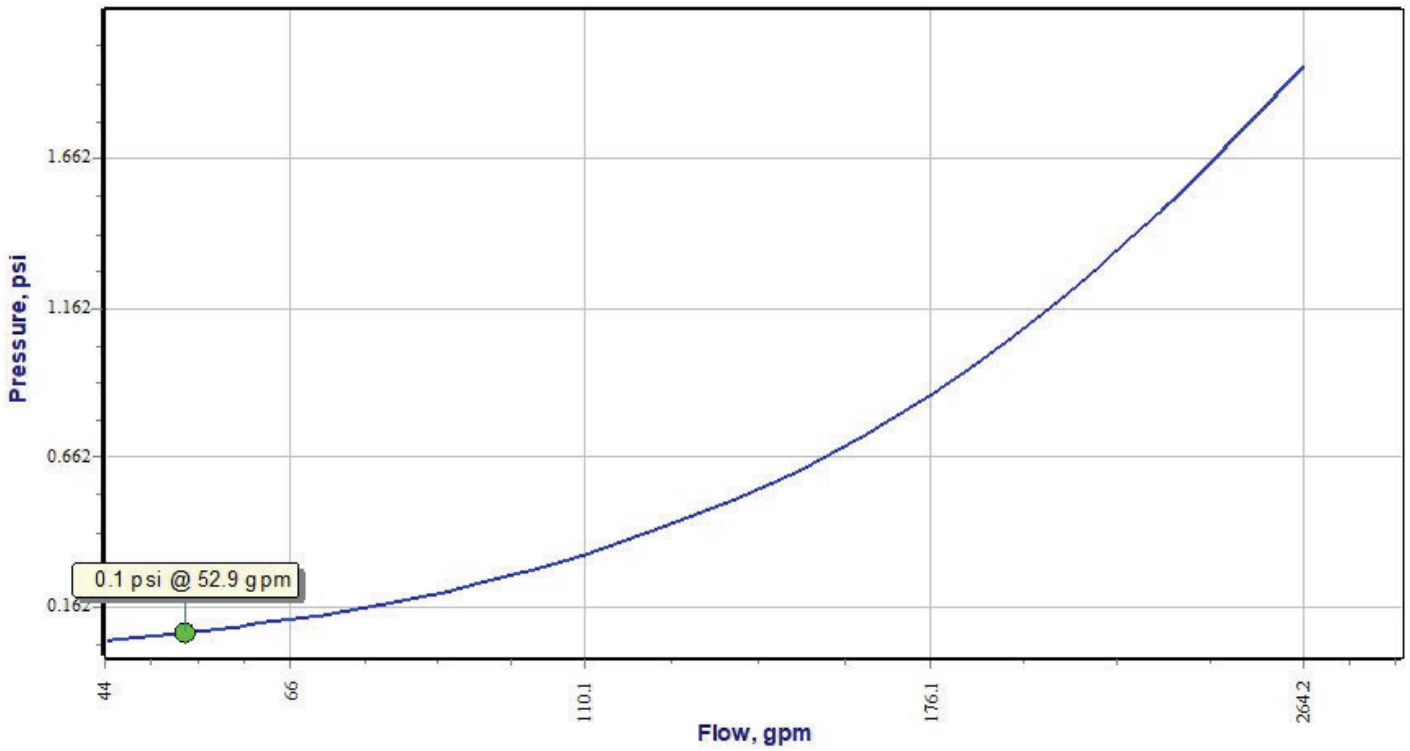
Pressure Loss Function

Design Area: 1; BFP Ref.: 216 (Ames3000SS, Size = 4); Inlet Node: 024-I; Outlet Node: 024-O

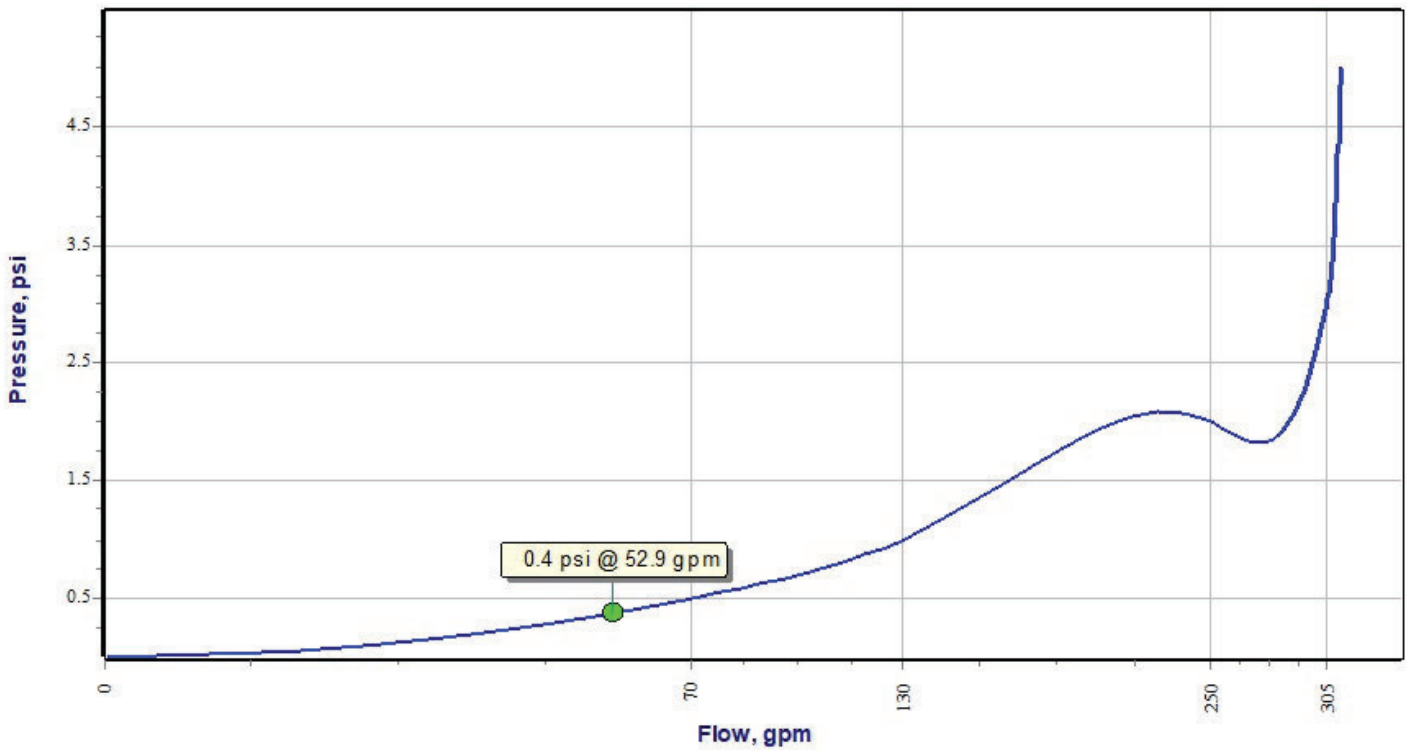


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Pressure Loss Function
Design Area: 1; Valve Ref.: 214 (BtflyJPL, Size = 2.5); Inlet Node: 018-I; Outlet Node: 018-O



Pressure Loss Function
Design Area: 1; Valve Ref.: 215 (CV-1 FR Check, Size = 2.5); Inlet Node: 017-I; Outlet Node: 017-O

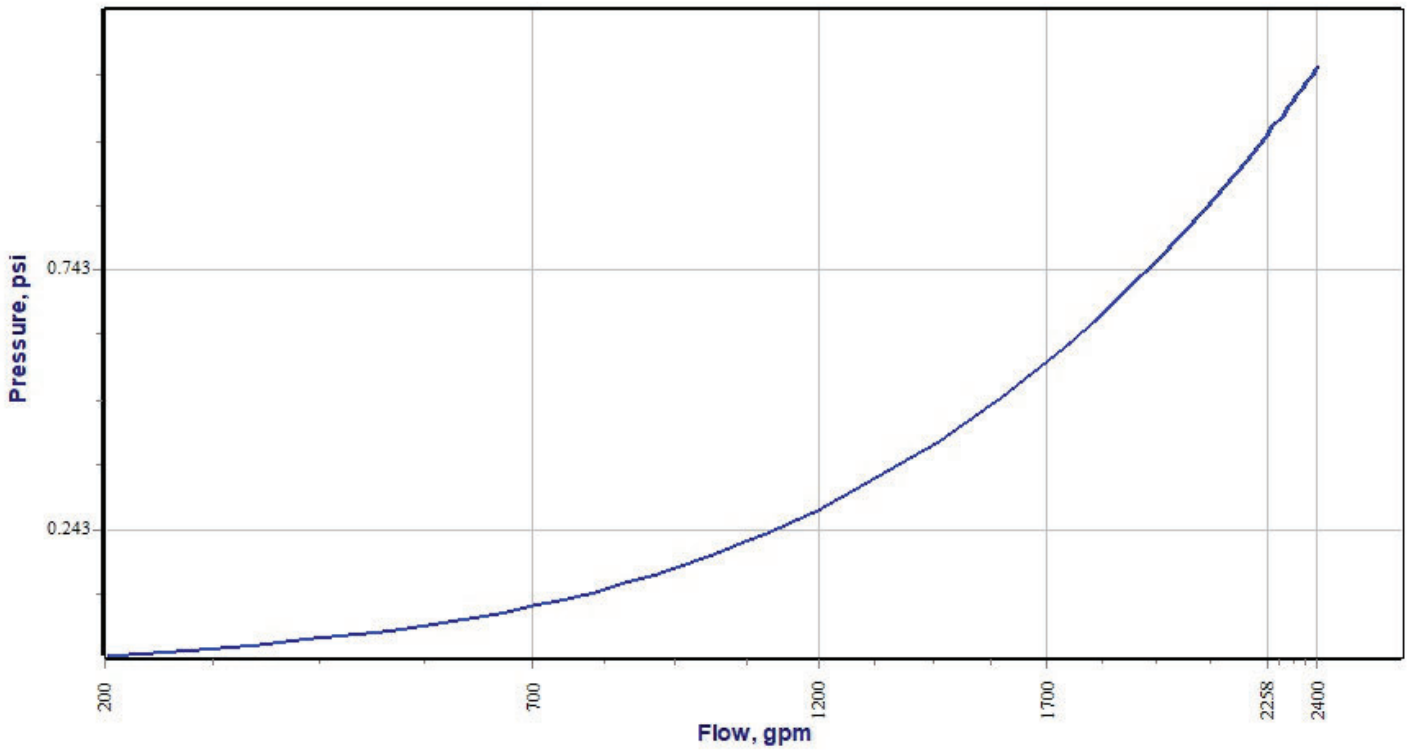


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Pressure Loss Function

Design Area: 1; Valve Ref.: 217 (Gate A2360, Size = 4); Inlet Node: 027-I; Outlet Node: 027-O



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HYDRAULIC CALCULATIONS
for

Job Information

Project Name : Barrack Renovation Buildings 4212-4219, 4302-4309, and 4312-4319

Contract No. :

City:

Project Location: Camp Roberts

Date: 4/27/2020

Contractor Information

Name of Contractor:

Address:

City: VENTURA, CA 93003

Phone Number: 805-658-0003

E-mail:

Name of Designer: COLLINGS & ASSOCIATES

Authority Having Jurisdiction:

Design

Remote Area Name	2
Remote Area Location	1st FLOOR
Occupancy Classification	13R
Density (gpm/ft²)	0.051
Area of Application (ft²)	1024
Coverage per Sprinkler (ft²)	256
Number of Calculated Sprinklers	4
In-Rack Demand (gpm)	0
Special Heads	
Hose Streams (gpm)	100
Total Water Required (incl. Hose Streams) (gpm)	163.2
Required Pressure at Source (psi)	43.2
Type of System	Wet
Volume - Entire System (gal)	50.2 gal

Water Supply Information

Date	MM/DD/YYYY
Location	FIRE HYDRANT #2
Source	W1

Notes

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Hydraulic Analysis for : 2

Calculation Info

Calculation Mode	Demand
Hydraulic Model	Hazen-Williams
Fluid Name	Water @ 60F (15.6C)
Fluid Weight, (lb/ft³)	N/A for Hazen-Williams calculation.
Fluid Dynamic Viscosity, (lb·s/ft²)	N/A for Hazen-Williams calculation.

Water Supply Parameters

Supply 1 : W1

Flow (gpm)	Pressure (psi)
0	80
1195	75

Supply Analysis

Node at Source	Static Pressure (psi)	Residual Pressure (psi)	Flow (gpm)	Available Pressure (psi)	Total Demand (gpm)	Required Pressure (psi)
W1	80	75	1195	79.9	163.2	43.2

Hoses

Inside Hose Flow / Standpipe Demand (gpm)	
Outside Hose Flow (gpm)	
Additional Outside Hose Flow (gpm)	100
Other (custom defined) Hose Flow (gpm)	
Total Hose Flow (gpm)	100

Sprinklers

Ovehead Sprinkler Flow (gpm)	63.2
InRack Sprinkler Flow (gpm)	0
Other (custom defined) Sprinkler Flow (gpm)	0
Total Sprinkler Flow (gpm)	63.2

Other

Required Margin of Safety (psi)	0
W1 - Pressure (psi)	43.2
W1 - Flow (gpm)	63.2
Demand w/o System Pump(s)	N/A

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PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
Path No: 1									
201	9.75	4.9	13	1	5x(us.90)=10	11.65	120	7	
074	10.17		13	1.049		10	0.0581	-0.2	
						21.65		1.3	
074	10.17		13.8	1	4x(us.90)=8	5.91	120	8.1	
069	10.17		26.7	1.049		8	0.2221	0	
						13.91		3.1	
069	10.17		16.2	1	1x(us.Tee-Br)=5	4.07	120	11.2	
056	9.75		42.9	1.049	3x(us.90)=6	11	0.5329	0.2	
						15.07		8	
056	9.75		20.3	1.5	2x(us.Tee-Br)=16	71.22	120	19.4	
016	10.17		63.2	1.61	1x(us.90)=4	20	0.1356	-0.2	
						91.22		12.4	
016	10.17		0	2.5		4	120	31.6	
017-O	6.17		63.2	2.635		0	0.0123	1.7	
						4		0.0	
017-O	6.17		0	2.5		0.67	0	33.3	CV-1 FR
017-I	5.5		63.2	0		0	0.6799	0.3	Check
						0.67		0.5	***
017-I	5.5		0	2.5		0.68	120	34.1	
018-O	4.82		63.2	2.635		0	0.0123	0.3	
						0.68		0	
018-O	4.82		0	2.5		0.32	0	34.4	BtflyJPL
018-I	4.5		63.2	0		0	0.3501	0.1	***
						0.32		0.1	
018-I	4.5		0	4		3	120	34.6	
019	1.5		63.2	4.26		0	0.0012	1.3	
						3		0	
019	1.5		0	4	1x(us.90)=18.33	4.5	140	35.9	
020	-3		63.2	4.3		18.33	0.0009	1.9	
						22.83		0.0	
020	-3		0	4	2x(us.90)=38.86	13.48	150	37.9	
022	-3		63.2	4.24		38.86	0.0008	0	
						52.35		0.0	
022	-3		0	4	1x(us.90)=13.17	7.68	120	38	
024-O	3		63.2	4.26		13.17	0.0012	-2.6	
						20.85		0.0	
024-O	3		0	4		1.83	0	35.4	Ames3000SS
024-I	3		63.2	0		0	2.8105	0	***
						1.83		5.2	
024-I	3		0	4	2x(us.90)=26.33	6.46	120	40.5	
026	-3		63.2	4.26		26.33	0.0012	2.6	
						32.79		0.0	
026	-3		0	4		17.57	150	43.2	
027-O	-3		63.2	4.24		0	0.0008	0	
						17.57		0.0	
027-O	-3		0	4		0.75	0	43.2	Gate A2360
027-I	-3		63.2	0		0	0.0019	0	***
						0.75		0	

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PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
Path No: 1									
027-I	-3		0	4		1.61	150	43.2	
W1	-3		63.2	4.24		0	0.0008	0	
						1.61		0	
W1								**43.2**	
Path No: 2									
202	9.75	4.9	13.8	1	1x(us.Tee-Br)=5	0.42	120	7.9	
074	10.17		13.8	1.049		5	0.065	-0.2	
						5.42		0.4	
074								**8.1**	
Path No: 3									
203	9.75	4.9	16.2	1	1x(us.Tee-Br)=5	0.42	120	10.9	
069	10.17		16.2	1.049		5	0.0874	-0.2	
						5.42		0.5	
069								**11.2**	
Path No: 4									
204	9.75	4.9	20.3	1	1x(us.Tee-Br)=5	7.59	120	17.2	
056	9.75		20.3	1.049	2x(us.90)=4	9	0.1333	0	
						16.59		2.2	
056								**19.4**	

* Pressures are balanced to a high degree of accuracy. Values may vary by 0.1 psi due to display rounding.

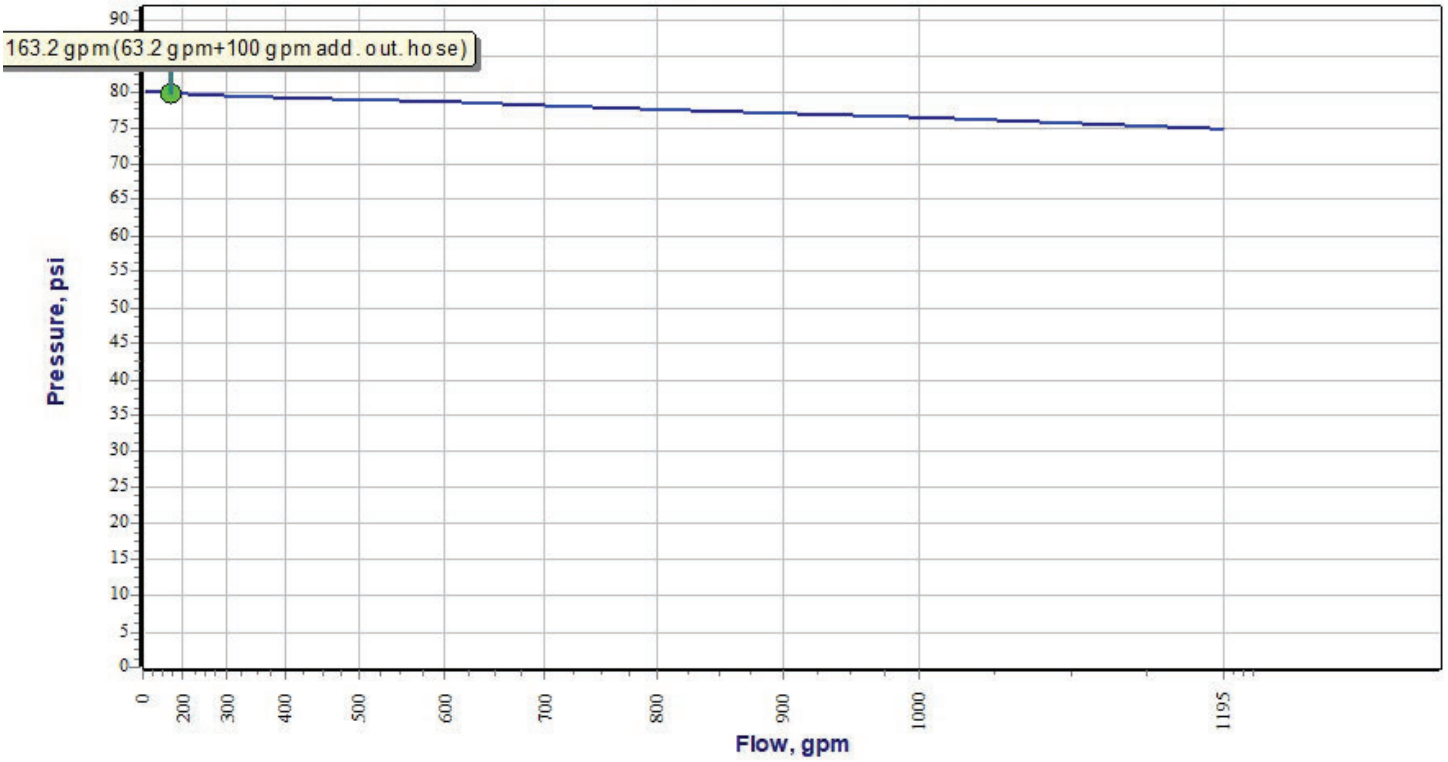
* Maximum Velocity of 15.93 ft/s occurs in the following pipe(s): (056-069)

*** Device pressure loss (gain in the case of pumps) is calculated from the device's curve. If the device curve is printed with this report, it will appear below. The length of the device as shown in the table above comes from the CAD drawing. The friction loss per unit of length is calculated based upon the length and the curve-based loss/gain value. Internal ID and C Factor values are irrelevant as the device is not represented as an addition to any pipe, but is an individual item whose loss/gain is based solely on the curve data.

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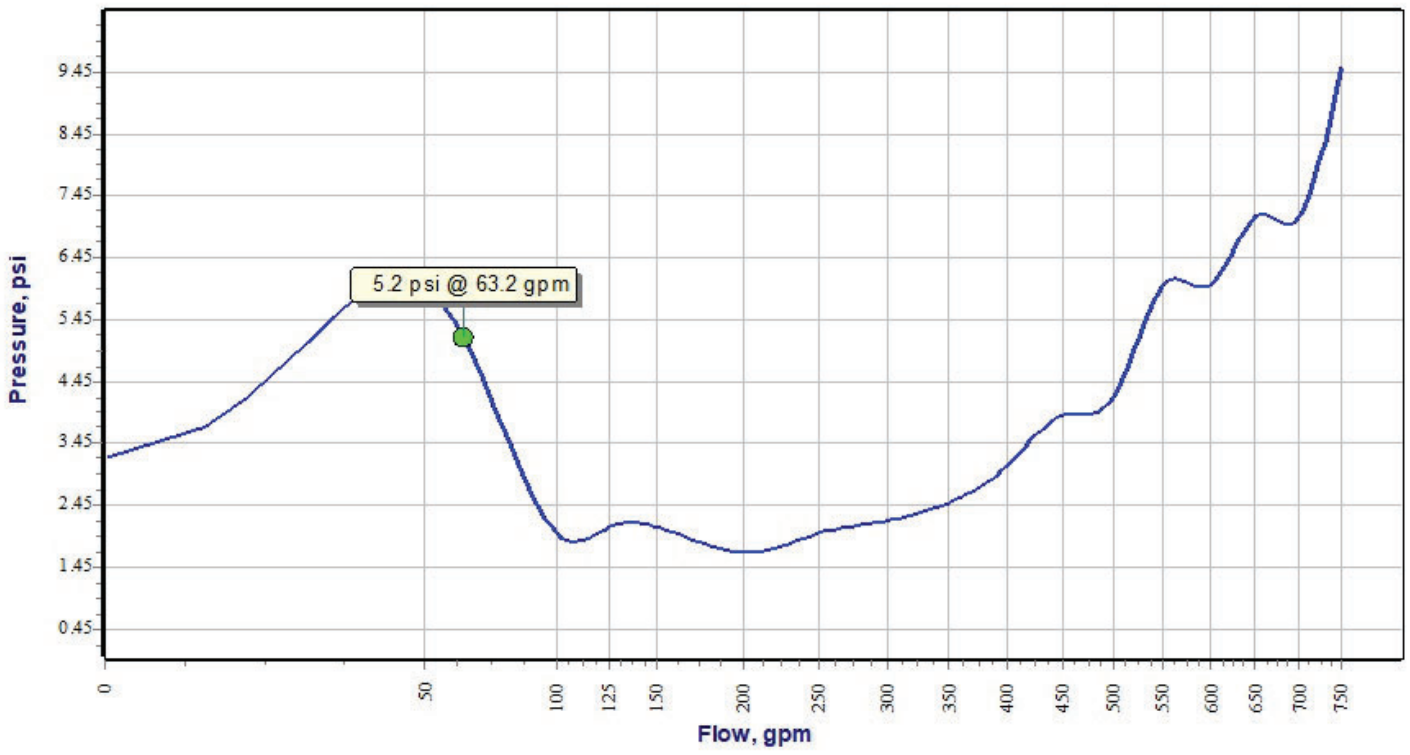
Pressure vs. Flow Function

Design Area: 2; Supply Ref.: W1; Supply Name:W1



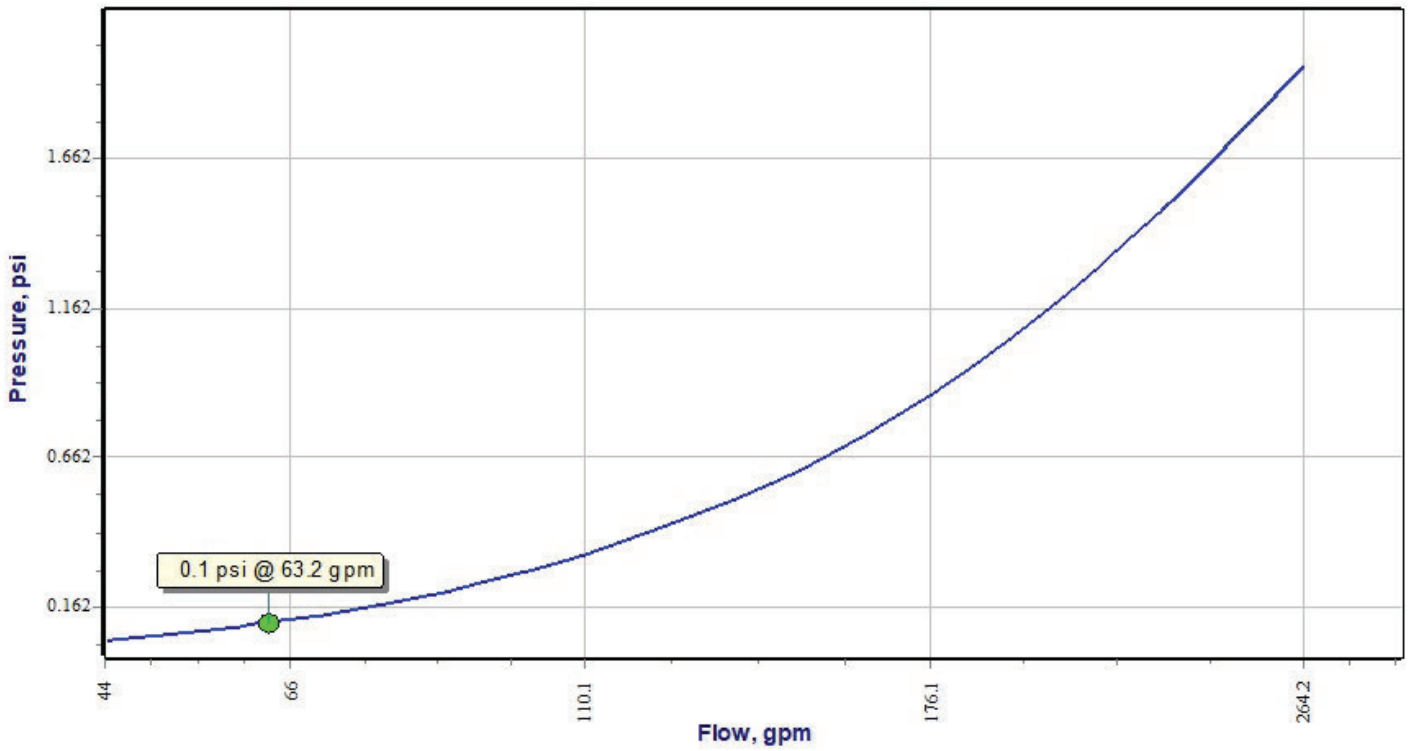
Pressure Loss Function

Design Area: 2; BFP Ref.: 216 (Ames3000SS, Size = 4); Inlet Node: 024-I; Outlet Node: 024-O

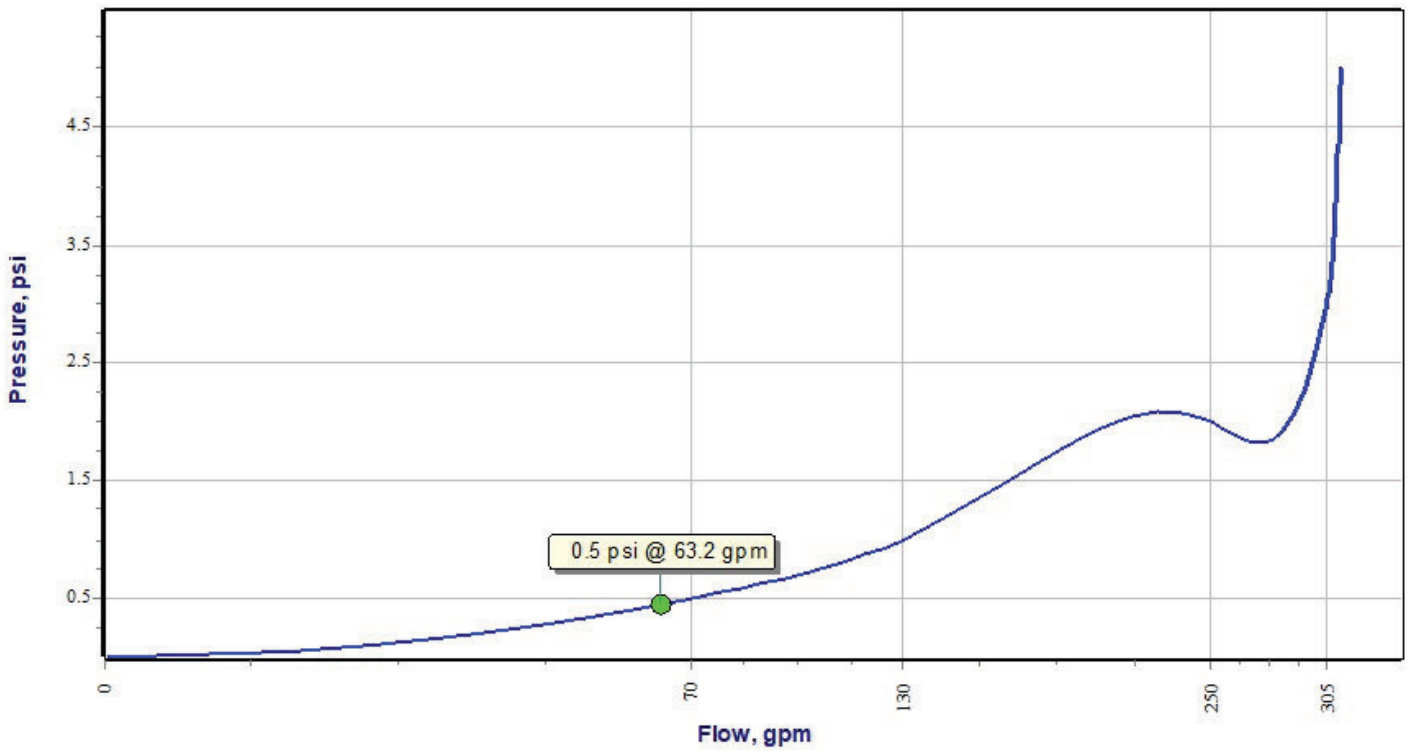


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Pressure Loss Function
Design Area: 2; Valve Ref.: 214 (BtflyJPL, Size = 2.5); Inlet Node: 018-I; Outlet Node: 018-O



Pressure Loss Function
Design Area: 2; Valve Ref.: 215 (CV-1 FR Check, Size = 2.5); Inlet Node: 017-I; Outlet Node: 017-O

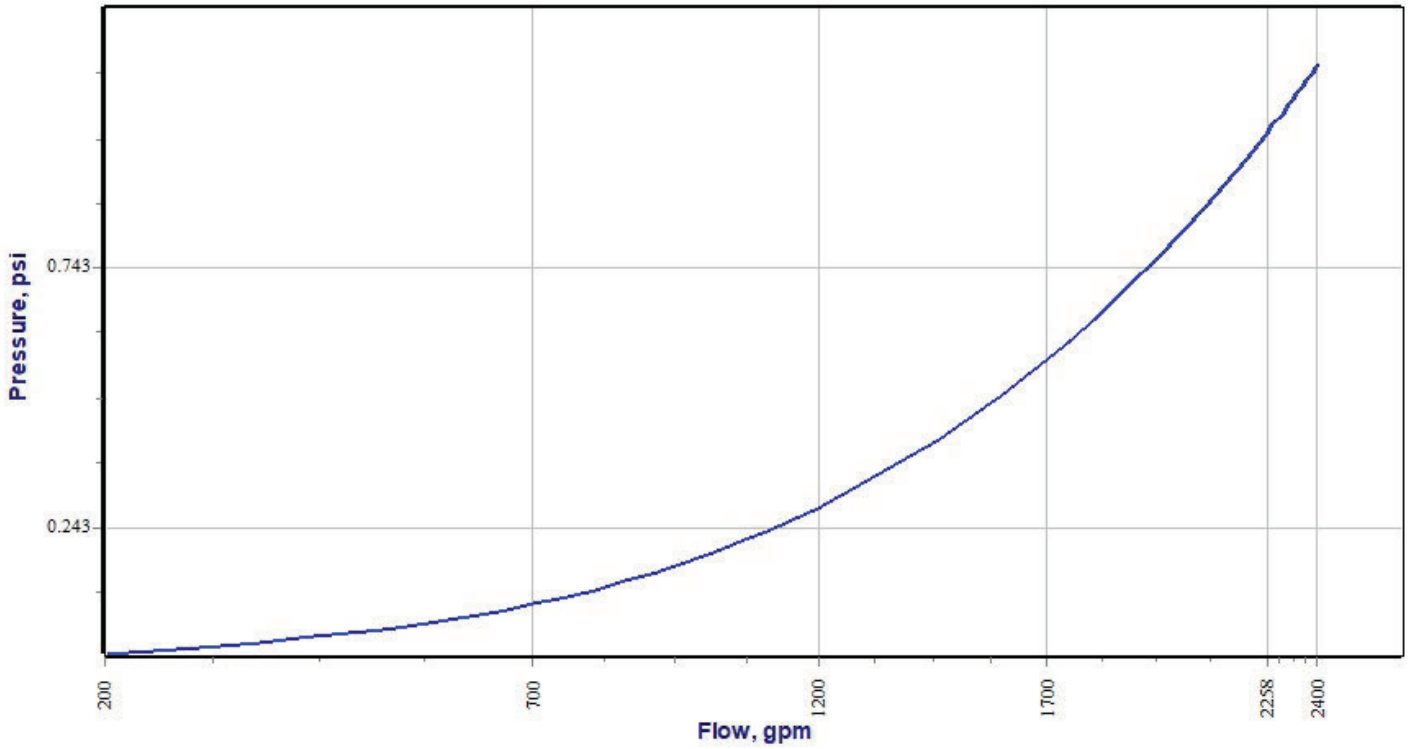


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Pressure Loss Function

Design Area: 2; Valve Ref.: 217 (Gate A2360, Size = 4); Inlet Node: 027-I; Outlet Node: 027-O



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