AGENDA
REGULAR MEETING
LOCAL TRANSPORTATION AUTHORITY

DATE: Thursday, June 15, 2023
4:00 P.M.

LOCATION: County Board of Supervisors Chambers
481 Fourth Street
Hollister, CA 95023
(*The meeting is open to the public*)

DIRECTORS: Bea Gonzales, Chair (County of San Benito)
Scott Freels, Vice-Chair (City of San Juan Bautista)
Mia Casey (City of Hollister)
Dolores Morales (City of Hollister)
Mindy Sotelo (County of San Benito)

ALTERNATES: San Benito County: Kollin Kosmicki
City of San Juan Bautista: Jackie Morris-Lopez
City of Hollister: Rick Perez

NOTICE OF PROCEDURES FOR LOCAL TRANSPORTATION AUTHORITY MEETINGS

The meeting will be available through Zoom, for those who wish to join or require accommodations.

Members of the public may participate remotely via Zoom at the following link: https://zoom.us/join with the following:

Webinar ID: 854-0074-4563 and Webinar Passcode: 292064

*Those participating by phone who would like to make a comment can use the "raise hand" feature by dialing "*9" (star-nine) . In order to receive full Zoom experience, please make sure your application is up to date.*

Remote Zoom participation for members of the public is provided for convenience only. In the event that the Zoom connection malfunctions for any reason, the COG Board of Directors reserves the right to conduct the meeting without remote access.

Persons who wish to address the Board of Directors must complete a Speaker Card and give it to the Clerk prior to addressing the Board. Those who wish to address the Board on an agenda item will be heard when the Chairperson calls for comments from the audience. Following recognition, persons desiring to speak are requested to advance to the podium and state their name and address. After hearing audience comments, the Public Comment portion of the agenda item will be closed. ***The opportunity to address the Board of Directors on items of interest not appearing on the agenda will be provided during Section 3. Public Comment.***

1. CALL TO ORDER

2. Verification of Certificate of Posting

3. Public Comment: *(Opportunity to address the Board on items of interest not appearing on the agenda. No action may be taken unless provided by Govt. Code Sec. 54954.2. Speakers are limited to 3 minutes.)*

CONSENT AGENDA:

(These matters shall be considered as a whole and without discussion unless a particular item is removed from the Consent Agenda. Members of the public who wish to speak on a Consent Agenda item must submit a Speaker Card to the Clerk and wait for recognition from the Chairperson. Approval of a consent item means approval as recommended on the Staff Report.)

4. APPROVE Local Transportation Authority Draft Action Regular Meeting Minutes Dated January 19, 2023 – Gomez

5. APPROVE Local Transportation Authority Draft Action Regular Meeting Minutes Dated May 18, 2023 – Gomez

6. APPROVE Donation Agreement with the City of Hollister to Provide County Express Shuttle Service to the City's 2023 Fireworks Display Community Event – Valentine

ACTION ITEMS:

4:00 P.M. Public Hearing (Or As Soon Thereafter As the Matter May Be Heard)

7. Fiscal Year 2023-2024 Local Transportation Authority (LTA) Budget– Rivera
    a. RECEIVE Presentation on the Fiscal Year 2023-2024 Budget for the Local Transportation Authority.
    b. HOLD Public Hearing on the Fiscal Year 2023-2024 LTA Budget
    c. ADOPT Resolution 23-05 Adopting the FY 2023-2024 LTA Budget

8. ADOPT Resolution 23-04 Approving the San Benito County Local Transportation Authority Zero-Emission Bus Rollout Plan – Valentine

9. ADOPT Project Plans and Specifications, and RELEASE Invitation for Bids to Construct the Project: Transit Maintenance and Operations Building Tenant Improvement Project – Valentine

Adjourn to LTA Meeting on August 17, 2023. Agenda deadline is August 1, 2023, at 12:00 p.m.

In compliance with the Americans with Disabilities Act (ADA), if requested, the Agenda can be made available in appropriate alternative formats to persons with a disability. If an individual wishes to request an alternative agenda format, please contact the Clerk of the Council four (4) days prior to the meeting at (831) 637-7665. The Local Transportation Authority Board of Directors meeting facility is accessible to persons with disabilities. If you need special assistance to participate in this meeting, please contact the Clerk of the Board's office at (831) 637-7665 at least 48 hours before the meeting to enable the Council of Governments to make reasonable arrangements to ensure accessibility.

Written Comments & Email Public Comment

Members of the public may submit comments via email by 5:00 PM. on the Wednesday prior to the Board meeting to the Secretary at monica@sanbenitocog.org, regardless of whether the matter is on the agenda. Every effort will be made to provide Board Members with your comments before the agenda item is heard.

Public Comment Guidelines

1. If participating on Zoom: once you are selected, you will hear that you have been unmuted. At this time, state your first name, last name, and county you reside in for the record.
2. The Council of Governments Board welcomes your comments.
3. Each individual speaker will be limited to a presentation total of three (3) minutes.
4. Please keep your comments brief, to the point, and do not repeat prior testimony, so that as many people as possible can be heard. Your cooperation is appreciated.

If you have questions, contact the Council of Governments, and leave a message at (831) 637-7665 x. 201, or email monica@sanbenitocog.org.

Agenda Item: 2

CERTIFICATE OF POSTING

Pursuant to Government Code Section #54954.2(a) the Meeting Agenda for the Local Transportation Authority on **June 15, 2023,** at **4:00 P.M.** was posted at the following locations freely accessible to the public:

The front entrance of the Old San Benito County Courthouse, Monterey Street, Hollister, CA 95023, and the Council of Governments Office, 330 Tres Pinos Rd., Ste. C7, Hollister, CA 95023 at the following date and time:

On the 9th day of June 2023, on or before 5:00 P.M.

The meeting agenda was also posted on the Council of San Benito County Governments website, www.sanbenitocog.org, under Meetings, LTA Board, Meeting Schedule

I, Monica Gomez, swear under penalty of perjury that the foregoing is true and correct.

BY: _____

Monica Gomez, Secretary II
Council of San Benito County Governments

Agenda Item : 4

San Benito County
LOCAL TRANSPORTATION AUTHORITY
REGULAR MEETING
Board of Supervisors Chambers
481 Fourth Street, Hollister, CA 95023 & Zoom Platform

January 19, 2023 4:00 P.M.
MINUTES

MEMBERS PRESENT:
Chair Pro Tempore Mindy Sotelo, Director Bea Gonzales, Director Dolores Morales

MEMBERS ABSENT:
Director Mia Casey, Director Scott Freels

STAFF PRESENT:
Executive Director; Binu Abraham, Administrative Services Specialist; Norma Rivera, Transportation Planner; Regina Valentine, Transportation Planning Manager; Veronica Lezama, Secretary; Office Assistant; Griselda Arevalo, Deputy County Counsel; Shirley Murphy

CALL TO ORDER:
Executive Director Binu Abraham called the meeting to order at 5:17 p.m.

A. CONTINUE LTA Chair and Vice Chairperson Appointments to the February 16, 2023 Board Meeting and ELECT Chair Pro Tempore to Conduct the January 19, 2023 meeting.

Motion made to continue LTA Chair and Vice Chairperson appointments to the February 16, 2023 meeting and Elect Director Sotelo as Chair Pro Tempore to conduct the January 19, 2023 meeting.

Motion: Director Bea Gonzales Second: Director Dolores Morales
Motion carried: 3/0
Yes: Sotelo, Gonzales, Morales
No: None
Recused: None
Abstention: None
Absent: Casey, Freels

B. CERTIFICATE OF POSTING

Motion made to acknowledge Certificate of Posting:

Motion: Director Bea Gonzales Second: Director Dolores Morales

Motion carried: 3/0
Yes: Sotelo, Gonzales, Morales
No: None
Recused: None
Abstention: None
Absent: Casey, Freels

C. NOTICE OF TEMPORARY PROCEDURES FOR LOCAL TRANSPORTATION AUTHORITY MEETINGS

Pursuant to California Governor Gavin Newsom's Executive Order N-29-20 issued on March 17, 2020, relating to the convening of public meetings in response to the COVID-19 pandemic. Additionally, members of the LTA Board can attend the meeting via teleconference and to participate in the meeting to the same extent as if they were present.

Chair Pro Tempore Sotelo reminded members of the public that an overview of temporary procedures (Zoom etiquette) for LTA meetings was attached to the agenda.

D. PUBLIC COMMENT: None

CONSENT AGENDA:

1. Adopt Resolution 22-19 Authorizing Teleconferencing Options for the Local Transportation Authority Meetings for the Period of January 20, 2023, through February 19, 2023 – Rivera

2. Approve Local Transportation Authority Draft Meeting Minutes Dated December 15, 2022 – Gomez

There was no public comment on the Consent Agenda.

Motion made to approve the Consent Agenda:

Motion: Director Bea Gonzales Second: Director Dolores Morales
Motion carried: 3/0
Yes: Sotelo, Gonzales, Morales
No: None
Recused: None
Abstention: None
Absent: Casey, Freels

Motion made to Continue LTA Closed Session to the end of the SAFE meeting:

Motion: Director Bea Gonzales Second: Director Dolores Morales
Motion carried: 3/0
Yes: Sotelo, Gonzales, Morales
No: None
Recused: None
Abstention: None
Absent: Casey, Freels

The Local Transportation Authority convened to Closed Session at 5:27 p.m.

CLOSED SESSION:

3. CLOSED SESSION – CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Hold Closed Session regarding significant exposure to litigation
No. of cases: 1
Gov. Code sec. 54956.9 (d)(2), (e) (1)

The COG Board reconvened from Closed Session at 5:53 p.m.

Deputy County Counsel, Shirley Murphy stated that there was no reportable action taken under Closed Session.

There was no public comment.

ADJOURNMENT:
There being no further business to discuss, Director Morales motioned to adjourn at 5:53 p.m.
Motion seconded by Director Gonzales.

Motion carried: 3/0
Yes: Sotelo, Gonzales, Morales
No: None
Recused: None
Abstention: None
Absent: Casey, Freels

ADJOURN TO LTA MEETING FEBRUARY 16, 2023 AT 4:00 P.M.

Agenda Item :__5___

San Benito County
LOCAL TRANSPORTATION AUTHORITY
REGULAR MEETING
Board of Supervisors Chambers
481 Fourth Street, Hollister, CA 95023 & Zoom Platform
May 18, 2023 4:00 P.M.

ACTION MINUTES

MEMBERS PRESENT:
Chair Bea Gonzales, Vice-Chair Scott Freels, Director Mia Casey, Director Mindy Sotelo

MEMBERS ABSENT:
Director Dolores Morales

STAFF PRESENT:
Executive Director; Binu Abraham, Administrative Services Specialist; Norma Rivera, Transportation Planner; Regina Valentine, Transportation Planning Manager; Veronica Lezama, Secretary; Office Assistant; Griselda Arevalo, Deputy County Counsel; Shirley Murphy

OTHERS PRESENT:
Daniel Levy, DanTec

1. CALL TO ORDER:
Chair Gonzales called the meeting to order at 5:27 p.m.

2. CERTIFICATE OF POSTING

Motion made to acknowledge Certificate of Posting:
Motion: Director Mindy Sotelo Second: Director Mia Casey
Motion carried: 4/0
Yes: Sotelo, Gonzales, Casey, Freels
No: None
Recused: None
Abstention: None
Absent: Morales

3. PUBLIC COMMENT:

Monica (Intercounty Passenger)

CONSENT AGENDA:

(These matters shall be considered as a whole and without discussion unless a particular item is removed from the Consent Agenda. Members of the public who wish to speak on a Consent Agenda item must submit a Speaker Card to the Clerk and wait for recognition from the Chairperson. Approval of a consent item means approval as recommended on the Staff Report.)

4. APPROVE Local Transportation Authority Draft Action Regular Meeting Minutes Dated February 16, 2023 – Gomez

5. ADOPT Resolution 2023-03 Authorizing the Execution of the Low Carbon Transit Operations Program Project "Expansion of Intercounty Services"– Valentine

6. APPROVE Sale of Surplus Vehicle, Last Five VIN No. 56588, to Mr. David Garcia – Valentine

Chair Gonzales pulled Item 5 for discussion. Director Sotelo pulled Item 6 for discussion.

There was no public comment on the Consent Agenda.

Motion made to approve the Consent Agenda Item 4:

Motion: Director Scott Freels Second: Director Mia Casey
Motion carried: 4/0
Yes: Sotelo, Casey, Freels, Gonzales
No: None
Recused: None
Abstention: None
Absent: Morales

Item 5 pulled for discussion.
Chair Gonzales inquired about the possibility of increased lighting at the Intercounty bus stop/Park and Ride lot at Veteran's Memorial Park, located on the corner of Memorial and Hillcrest. She also asked if the bus schedules are posted at the bus stops. Chair Gonzales also asked staff to address the public comment received about the elimination of an Intercounty run to Gavilan College during the summer.

Transportation Planner Regina Valentine stated that bus schedules are posted at the bus stops, on the County Express website, as well as on social media. Service changes are also posted on the buses and drivers are asked to point out service changes to riders. Regarding the public comment about reduced Intercounty service frequency when Gavilan College is out of session, Ms. Valentine stated that this is due to the historically lower ridership during these time periods. Ms. Valentine stated this feedback is helpful and she will look into continuing the Intercounty trip mentioned when Gavilan College is out of session.

Motion made to approve Consent Agenda Item 5:

Motion: Director Bea Gonzales Second: Director Mia Casey
Motion carried: 4/0

Yes: Sotelo, Casey, Freels, Gonzales
No: None
Recused: None
Abstention: None
Absent: Morales

Item 6 pulled for discussion.
Director Sotelo inquired about the sale of the surplus vehicle asking if staff had reached out to local nonprofits.

Ms. Valentine provided a brief overview of the surplus vehicle sale process. She noted that staff completed the public noticing soliciting donation applications from local nonprofits and bids from private parties interested in the available surplus vehicle, however, no nonprofits came forward.

Motion made to approve Consent Agenda Item 6:
Motion: Director Mindy Sotelo Second: Director Scott Freels
Motion carried: 4/0
Yes: Sotelo, Casey, Freels, Gonzales
No: None
Recused: None
Abstention: None
Absent: Morales

ACTION ITEMS:

Executive Director Binu Abraham announced an amendment to Item 7, changing the item to "Information Item", instead of Action Item.

7. AUTHORIZE County Express Shuttle Service to the City of Hollister's 2023 Fireworks Display Community Event – Valentine

Transportation Planner Regina Valentine reported that due to Federal Transit Administration regulations restricting public transit agencies competing with private sector shuttle providers, staff recommends offering the shuttle service free of charge to the City of Hollister fireworks celebration as a community partnership as a community partnership. If authorized to operate the shuttle service, staff will request the City include County Express in their promotional items to market its services to residents.

The Board expressed support for the shuttle service.

There was no public comment.

INFORMATION ITEMS:

8. RECEIVE Presentation on the 2022 Short Range Transit Plan – Valentine

Transportation Planner Regina Valentine and Daniel Levy with DanTec, provided a presentation on the 2022 Short Range Transit Plan and answered questions from the Board.

There was brief discussion about the location of a central transit hub.

Chair Gonzales requested a colored copy of the Short Range Transit Plan presentation slides.

There was no public comment:

ADJOURNMENT:

There being no further business to discuss, Director Casey motioned to adjourn at 6:18 p.m.
Motion seconded by Director Freels.

Motion carried:	4/0
Yes:	Sotelo, Casey, Freels, Gonzales
No:	None
Recused:	None
Abstention:	None
Absent:	Morales

ADJOURN TO LTA MEETING JUNE 15, 2023 AT 4:00 P.M.

STAFF REPORT

Consent
Agenda Item No. 6

Prepared By: Regina Valentine, Transportation Planner
Approved By: Binu Abraham, Executive Director

Subject: County Express Shuttle Service to City of Hollister Fireworks Display Event
Meeting Date: June 15, 2023

Recommendation:

APPROVE Donation Agreement with the City of Hollister to Provide County Express Shuttle Service to the City's 2023 Fireworks Display Community Event.

Summary:

The City of Hollister will be hosting fireworks display community event at Brigantino Park Saturday, July 1, 2023 and LTA staff is seeking Board approval of a donation agreement to provide free shuttle service for attendees.

Background/ Discussion:

As reported at the May 2023 Board meeting, the City of Hollister will be hosting a fireworks display community event at Brigantino Park Saturday, July 1, 2023 and LTA staff is seeking Board approval of a donation agreement to provide free shuttle service for attendees. Staff will work with City staff to select an appropriate schedule and stop locations. LTA has historically offered similar service for community events such as the San Benito County Fair.

The additional shuttle service would allow LTA to market its services to residents who are not familiar with County Express to try transit. Often, a person does not ride transit because they do not understand how the system works or are reluctant to try something new. The shuttle service would provide them an opportunity to familiarize themselves with the vehicle, driver, and service levels. The driver of the bus would have service brochures on hand to provide attendees.

LTA staff does not recommend charging a fare for the service. By not charging a fare or having a third party pay for the service, the agency is exempt from Charter Bus regulations (49 CFR Section 604).

In addition to the marketing potential, the shuttle service would have a positive impact on the event. The shuttle service has the potential to bring more attendees, alleviate the parking situation at the event, and improve public safety as there are no current pedestrian pathways connecting to Brigantino Park.

Financial Impact:

Projected cost of $750 to be paid with regular operating funds.

Attachment:

1. City of Hollister Donation Agreement

DONATION AGREEMENT

This Donation Agreement ("Agreement") is made and entered into this 16 day of June 2023 ("Agreement Date"), by and between the City of Hollister ("City"), and San Benito County Local Transportation Authority, San Benito County's public transportation agency, ("Donor" and together with City, the "Parties".)

RECITALS

A. City will host a fireworks show for the public on July 1, 2023, at Brigantino Park ("Event.")

B. Donor wishes to donate shuttle services, which shall include shuttles, shuttle drivers, and all necessary fuel and other materials and supplies ("Services") to the City for the purpose of transporting spectators from various City locations to the Event location.

NOW THEREFORE, in consideration of the terms and conditions of this Agreement, including the foregoing Recitals, City and Donor agree:

1. Use of Donation. The City shall utilize the Services for the purposes stated above.

2. Scope of Services. Donor agrees to provide the Scope of Services specified in Exhibit A.

3. Indemnification. Donor shall indemnify the City and shall hold the City free and harmless from all liability and from all claims, demands, damages, and costs asserted against or incurred by the City, its officers, agents, or employees, arising from or connected with the Services or this Agreement. The indemnity given herein shall include the cost of defense including, but not limited to, reasonable attorneys' fees. This provision shall survive the termination or revocation of this Agreement for one (1) year following the Agreement date.

4. No City Money Used. Donor acknowledges that no funds from the City were or will be used to provide Services.

5. Independent Contractor. The Parties agree that Donor is free from the control and direction of City in connection with Donor's performance of the Services. Donor is hereby retained to provide the specified Services for City, which are outside the usual course of City's business. Donor certifies that it is customarily engaged in an independently established trade, occupation, or business to provide the Services required by this Agreement. Donor understands and agrees that Donor and all Donor's employees, agents, or volunteers ("Donor Parties"), shall not be considered officers, employees, agents, partners, or joint venturers of City, and are not entitled to benefits of any kind or nature normally provided to employees of City and/or to which City's employees are normally entitled.

6. Insurance. Without in any way limiting Donor's liability, or indemnification obligations set forth in Section 3 above, Donor shall secure and maintain throughout the Term of this Agreement, the following insurance: (i) comprehensive general liability insurance with limits not less than $5,000,000 each occurrence and $5,000,000 in the aggregate; (ii) commercial automobile liability insurance with limits not less than $5,000,000 each occurrence and $5,000,000 in the aggregate; and (iii) worker's compensation insurance as

required by Labor Code section 3200 *et seq.*. Neither Donor nor any of the Donor's Parties shall commence performing any portion of the Services until all required insurance has been obtained and certificates indicating the required coverages have been delivered to and approved by City. The comprehensive general liability insurance and commercial automobile insurance policies shall include an endorsement stating that City and City Parties are named additional insureds. In addition, these insurance policies shall include an endorsement stating that they are primary to any insurance or self-insurance maintained by City and shall waive all rights of subrogation against City and/or the City Parties. A copy of the declarations page of Donor's insurance policies shall be attached to this Agreement as proof of insurance.

7. Entire Agreement. This Agreement constitutes the sole and entire agreement between the parties with respect to the subject matter dealt with in this Agreement and all understandings, oral or written, with respect to the subject matter of this Agreement are hereby superseded.

8. Future Assurances. Each party hereto shall cooperate and take such actions as may reasonably be requested by the other party hereto in order to carry out the provisions of this Agreement and the transactions contemplated by this Agreement.

9. Amendment of Agreement. No modification of, deletion from, or addition to this Agreement shall be effective unless made in writing and executed by both the City and Donor.

10. Waiver. The failure by either party to enforce any term or provision of this Agreement shall not constitute a waiver of that term or provision, or any other term or provision. No waiver by either party of any term or provision of this Agreement shall be deemed or shall constitute a waiver of any other provision of this Agreement, nor shall any waiver constitute a continuing waiver unless otherwise expressly provided in writing.

11. Severability. In the event any clause, sentence, term or provision of this Agreement shall be held by any court of competent jurisdiction to be illegal, invalid, or unenforceable for any reason, the remaining portions of this Agreement shall nonetheless remain in full force and effect.

12. Construction of Agreement. The terms and provisions of this Agreement shall be liberally construed to effectuate the purpose of this Agreement. In determining the meaning of, or resolving any ambiguity with respect to, any word, phrase or provision of this Agreement, no uncertainty or ambiguity shall be construed or resolved against either party under any rule of construction, including the party primarily responsible for the drafting and preparation of this Agreement.

13. Governing Law. This Agreement is made under and shall be construed in accordance with the laws of the State of California.

14. Attorneys' Fees. In the event either party to this Agreement shall commence litigation or other legal proceedings against the other to enforce the provisions of this Agreement or to declare rights and/or obligations under this Agreement, the prevailing party shall be entitled

to recover from the losing party its costs of suit, including, without limitation, reasonable attorneys' fees plus reasonable attorneys' costs and expenses, as shall be determined by a court.

15. Notices. Any notice given pursuant to this Agreement shall be in writing, duly addressed to the parties below. By written notice in conformance herewith, either party may change the address to which notices to said party must be delivered. Any notice deposited with the United States Postal Service shall be deemed to have been duly given when so deposited certified or registered, postage prepaid, addressed as set forth below or as changed as set forth herein. Notice sent by any other manner shall be effective only upon actual receipt thereof.

City:	Hollister 375 Fifth Street Hollister, CA 95023 Attention: Jennifer Woodworth, City Clerk
Donor:	San Benito County Local Transportation Authority 330 Tres Pinos Road, Suite C-7 Hollister, CA 95023 Attention: Regina Valentine, Transportation Planner

16. Time of Essence. Time is of the essence with respect to the obligations of each party under this Agreement.

17. Headings and References. The headings of this Agreement are for purposes of reference only and shall not limit or define the meaning of the provisions of this Agreement. All uses of the words "Article(s)" and "Section(s)" in this Agreement are references for articles and sections of this Agreement unless otherwise specified.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date and year first above written.

For Donor: For City:

Date: _____ Date: _____

_____ _____

Bea Gonzales, Chair
San Benito County Local Transportation Authority

Mia Casey, Mayor
City of Hollister

APPROVED AS TO LEGAL FORM:
San Benito County Counsel's Office

Shirley L. Murphy 6/7/23

Shirley L. Murphy, Deputy County Counsel
Local Transportation Authority's Legal Counsel

Exhibit A
Scope of Services

Donor shall provide shuttle services, which shall include shuttles, shuttle drivers, and all necessary fuel and other materials and supplies, to the City for the purpose of transporting spectators from various City locations to the Event location.

The San Benito County Local Transportation Authority under the branded name "County Express" will direct its operations contractor MV Transportation to operate a shuttle service on Saturday, July 1, 2023 between the hours of 5:00 p.m. and 11:00 p.m. between the Target shopping center in Hollister, CA routing along Memorial Drive and 4th Street for the general public and participants of the City of Hollister fireworks display at Brigantino Park. Passengers will not be charged a fare and will be offered information about County Express' services from the drivers.

Exhibit B
PROOF OF INSURANCE

MVTRANS-01 CMILLONIG

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 2/1/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Fairly Consulting Group, LLC 1800 S. Washington, Suite 400 Amarillo, TX 79102	CONTACT NAME: PHONE (A/C, No, Ext): (806) 376-4761 FAX (A/C, No): (806) 376-5136 E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED MV Transportation, Inc. and subsidiaries 2711 N Haskell, Suite 1500 Dallas, TX 75204	INSURER A : ACE American Insurance Company	22667
	INSURER B : Chubb Custom Insurance Company	38989
	INSURER C : Underwriters at Lloyds Insurance Company	37559
	INSURER D : Lloyd's Syndicate 2623 (Beazley Furlong Limited)	C2166
	INSURER E :	
	INSURER F :	

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD	WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE | X | OCCUR			HDOG72961006	2/1/2023	2/1/2024	EACH OCCURRENCE	$	5,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$	100,000
							MED EXP (Any one person)	$	
							PERSONAL & ADV INJURY	$	5,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY | PRO-JECT | LOC						GENERAL AGGREGATE	$	5,000,000
							PRODUCTS - COMP/OP AGG	$	5,000,000
	OTHER:							$	
B	AUTOMOBILE LIABILITY X ANY AUTO			ISAH2557803A	2/1/2023	8/1/2023	COMBINED SINGLE LIMIT (Ea accident)	$	5,000,000
	OWNED AUTOS ONLY | SCHEDULED AUTOS						BODILY INJURY (Per person)	$	
	HIRED AUTOS ONLY | NON-OWNED AUTOS ONLY						BODILY INJURY (Per accident)	$	
							PROPERTY DAMAGE (Per accident)	$	
								$	
C	UMBRELLA LIAB | X | OCCUR			RTSXS-00069	2/1/2023	2/1/2024	EACH OCCURRENCE	$	10,000,000
	X EXCESS LIAB | CLAIMS-MADE						AGGREGATE	$	
	DED | RETENTION $						General Agg.	$	10,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N: N	N/A		WCUC70315294	2/1/2023	2/1/2024	X PER STATUTE | OTH-ER		
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. EACH ACCIDENT	$	1,000,000
							E.L. DISEASE - EA EMPLOYEE	$	1,000,000
							E.L. DISEASE - POLICY LIMIT	$	1,000,000
D	Cyber Security Liab.			W1A99B230801	2/1/2023	2/1/2024	Each Incident/Agg.		1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Division 30 - Hollister CA

The Local Transportation Authority, City of Hollister, The County of San Benito, The City of San Juan Bautista, and the Council of San Benito County Governments, Their Officers, Employees, Elected Officials and Members of Boards or Commissions, the State of California, its Officers, Employees, and Agents are named as an Additional Insured as respects the operations of the Named Insured with respects to General and Auto Liability coverage as required by written contract subject to policy terms, conditions and exclusions. The State of California is named a Loss Payee as pertains to the lease/rental of equipment to the Named Insured while under its care, custody and control.

SEE ATTACHED ACORD 101

CERTIFICATE HOLDER	CANCELLATION
San Benito County Local Transportation Authority 330 Tres Pinos Rd Suite C7 Hollister, CA 95023	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Ted Swanson

ACORD 25 (2016/03)

AGENCY CUSTOMER ID: MVTRANS-01 CMILLONIG

LOC #: 1

ACORD

ADDITIONAL REMARKS SCHEDULE

AGENCY		NAMED INSURED
Fairly Consulting Group, LLC		MV Transportation, Inc. and subsidiaries 2711 N Haskell, Suite 1500 Dallas, TX 75204
POLICY NUMBER		
SEE PAGE 1		
CARRIER	NAIC CODE	
SEE PAGE 1	SEE P 1	EFFECTIVE DATE: SEE PAGE 1

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: ACORD 25 FORM TITLE: Certificate of Liability Insurance

Description of Operations/Locations/Vehicles:
MV Transportation, Inc. is self-insured and Workers Compensation in the state of California. The above Work Comp policy provides coverage excess of a $1M self-insured retention.

EMPLOYMENT PRACTICES LIABILITY:
Carrier: Zurich American Insurance Company
Policy #MPL871032502
Policy Period: 9/1/2022-23
Limit: $1,000,000

SBCOG
Council of San Benito County Governments

STAFF REPORT

Action
Prepared By: Norma Rivera, Administrative Services Specialist
Subject: Fiscal Year 2023-2024 LTA Budget

Agenda Item No. 7
Approved By: Binu Abraham, Executive Director
Meeting Date: June 15, 2023

Recommendation:

a. Receive presentation on the Fiscal Year 2023-2024 Budget for the Local Transportation Authority.
b. Hold public hearing on the Fiscal Year 2023-2024 LTA Budget.
c. Adopt Resolution 23-05 adopting the Fiscal Year 2023-2024 LTA Budget.

Summary:

The Local Transportation Authority (LTA) Budget totals $2,756,119 with an additional $942,728 for the Public Transportation Modernization, Improvement, and Service Enhancement Account Program (PTMISEA). The budget is balanced.

Background/ Discussion:

The San Benito County Local Transportation Authority (LTA) administers and operates public transportation services in the San Benito County region. County Express provides local Fixed Route service, General Public Dial-a-Ride, ADA Paratransit, and commuter services. Jovenes de Antaño provides transportation for the Medical & Shopping Assistance Program and Out of County Medical Transportation.

The LTA budget for fiscal year 2023/24 totals $2,756,119. The LTA budget was prepared using the line-item format. This style is easy to use and identifies where funds are spent. The budget includes conservative revenue assumptions that are based on apportionments and distributions identified through State and Federal resources. Unless already awarded, pending grant applications and the funding associated with these are not assumed as a part of the budget. The most important component of the budget focuses on aligning spending with anticipated funding sources. The Local Transportation Authority is funded by the Transportation Development Act (TDA), Federal Transit Act, and various local grants.

The PTMISEA budget totals $942,728. The PTMISEA program is under the LTA umbrella but maintained as a separate budget pursuant to State guidelines. The PTMISEA program was created by Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. PTMISEA funds may only be used for transit capital improvements. These funds have been

programmed towards IT modernization improvements and safety improvements at our transit operations facility.

The LTA budget has been prepared using funding assumptions that match information received from the State with respect to revenue estimates. No changes have been made to the LTA budget since the draft budget was presented to the Board at the May 2023 meeting. The LTA Draft Budget meets the goals and objectives of the agency and balances expenses and revenues.

Financial Impact:

The Local Transportation Authority Budget totals $2,756,119 with an additional $942,728 for PTMISEA. The draft budget is balanced.

Attachment:

1. Resolution No. 23-05
2. Fiscal Year 2023-2024 Local Transportation Authority Budget

San Benito County LOCAL TRANSPORTATION AUTHORITY

COUNTY EXPRESS

BEFORE THE SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY

A RESOLUTION OF THE SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY ADOPTING THE 2023/2024 FISCAL YEAR ANNUAL BUDGET

Resolution 23-05

WHEREAS, the Local Transportation Authority of San Benito County published and held a public hearing regarding the Board of Director's consideration of the budget for the Local Transportation Authority of San Benito County for Fiscal Year 2023/2024; and

WHEREAS, at the public hearing, the Local Transportation Authority Board of Directors heard and received all oral and written testimony and evidence that was made, presented, or filed, and all persons present at the hearing were given ample opportunity to hear and be heard with respect to any matter related to the budget for Fiscal Year 2023/2024; and

WHEREAS, said hearing was concluded, during which time all additions and deletions to the budget for Fiscal Year 2023/2024 were made or authorized; and

WHEREAS, the 2023/2024 fiscal year budget is a balanced budget.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Local Transportation Authority of San Benito County that the Adopted Budget of the Local Transportation Authority for Fiscal Year 2023/2024, is hereby adopted by reference to the attached Adopted Budget.

PASSED AND ADOPTED BY THE SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY THIS 15TH DAY OF JUNE 2023 BY THE FOLLOWING VOTE:

AYES:
NOES:
ABSTAINING:
ABSENT:

Bea Gonzales, Chair

APPROVED AS TO LEGAL FORM:
SAN BENITO COUNTY COUNSEL'S OFFICE

Dated: June 5, 2023

By: Shirley L. Murphy
Shirley L. Murphy, Deputy County Counsel
Local Transportation Authority Legal Counsel

ATTEST:
Binu Abraham, Executive Director

Dated: _____

By: _____

San Benito County LOCAL TRANSPORTATION AUTHORITY

Adopted Budget
Fiscal Year 2023/24

330 Tres Pinos Road, Suite C7
Hollister, California 95023
(831) 637-7665
www.sanbenitocountyexpress.org

Local Transportation Authority
Adopted Budget
Fiscal Year 2023 - 2024

Published by Order of the:
Board of Directors

Bea Gonzales, Chair
County of San Benito

Scott Freels, Vice Chair
City of San Juan Bautista

Mia Casey
City of Hollister

Dolores Morales
City of Hollister

Mindy Sotelo
County of San Benito

Executive Director
Binu Abraham

Prepared and Compiled by
Norma Rivera
Administrative Services Specialist

Adopted: June 15, 2023

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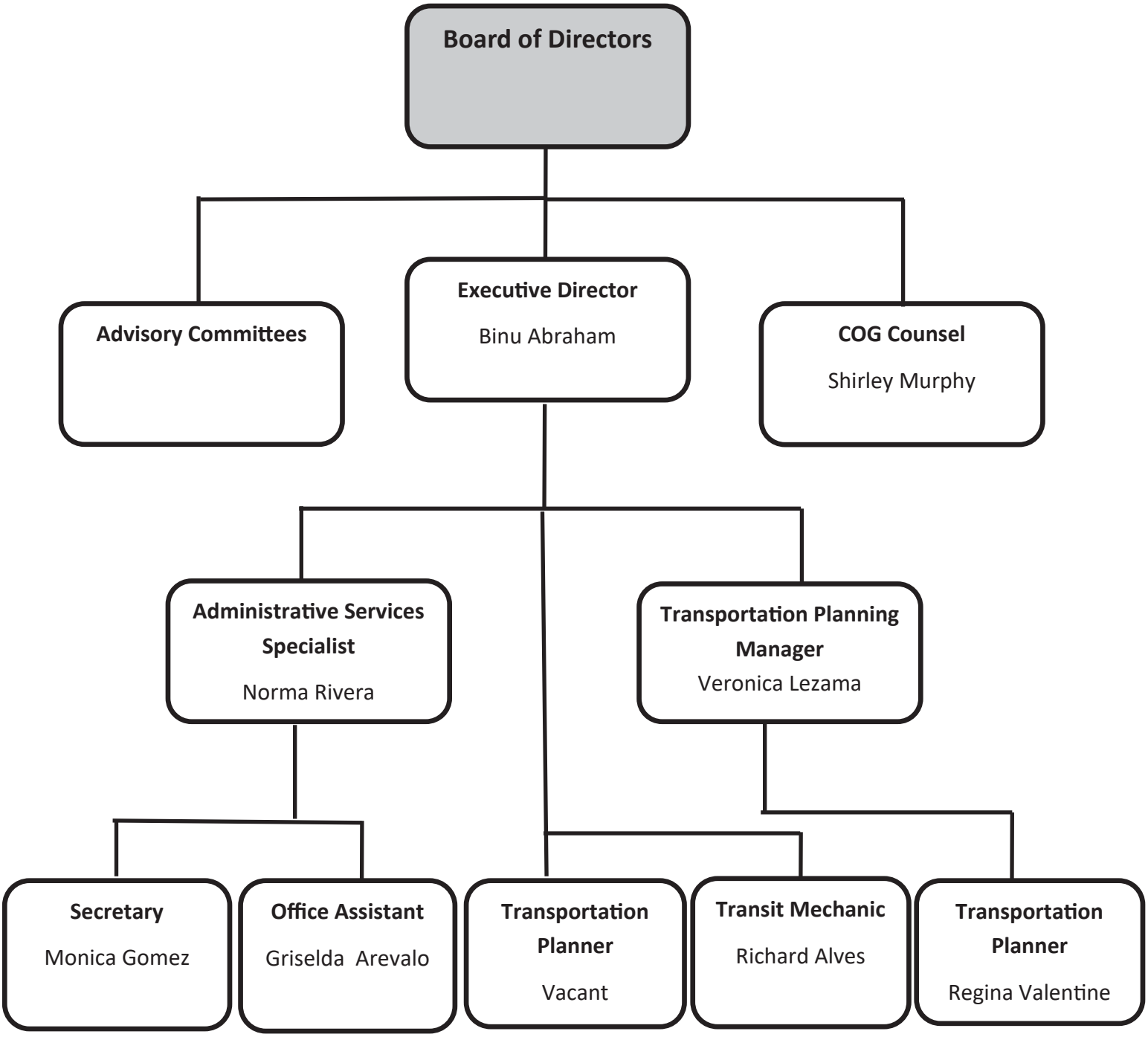
Local Transportation Authority

Organizational Chart



Executive Summary

The Local Transportation Authority (LTA) is the designated Consolidated Transportation Services Agency (CTSA) for San Benito County. The Local Transportation Authority is responsible for administration and operation of San Benito County Express, the public transportation for the County, which operates seven days a week. San Benito County Express services, operated through a contract with MV Transportation Inc., include Fixed Route, Complementary Paratransit, Dial-A-Ride, and Intercounty transit services.

Local Transportation Authority also provides three Specialized Transportation services operated through a contract with the local nonprofit, Jovenes de Antaño: Out-of-County Non-Emergency Medical Transportation and Medical-Shopping Assistance Program.

Goals and Objectives

The Local Transportation Authority goals for FY 2023/2024 are to continue serving the community through its transit operations, increased community outreach, implementation of unmet transit needs, and implementation of the Short-Range Transit Plan recommendations which will include upgrades to the vehicle fleet and system infrastructure.

Budget Detail

The Local Transportation Authority's total proposed budget for FY 2023/2024 is $2.7 million. The FY 2023/2024 Budget reflects an overall decrease in expenditures. The Personnel budget category includes a currently vacant transportation planner position which will be filled in FY 23/24. Service and Supplies includes large expenditures in vehicle maintenance and fuel cost. The Local Transportation Authority contracts for its transit operations with MV Transportation and Jovenes de Antano. Contracts also include trip planning software providers and professional services contracts for the implementation of the Short Range Transit Plan.

The Local Transportation Authority FY 2023/2024 Budget is balanced and supports the policies of the Board or Directors and the immediate needs of the community.

LOCAL TRANSPORTATION AUTHORITY
BUDGET - FY 2023/24
EXPENDITURES

EXPENDITURE DESCRIPTION		Adopted Budget FY 22/23	Estimated Actual to June 30, 2023	Proposed Budget FY 23/24	Budget Estimate for FY 24/25	Variance FY 22/23 FY 23/24
Personnel						
610.101	Salaries	344,768	322,235	**411,265**	431,828	66,497
610.101	Salaries (5304 Bus Stop IT)	-	-	**-**	-	-
	Total	**344,768**	**322,235**	**411,265**	**431,828**	**66,497**
Services and Supplies						
619.126	Magazines and Subscriptions	-	-	**-**	-	-
619.130	Clothing and Safety	1,500	1,550	**1,600**	1,600	100
619.132	Communications	1,400	1,382	**6,200**	1,400	4,800
619.138	Computer Maintenance	1,200	1,095	**1,000**	1,000	(200)
619.140	Computer Supplies	325	33	**300**	300	(25)
619.142	Computer Hardware	1,050	-	**500**	500	(550)
645.701	General Insurance	9,989	9,988	**10,745**	10,960	756
619.152	Maintenance of Equipment	55,000	39,637	**45,000**	45,000	(10,000)
619.154	Maintenance of Equipment - Oil and Gas	220,000	223,910	**225,000**	220,000	5,000
619.158	Maintenance of Structures and Grounds	922	941	**950**	950	28
619.280	Marketing	4,902	5,151	**5,200**	5,200	298
619.166	Membership Dues	715	715	**750**	750	35
619.176	Special Project Supplies - Supplies	600	67	**500**	500	(100)
619.174	Supplies	250	41	**250**	250	-
619.172	Postage and Delivery	25	-	**25**	25	-
619.210	Professional Service - Legal	5,500	2,650	**3,000**	3,000	(2,500)
619.180	Public and Legal Notices	1,000	562	**700**	700	(300)
619.184	Rent Equipment	-	-	**-**	-	-
619.186	Rent Structures	-	-	**-**	-	-
619.190	Small Tools	100	62	**100**	100	-
619.268	Special Dept. Expense - Other	202,850	9,898	**105,627**	-	(97,223)
619.268	Special Dept. Expense - Other (5311 CRRSAA)	229,609	-	**-**	-	(229,609)
619.268	Special Dept. Expense - Other (5310 CRRSAA)	32,249	-	**-**	-	(32,249)
619.196	Travel Lodging	711	-	**40,000**	-	39,289
619.198	Travel Meals	200	204	**-**	-	(200)
619.194	Training	2,000	-	**-**	-	(2,000)
619.200	Travel Transportation	200	56	**100**	100	(100)
619.306	Utilities	-	-		-	-
	Total	**772,297**	**297,942**	**447,547**	**292,335**	**(324,750)**
Contracts						
619.250	Special Dept. Expense - Contracts	29,711	16,552	**57,819**	57,819	28,108
619.250	Special Dept. Expense - MV Contract	1,500,029	1,199,612	**1,500,029**	1,530,030	-
619.250	Special Dept. Expense - JDA Contract	339,459	303,486	**339,459**	346,248	-
	Total	**1,869,199**	**1,519,649**	**1,897,307**	**1,934,097**	**28,108**
Capital						
650.301	Automobiles, Trucks, Vans	-	-	**-**	-	-
	Total	**0**	**0**	**-**	**-**	**0**
Other						
649.320	OPEB	-	-	**-**	-	-
	Total	**-**	**-**	**-**	**-**	**-**
	TOTAL PROPOSED BUDGET	**2,986,264**	**2,139,826**	**2,756,119**	**2,658,260**	**(230,145)**

LOCAL TRANSPORTATION AUTHORITY
BUDGET - FY 2023/24
REVENUES AND EXPENDITURES VS REVENUES

REVENUE DESCRIPTION		Adopted Budget FY 22/23	Estimated Actual to June 30, 2023	Proposed Budget FY 23/24	Budget Estimate for FY 24/25	Variance FY 22/23 FY 23/24
570.001	Advertisement Revenue	1,000	16,431	**9,000**	12,000	8,000
570.003	Sale of Fix Asset	-	-	**-**	-	-
551.113	FTA 5310 Out of County Medical	-	13,674	**-**	-	-
551.113	FTA 5311 Operating Assistance	457,619	457,619	**375,000**	350,000	(82,619)
551.113	FTA 5304 Sustainable Communities (SRTP)	3,398	4,923	**-**	-	(3,398)
551.113	Low Carbon Trnsit Operations (LCTOP)	157,268	157,268	**163,282**	165,000	(3,398)
556.301	FTA CARES Act	202,850	316,616	**160,158**	-	(42,692)
576.012	LTF Transfer in	1,235,528	243,879	**936,260**	1,011,964	(299,268)
576.012	STA Transfer in	601,062	837,264	**793,810**	809,686	192,748
562.803	County Express Fares/JDA Fares	65,000	88,260	**89,000**	80,000	24,000
556.301	FTA ARPA	-	-	**335,000**	335,000	335,000
556.301	FTA 5311 CRRSAA	229,609	229,609	**229,609**	229,609	-
556.301	FTA 5310 CRRSAA	32,929	90,899	**-**	-	(32,929)
	TOTAL REVENUE	**2,986,263**	**2,456,442**	**3,091,119**	**2,993,260**	**128,373**

EXPENDITURES VS REVENUES LTA	Adopted Budget FY 22/23	Estimated Actual to June 30, 2023	Proposed Budget FY 23/24	Budget Estimate for FY 24/25	Variance FY 22/23 FY 23/24
EXPENDITURES					
Personnel	344,768	322,235	**411,265**	431,828	66,497
Services & Supplies	772,297	297,942	**447,547**	292,335	(324,750)
Contracts	1,869,199	1,519,649	**1,897,307**	1,934,097	28,108
Capital	0	0	**-**	-	-
Other	-	-	**-**	-	-
TOTAL EXPENDITURES	**2,986,264**	**2,139,826**	**2,756,119**	**2,658,260**	**(230,145)**
REVENUES					
Revenues	2,385,201	1,619,178	**2,297,309**	2,183,573	(87,892)
Operating Transfers (in)	601,062	837,264	**793,810**	809,686	192,748
TOTAL REVENUE	**2,986,263**	**2,456,442**	**3,091,119**	**2,993,260**	**104,856**
TOTAL PROPOSED BUDGET	**2,986,264**	**2,139,826**	**2,756,119**	**2,658,260**	**(230,145)**

FUND BALANCE	**335,000**
DESIGNATED FUND BALANCE	**-**
UNDESIGNATED FUND BALANCE	**335,000**

LTA

BUDGET NOTES		Proposed Budget FY 23/24
Personnel		
Personnel includes staff salaries.		**411,265**
Services and Supplies		
Includes budget items to support transit operations. The largest expenses include fuel, maintenance, and the LTA's cost plan contribution to the County of San Benito.		
	Total	**447,547**
Contracts		
MV contract includes transit operations for fixed route, intercounty, and dial-a-ride. Jovenes de Antaño contract includes out of county medical transportation. Contracts also includes $51,819 for Routematch/TripSmart software and Dantec contracted support.		
	Total	**1,897,307**
Capital		
No Capital expenditures are proposed in this Budget.	**Total**	**-**
Other		
	TOTAL PROPOSED BUDGET	**2,756,119**

LOCAL TRANSPORTATION AUTHORITY - PTMISEA
BUDGET - FY 2023/24
EXPENDITURES

EXPENDITURE DESCRIPTION		Adopted Budget FY 22/23	Estimated Actual to June 30, 2023	Proposed Budget FY 23/24	Budget Estimate for FY 24/25	Variance FY 22/23 FY 23/24
Personnel						
610.101	Salaries	-	-	-	-	-
623.510	Administrative Support	-	-	-	-	-
		-	-	-	-	-
	Total	**-**	**-**	**-**	**-**	**-**
Services and Supplies						
619.126	Magazines and Subscriptions	-	-	-	-	-
619.130	Clothing and Safety	-	-	-	-	-
619.132	Communications	-	-	-	-	-
619.138	Computer Maintenance	-	-	-	-	-
619.140	Computer Supplies	-	-	-	-	-
645.701	General Insurance	-	-	-	-	-
619.152	Maintenance of Equipment	-	-	-	-	-
619.154	Maintenance of Equipment - Oil and Gas	-	-	-	-	-
619.158	Maintenance of Structures and Grounds	-	-	-	-	-
619.280	Marketing	-	-	-	-	-
619.166	Membership Dues	-	-	-	-	-
619.176	Special Project Supplies - Supplies	-	-	-	-	-
619.174	Supplies	-	-	-	-	-
619.172	Postage and Delivery	-	-	-	-	-
619.210	Professional Service - Legal	-	-	-	-	-
619.180	Public and Legal Notices	-	-	-	-	-
619.184	Rent Equipment	-	-	-	-	-
619.186	Rent Structures	-	-	-	-	-
619.190	Small Tools	-	-	-	-	-
619.268	Special Dept. Expense - Other	958,079	14,592	**942,738**	-	(15,341)
619.196	Travel Lodging	-	-	-	-	-
619.198	Travel Meals	-	-	-	-	-
619.194	Training	-	-	-	-	-
619.200	Travel Transportation	-	-	-	-	-
619.306	Utilities	-	-	-	-	-
	Total	**958,079**	**14,592**	**942,738**	**-**	**(15,341)**
Contracts						
619.250	Special Dept. Expense - Contracts	-	-	-	-	-
	Total	**-**	**-**	**-**		**-**
Capital						
650.302	Equip other than Computer	-	-	-	-	-
650.303	Computer Hardware	-	-	-	-	-
650.301	Automobiles, Trucks, Vans	-	-	-	-	-
	Total	**-**	**-**	**-**	**-**	**-**
Other						
649.320	Operating Transfers	-	-	-	-	-
	Total	**-**	**-**	**-**	**-**	**-**
	TOTAL PROPOSED BUDGET	**958,079**	**14,592**	**942,738**	**-**	**(15,341)**

LOCAL TRANSPORTATION AUTHORITY - PTMISEA, ARRA, AND OES
BUDGET - FY 2023/24
REVENUES AND EXPENDITURES VS REVENUES

REVENUE DECRIPTION		Adopted Budget FY 22/23	Estimated Actual to June 30, 2023	Proposed Budget FY 23/24	Budget Estimate for FY 24/25	Variance FY 22/23 FY 23/24
					-	-
551.401	PTMISEA (Proposition B) (carryover PY)	842,426	828,285	**828,285**	-	(14,141)
551.401	OES (Carryover-Prop 1B Grants)	-	-	**-**	-	-
	Fund Balance (carryover previous years)	114,653	113,453	**114,453**	-	(200)
541.001	Interest	1,000	1,000	**-**	-	(1,000)
		-	-	**-**	-	-
	TOTAL REVENUE	**958,079**	**942,738**	**942,738**	**-**	**(15,341)**

EXPENDITURES VS REVENUES	Adopted Budget FY 22/23	Estimated Actual to June 30, 2023	Proposed Budget FY 23/24	Budget Estimate for FY 24/25	Variance FY 22/23 FY 23/24
EXPENDITURES					
Personnel	-	-	-	-	-
Services & Supplies	958,079	14,592	**942,738**	-	(15,341)
Contracts	-	-	**-**	-	-
Capital	-	-	**-**	-	-
Other	-	-	**-**	-	-
TOTAL EXPENDITURES	**958,079**	**14,592**	**942,738**	**-**	**(15,341)**
REVENUES					
Revenues	958,079	942,738	**942,738**	-	(15,341)
TOTAL REVENUES	**958,079**	**942,738**	**942,738**	**-**	**(15,341)**
TOTAL PROPOSED BUDGET	**958,079**	**14,592**	**942,738**	**-**	**(15,341)**

FUND BALANCE	**-**
DESIGNATED FUND BALANCE	**-**
UNDESIGNATED FUND BALANCE	**-**

BUDGET NOTES	Proposed Budget FY 23/24
Personnel	
No Personnel expenditures are proposed in this Budget.	
Total	**-**
Services and Supplies	
Special projects includes transit facility improvements and operational and IT enhancements.	
Total	**942,738**
Contracts	
No Contract expenditures are proposed in this Budget.	
Total	**-**
Capital	
No Capital expenditures are proposed in this Budget.	
Total	**-**
Other	
No Other expenditures are proposed in this Budget.	
Total	**-**
TOTAL PROPOSED BUDGET	**942,738**

PTMISEA: Public Transportation Modernization, Improvement and Service Enhancement Program
ARRA: American Recovery and Reinvestment Act
OES: Office of Emergency Services

APPENDIX

PURCHASING POLICIES FOR THE LOCAL TRANSPORTATION AUTHORITY

A. DEFINITIONS

For the purpose of this article, the following words and phrases shall have the meaning respectively ascribed by this section:

1) Agency: Local Transportation Authority

2) Board of Directors: The governing body of the agency.

3) Contractual services: Any telephone, gas, water, electric light and power services; the rental of equipment and machinery; insurance; the services of attorneys, physicians, electricians, engineers, consultants or other individuals or organizations possessing a high degree of technical skill; and all other types of agreements under which the contract provides services which are required by the agency, but not furnished by its own employees. Purchase of space for legal advertising shall not be subject to the provisions of this chapter.

4) Fixed Assets: Any piece of tangible personal property having an estimated useful life of one calendar year or more, capable of being permanently identified as an individual unit of property, and belonging to one of the general classes of property considered a fixed asset in accordance with generally accepted accounting practices (i.e., equipment, machinery, vehicles, furnishings,) with an accounting value of $3,000 or more.

5) Local Business: any person or entity that regularly maintains a place of business and transacts business in, or maintains an inventory of merchandise for sale in, the County of San Benito.

6) Professional Services: An independent contractor's expert advice or professional services that involve extended analysis, personal expertise, the exercise of discretion and independent judgment in their performance, which are of an advisory nature, provide a recommended course of action, and have an end product transmitting information which is related to LTA programs. Providers are selected on the basis of qualification, subject to the negotiation of a fair and reasonable compensation. Classification as professional services may also require an advanced, specialized type of knowledge, expertise, technical skill or training customarily acquired either by a prolonged course of study or equivalent experience, such as accountants, financial advisors, auditors, grant writers, program specialists, labor consultants and negotiators, investigators, law enforcement retained certified laboratories, attorneys and other litigation-related specialist, environmental consultants, appraisers, architects, landscape architects, surveyors, engineers, design professionals, and construction project management firms.

7) Supplies and equipment: Any personal property, such as physical articles, materials or things, which property shall furnished to, or shall be used by the agency.

B. PURPPOSE OF CHAPTER

The purpose of this chapter is to adopt policies and procedures governing purchases of supplies, equipment and contractual services by the agency in accordance with section 54200 et seq. of the Government Code. This chapter is not intended to conflict with applicable provisions of state law and shall be interpreted as supplementary thereto.

C. DESIGNATION OF THE PURCHASING AGENT

The Board of Directors appoints the Executive Director or designee to serve as the Purchasing Agent for Local Transportation Authority.

D. PURCHASING AGENT – POWERS AND DUTIES

The Purchasing Agent shall have all the duties and powers prescribed by the laws of the state including the following duties:

1. Acquisition of Personal Property – To purchase equipment, materials, supplies and all other personal property and services for LTA where funding has been approved and budgeted by the Board, unless specified otherwise in the Purchasing Policy.

2. Professional Service Contracts – To engage independent contractors to perform professional services through contracts for the LTA with or without furnishing of material where the aggregate cost does not exceed $50,000. Contracts shall not be split between fiscal years to circumvent this dollar limitation.

3. Renewal/Extension of Contracts – To renew or extend contracts for professional services that are critical to ongoing LTA projects provided the financial obligation falls within his/her preview of authority.

4. Rental of Real Property – To negotiate and execute in the name of LTA, contracts to lease or rent for the LTA real property or storage space where funding has been approved by the LTA Board, with an annual rent not to exceed $50,000.

E. DESIGNATION OF ASSISTANT PURCHASING AGENTS

The Purchasing Agent has the authority to designate such assistants and limit or rescind authority. The Purchasing Agent may delegate the authority to purchase to a deputy or assistant.

F. ASSISTANT PURCHASING AGENT – POWERS AND DUTIES

The Assistant Purchasing Agent shall have all the duties and powers prescribed by laws of the state relating to LTA purchasing agents, and orders of the Board of Directors to include the following duties:

1. Acquisition of Personal Property - To purchase, equipment, materials, supplies and all other personal property and services for LTA where funding has been approved and budgeted by the Board unless specified otherwise in the LTA Purchasing Policy.

2. Professional Service Contracts – To engage independent contractors for professional services through contracts where the cost does not exceed $3,000, where funding has

been approved and budgeted. Contracts shall not be split between fiscal years to circumvent this dollar limitation.

3. Rental of Real Property – To negotiate and execute in the name of LTA, contracts to lease or rent for LTA real property or storage space, with an annual rent not to exceed $3,000, where funding has been approved and budgeted by the Board.

G. PURCHASING METHODS AND PROCEDURES

In the performance of his/her function hereunder, the Purchasing Agent or Assistant Purchasing Agent shall comply with all applicable statutes and regulations. Purchases shall be made using such methods and procedures to secure the lowest price consistent with the quality desirable for the use intended.

H. EXCEPTIONS TO THE COMPETITIVE PROCESS

Except as otherwise directed by law, or as directed by the Board of Directors, competitive process is not required for the following purchases:

1. Expert and professional services which involve extended analysis: the exercise of discretion and independent judgment in their performance; and an advanced, specialized type of knowledge, expertise, or training customarily acquired either by a prolonged course of study or equivalent experience as defined under Definitions – Professional Services.

2. Legal brief printing, stenographic services, and transcripts.

3. Books, publications, subscriptions, recordings, motion picture films, and annual book and periodical contracts.

4. Insurance.

5. Contracts for services which by law when some other office or body is specifically charged with obtaining.

6. Public utility services.

7. Ordinary travel expenses.

8. Personal property or services obtainable through master contracts or purchasing association pools identified for the use and benefit of all local agencies.

9. Where law fixes the price of property or services.

10. Training, seminars, and classes for LTA personnel.

11. Sole source procurement, defined as an award for a commodity or service which can only be purchased from one supplier, usually because of its technological, specialized, or unique character.

12. Emergency purchases necessary when unforeseen circumstances require an immediate purchase in order to avoid a hazard to life or property or serious interruption of the operation of LTA, or the necessary emergency repair of LTA equipment.

13. When the product/services are needed by LTA pending a contract award and a contractor agrees to provide such product/services at the same contract price as a previous award, until a new contract has been awarded. Such interim period contracts shall not exceed six months.

I. CONTRACTUAL PROCEDURES

All Contracts are binding legal documents that are subject to the following provisions:

1. All contracts, leases and any amendments or modifications shall be reviewed and approved as to legal form by the County Counsel's Office prior to execution of the Purchasing Agent, Assistant Purchasing Agents and/or Board of Directors.

2. Prior approval shall be obtained from County Counsel's Office before any contracts for professional services relating to outside attorney services are executed.

J. PREFERENCE FOR PRODUCTS CONTAINING RECYCLED MATERIALS

1. The Purchasing Agent shall establish and maintain procedures and specifications to ensure that LTA gives preference, in its purchasing decisions, to products containing the maximum amount of recycled materials, where the quality and fitness of such products is equal to those of products containing no recycled materials, or a lesser amount of recycled materials, and where the total cost of such products is reasonable in comparison to the total cost of those products is reasonable in comparison to the total cost of those products containing no recycled materials, or a lesser amount of recycled materials.

2. "Product containing recycled materials" means, with respect to a paper product, a "recycled paper product" as that term is defined in Section 12301© of the Public Contract Code, and means, with respect to other products, a "recycled product," as that term is defined in Section 12301(d) of the Public Contract Code.

3. To the extent that the Public Contract Code or other provisions of state law provide for purchasing preferences which are more extensive than those established herein, or for additional procedures to increase the use of recycled materials, the provisions of state law shall prevail.

K. PREFERENCE FOR LOCAL BUSINESSES

When all other factors are determined to be equal, preference shall be given to individuals or firms having a bona-fide place of business within the County of San Benito. Any responsive, responsible bid, proposal or quote for materials and supplies from a local business which is within the percent (10%) of the lowest responsive, responsible bid, proposal or quote for materials and supplies shall be considered equal to the amount of the

lowest responsive, responsible bid, proposal or quote. If the business has additional places of business located outside of the County of San Benito, the designated point of sale for all resulting purchases shall be the bona-fide place of business located within the County of San Benito.

L. UNLAWFUL PURCHASES

Failure of the Purchasing Agent or Assistant Purchasing Agent to adhere to the provisions of this policy may incur costs not meriting the definition of county charges and therefore becoming the personal responsibility of the Purchasing Agent or Assistant Purchasing Agent. Except as otherwise provided by law, no purchase of Materials, supplies, furnishings, equipment, other personal property or contractual services shall be made in excess of the amount of the appropriations allowed by the budget.

M. EMERGENCY PURCHASES WITHOUT PRIOR APPROVAL

Emergency purchases may be made by the Purchasing Agent or Assistant Purchasing Agent when a generally unexpected occurrence or unforeseen circumstances require an immediate purchase of material, supplies or equipment:

1. in order to avoid a hazard to life or property;
2. in order to avoid a serious interruption or discontinuance of essential services or operation of LTA;
3. in order to make necessary emergency repairs of LTA equipment required to provide essential services or for the operation of LTA; or
4. in order to avoid economic loss to LTA.

Emergency purchases shall be submitted to the Board of Directors for ratification at its next meeting.

N. PROTEST PROCEDURES

Any aggrieved potential provider of supplies, equipment or contractual services may file a written protest against a potential purchase by the board of directors. The protest shall be filed with the Executive Director one (1) day before the day of the meeting at which the board of directors is initially scheduled to consider the subject purchase. The exact basis for the protest and proof that the protester is a viable and responsible provider of the supplies, equipment or services sought shall be specified in writing and filed with the Executive Director who shall render a written decision in response to the protest not later that five (5) days after the day of the meeting at which the board of directors is initially scheduled to consider the subject purchase. Any protester disagreeing with the decision of the Executive Director may file an appeal not later than five (5) days after the date of the Executive Director's decision. The appeal shall state the basis of error that the Executive Director allegedly made. The board of directors shall hear the appeal at the next meeting when the appeal may be placed on the agenda.

O. ACCEPTANCE OF GRATUITIES

The acceptance of any gratuity in the form of cash, merchandise or any other thing of value by an official or employee of the agency, or by an official or employee of a public agency contracting with the agency, from a vendor or contractor, or prospective vendor or

contractor, is prohibited and shall be a cause for disciplinary action in the case of an agency employee or official, or in the case of an official or employee of the contracting public entity, cause for termination of the contract between the agency and the public entity.

Policies for Amending the Local Transportation Authority's Budget

Periodically, it may be necessary for the Executive Director to take financial steps to support administrative functions. A transfer of funds from one item to another may sometimes be needed due to inadequate budget allocations or unforeseen circumstances. Below are the policies for amending the Local Transportation Authority's Budget.

1. BUDGET TRANSFER REQUEST FORM
    a. A Budget Adjustment/Transfer Form must be completed to initiate any budget transfer. (See Attachment 1)
    b. The Budget Adjustment/Transfer Form must be signed by the Executive Director and/or the Administrative Services Specialist.
2. EXECUTIVE DIRECTOR APPROVAL OF BUDGET TRANSFERS

    Interdepartmental transfers of less than $50,000.

    Interobject transfers of less than $50,000.

    Intraobject transfers of any amount.
3. BOARD APPROVAL OF BUDGET TRANSFERS
    a. The following Budget Transfers can only be made with prior approval of the Board of Directors.

    Transfers of revenue increases.

    Interdepartmental transfers of more than $50,000.

    Interobject transfers of more than $50,000.

    Note: Intraobject is within object titles example within Services and Supplies. Interobject is between object titles example between Contracts and Personnel. The following Budget Transfers may be made with prior approval of the Executive Director.

Local Transportation Authority
BUDGET ADJUSTMENT/TRANSFER

Please Indicate Type:

Fiscal Year: _____

Department: _____

Org Key: _____

☐ **Appropriation/Est. Revenue Increase**
(Requires Board Approval)

☐ **Interdepartmental Transfer or Interobject Transfer>$50,000**
(Requires Board Approval)

☐ **Interobject Transfer<$50,000**
(Requires Executive Director and Admin Ser Spe)

☐ **Intraobject Transfer**
(Requires Executive Director)

Org Key:	Object No:	Description	Decrease/ Rev. Increase	Increase
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
Total			$ -	$ -

Comments: _____

Submitted: _____ Date

Verification of Sufficient Funds: _____ Date
Administrative Services Specialist

Approval: _____ Date
Executive Director

Approval by COG Board Date

Attested:
Clerk of the Board: _____ Vote: _____ Yes _____ No

STAFF REPORT

Action
Agenda Item No. 8
Prepared By: Regina Valentine, Transportation Planner
Approved By: Binu Abraham, Executive Director
Subject: Zero-Emission Bus Rollout Plan
Meeting Date: June 15, 2023

Recommendation:

ADOPT Resolution 23-04 Approving the San Benito County Local Transportation Authority Zero-Emission Bus Rollout Plan.

Summary:

The California Air Resources Board's (CARB) Innovative Clean Transit (ICT) regulation became effective October 1, 2019 and requires all public transit agencies to gradually transition their bus fleets to zero-emission technologies by 2040. Each agency is required to submit a Zero-Emission Bus (ZEB) Rollout Plan to CARB by June 30, 2023 that is approved by the transit agency's governing board through the adoption of a resolution.

Background/ Discussion:

The CARB ICT regulation became effective October 1, 2019 and requires all public transit agencies to gradually transition their bus fleets to zero-emission technologies by 2040. The ICT regulation applies to all transit agencies that own, operate, or lease buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds, which includes cutaways and larger. The ICT regulations require a percentage of new vehicle purchases to be ZEBs, with percentage increases gradually with time.

The ZEB purchase requirements begin in 2026 for small transit agencies. The San Benito County Local Transportation Authority (LTA) is considered a small transit agency by the ICT regulation's definition (13 CCR 2023(b)(30)) because it operates less than 100 buses. Starting in 2029, 100% of all transit agencies' new bus purchases must be ZEBs, with a goal of complete transition to ZEB by 2040.

Each agency is required to submit a ZEB Rollout Plan to CARB by June 30, 2023 that is approved by the transit agency's governing board through the adoption of a resolution. The Rollout Plan must include all the required components to be considered complete. The proposed ZEB Rollout Plan is included as Exhibit A of the resolution.

Financial Impact:

The ZEB Rollout Plan was prepared at no cost to LTA. All future capital improvements including the purchase of ZEBs would come before the Board through the regular budgeting process.

Attachment:

1. Resolution 23-04

BEFORE THE SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY

RESOLUTION OF THE SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY APPROVING THE ZERO-EMISSION BUS ROLLOUT PLAN	))))	Resolution No. 23-04

WHEREAS, California Code of Regulations Title 13, Division 3, Chapter 1, Article 4.3, Part 2023.1(d) Zero Emissions Bus Rollout Plan Requirements requires that the governing board of a small transit agenc must approve and submit to the Executive Officer of the California Air Resources Board ("CARB") by July 1, 2023 a Zero-Emission Bus Rollout Plan meeting the following requirements set forth in Part 2023.1(d)(1):

- A goal of full transition to zero-emission buses by 2040 with careful planning that avoids early retirement of conventional internal combustion engine buses;
- Identification of the types of zero-emission bus technologies the transit agency is planning to deploy, such as battery electric or fuel cell electric bus;
- A schedule for construction of facilities and infrastructure modifications or upgrades, including charging, fueling, and maintenance facilities, to deploy and maintain zero-emission buses, specifying the general location of each facility, type of infrastructure, service capacity of infrastructure, and a timeline for construction;
- A schedule for zero-emission and conventional internal combustion engine bus purchases and lease options, identifying the bus types, fuel types, and number of buses;
- A schedule for conversion of conventional internal combustion engine buses to zero-emission buses, if any, identifying number of buses, bus types, and the propulsion systems being removed and coverted to;
- A description of how the transit agency plans to deploy zero-emission buses in disadvantaged communities as listed in the latest version of CalEnviroScreen (https://oehha.ca.gov/calenviroscreen);
- A training plan and schedule for zero-emission bus operators and maintenance and repair staff; and
- Identification of potential funding sources.

WHEREAS, the San Benito County Local Transportation Authority ("LTA") has prepared a Zero-Emission Bus Rollout Plan ("Plan"), attached hereto and incorporated herein by reference as Exhibit A.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the San Benito County Local Transportation Authority hereby finds and determines that the San Benito County Local Transportation Authority has prepared a Zero-Emission Bus Rollout Plan, in compliance with California Code of Regulations Title 13, Division 3, Chapter 1, Article 4.3, Part 2023.1(d), which

includes a conceptual design and deployment strategy for vehicles and infrastructure, while providing cost estimates based on the Innovative Clean Transit regulation timeline, with a plan to begin replacing the fossil fuel fleet beginning in 2026, with the vehicles to be replaced at the end of their useful life and no early retirements planned, and with the full fleet planned to be zero-emission by 2029, as more fully described in LTA's Plan (Exhibit A).

BE IT FURTHER RESOLVED that the Board of Directors of the San Benito County Local Transportation Authority hereby approves and adopts the San Benito County Local Transportation Authority's Zero-Emission Bus Rollout Plan (Exhibit A) as set forth in full, and directs the Local Transportation Authority's Executive Director to submit it, together with a copy of this Resolution, to CARB's Executive Officer, as required by California Code of Regulations Title 13, Division 3, Chapter 1, Article 4.3, Part 2023.1(d)(2).

BE IT FURTHER RESOLVED that the Board of Directors of the San Benito County Local Transportation Authority hereby states that, insofar as the provisions of any Ordinance, Resolution, document, or previous action of the Board of Directors and/or the Local Transportation Authority's Executive Director, prior to the date of this Resolution, are inconsistent with the provisions of this Resolution or any policy adopted by this Resolution, this Resolution and the Board Policies adopted herein shall control.

PASSED AND ADOPTED BY THE SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY on this 15th day of June 2023, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Bea Gonzales, Chair

ATTEST:
Binu Abraham, Executive Director

By: _____

Date: _____

APPROVED AS TO LEGAL FORM:
San Benito County Counsel's Office

By: Shirley L. Murphy
Shirley L. Murphy, Deputy County Counsel
Local Transportation Authority's Legal Counsel
Date: June 7, 2023

Exhibit A

San Benito County Local Transportation Authority Zero-Emission Bus Rollout Plan

Prepared by:

Aditya S Kushwah
Josiah Danilo
Bryan Lee
Valerie Thorsen

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Section A: Transit Agency Information

Formed in 1990 through a Joint Powers Authority, San Benito County Local Transportation Authority (LTA) provides convenient and affordable public transportation in San Benito County. LTA administers and operates two types of transportation services in San Benito County: San Benito County Express (San Benito County's public transit system) and Specialized Transportation (door-through-door service for those too frail to use public transit). Under County Express, there are five service types: Fixed Route/Tripper (operated in Hollister on a fixed schedule), Paratransit (curb-to-curb service for those who are not able to access a bus stop in Hollister), On-Demand (operated in Hollister scheduled by using an app), Dial-a-Ride (curb-to-curb service outside of the Paratransit boundary in Hollister, as well as, in San Juan Bautista and Tres Pinos), and Intercounty (shuttle service from Hollister and San Juan Bautista to Gavilan College and the Transit Center in Gilroy in Santa Clara County). LTA's buses are ADA compliant and are equipped with passenger lifts for mobility devices to accommodate passengers with disabilities. LTA operates 23 Class 5 buses for the County Express demand response and Specialized Transportation Out of County services and Class 6 for County Express Intercountry and Tripper buses conforming to ICT regulation, which travel over 300,000 miles annually. County Express provides service within the city limit and county boundaries, shown in the figure below:

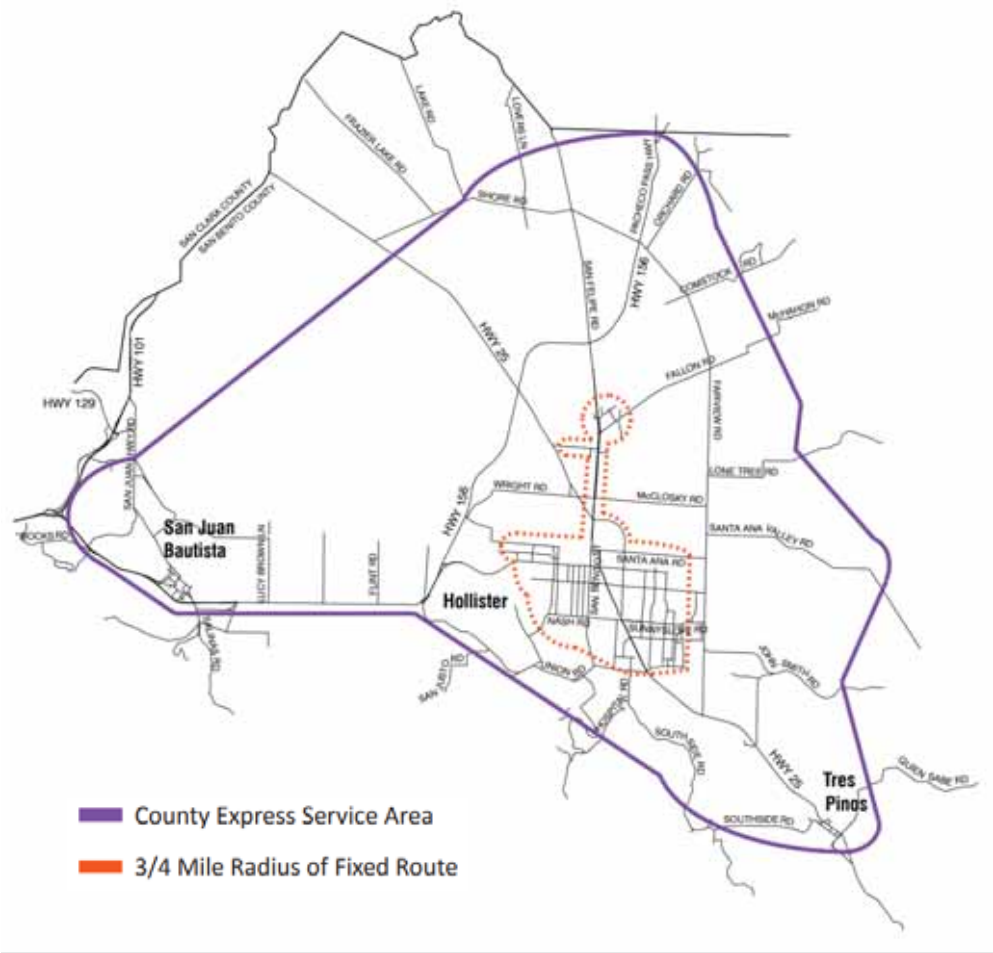

Figure 1. County Express Service Area

Table 1. Vehicle Designations

	Dial-a-Ride / Out-of-County Medical	Intercountry / Tripper	Total
Number of Buses	14	9	23

General Information

LTA is a transit agency located at 330 Tres Pinos Road, Suite C7, Hollister, CA 95023. It serves San Benito County, which is part of the Monterey Bay Air Resources District. The agency has a fleet of 23 buses for its annual maximum service. The urbanized area served by County Express has a population of 67,579. The agency's primary focus is offering reliable and efficient transit options for the community.

LTA operates within the Monterey Bay Air Resources District. The air district is responsible for regulating air quality and implementing measures to reduce pollution. By being part of the district, LTA demonstrates its commitment to environmental sustainability and minimizing the impact of its operations on air quality.

For any inquiries or information regarding LTA, Regina Valentine serves as the point of contact and can be reached by email at regina@sanbenitocog.org. As the Transportation Planner, she plays a vital role in coordinating transportation services and addressing any concerns or questions from the public.

The ICT Regulation allows multiple transit agencies to form a Joint Group. Joint Groups allow the members of the group to comply with the ICT Regulation jointly rather than individually. LTA is not currently part of such a joint group.

LTA is committed to transitioning its entire bus fleet to zero-emission in accordance with the Innovative Clean Transit (ICT) Regulation.

Section B: Rollout Plan General Information

LTA is dedicated to combatting climate change and enhancing air quality through the adoption of a zero-emission bus fleet. This effort is in line with the Innovative Clean Transit (ICT) regulation issued by the California Air Resources Board (CARB), which mandates all transit agencies in California to transition their fleets to zero-emission vehicles by 2040. To evaluate the feasibility of this transition is evaluated through analysis included in this plan. This ICTR rollout plan provides critical information to elected officials and policymakers to support informed decision-making. LTA's Rollout Plan has a goal of full transition to zero-emission technologies by 2040 that avoids early retirement of conventional transit buses.

According to the ICT mandate, all small transit agencies must submit a ZEB Rollout Plan to the Executive Officer of CARB by July 1, 2023, which should include the following items:

- A goal of full transition to ZEBs by 2040, with a well-planned approach that avoids early retirement of conventional internal combustion engine buses.
- Identification of the types of ZEB technologies for the transit agency and deployment plans based on techno-economic feasibility for each technology.
- A schedule for the construction of facilities and infrastructure modifications or upgrades, including charging, fueling, and maintenance facilities, to deploy and maintain ZEBs. The schedule should specify the general location of each facility, the type of infrastructure, the service capacity of infrastructure, and a timeline for construction.
- A schedule for zero-emission and conventional internal combustion engine bus purchases and lease options. The schedule for bus purchases should identify the bus types, fuel types, and the number of buses.
- A schedule for conversion of conventional internal combustion engine buses to ZEBs, if any. The schedule for bus conversion should identify the number of buses, bus types, and the propulsion systems being removed and converted.
- A description of how a transit agency plans to deploy ZEBs in Disadvantaged Communities (DACs) as listed in the latest version of CalEnviroScreen.
- A training plan and schedule for ZEB operators and maintenance and repair staff.
- Identification of potential funding sources.

Moreover, the ICT has established a timeline for phasing in ZEB procurements for a small transit agency, which is as follows:

- By 2026: 25% of new bus purchases must be zero-emission.
- By 2029: 100% of new bus purchases must be zero-emission.

The CALSTART project team analyzed the feasibility of replacing the ICE fleet with BEVs, including zero-emission bus technology and charging/fueling infrastructure. CALSTART is a nonprofit organization working nationally and internationally with businesses and governments to develop clean, efficient transportation solutions, and graciously provided their support to LTA leading the preparation of this document. The project team considered various factors, such as the availability of utility distribution capacity, required infrastructure upgrades, and charging stations, to assess the techno-economic feasibility of transitioning to BEVs.

Additionally, CALSTART developed a conceptual design and outlined a deployment strategy for the vehicles and infrastructure while providing cost estimates based on the ICT regulation timeline. Moreover, CALSTART analyzed the benefits and limitations of replacing the ICE fleet with BEVs and provided recommendations to help LTA make an informed decision.

LTA plans to begin replacing the fossil fuel fleet beginning in 2026. The vehicles will be replaced at the end of their useful life and no early retirements are planned. The full fleet is planned to be zero-emission by 2029.

Section C. Technology Portfolio

The section outlines an in-depth exploration of battery electric technology and its relevance to LTA. As the agency seeks to enhance its transportation services and contribute to a sustainable future, battery electric vehicles (BEVs) present a compelling solution. With their ability to reduce emissions, promote energy efficiency, and offer quieter operations, BEVs have gained significant attention in the transportation industry. This section aims to provide a comprehensive overview of BEVs, encompassing various types such as transit and shuttle buses. It will explore the advantages and challenges associated with BEVs, highlighting factors like range limitations, battery capacity, charging infrastructure, and the impact of driver behavior on performance.

Battery-Electric Bus (BEB) Overview

Battery-Electric Buses (BEBs) utilize an electrified drivetrain and batteries to store electricity. When the bus needs to move, it draws energy from the battery to power a traction motor, which generates torque to propel the bus. BEBs are equipped with a regenerative braking system that captures energy during deceleration to recharge the battery. Notably, BEBs produce no tailpipe emissions and operate quietly. The range of a BEB is constrained by the battery's energy storage capacity, which can be further impacted by factors such as passenger load, elevation changes, extreme temperatures, and driver behavior. BEBs require specific driver training and have longer recharge times compared to conventional compressed natural gas (CNG) buses.

Transit BEBs

Transit BEBs are classified by the Federal Transit Administration (FTA) as Class 7 or 8 vehicles, typically used for fixed-route service in lengths ranging from 30 to 40 feet. These battery-powered buses have undergone Altoona testing and are considered a mature technology. Several original equipment manufacturers (OEMs) produce and sell transit BEBs, including articulated 60-foot ZEB models. As of September 2022, there were 5,269 transit BEBs in the United States, of which 1,841 were in California. Transit BEBs generally have a range of up to 225 miles, which may necessitate additional vehicles compared to CNG buses with a range of about 350 miles. The range limitation of transit BEBs may be addressed as battery technology improves in the future.

Battery-Electric Shuttle Bus and Transit Vans

Battery-electric shuttle buses, classified as Class 4-6 medium-duty buses, are used for demand response service, and typically have a length of less than 30 feet and a gross vehicle weight rating (GVWR) above 14,000 pounds. These buses are customizable based on transit needs and can accommodate 19-24 passengers, including passengers with disabilities requiring wheelchair lifts. Battery-electric transit vans, smaller than shuttle buses and capable of carrying fewer than 10 passengers, have also been introduced to the market. Currently, the market for electric shuttle buses is limited, with only a few models passing Altoona testing. Battery-electric shuttle buses generally have a range of up to 150 miles.

LTAs is planning to transition to a full BEB fleet. Electric bus purchases will begin in 2026, and the full fleet will be zero-emission by 2029. Based on the LTA duty cycles, an all battery-electric bus fleet is planned, and no fuel cell vehicle purchases are part of this plan.

Charging Infrastructure Overview

Plug-in depot charging is one of the most prominent methods for BEB charging. The dispenser used in charging most electric buses consists of a plug and a hose that connects to the bus to provide energy for battery charging. The dispenser is then connected to a charging cabinet containing the power electronics and communication equipment necessary for controlling charging and communicating with the charging provider's network. Buses can be charged using Level 2 chargers, which provide AC power at up to 240 volts and can deliver up to 19.2 kW.

Figure 2. BEB Plug-in Charger Source: CALSTART[1]

On the other hand, DC Fast Chargers deliver DC power at up to 600 volts and are typically used to charge transit buses but can also be used for shuttle buses. Plug-in charging systems require concrete pads and bollards for protection and have a significant physical footprint. The charging cabinets are responsible for most of the

[1] K. S. K. J. Bryan Lee, "Pasadena Zero Emission Rollout," Calstart, Pasadena, 2022.

footprint and must be located within a few hundred feet of the dispenser. Charging cabinets can be placed in areas of the yard with more space, and most depots are designed with dispensers and charging cabinets adjacent to parked buses to minimize cost.

Section D: Current Bus Fleet Composition and Future Bus Purchases

Beginning in 2026, LTA will begin their BEB purchases in their transition to a fully zero-emission fleet. The current and planned fleet for LTA is outlined in the forthcoming sections.

Current Bus Fleet

LTA currently operates 23 class 5 and 6 vehicles subject to ICT regulation, with nine buses running on fixed routes and fourteen operating based on need as shown in Table 2 below. The fixed-route buses travel on two routes, one within the community of Hollister, and the other is an Intercounty shuttle service that connects passengers from Hollister and San Juan Bautista to Gavilan College and the Transit Center in Gilroy as shown in the map above.

Table 2. Individual Bus Information of Current Fleet

Number of Buses	Engine/Bus Model Year	Fuel Type	Bus Type	Notes
1	2007	Diesel	Class 6	
1	2010	Gasoline	Class 5	
1	2010	Gasoline	Class 2	not included in ZEB Plan
1	2013	Gasoline	Class 2	not included in ZEB Plan
1	2013	Gasoline	Class 2	not included in ZEB Plan
2	2013	Gasoline	Class 5	
1	2013	Diesel	Class 6	
4	2016	Gasoline	Class 5	
2	2016	Diesel	Class 6	
3	2018	Gasoline	Class 5	
1	2019	Gasoline	Class 2	not included in ZEB Plan
4	2020	Gasoline	Class 5	
1	2020	Diesel	Class 6	
1	2020	Gasoline	Class 5	
3	2021	Gasoline	Class 5	

County Express also operates flexible demand response routes for Dial-A-Ride, On-Demand, Paratransit and Specialized Transportation including Out-of-County Medical Transportation. These buses travel an average of 34.46 and 4.2 miles a day. as detailed in the figure below:

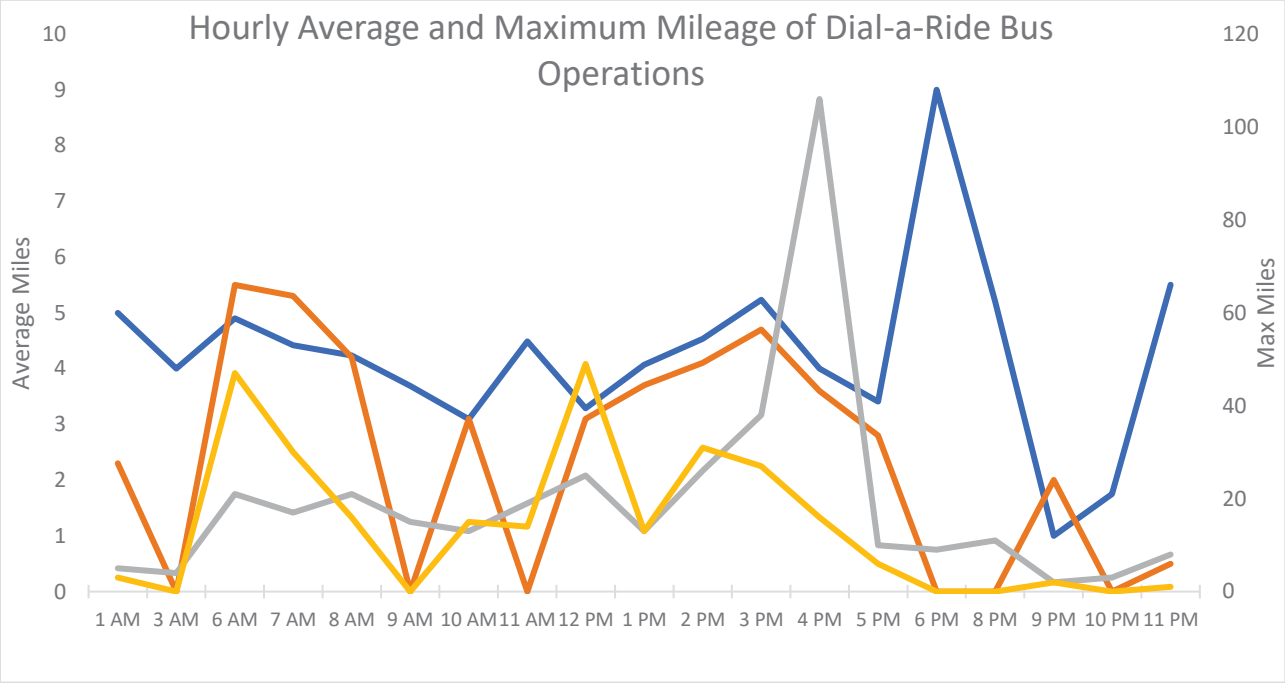

Figure 3. Hourly Average and Max Milage Covered by Flexible Route Buses

Performance Analysis

The CALSTART-developed Route Energy Model (REM) was utilized to assess the performance of Battery Electric Buses (BEB) and estimate the average daily energy consumption for both fixed-route and demand response services. The REM, a physics-based model, considers various factors such as topography, ambient temperature, HVAC usage, passenger weight, and route characteristics to estimate energy consumption per mile and per trip. For fixed routes, the analysis utilized GTFS files to extract location and topography data, which are crucial for accurate energy consumption estimation.

To estimate the energy consumption of demand response trips, six months of demand response data was analyzed to determine the average trip distance. Based on this analysis, a hypothetical 4-mile route was created to evaluate the energy consumption of buses operating on this route. The analysis revealed that fixed-route buses have an average energy consumption of 1.92 kWh/mile, while demand response buses have an average energy consumption of 1.47 kWh/mile. These energy consumption figures are

crucial in determining the total daily energy requirement to meet operational demands. The analysis was supported by various assumptions, which are outlined below. The findings presented in Table 3 offer valuable insights into bus energy demands and aid in appropriately sizing the necessary infrastructure equipment.

Assumptions for Route Energy Calculation:

- GTFS files and daily mileage data were used to estimate energy consumption.
- Battery electric Class 5 and 6 buses were considered as replacement vehicles.
- Based on the past six months of data, the average distance covered per ride is between 3 to 5 miles.
- According to the data, each bus completes approximately 13 to 14 trips per day.
- San Benito County's elevation changes were considered for energy calculations.
- To meet the daily demand, only 80% of the total battery capacity was considered as useful energy.
- A hypothetical four-mile route was created based on previous trips within the city limits to account for elevation/topography and estimate energy consumption for these buses.

A route energy model (REM) analysis was performed to determine the daily average energy consumed by the buses. Because the fixed-route buses are expected to be able to perform both the Tripper and Intercounty routes, the zero-emission vehicles that will replace them must have this versatility as well. To this end, the energy requirement is calculated with respect to both routes. The analysis returned an average of 1.92 kWh/mile for the fixed-route buses and 1.47 kWh/mile for the demand response buses. These energy consumptions are used to calculate the total daily energy requirement for buses to be able to meet expected levels of operation. These findings, listed in Table 3 below, are vital for understanding the energy demands of the buses and for appropriately sizing the required infrastructure equipment.

Table 3 Performance Analysis Summary

Route	Tripper/ Intercounty	Dial-A-Ride	Out-of-county medical and Senior Lunch
Number of Bus	9	10	4
Average Daily miles per bus (miles)	99.48	34.46	4.2
Energy Consumption (kWh/mile)	1.92	1.47	1.47
Energy required per day per bus (kWh)	191	50.7	6.2

Future Fleet Purchases

LTA is also planning to expand its fleet to develop a more flexible On-Demand service to provide additional transportation options for the public. These expansion buses are also considered in the rollout plan. Based on the current demand for fleet expansion and average mileage considerations, the Class 5 and 6 buses are being considered for this expansion. The timeline for this expansion is listed in Table 4 below.

Table 4. Future Bus Purchases

Year	Number of Buses to Purchase	Number of ZEB Purchases	Percentage of Annual ZEB Purchases	ZEB Type	ZEB Fuel Type
2026	6	6	100%	Class 6	BE
2027	4	4	100%	1 Class 6, 2 Class 5, 1 Shuttle Bus	BE
2028	3	3	100%	3 Shuttle Buses	BE
2029	10	10	100%	3 Class 5, 7 Shuttle Buses	BE

Section E. Facilities and Infrastructure Modifications

As previously mentioned, all LTA buses will be charged at the main depot located at 3240 Southside Road, Hollister, CA 95023, within the Pacific Gas & Electric (PG&E) service territory. The charging infrastructure includes two types of chargers: 19.2 kW chargers (5 in total) and 50 kW chargers (8 in total) as listed in Table 5. The specific distribution and utilization of chargers are detailed in the table below. In addition to the charging infrastructure, the main depot also incorporates other essential facilities to support the transition to electric buses. These include dedicated parking spaces for the buses during charging, proper signage to indicate charging station locations, and efficient electrical connections to ensure reliable power supply.

Table 5. Charging Infrastructure Plan

Facility Name	Address	Charger Type	Qty	Infrastructure Type(s)	Required Service Capacity	Upgrade? (Y/N)	Construction Timeline
San Benito Transit Depot	3240 Southside Road, Hollister, CA 95023.	19.2 KW	5	Bus Shelter depot Charging	171 kW	TBD	NA
		50 KW	8		360 kW	TBD	NA

These chargers are installed to accommodate the fleet of 23 buses, ensuring efficient

and effective charging capabilities for the electric buses. The selection of chargers with different power ratings was based on the charging requirements and operational needs of the fleet. The 19.2 kW chargers are suitable for slower overnight charging, allowing buses to be fully charged by the start of the next day's operations. On the other hand, the 50 kW chargers provide both slower and faster charging capabilities, enabling buses to be quickly charged during layover periods or as needed throughout the day. The distribution and installation of the chargers within the depot were carefully planned to

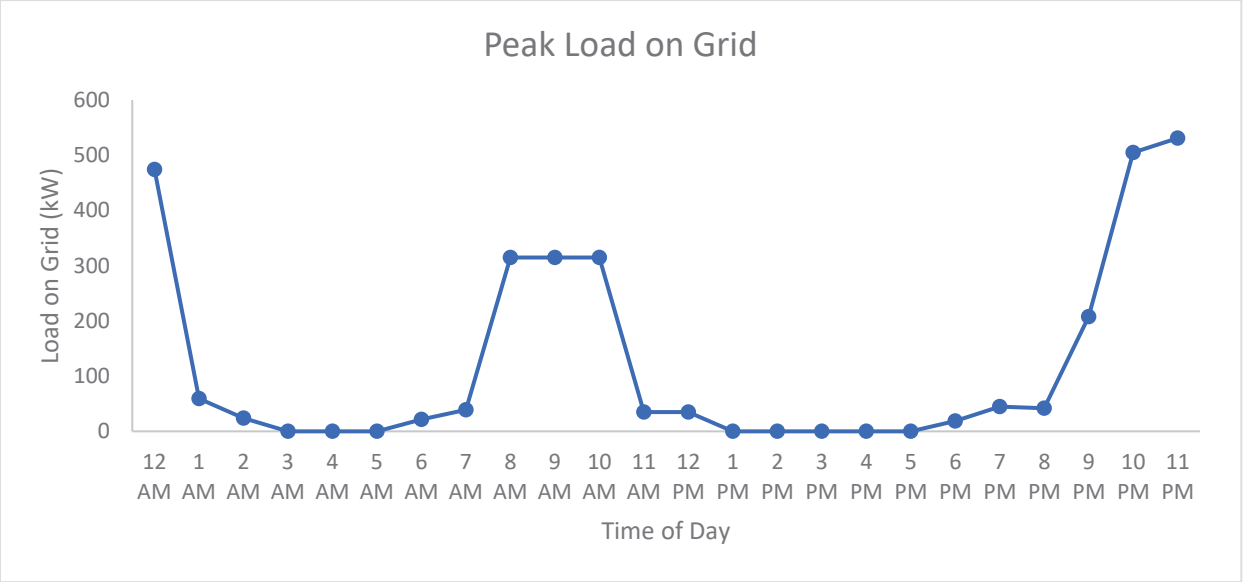

Figure 4. Peak Load by Time of Day

optimize charging efficiency and avoid any potential congestion or delays. The placement of the chargers allows for easy accessibility and maneuverability of the buses, ensuring a smooth charging process without hindering other depot activities. However, following the transition to battery electric buses (BEBs), the charging requirements for the fleet would result in a peak utility load of 531 kW, as illustrated in Figure 4 below.

While this peak load on the grid raises concerns about the potential need for utility upgrades at the facility, determining the specific modifications required has proven challenging due to time limitations and the heavy workload currently experienced by PG&E.

To address the potential need for utility upgrades, CALSTART utilized the Integration Capacity Analysis Map, which indicates that the depot has a service capacity of 1.1 MW, as depicted in the figure below. This suggests significant utility upgrades may be unnecessary, as the peak load represents only about half of the available service capacity. However, engaging in discussions with the utility company to assess the infrastructure update requirements is still advisable. Depending on the outcome of these discussions, the cost of any necessary modifications could range from negligible to 1 million dollars for LTA.

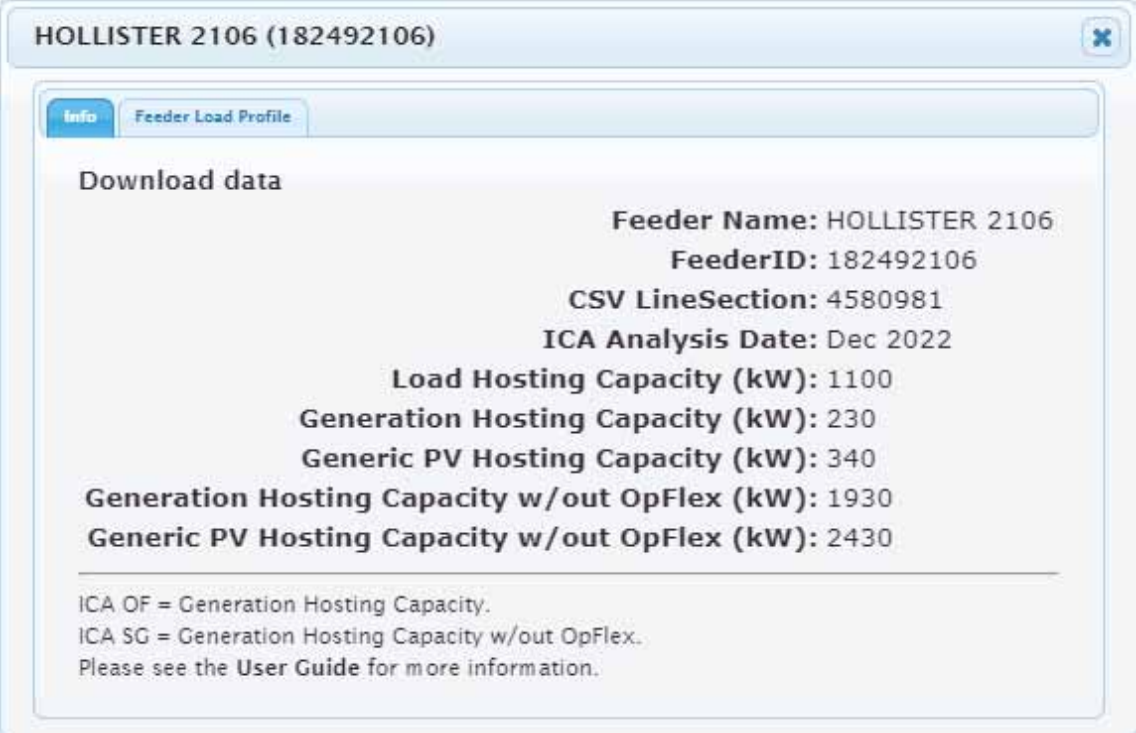

Figure 5. Service Capacity of Grid at LTA's Depot Location Source[2] (PG&E, 2023)

Section F: Estimated Costs

Transitioning to a ZEB fleet from an ICE fleet requires high upfront capital investments. However, the ZEB implementation makes up for this cost due to their low operations costs including energy/fuel charges and maintenance cost. CALSTART has calculated the capital cost associated with this transition based on the ICT rollout mandate. In addition to the initial investment, CALSTART has also calculated the levelized cost of energy (LCOE) for a 12-year period, considering the lifetime of the BEV vehicles. Unit costs for all equipment are listed in Table 6 below.

Table 6. ZEB Fleet Expenses

Capital Expenditure			Operating Expenditure		
Bus CAPEX (Incentive included)	Class 6	Class 5	Bus Maintenance ($/mi)	Class 6	Class 5
	$208,000	$130,000		$0.13	$0.12
Charger CAPEX	50kW (Single Port)	19.2KW Dual Port	Charger Maintenance	50kW (Single Port)	19.2KW Dual Port
	$21,235.00	$5,068		$424.70	$101.36

[2]https://www.pge.com/eimp/?appname=GISMapping&resume=%2Fas%2FHD7eS%2Fresume%2Fas%2Fauthorization.ping&spentity=null

Table 7 outlines the financial data for the years 2023 to 2040 related to charger and bus costs for the transit agency. It includes information on charger capital expenditure (CAPEX), charger operational expenditure (OPEX), bus CAPEX, bus maintenance, utility costs, subtotal, and levelized cost per kilowatt-hour ($/kWh).

Table 7. ZEB Financial Expense by Year and levelized cost of energy associated with the transition

Year	Charger CAPEX	Charger OPEX	Bus CAPEX	Bus Maintenance	Utility Cost	Subtotal	Levelized Cost ($/kWh)
2023				$0	$0	$0	
2024				$0	$0	$0	
2025				$0	$0	$0	
2026	$127,410	$2,548	$1,248,000	$18,803	$97,747	$1,494,509	
2027	$47,538	$3,499	$598,000	$25,499	$135,062	$809,599	
2028	$5,068	$3,600	$390,000	$189,026	$146,484	$734,179	
2029	$20,272	$4,006	$1,300,000	$199,352	$169,777	$1,693,407	
2030		$4,006		$199,352	$169,777	$373,135	
2031		$4,006		$199,352	$169,777	$373,135	
2032		$4,006		$199,352	$169,777	$373,135	$0.50
2033		$4,006		$199,352	$169,777	$373,135	
2034		$4,006		$199,352	$169,777	$373,135	
2035		$4,006		$199,352	$169,777	$373,135	
2036		$4,006		$199,352	$169,777	$373,135	
2037		$4,006		$199,352	$169,777	$373,135	
2038		$4,006		$199,352	$169,777	$373,135	
2039		$4,006		$199,352	$169,777	$373,135	
2040		$4,006		$199,352	$169,777	$373,135	
Total	$200,288	$57,717	$3,536,000	$2,625,556	$2,416,620	$8,836,181	

The total costs over the entire period amount to $200,288 for charger CAPEX, $57,717 for charger OPEX, $3,536,000 for bus CAPEX, $2,625,556 for bus maintenance, and $2,416,620 for utility costs, resulting in a cumulative expenditure of $8,836,181 as shown in Table 8. The OPEX/Operating cost included the maintenance cost of chargers, buses and the utility cost of running those buses till 2040. It is worth noting that the LCOE, based on the replacement, is determined to be $0.50/kWh. Table 8 provides an overview of the comprehensive capital and operational costs associated with the replacement vehicles. The table below displays the specific CAPEX and OPEX until 2040 considered in the cost calculations.

Table 8. Total Expenses

Type	Cost
Total CAPEX	$3,736,288
Total OPEX	$5,099,893
Total	$8,836,181

Section G: Providing Service in Disadvantaged Communities

Disadvantaged communities (DACs) are areas that are at higher risk of adverse health effects from pollution, including elevated levels of asthma, respiratory disease, and cardiovascular disease. DACs can be identified by using the CalEnviroScreen 4.0 tool, which assigns a score to each California census tract based on pollution levels and population vulnerability to pollution. This score is used to rank each census tract, where higher scores indicate more severe levels of pollution. Higher-scoring tracts also tend to have a higher proportion of at-risk population, such as children or elderly, who are more vulnerable to the health detriments caused by pollution. Census tracts that score in the top 75th percentile or higher are considered to be DACs. The regions constituting San Benito County score in the 68th percentile at the highest, and therefore there are no disadvantaged communities in its service area in San Benito County.

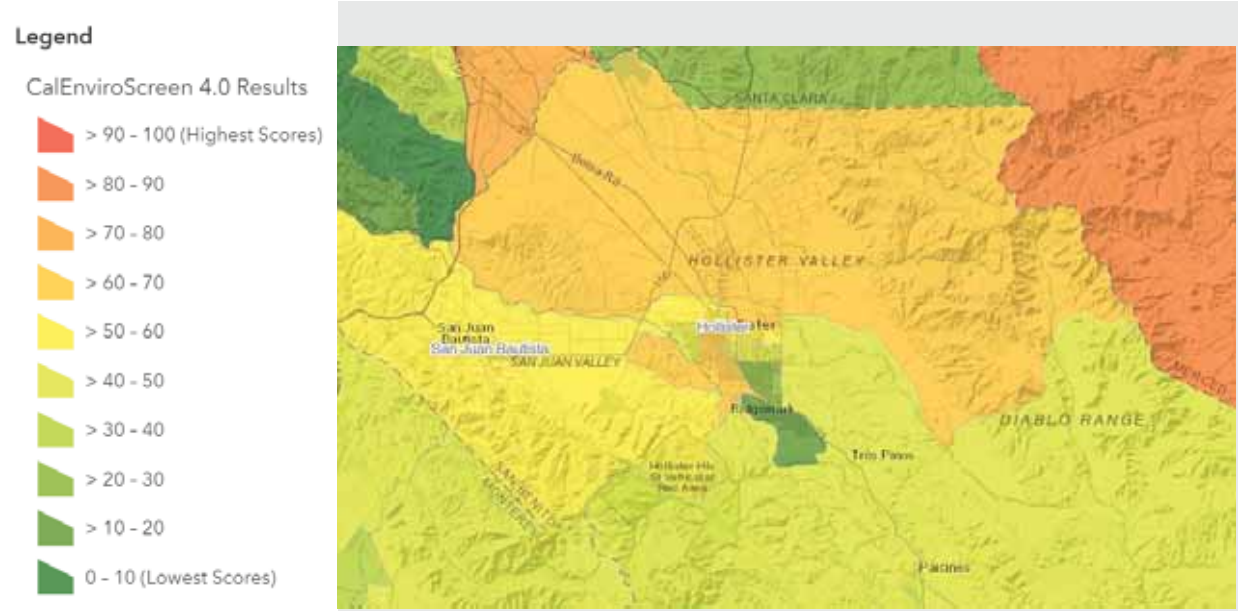

Figure 6. CalEnviroScreen Vulnerability Scores in San Benito County

Section H: Workforce Training

Operation and maintenance procedures between BEBs and traditional buses have many similarities, but BEBs have unique systems such as electric drivetrains and batteries that require specific service needs unique to the technology, necessitating specialized training. In addition, BEBs must be operated and driven differently than a traditional bus to obtain the maximum performance from the buses. Staff members currently employed by LTA will need training to effectively maintain and operate the BEBs.

As LTA transitions to BEB operation, one of the most efficient ways to develop a skilled workforce is through continued training of existing bus operators and maintenance staff. Bus operators will need specific training to drive and operate BEBs in order to optimize performance and bus range. Typically, electric buses maximize their range when accelerated slowly. Poor driver behavior, such as rapidly accelerating from a stop, can reduce bus energy efficiency by up to 25%. As a result, ensuring the bus operators drive the buses in the correct manner is vital to maximizing the benefits of BEBs. Range anxiety, where the driver fears that they do not have enough charge to complete their route, has also been widely documented. This fear has resulted in operators prematurely ending their route and returning to the depot to charge the bus. To avoid this problem, bus operators need to understand the range and capabilities of the bus. Bus operators also need to learn how to correctly use technologies such as regenerative braking.

BEBs have different maintenance needs and operation best practices than traditional buses. BEBs replace the internal combustion engine (ICE) with an electric drivetrain, which changes the maintenance needs of the bus. While maintaining a traditional bus, a maintenance technician needs to have expertise in maintaining and repairing ICEs and moving parts like belts, alternators, and pumps. In addition, expertise in mechanical systems such as steering, HVAC, and suspension is vital. However, with BEBs, the vast majority of the moving parts are replaced with electric components, such as batteries, DC-to-DC converters, and electric motors. Since there are few moving parts on a BEB, the majority of the maintenance tasks relate to preventative maintenance. As a result, the most vital skills for maintenance technicians to become proficient in are high voltage safety and proper use of personal protective equipment to minimize the risk of electrical shocks and arc flashes. Mechanics should consider obtaining the NFPA 70E: Standards for Electrical Safety in the Workplace and High Voltage OSHA 1910.269 8 Hour Qualified Training Course certificates. Maintenance technicians will also need to become proficient in bus inspection, preventative maintenance, and how to handle removed battery systems to effectively maintain the buses. Knowledge of standard bus mechanical systems is also important. Local first responders need to receive training in EV and hydrogen safety so they can effectively respond in the event of an accident.

LTA intends to upskill their current maintenance staff so they can maintain BEBs. CALSTART recommends the following training sequence for the Journeymen and Assistant Mechanics:

- High voltage Electrical Safety: The prerequisite knowledge required to begin ZEB maintenance training is a firm understanding of high voltage electrical systems and safety. During this training, maintenance staff learn how to use multimeters, how to identify high voltage components and cables, how to use personal protective equipment, and safety procedures for working with high voltage equipment. OEMs view high voltage electrical training as a prerequisite for OEM-provided maintenance training. As a result, maintenance staff need to receive high voltage safety training before they receive any instruction on bus maintenance. There are several options for obtaining this training:

- The California Transit Training Consortium (CTTC) provides high voltage safety training. The prerequisite for their high voltage safety training course is a course in using a digital volt-ohm meter. CTTC provides three levels of high voltage safety training. Awareness training is a four-hour course that is offered to any employee who is on the floor of the vehicle repair workshop. Certification training is a 16-hour course that teaches workers how to use personal protective equipment, tools, and arc flash rescue equipment and procedures. Lastly, the advanced class is offered to any technicians who will physically be working on the vehicle. This training aligns with NFPA 70E and OSHA 1910.269 certification.

- SunLine Transit's West Coast Center of Excellence has a ZEB Maintenance course that includes instruction on high voltage safety.

- OEM-provided training: Bus OEMs provide training to teach maintenance staff to repair their specific system. LTA should purchase training packages from the OEM. OEM-provided training teaches maintenance staff how to operate and maintain a zero-emission drivetrain system. The OEM-provided training begins about a week before the delivery of the buses. The OEM sends a field service representative to provide bus operator training to the drivers and maintenance staff. Since there are few moving parts on a ZEB, the majority of the maintenance tasks relate to preventative maintenance. Bus OEMs also provide training on their diagnostic tools and how their bus systems function. Maintenance staff learn how to use the diagnostic tool to identify and resolve faults.

- Warranty Period: The field service representative is also vital for training mechanics on more advanced maintenance tasks. During the warranty period, if repairs or troubleshooting beyond preventative maintenance are needed, the field service representative can be called to teach the mechanics how to fix the issue. It is important to use the warranty period to provide further training for its mechanics. If there are problems with any of the non-drivetrain components on the bus (e.g., the HVAC system), many component manufacturers offer similar services. Overtime the maintenance staff will accrue enough knowledge to work independently from the field service representative. This knowledge can be institutionalized by pairing more experienced maintenance staff with junior staff and new hires to teach them maintenance best practices.

- Supplemental Training: LTA can obtain additional training from SunLine Transit's West Coast Center of Excellence and CTTC. CTTC provides specialized training on topics like electronic brakes and electrical system diagnosis. Other organizations like the California Transit Association, American Public Transportation Association, CalACT, and the National Transit Institute also provide supplementary training.

Section I: Potential Funding Sources

California Funding Sources and Incentives

California State Budget Allocations

The California State Budget has allocated $2.7 billion for the 21-22 fiscal year and a total of $3.9 billion over the next three years. Millions of dollars of funding are specifically being earmarked for ZE transit buses and associated refueling/charging infrastructure:

- $1.3 billion over 3 years to deploy over 3,000 ZE drayage trucks, transit buses, and school buses
- $500 million for zero emission clean truck, buses, and off-road equipment
- $200 million for medium-and heavy-duty ZEV fueling and charging infrastructure
- $407 million to demonstrate and purchase or lease clean bus and rail equipment and infrastructure that increase intercity rail and intercity bus frequencies.

California Air Resources Board

Carl Moyer Program

The Carl Moyer Program provides grant funding for engines, equipment, and other sources of air pollution that exceed CARB's regulations for on-road heavy-duty vehicles. The Carl Moyer Program is managed by CARB in collaboration with local air pollution control districts and air quality management districts. ZEBs with a GVWR of greater than 14,000 pounds are eligible for funding under Carl Moyer. The air pollution control districts and air quality management districts are the entities that issue the grants and determine funding for the program.

VW Mitigation Trust

The purpose of the VW Environmental Mitigation Trust is to fully mitigate the excess NOx emissions released during the Volkswagen emission scandal. This program was established as a part of the settlement that VW reached with the EPA. The VW Mitigation Trust has allocated $423 million to the State of California to fund the deployment of clean transportation vehicles. $130 million of these funds is devoted to replacing older, high emission buses with BEBs or FCEBs. Transit, school, and shuttle buses are eligible for funding.

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)

HVIP is a CARB-funded program administered by CALSTART since 2009. The HVIP program is different than traditional grant programs in that it does not involve a grant application or a rebate. As a voucher program, HVIP provides point-of-sale vouchers through approved dealers that apply savings at time of purchase. HVIP accelerates the deployment of zero-emission and other eligible trucks and buses, including plug-in hybrids, vehicles using engines certified to the optional Low NOx standard of 0.01 g/bhp-hr as of the publication of this document, and trucks equipped with electric power take-off (ePTO) systems in California. HVIP is implemented through a partnership between CARB and CALSTART. HVIP provides vouchers on a first-come, first-served basis. In addition, HVIP provides increased incentives for fleets domiciled in disadvantaged communities.

Table 9. HVIP Voucher Funding Amounts

Vehicle Weight Class	Base Vehicle Incentive
Class 6-7	$85,000
Class 8	$120,000

Medium- and Heavy-Duty Zero-Emission Vehicle Fleet Purchasing Assistance Program

Under existing California law, CARB administers an Air Quality Improvement Program which promotes the use of zero-emissions vehicles by providing rebates for their purchase. There is a bill in the state legislature, SB-372, which would establish a Medium- and Heavy-Duty Zero-Emission Vehicle Fleet Purchasing Assistance Program, within the Air Quality Improvement Program, and make financing tools and nonfinancial support available for the operators of medium- and heavy-duty vehicle fleets to help them transition to zero-emissions vehicles. This bill has passed State Senate with broad support, by a margin of 37-2, and for that reason appears likely to pass the Assembly and be approved by the Governor. If enacted, the bill would require that the financial tools offered by this program be available to fleets by January 1, 2023.

California Energy Commission

Clean Transportation Program

The Clean Transportation Program was created to fund projects that help transition California's fuels and vehicle types to achieve California's climate policies. The Clean Transportation Program is funded from fees levied on vehicle and vessel registrations, vehicle identification plates, and smog abatement. The Clean Transportation Program was created by Assembly Bill 118 and was extended to January 1, 2024, by Assembly Bill

8. The Clean Transportation Program funds multiple classes of vehicles. Every year the CEC develops an Investment Plan Update to identify how the program's funds will be allocated. For FY 2021-22, the CEC proposed that $30.1 million in Clean Transportation Program funding and $208 million in general funds would be used to fund medium- and heavy-duty vehicle charging and hydrogen fueling infrastructure. For FY 2022-23, the CEC proposed $30.1 million of Clean Transportation Program funding for zero emission medium- and heavy-duty vehicles and infrastructure. The amount that will be allocated from general funds in FY 2022-23 has not yet been determined (California Energy Commission, 2021).

Energy Infrastructure Incentives for Zero-Emission Commercial Vehicles (EnergIIZE)

EnergIIZE Commercial Vehicles (Energy Infrastructure Incentives for Zero- Emission Commercial Vehicles) is the nation's first commercial vehicle fleet infrastructure incentive project. Funded by the California Energy Commission's Clean Transportation Program and implemented by CALSTART, EnergIIZE provides incentives for zero-emission vehicle (ZEV) infrastructure equipment for medium- and heavy-duty (MD/HD) battery electric and hydrogen fuel cell vehicles operated and domiciled in California. EnergIIZE Commercial Vehicles was created to address the needs of MD/HD zero-emission vehicles in California through financial incentives towards the purchase of infrastructure equipment and software. EnergIIZE provides funding across four (4) unique funding lanes, each catered to a specific stakeholder group (Figure 7).

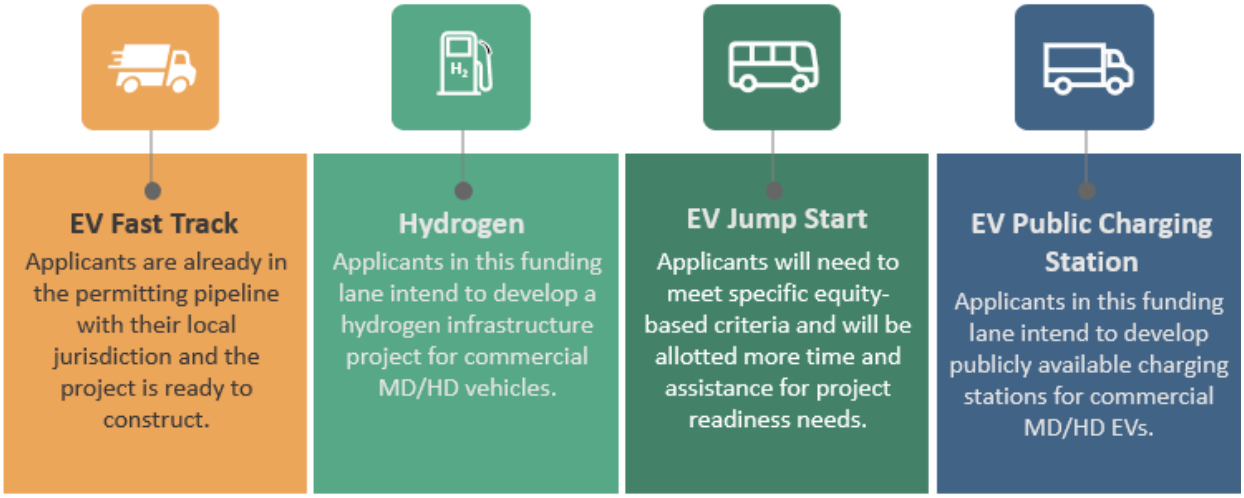

Figure 7. EnergIIZE Funding Lanes

LTA may be eligible to participate in the EV Jump Start funding lane. This funding lane is competitive (i.e., scored) and has a cap of $750 thousand per infrastructure project (compared to $500 thousand for EV Fast Track), and provides additional time for documents to be submitted by applicants.

California Infrastructure and Economic Development Bank (IBank)

The IBank was created in 1994 to fund infrastructure and economic development projects in California. The IBank was started by the Bergeson-Peace Infrastructure and Economic Development Bank Act and is operated by GO-Biz. IBank can issue low-interest bonds that can be used to finance projects for public agencies or nonprofits. The IBank has programs that can be used to finance the transition to a zero-emission fleet. The Infrastructure State Revolving Fund (ISRF) program provides low-Interest financing for infrastructure projects. ISRF provides loans of $50,000 to $25 million over a term of up to 30 years at a fixed interest rate. These loans are funded through the sale of Infrastructure State Revolving Fund Revenue Bonds. Public transit projects, which includes but is not limited to, vehicles and maintenance and storage yards, are eligible for funding through ISRF. ISRF applicants must be a public agency, joint power authority, or nonprofit corporation formed by an eligible entity. ISRF accepts applications on an ongoing basis (California Infrastructure and Economic Development Bank, 2016).

The IBank also offers the California Lending for Energy and Environmental Needs (CLEEN) program. CLEEN provides loans from $500,000 to $30 million over a team of up to 30 years. These loans can be used to fund projects that use a commercially proven technology to reduce greenhouse gas emissions or pursue other environmental objectives. Eligible projects include energy storage, renewable energy generation assets, stationary fuel cells, electric vehicles, alternative fuel vehicles, and alternative fuel vehicles refueling stations (California Infrastructure and Economic Development Bank, n.d.).

Caltrans

Transit and Intercity Rail Capital Program (TIRCP)

TIRCP provides grants to fund capital improvements that will modernize California's rail, bus, and ferry public transit facilities. The objective of the program is to reduce GHG emissions, expand transit service, increase transit ridership, and improve transit safety. Funded projects are expected to reduce GHG emissions, vehicle miles traveled, and congestion. TIRCP is funded through the Greenhouse Gas Reduction Fund (GGRF) and the Cap-and-Trade program. TIRCP funds can be used to finance site upgrades and the deployment of zero-emission infrastructure at bus depots and facilities.

Federal Funding Sources and Incentives

USDOT/Caltrans – Bus & Bus Facilities (5339)

The Bus & Bus Facilities program is managed by the FTA. This program provides capital funding to replace, rehabilitate, and purchase transit vehicles and construct bus-related facilities. The FTA allocates funding to states to administer these grants. In California, Caltrans has been delegated the responsibility of managing these grants. Public

agencies and nonprofit organizations that are involved in public transit may apply for these grants.

USDOT Congestion Mitigation and Air Quality (CMAQ) Improvement Plan

CMAQ provides funds directly to states. These funds may be used to finance projects that reduce traffic congestion and improve air quality. The main objective of this program is to reduce CO, ozone, and PM emissions. This program is primarily intended to fund projects in areas that do not meet national air quality standards. The Infrastructure Investment and Jobs Act (IIJA) provides $13.2 billion of funding over five years. Under IIJA, there are new project types that are eligible for funding under CMAQ. The purchase of medium- or heavy-duty zero emission vehicles and supporting infrastructure is eligible for funding under CMAQ. Shared micromobility projects are also eligible for funding. CMAQ funds can also be used to provide operating assistance for public transportation projects.

Investment Tax Credit (ITC) - IRS

Internal Revenue Code Section 48 provides a tax credit for investments in certain types of energy projects. Section 48 provides tax credits for a wide range of renewable energy investments. Renewable energy technologies such as solar PV, fuel cells, small wind microturbines, and combined heat and power are eligible for tax credits. Solar PV projects are eligible for a tax credit equal to 10 percent of the cost of system for projects that begin construction in 2022 or after. Only the owner of the system can claim the ITC. Small wind power (100 kW of capacity or less) is eligible for the same tax credits as solar. Fuel cells are eligible for the ITC and are limited to $1500 per 0.5 kW in capacity. Lastly, combined heat and power equipment qualifies for an ITC of 10 percent (Congressional Research Service, 2018).

It is important to note that the ITC for some technologies will phase out over time. The solar ITC is permanent and will remain at 10 percent beyond 2022. However, the ITC for wind, fuel cells, and CHP has been approved until 2024. It is unclear whether the ITC for these technologies will be enacted beyond this date. Since transit agencies are tax-exempt entities, they would not be able to directly take advantage of these tax credits. However, if a separate entity, such as an IAAS company, owned and operated the energy assets, they would be able to benefit from these tax credits and pass these benefits on to AVTO.

Low or No Emissions Program (Low-No) – USDOT/FTA

Low-No provides funding to state and local governmental authorities for the purchase or lease of zero-emission and low-emission transit buses. Low-No funding can also be used to acquire charging or fueling infrastructure for the buses, pay for construction costs, or obtain or lease facilities to house a fleet. In FY2021, $182 million was allocated for the Low-

No program. However, the enactment of IIJA will expand funding for the Low-No program. IIJA allocates an additional $5.25 billion for the Low-No program over five years. To be eligible for this funding, a transit agency will need to submit a plan for transitioning to zero emission buses. This plan must demonstrate a long-term fleet management plan that addresses how the transit agency will meet the costs of transitioning to zero emission, the facilities and infrastructure that will be needed to be deployed to serve a zero-emission fleet, the transit agency's relationship with their utility or fuel provider, and the impact that the transition will have on the transit agency's current workforce. Under IIJA, transit agencies may apply for Low-No funding with other entities, such as an OEM, which will participate in the implementation of the project. IIJA also requires that 5% of grant funds awarded be used to fund workforce training to prepare their current workforce to maintain and operate the buses.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants – USDOT

The RAISE grant is the latest iteration of the BUILD and TIGER grant program. This program is intended to invest in road, rail, transit, and port projects. The objective of this program is to fund projects that are difficult to support through traditional USDOT programs. Public entities, such as municipalities, are eligible to apply for this program. RAISE is a competitive grant program.

Prospective Financing Mechanisms

IBank Climate Catalyst Fund

The state's IBank is poised to create a new low-interest loan program for public fleets. The Climate Catalyst Fund was created in June 2020 and received its first funds in September 2021. The objective of this fund is to provide a financing mechanism to support the State of California's climate and sustainability infrastructure. The Climate Catalyst Fund's goal is to provide low-interest loans for projects that support the state's climate objectives. The IBank is in the process of developing the criteria that will be used to award projects. The Climate Catalyst Fund will initially prioritize projects that advance forest biomass management. However, the Climate Catalyst Fund's scope is expected to increase over time. From discussions with the Governor's Office of Business Development as well as the Director of the IBank, Scott Wu, CALSTART understands that the Fund's scope will eventually encompass zero emission fleets. These low interest loans could be used to fund vehicle purchases, as well as charging infrastructure projects.

Southern California Edison (SCE)

Zero Emissions Truck, Bus, and Infrastructure Finance Program

SCE has filed with the California Public Utilities Commission to establish a Zero Emissions Truck, Bus, and Infrastructure Finance Program, by funding zero-emissions trucks, buses, and associated infrastructure with $20 million.

Low Carbon Fuel Standard (LCFS)

The California Air Resources Board approved the Low Carbon Fuel Standard in 2009 to reduce the carbon intensity of California's transportation pool fuel by incentivizing the use of alternative/renewable fuels. The program establishes an annual carbon intensity score for each fuel that reflects the emissions from each fuel's life cycle assessment. Low carbon fuels below the annual CI benchmark can generate credits. As a zero-emission fuel, the power associated with charging electric vehicles and equipment generates LCFS credits.

Section J: Startup and Scale-Up Challenges

The transition to zero-emission buses (ZEB) will require substantial funding, which presents a significant challenge for LTA. While the benefits of transitioning to ZEBs are straightforward, such as improved air quality and reduced GHG emissions, the increased capital associated with purchasing and operating these buses must be addressed. Therefore, LTA will need to find creative ways to secure the necessary funding to complete the transition to ZEBs.

LTA will need to rely on financial support from various sources, including federal, state, and local governments, to make the transition to ZEBs a reality. This will require coordination and collaboration with government agencies and other stakeholders. It will be essential to develop a comprehensive funding strategy that leverages all available funding sources, including grants, and ensures that the transition to ZEBs is financially sustainable and beneficial for the community.
LTA recognizes that securing funding for the ZEB transition is crucial to the long-term sustainability of the transit system.

Summary

The San Benito County Local Transportation Authority operates two types of transportation services in San Benito County: San Benito County Express, San Benito County's public transit system and Specialized Transportation. For the purpose of the analysis completed for this document, there are two service models of fixed-route and demand response services.. In consideration of replacing LTA's existing fleet with Battery Electric Buses (BEBs), CALSTART conducted a techno-economic analysis aimed to determine the most suitable battery electric technology for LTA's operations and estimated the overall cost associated with the transition.

To assess the required infrastructure for the transition, CALSTART utilized internally developed tools such as the Route Energy Model (REM) and Total Cost of Ownership (TCO) calculations. Based on the REM results, the fuel economy of the buses was estimated to be around 1.47 kWh/mi for demand response services, and 1.92 kWh/mi for fixed-route services. These estimates considered the county's topography and climate conditions, as well as trip patterns observed over the last six months. On average, each bus requires a certain amount of energy per day to complete their trips.

Regarding the charging infrastructure, two types of chargers were considered: 19.2 kW (5 chargers) and 50 kW (8 chargers) to accommodate the fleet of 23 buses. Additionally, after the transition, the peak utility load for the facility is estimated to be 531 kW.

To accommodate the increased load, it is anticipated that the location may require infrastructure modifications. However, due to time limitations and the heavy workload on PG&E, it is currently challenging to determine the exact type of modifications needed. In this rollout plan, it is recommended that LTA engage in detailed discussions with the utility company to assess the requirements for infrastructure upgrades. The cost of these upgrades could range from no cost to potentially up to $1 million for LTA, depending on the current power availability at the depot.

As San Benito County falls within the PG&E territory, the BEV-2-P electric utility rate structure was utilized to calculate the running costs. This rate structure is specifically designed for commercial EV charging, and the details can be found in the table below.

Table 10. LTA's Utility Costs

Rate Schedule	Subscription Charge ($ per kW)	Overage Fee ($ per kW)	Time-of-Use Period	Total Energy Charges ($ per kWh)
BEV-2-P	$1.24	$3.44	Peak	$0.38
			Off-Peak	$0.19
			Super Off-Peak	$0.17

The total cost of transitioning to BEBs is estimated to be approximately $8.8 million. This cost includes a capital investment of $3.7 million that included the incentives like HVIP were included in the total cost of ownership analysis and an operating cost of $5.1 million. The operating cost encompasses expenses such as bus maintenance, Electric Vehicle Supply Equipment (EVSE) infrastructure, and the running cost of the buses, as outlined in the table below. With this transition, the levelized cost of energy (LCOE) is projected to be 50 cents per kilowatt-hour (kWh).

Table 11. Transition Plan Summary

Type	Vehicles	Charger Type & Qty		Utility Upgrade	Daily used kWh	CAPEX*	OPEX*	Total*
Replacement	23 buses	19.2	5	TBD	531	$3,736,288	$5,099,893	$8,836,181
		50	8					

*Subject to change based on potential utility upgrade cost.
*Operating/ Running cost is calculated until 2040.

LTA can successfully transition their conventional bus fleet to BEBs, accommodate future growth, and effectively manage their charging requirements by considering the drivers for ZE operations and the selection of appropriate charging infrastructure. This will contribute to the region's sustainable transportation goals while optimizing operational and economic efficiency.

Appendix A. Bus Vehicle Options

GreenPower

Green Power EV Star

METRIC	SPECIFICATION
Passenger Capacity	19 FF / 21 Perimeter
Lift Capable	Yes
Battery Size	118 kWh
Length	25 ft

Green Power EV Star+

METRIC	SPECIFICATION
Passenger Capacity	24 passengers
Lift Capable	Yes
Battery Size	118 kWh
Length	25 ft

GreenPower – EV Star+ is a cutaway bus with a broader body to utilize the interior space. It is designed for paratransit fleet operations—a larger seating capacity and wheelchair position options are available. The bus is ideal for hospitals, carpooling services, airport shuttles, and campus transportation.

Lightning eMotors

Lightning ZEV3

METRIC	SPECIFICATION
Passenger Capacity	15 passengers
Lift Capable	Yes
Battery Size	80 kWh/120 kWh
Length	18 ft

Lightning ZEV4

METRIC	SPECIFICATION
Passenger Capacity	18 passengers
Lift Capable	Yes
Battery Size	120 kWh
Length	18 ft

Phoenix Motorcars

ZEUS 400 Shuttle Bus

METRIC	SPECIFICATION
Passenger Capacity	Up to 23 passengers forward seating, 12/2, 14/2, 16/2 ADA
Lift Capable	Yes
Battery Size	140 kWh
Length	22 ft

Class 5 and 6

METRIC	SPECIFICATION
Passenger Capacity	Up to 24 passengers forward seating, 12/2, 14/2, 16/2 ADA
Lift Capable	Yes
Battery Size	160 kWh
Length	22 ft

Appendix B. Cost Detail Assumptions

	Type	Details	Cost
CAPEX (One-Time Cost)	Electric Bus Cost	Class 5	$130,000
		Class 6	$208,000
	Depot Charger Cost	50kW Single Port	$21,235
		19.2kW Dual Port	$5,068
OPEX (Recurring Cost)	Bus Maintenance Cost	Class 5	$0.12/mi
		Class 6	$0.13/mi
	Charger Maintenance Cost	50kW Single Port	$424.70
		19.2kW Dual Port	$101.36

STAFF REPORT

Action
Prepared By: Regina Valentine, Transportation Planner
Subject: Invitation for Bids for Transit Maintenance and Operations Building Tenant Improvement Project

Agenda Item No. 9
Approved By: Binu Abraham, Executive Director

Meeting Date: June 15, 2023

Recommendation:

ADOPT Project Plans and Specifications, and RELEASE Invitation for Bids to Construct the Project: Transit Maintenance and Operations Building Tenant Improvement Project.

Summary:

The San Benito County Local Transportation Authority (LTA) is issuing an Invitation for Bids to enter into contract with a qualified construction firm for building improvements at LTA's Maintenance and Operations facility located at 3240 Southside Road, Hollister CA 95023.

Background/ Discussion:

Built in 1997, LTA's Maintenance and Operations facility is located at 3240 Southside Road in Hollister, CA. Due to the age of the facility, building improvements are needed, which include new windows, flooring and lighting, expansion of the dispatch area floor space to be consistent with the latest State building code requirements, inspection and repairs to the fire suppression system, and pavement upgrades to reduce the pooling of stormwater runoff near the building entrance.

Staff has been working with architectural and construction management consultants to prepare the project plans and Invitation for Bids, which is included as Attachment 1. Staff will review all bids for responsiveness after the July 20, 2023 deadline and enter into negotiations with the lowest responsive, responsible bidder. Staff will bring a contract to the Board for consideration at its August 2023 meeting.

Financial Impact:

This project has been included in the FY 2023-24 budget and will be funded using State Public Transportation Modernization Improvement Service Enhancements Account (PTMISEA) funds.

Attachment:

1. Invitation for Bids: Transit Maintenance and Operations Tenant Improvement Project

PROJECT MANUAL

FOR

SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY TRANSIT MAINTENANCE & OPERATIONS BUILDING TENANT IMPROVEMENTS (TI) PROJECT

3240 Southside Rd.
Hollister, California, 95023

Invitation for Bid Package

Issued Date: June 16, 2023
Bids Due Date: July 20, 2023

San Benito County Local Transportation Authority

330 Tres Pinos Rd., Suite C7
Hollister, California 95023
T 831-637-7665
F 831-636-4176

June 16, 2023

SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY

NOTICE TO CONTRACTORS

SBCLTA Transit Maintenance & Operations Building Tenant Improvements (TI) Project

Sealed bids shall be delivered to the San Benito County Local Transportation Authority, 330 Tres Pinos Rd, Suite C7, Hollister, California, 95023, no later than **2:00 P.M. on Thursday, July 20, 2023.** Bids will be opened and will be publicly read in the **SBCLTA Conference Room, 330 Tres Pinos Rd, Suite C7, Hollister, California, 95023 at 2:00 P.M.** or thereafter. This project is for licensed contractors with a Type B license. The Contractor shall complete all or any designated portions of the work called for under the contract in all parts and requirements within 135 calendar days (except as modified in the technical specifications). The San Benito County Local Transportation Authority and its Board of Directors reserves the right to reject any or all bids received as the public good may require.

There will be two mandatory pre-bid meetings, only **one** of which needs to be attended by prospective bidders. The meeting(s) will take place at 3240 Southside Rd., Hollister CA. The first meeting will take place on **June 22, 2023 at 1pm** and the second will take place on **June 29, 2023 at 1pm.**

Each contractor shall include in their bid all labor, tools, and materials for a complete and working project for each trade component in conformance with the intent shown on the plans and specifications and specified herein.

Plans, Specifications and Proposal forms to be used for bidding on this project can only be obtained by requesting them via email at bidding@felice-consulting.com. If you have any questions, please call Felice Consulting at 831-856-7000.

Prospective bidders must be fully qualified, licensed, certified, and insured to perform the work requested. All work performed must meet all current applicable laws and regulations.

Each bidder must submit a bid proposal for the project for which they intend to bid to the San Benito County Local Transportation Authority on the standard forms enclosed. Said bid shall be accompanied by a cashier's check, a certified check or bidder's bond of ten percent (10%) of the amount of the bid submitted, to be made payable to the San Benito County Local Transportation Authority. Bid bonds shall be issued by a corporate surety duly admitted and authorized to issue bonds and undertakings by the State of California.

Pursuant to Section 1700, and following, of the California Labor Code, the Contractor shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Copies of such prevailing rate of per diem wages are available at the following web site: http://www.dir.ca.gov/DLSR/statistics_research.html#PWD. Those copies shall be made available to any interested party upon request. The Contractor shall forfeit, as penalty, to the San Benito County Local Transportation Authority, fifty dollars ($50.00) for each calendar day or portion thereof, for each workman paid less than the stipulated prevailing rates for any work done under the contract by it or by any subcontractor under it, in violation of the provisions of such Labor Code.

San Benito County Local Transportation Authority will be the sole judge as to the technical acceptability of any bids and any award will be as determined most advantageous to the San Benito County Local Transportation Authority considering such factors as completeness and responsiveness to the Invitation for Bids, experience, references, and anticipated costs. The San Benito County Local Transportation Authority reserves the right to reject any or all bids or parts thereof and to waive any informality or irregularity in any bid.

Insurance requirements for the project shall be the amounts set forth in the General Conditions, Section 19, unless expressly modified below:

Commercial General Liability Insurance	$ _____
All Risk Property Coverage or Builders Risk Insurance	$ _____
Business Automobile Liability Insurance	$ _____

PROJECT DIRECTORY

PROJECT NAME:	SBCLTA Transit Maintenance & Operation Building TI Project
OWNER:	San Benito County Local Transportation Authority 330 Tres Pinos Rd., Suite C7 Hollister, CA 95023
PROJECT MANAGER:	Damon Felice, Project Manager

INSTRUCTIONS TO BIDDERS

1) All portions of the Bid Proposal must be completed before the bid is submitted. Failure to do so may result in the bid being rejected as nonresponsive. Attached to and submitted with this Bid Proposal, Bidder must provide the following documents, completed and signed by the Bidder: (1) the Bidders Bond; (2) Names and Titles Form; (3) Noncollusion Affidavit; (4) Statement of Compliance; (5) Designation of Subcontractors; (6) Bidder's Qualifications; (7) Guaranty; (8) Contractor's Certificate as to Worker's Compensation; and,(9) Affidavit Concerning Employment of Undocumented Aliens. Failure to submit all required documents may result in the bid being rejected as nonresponsive.

2) An original of the Bid Proposal shall be filled in and submitted as the bid.

3) San Benito County Local Transportation Authority has obtained report(s) that may contain facts that may materially effect bidders' bids. San Benito County Local Transportation Authority has constructed other public works projects throughout the County of San Benito, and obtained reports and other information in the course of the design and construction of those other public works construction projects, all of which may contain facts that may materially effect bidders' bids. Bidders are strongly encouraged to inspect applicable San Benito County Local Transportation Authority reports, records and documents. Said reports and documents will be made available upon written request at the San Benito County Local Transportation Authority, 330 Tres Pinos Rd., Suite C7, Hollister, California, 95023 for inspection and copying at bidders' sole cost and expense, during normal working hours.

4) If a pre-bid conference has been scheduled at the site of the work, all bidders, subcontractors, material suppliers, and others who may be working on the work of improvement are strongly encouraged to attend this pre-bid conference. Due to the facts and circumstances of this particular project, the on-site pre-bid conference may be the only opportunity to conduct the pre-bid investigation of the site and satisfy the pre-bid obligations set forth in these Contract Documents. If a bidder (or others) attend the entirety of a scheduled pre-bid on-site conference and need additional time to complete their investigation of the site or other pre-bid obligations set forth in these Contract Documents, bidder must notify San Benito County Local Transportation Authority in writing, via certified or registered mail, within three days of the on-site pre-bid conference, to request additional time to complete its investigation of the site. The written request must include an estimate of the amount of additional time required by bidder at the site. San Benito County Local Transportation Authority retains discretion to determine additional time requirements, if any.

5) Investigations of subsurface conditions or otherwise, are made for the purpose of design, and the San Benito County Local Transportation Authority assumes no responsibility whatsoever with respect to the sufficiency or accuracy of borings, the log of test borings, or other preliminary investigations, or of the interpretation thereof, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unanticipated conditions may not occur. When a log of test borings or other report is made available to Contractor or included in the Contract Documents, it is expressly understood and agreed that said log of test borings or other reports does not constitute a part of the Contract, and represents only an opinion of the San Benito County Local Transportation Authority as to the character of the materials to be encountered, and is made available or included in the Contract Documents only for the convenience of the bidders. Bidders must satisfy themselves, through their own investigation, as to conditions to be encountered.

6) In addition to other minimum qualifications, the San Benito County Local Transportation Authority has determined that the successful low bidder must demonstrate to the satisfaction of the San Benito County Local Transportation Authority, the following minimum experience to be qualified to perform the work described in the Contract Documents:

a. Have possessed a valid, active and in good standing, State of California Department of Consumer Affairs, Contractor's License Board license, appropriate for the trade being bid, for a minimum of five (5) continuous years prior to the date of bid opening.
b. Not have any pending disciplinary proceedings or investigations by the Contractor's State License Board.
c. Currently (as of the date of bid opening) or within the past year, not have any suspensions, disbarments, or similar proceedings (including stipulated agreements), restricting, limiting or prohibiting Bidder from bidding or performing other public works projects for any other public agency.

7) Following the opening of bids, the San Benito County Local Transportation Authority may request in writing that the apparent low bidder complete a Contractor Qualifications Questionnaire and furnish all required supporting documentation to enable the San Benito County Local Transportation Authority to determine whether the apparent low bidder is qualified to perform the work described in the Contract Documents. By submission of a bid, Bidder agrees to complete the Contractor Qualifications Questionnaire, furnish all required attachments, sign the Contractor Qualifications Questionnaire, all in strict conformance with the requirements of the Contract Documents and Contractor Qualifications Questionnaire, and return to the San Benito County Local Transportation Authority within ten (10) days of San Benito County Local Transportation Authority's written request. If bidder fails or refuses to complete the Contractor Qualifications Questionnaire, furnish all required attachments, sign the Contractor Qualifications Questionnaire, or return it to the San Benito County Local Transportation Authority within ten (10) days of date of dispatch of San Benito County Local Transportation Authority's written request, bidder may not be considered for award of the contract, and further, bidder agrees that the San Benito County Local Transportation Authority may either award the work to another bidder or call for new bids. In such event, the bidder shall be liable to the San Benito County Local Transportation Authority for the difference between the amount of the disqualified bid and the larger amount for which the San Benito County Local Transportation Authority procures the work plus all of the San Benito County Local Transportation Authority's costs, damages, expenses, and liabilities.

8) If for any reason the San Benito County Local Transportation Authority elects to not award the contract to the apparent low bidder, the San Benito County Local Transportation Authority may request in writing that the apparent second lowest bidder complete the Contractor Qualifications Questionnaire and furnish all required supporting documentation to enable the San Benito County Local Transportation Authority to determine whether the second low bidder is qualified to perform the work described in the Contract Documents. If for any reason the San Benito County Local Transportation Authority elects to not award the contract to the apparent second lowest bidder, the San Benito County Local Transportation Authority may request the third lowest bidder complete the Contractor Qualifications Questionnaire and furnish all required supporting documentation, and so on.

9) If the San Benito County Local Transportation Authority receives from a bidder within the time set forth in these Contract Documents, a complete Contractor Qualifications Questionnaire and all required supporting documentation as required by the Contract Documents, and if the San Benito County Local Transportation Authority determines that a bidder is not qualified to perform the work required by the Contract Documents, and if the San Benito County Local Transportation Authority elects to not award the Contract to that bidder, the San Benito County Local Transportation Authority will promptly return that bidder's bid security.

10) Bid protests shall be filed in writing with the Project Manager, San Benito County Local Transportation Authority, 330 Tres Pinos Rd., Suite C7, Hollister, California, 95023, by certified or registered mail, not later than three (3) days after the bid opening or, if the protest is based on the selection of the apparent lowest responsible bidder, not later than three (3) days after selection of the apparent lowest responsible bidder. The protest shall specify the reasons and facts upon which the protest is based.

CONTRACTING REQUIREMENTS

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A copy of the Prevailing Wage Scale is available at the following web site:
http://www.dir.ca.gov/DLSR/statistics_research.html#PWD

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GENERAL CONDITIONS

1) BASIC DEFINITIONS:

A. The term "Change Order" shall refer to a written agreement in the form included in these Contract Documents, signed by the SBCLTA, Owner's Representative, Construction Manager, and Contractor, modifying the Contract.

B. The term "Claim" (see Paragraph 39).

C. The term "Construction Change Directive" (C.C.D.) shall refer to a written directive, signed by SBCLTA, directing Contractor to perform and/or omit certain work as specified within the Construction Change Directive. The Contractor shall promptly comply with the Construction Change Directive and promptly perform and/or omit the work specified in the Construction Change Directive.

D. The term "Contract" means the Contract Documents.

E. The term "Contract Documents" consists of all documents listed in Paragraph 2, Contract Documents, of these General Conditions.

F. The term "Contract Sum" means the total compensation specified in the Contract. The Contract Sum may be adjusted by Change Order.

G. The term "Contract Time" means the number of days set forth in the Bid Proposal within which the full completion of the Contractor's work must be achieved. The Contract Time may be adjusted by Change Order.

H. The term "Contractor" means the person or firm identified as such in the Contract, or its authorized representative.

I. The term "SBCLTA" means the San Benito County Local Transportation Authority, its trustees, officers, and employees.

J. The term "Owner's Representative" means the SBCLTA, its officers, employees, and designees. SBCLTA may, at any time, without prior notice to or approval by Contractor, replace Owner's Representative with a new Owner's Representative. Upon Contractor's receipt of notice from SBCLTA of such replacement, Contractor shall recognize such person or firm as Owner's Representative for all purposes under the Contract Documents.

K. The term "Project" means the total of the work and obligations agreed to be performed by Contractor under the Contract.

L. The term "day" means a calendar day unless otherwise specifically noted.

M. The term "Architect" means the design professional that prepared the Contract Documents and serves as an authorized representative. The Architect will assist SBCLTA with administration of the Contract.

2) CONTRACT DOCUMENTS: The Contract Documents consist of the Notice to Contractors; Instructions to Bidders; Bid Proposal; Bidder's Bond; Names and Titles Form; Noncollusion Affidavit; Statement of Compliance; Designation of Subcontractors; Bidder's Qualifications; Guaranty; Contractor's Certificate as to Worker's Compensation; Affidavit Concerning Employment of Undocumented Aliens; Contract; General Conditions; **Plans dated June 4, 2023**; any addenda issued; Change Orders; and any other documents described as such within these Contract Documents.

3) EXAMINATION OF CONTRACT DOCUMENTS AND SITE OF WORK: Each bidder shall examine carefully the site of the work and the Contract Documents, and shall satisfy itself as to the character, quality, and quantity of the surface and subsurface materials or obstacles to be encountered.

The submission of a bid proposal shall be conclusive evidence that the Contractor has satisfied itself through Contractor's own investigation as to the conditions to be encountered; the character, quality, and scope of work to be performed; the materials and equipment to be furnished; and all requirements of the Contract Documents.

Where investigations of subsurface conditions have been made with respect to foundation or other structural design, and that information is made available to Contractor or shown in the Contract

Documents, said information represents only the statement as to the character of materials which have been actually encountered by it in its investigation, and is only made available or included for the convenience of bidders.

Investigations of subsurface conditions are made for the purpose of design, and SBCLTA assumes no responsibility whatsoever with respect to the sufficiency or accuracy of borings, the log of test borings, or other preliminary investigations, or of the interpretation thereof, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unanticipated conditions may not occur. When a log of test borings is made available to Contractor or included in the Contract Documents, it is expressly understood and agreed that said log of test borings does not constitute a part of the Contract, and represents only an opinion of the SBCLTA as to the character of the materials to be encountered, and is made available or included in the Contract Documents only for the convenience of the bidders. Making such information available to bidders is not to be construed in any way as a waiver of the provisions of the first two paragraphs of this section, and bidders must satisfy themselves, through their own investigations, as to conditions to be encountered.

The Contractor shall promptly, and before the following conditions are disturbed, notify SBCLTA and Owner's Representative, in writing, of any:

A. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law, including but not limited to PCB's, lead or asbestos.

B. Subsurface or latent physical conditions at the site differing from those indicated.

C. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

SBCLTA shall promptly cause an investigation of the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work, shall issue a Change Order or Construction Change Directive.

In the event that a dispute arises between SBCLTA and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date required by the Contract, but shall proceed with all work to be performed under the Contract.

Nothing contained within this Section or the Contract Documents relieves the Contractor of its obligations set forth in the first two paragraphs of this Section.

4) ADDENDA: If discrepancies or apparent errors are found in the Contract Documents prior to the date of bid opening, bidders shall submit a written request for clarification, which response to said request will be given in the form of addenda to all bidders, if time permits. Otherwise, in figuring the work, bidders shall consider that any discrepancies or conflict between Contract Documents shall be governed by Paragraph 21, Intent of Plans and Specifications, and Paragraph 26, Conformance with Codes and Standards, of the General Conditions.

The correction of any discrepancies in, or omissions from the drawings, specifications, or other Contract Documents, or any interpretation thereof, during the bidding period will be made only by an addendum issued by the Owner's Representative. Each such addendum issued by the Owner's

Representative shall be made a part of the Contract. Any other interpretation or explanation of such documents will not be considered binding.

5) PROPOSAL: The Contractor's proposal shall be made on the form provided, with all items filled out, and properly signed. The proposal shall be signed in longhand; by the Contractor if an individual, by a member of the partnership, or by an officer of a corporation authorized to sign contracts in its behalf. If made by a corporation, the proposal shall show the name of the State under the laws of which the corporation is chartered or organized.

Bidders are warned against making erasures or alterations of any kind on their proposal. Proposals which contain omissions, erasures, alterations, conditions, or additions not called for may be rejected.

The proposal shall be enclosed in a sealed envelope having the name of the Project, as it appears on the proposal, and the name and address of the bidder shown thereon.

6) LIST OF SUBCONTRACTORS: In accordance with California Public Contract Code, Chapter 4 (commencing with Section 4100), Part 1, Division 2 of the Public Contract Code of the State of California (Subletting and Subcontracting Fair Practices Act), each proposal shall have listed on the form provided with the proposal: (a) the name and location of the place of business of each subcontractor who will perform work or labor or render service to the prime contractor, in or about the construction of the work or improvement, or a subcontractor licensed by the State of California, who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of one percent (0.5%) of the prime contractor's total bid, and (b) the portion of the work which will be done by each subcontractor. The Contractor shall list only one subcontractor for each such portion as defined by the Contractor in Contractor's bid.

If Contractor fails to specify a subcontractor for any portion of the work to be performed under this Contract in excess of one-half of one percent (0.5%) of the total bid, Contractor agrees to perform that portion itself.

7) WITHDRAWAL OF PROPOSAL: A proposal may be withdrawn at any time prior to the hour fixed in the Notice to Contractors for the opening of bids by a written request of the bidder, filed with SBCLTA. The withdrawal of a bid will not prejudice the right of a bidder to file a new proposal within the time prescribed.

8) OPENING OF PROPOSALS: Proposals will be opened and then read publicly at the time and place indicated in the Notice to Contractors, or as soon thereafter as is reasonable. Bidders or their representatives and others interested are invited to be present.

9) BIDDER'S BOND: The proposal must be accompanied by a bidder's bond, certified check, or cashier's check in an amount not less than ten percent (10%) of the amount bid. The bidder's bond must be signed in favor of SBCLTA, and the certified check or cashier's check must be made payable to SBCLTA. The Contractor shall pay to SBCLTA such sums from said bond, certified check, or cashier's check as necessary to reimburse SBCLTA for costs incurred for failure of the successful bidder to complete, sign and return in strict compliance with these Contract Documents, if requested to do so, Contractor Qualifications Questionnaire, or enter into a contract. The amount of said bond, certified check, or cashier's check shall not be deemed to constitute a penalty or liquidated damages. SBCLTA shall not be precluded by such bond, certified check, or cashier's check from recovering from the defaulting bidder damages in excess of the amount of said bond, certified check, or cashier's check incurred as a result of the failure of the successful bidder to complete, sign and return in strict compliance with these Contract Documents, if requested to do so, Contractor Qualifications Questionnaire, or enter into a contract.

10) CONSIDERATION OF PROPOSALS: After the proposals have been opened and read, they will be checked for accuracy and compliance with these Contract Documents.

Bid prices shall include everything necessary for the completion of fulfillment of the Contract, including, but not limited to, furnishing all materials, equipment, tools, labor and services, except as may be provided otherwise in the Contract Documents. When a price is quoted in both words and figures, the words shall prevail in case of a discrepancy.

Bid prices shall include allowance for all taxes, including, but not limited to, all Federal, State, and local taxes.

SBCLTA reserves the right to reject any and all proposals; to waive any minor irregularity in a bid; and to accept one schedule of a proposal and reject another.

11) COMPETENCY OF BIDDER: The bidder shall be licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California to do the type of work contemplated in the Project, and shall be skilled and regularly engaged in the general class or type of work called for under this contract, with at least 5 years of experience in the project type.

12) DISQUALIFICATION OF BIDDERS: More than one proposal in the same project trade component from any individual, firm, partnership, corporation, or association, under the same or different names, will not be considered. Reasonable grounds for believing that any bidder is interested in more than one proposal for the work will cause the rejection of all proposals in which such bidder is interested. If there is reason to believe that collusion exists among the bidders, none of the participants in such collusion will be considered. Any proposal in which the prices obviously are unbalanced may be rejected.

13) RELIEF OF BIDDERS: Attention is directed to the provisions of Public Contract Code section 5100, and following, concerning relief of bidders, and in particular to the requirement therein that if the bidder claims a mistake was made in Contractor's bid, the bidder shall give the SBCLTA written notice within five (5) days after opening of the bids of the alleged mistake, specifying in the notice in detail how the mistake occurred.

14) AWARD OF CONTRACT: Award of the Contract, if awarded at all, will be to the lowest responsible bidder whose proposal complies with the specified requirements. The award, if it be awarded, will be made by SBCLTA within sixty (60) days after opening of the proposals.

The low bid will be determined by the base bid. SBCLTA reserves the right to include in the Contract, if a Contract is awarded, the base bid only, or the base bid plus any alternate bid or combinations of alternates bid.

15) RETURN OF PROPOSAL GUARANTEES: When the award of the contract has been made, the proposal guarantees accompanying the three lowest bids shall be retained. All other guarantees for bids not to be further considered in making the award will be returned. The retained guarantees will be returned when the Contract has been fully signed.

16) SIGNING OF CONTRACT: A Contract shall be signed by the successful bidder in triplicate on the form provided and returned to SBCLTA, within ten (10) days after date of dispatch of the Contract forms. After signing by SBCLTA, one copy will be delivered to the Owner’s Representative, and one copy shall be returned to the Contractor.

If the bidder to whom the award is made fails or refuses to enter into the Contract within ten (10) calendar days from the time the Contract forms are dispatched by SBCLTA, Paragraph 9, Bidder’s Bond, of these General Conditions shall apply. SBCLTA may then award the Contract to the next lowest responsible bidder. This will be done after the failure or refusal of the low bidder to enter into the

Contract, as is convenient for SBCLTA. If the next lowest responsible bidder fails or refuses to enter into the Contract, then Paragraph 9, Bidder's Bond, of these General Conditions shall apply. SBCLTA may then award the Contract to the next lowest responsible bidder.

17) CONTRACT BONDS: Within ten (10) days of SBCLTA's dispatch of Notice of Award, the Contractor shall furnish corporate surety bonds to the benefit of the SBCLTA, issued by a surety company acceptable to the SBCLTA and authorized and admitted to do business in the State of California, as follows:

A. Faithful Performance Bond -- In a sum not less than one hundred percent (100%) of the total contract price as set forth in the Contract to guarantee the Contractor's faithful performance of all covenants and stipulations of the Contract. The bond shall contain a provision that the surety thereon waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

B. Payment Bond -- In a sum not less than one hundred percent (100%) of the total contract price as set forth in the Contract to guarantee the payment of wage, and bills contracted for materials, supplies, or equipment used in the performance of the Contract. The bond shall be in accordance with the provisions of Sections 3225, 3226, and 3247 to 3252, inclusive, of the Civil Code of the State of California, and Section 13020 of the Unemployment Insurance Code of the State of California. Said bond shall also contain a provision that the surety thereon waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

Faithful Performance Bond and Payment Bond samples are contained within these Contract Documents.

18) NOTIFICATION OF SURETY COMPANIES: The surety companies shall familiarize themselves with all provisions and conditions of the Contract. It is understood and agreed that the surety or sureties waive the right of special notification of any modifications or alterations, omissions or reductions, extra or additional work, extensions of time, or any other act or acts by SBCLTA or its authorized agents under the terms of the Contract; and failure to so notify the surety companies of such changes shall in no way relieve the surety or sureties of their obligations under this Contract. The surety expressly waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

19) INSURANCE: Within ten (10) days of SBCLTA's dispatch of Notice of Award, the Contractor shall furnish a Certificate of Insurance substantiating the fact that Contractor has taken out the insurance hereinafter set forth for the period covered by the Contract with an insurance carrier acceptable to the SBCLTA and under terms satisfactory to the SBCLTA. Insurance industry's standard Accord Certificate of Insurance or binder forms shall bear an endorsement precluding the cancellation or reduction of coverage of any policy covered by such Certificate or binder before the expiration of thirty (30) days after the SBCLTA shall have received notification of such cancellation, suspension, reduction, or voided coverage. Contractor shall immediately furnish copies of its insurance policies required under this Contract to the SBCLTA upon request. In the event Contractor does not have a Certificate of Insurance or binder evidencing the proper insurance coverages, the Contractor shall not be allowed on the work site.

All insurance policies shall by endorsement include SBCLTA, its trustees, officers, employees, agents, inspectors, construction managers, project managers, consultants, subconsultants, their employees, and each of them, as additional insureds to protect, as well as to provide the defense of, from all suits, actions, damages, liability, or claims of every type and description to which they may be subjected or put by reason of, or resulting from, the Contractor's performance of the Contract. Contractor's insurance shall apply as primary insurance, and any other insurance carried by the additional insureds identified above shall apply as excess and will not contribute with this insurance.

Each insurance policy shall include the following provisions: (1) The standard severability of interest clause in the policy and when applicable the cross liability insurance coverage provision which specifies that the inclusion of more than one insured shall not operate to impair the rights of one insured against another insured, and the coverage's afforded shall apply as though separate policies had been issued to each insured; (2) It acts as primary insurance, and that no insurance held or owned by SBCLTA shall be called upon to cover, either in full or in part, any loss covered under the policy acquired by Contractor; and (3) The stated limits of liability coverage for Commercial/Comprehensive General Liability, and Business Automobile Liability, assumes that the standard "supplementary payments" clause will pay in addition to the applicable limits of liability and that these supplementary payments "are not included as part of the insurance policies limits of liability." If any of the policies indicate that defense costs are included in the general aggregate limit, then the required general aggregate limits shall be a minimum of $2,000,000 or more at SBCLTA's discretion.

If the Contractor fails to maintain such insurance, SBCLTA may take out insurance to cover damages of the below-mentioned classes for which SBCLTA might be held liable on account of the Contractor failing to pay such damages and deduct and retain the amount of the premium for such insurance from any sums due the Contractor under the Contract. Failure of SBCLTA to obtain such insurance shall in no way relieve the Contractor from any of its responsibilities under the Contract.

Without limiting Contractor's duty to indemnify, the minimum insurance coverages to be obtained by the Contractor as hereinabove referred to are as follows:

A. Commercial General Liability Insurance, including but not limited to premises and operations, including coverage for Bodily Injury and Property Damage, Personal Injury, Contractual Liability, Broadform Property Damage, Independent Contractors, Products and Completed Operations, with a combined single limit for Bodily Injury and Property Damage of not less than $2,000,000 per occurrence. The required endorsement form for Commercial General Liability Additional Insured **is ISO Form CG 20 10 11 85 or CG 20 10 10 01 in tandem with CG 20 37 10 01 (2000)**.

B. All Risk Property Coverage or Builders Risk Insurance in an amount equal to or greater than the contract amount and shall cover the full replacement cost of the building and improvements in the event of loss, damage, or destruction by fire or other perils commonly covered by standard extended coverage. Such amount shall be adjusted in accordance with adjustments in the contract amount. The subject insurance policy shall protect the interest of SBCLTA, Contractor, subcontractors and sub-subcontractors with respect to work performed under this contract, and shall provide broad form all-risks coverage, including insuring against perils of fire, theft, flood, vandalism, malicious mischief, collapse and debris removal. Contractor shall be responsible for all losses to the work performed under this contract until completion of the work and final payment by owner. Contractor shall maintain property insurance until such final payment has been made by owner.

C. Business Automobile Liability Insurance, covering all motor vehicles, including owned, leased, non-owned, and hired vehicles, used in providing services under this Agreement, with a combined single limit for Bodily Injury and Property Damage of not less than $1,000,000 per occurrence. The required endorsement form for Automobile Additional Insured endorsement is **ISO Form CA 20 48 02 99**.

D. Workers' Compensation Insurance, The Contractor shall be a qualified self-insurer or shall carry full Workers' Compensation and Employers' Liability insurance coverage, either through the State Compensation Insurance Fund or a standard approved policy obtained from a licensed insurance carrier for all persons employed, either directly or through subcontractors, in carrying out the work under this Contract in accordance with the "Workers' Compensation and Insurance Act," Division IV thereof. Employers' limits of liability shall be the prevailing statutory limits of liability.

Any exceptions to the provisions of this section must be delineated in the Contract Documents. In addition, it is understood and agreed that an excess insurance policy or an umbrella policy (following

form) may be utilized to meet the above-required limits of liability for Commercial/Comprehensive General Liability, Business Automobile Liability policy, and the Workers' Compensation Employers' Liability.

20) PRE-CONSTRUCTION CONFERENCE: Prior to the start of construction, a conference will be called by SBCLTA or Owner's Representative for the purpose of reviewing the construction program with the Contractor. At this conference, the sequence of work, methods of access to the construction site and temporary facilities shall be reviewed by the Contractor and SBCLTA. Coordination of utilities within the project limits, including relocations and maintenance of existing facilities and additions thereto, shall be confirmed in writing by utility representatives and the Contractor at this conference, or within five (5) working days thereafter.

21) INTENT OF PLANS AND SPECIFICATIONS: It is the intent of these Contract Documents that the work performed under the Contract shall result in a complete operating system in satisfactory working condition with respect to the functional purposes of the installation, and no extra compensation will be allowed for anything omitted but fairly implied. The prices paid for the various items in the proposal shall include full compensation for furnishing all labor, materials, tools, equipment, overhead, profit, incidentals, and doing all work necessary to complete the finished product as provided in the Contract Documents.

The specifications and drawings are intended to be explanatory of each other. Any work shown on the drawings, and not in the specifications, or vice versa, is to be treated as if indicated in both. In the case of conflict or inconsistency, the Supplementary Conditions (if any) shall control over the General Conditions, the General Conditions shall control over the Technical Specifications, and the Technical Specifications shall control over the drawings. Figured dimensions shall control over scaled measurements. In all cases, the more costly or expensive interpretation is deemed to control and be the interpretation incorporated into the Contract Documents and Contract Sum.

Organization of the specifications into various subdivisions and the arrangement of the drawings shall not control Contractor in dividing the work among subcontractors or in establishing the extent of work to be performed by any trade.

Unless otherwise stated in the Contract Documents, technical words and abbreviations contained in the Contract Documents are used in accordance with commonly understood construction industry meanings, and nontechnical words and abbreviations are used in accordance with their commonly understood meanings.

The Contract Documents may omit modifying words such as "all" and "any", and articles such as "the" and "an", but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement. The use of the word "including," when following any general statement, shall not be construed to limit such statement to specific items or matters set forth immediately following such word or to similar items or matters, whether or not nonlimiting language (such as "without limitation," "but not limited to," or words of similar import) is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably be deemed to fall within the broadest possible scope of such general statement.

Whenever the context so requires, the use of the singular number shall be deemed to include the plural and vice versa. Each gender shall be deemed to include any other gender, and each shall include corporation, partnership, trust, or other legal entity whenever the context so requires. The captions and headings of the various subdivisions of the Contract Documents are intended only as a matter of reference and convenience, and in no way define, limit, or prescribe the scope or intent of the Contract Documents or any subdivision thereof.

Contractor shall assume responsibility for design of systems and fabrications needed to meet performance criterion described in the Contract Documents. Design by Contractor shall include, but is

not limited to, concrete form work, casework joinery, fire sprinkler systems, mechanical and electrical systems represented diagrammatically on Contract Drawings. Design shall be governed by descriptive criterion specified for each item. Contractor shall also assume responsibility for temporary structures used to implement construction such as shoring and scaffolding.

22) CLARIFICATION OF CONTRACT DOCUMENTS: Should it appear that the work to be done, or any of the matters relative thereto, are not sufficiently detailed or explained in the Contract Documents, or in the event of any doubt or question arising respecting the true meaning of the Contract Documents, the Contractor shall apply to the Owner's Representative for such further explanations as may be necessary. The Contractor shall thoroughly review all Requests for Information (RFI's) submitted by subcontractors prior to submission to the Owner's Representative to determine whether such RFI's is already answered in the Contract Documents. Contractor represents to SBCLTA and Owner's Representative, that by submission of an RFI, Contractor has thoroughly reviewed the RFI and thoroughly reviewed the Contract Documents, and determined that the RFI is not answered or reasonably inferable in the Contract Documents, and that the RFI pertains to an unforeseen condition or circumstance that is not described in the Contract Documents, that there is a conflict or discrepancy in the Contract Documents, or there is an omission in the Contract Documents. In the event any RFI is answered or reasonably inferable from the Contract Documents, Contractor agrees to pay the Owner's Representative and SBCLTA the reasonable cost for their time and expenses associated with reviewing and responding to RFI's which are already answered or reasonably inferable from the Contract Documents. In the event of a disagreement over such compensation, the judgment of the Owner's Representative shall control. Conflicting standards and other requirements: If with two or more standards or requirements are specified and the standards or requirements 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 Architect for direction before proceeding. Quantities apply to drawings and specifications if they differ from one another.

23) PLANS AND SPECIFICATIONS TO BE FURNISHED: The Contractor will be furnished, free of charge, *three (3)* copies of the Contract Documents. The Contractor shall retain an approved complete set of Contract Documents on the job at all times during the progress of the work.

24) SUPPLEMENTAL DRAWINGS AND INSTRUCTIONS: In addition to the drawings incorporated in the Contract at the time of signing, the architect or engineer may furnish such working drawings and supplemental drawings from time to time as may be necessary to make clear, or to define in greater detail, the intent of the Contract drawings and specifications. In furnishing such additional drawings and/or instructions, the architect or engineer shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the nature of the work. These working drawings and supplemental drawings shall become a part of the Contract Documents, and the Contractor shall make its work conform to them.

25) CONFORMANCE WITH CODES AND STANDARDS: All work and materials shall be in full accordance with the latest adopted standards and regulations of the State Fire Marshal; the Uniform Building Code; the National Electrical Code; the Uniform Plumbing Code; Americans With Disabilities Act; Cal OSHA; and all other applicable codes, laws, or regulations. Nothing in these Contract Documents is to be construed to permit work not conforming to these requirements. Contractor agrees that immediately upon signing of the Contract, Contractor will diligently review the Contract Documents and determine if any work described or inferred within the Contract Documents is not in conformance with these requirements. Should Contractor discover work within the Contract Documents not in conformance with these requirements, Contractor agrees to immediately notify Owner's Representative in writing of said nonconformance, and to not proceed with nonconforming work. When the work detailed in the Contract Documents differs from governing codes, it is understood and agreed that the Contract Sum is based upon the more costly or expensive standard.

26) PERSONAL ATTENTION AND SUPERINTENDENCE: The Contractor shall give Contractor's personal attention to, and shall supervise the work to the end that it shall be faithfully prosecuted. Contractor shall keep on the work at all times throughout its progress, a competent superintendent who shall represent the Contractor in Contractor's absence, and shall have complete authority to represent and act for the Contractor. Whenever the Contractor or Contractor's superintendent is not present on a particular part of the work, the Owner's Representative or SBCLTA may stop the work until the Contractor or Contractor's superintendent arrives.

The Contractor shall be liable for the faithful observation of any instructions delivered to Contractor or to Contractor's authorized representatives. Any order given by the Owner's Representative not otherwise required by the specifications to be in writing will, on request of the Contractor, be given or confirmed by the Owner's Representative in writing.

27) BEGINNING OF WORK: The Notice to Proceed shall constitute authority for the Contractor to enter upon the site of the work and to begin operations, upon condition that the Contractor has strictly complied with all requirements of these Contract Documents, including but not limited to, furnishing all required documentation and certificates of insurance. If Contractor has not provided SBCLTA with all documents required by these Contract Documents as of the date of the Notice to Proceed, Contractor shall not be allowed on the site of the work or allowed to start work on the Project, notwithstanding the issuance of a Notice to Proceed.

When the Contractor has started work on the Project, the Contractor shall diligently prosecute the work to completion within the time limit provided in the Contract Documents.

The Contractor shall give SBCLTA and Owner's Representative at least two (2) working days' notice of Contractor's intention to start work, specifying the time, date, and location at which the Contractor intends to begin.

Contract time shall begin five (5) days after the date of dispatch of the Notice to Proceed, whether or not Contractor is allowed on the work site due to Contractor's failure to furnish SBCLTA with all documentation required by these Contract Documents. In no event shall there be a period of time greater than thirty (30) days, from the time the Contract is dispatched by SBCLTA to the Contractor and the commencement of the Contract Time, regardless of the receipt or lack thereof by SBCLTA of all documents required by these Contract Documents.

28) PROGRESS SCHEDULE: SBCLTA's receipt of a proposed progress schedule and monthly updated progress schedules, all in strict compliance with these Contract Documents shall be conditions precedent to the Owner's Representative's or SBCLTA's approval of the Contractor's periodic pay requests and/or the SBCLTA's obligation to request payment be issued to Contractor.

The Contractor shall, to every reasonable extent, carry on the work of construction of the various elements of the project concurrently, and shall not defer construction of any portion of the work in favor of any other portion without the express written approval of the Owner's Representative or SBCLTA.

29) RESPONSIBILITY FOR ACCURACY: The Contractor shall obtain all necessary measurements for and from the work, and shall check dimensions, elevations, and grades for all layout and construction work and shall supervise such work, the accuracy for all of which Contractor shall be responsible. Each subcontractor shall adjust, correct, and coordinate Contractor's work with the work of others so that no discrepancies will result in the whole work.

Contractor shall be responsible for verifying that all information and data contained and set forth in all of Contractor's submittals that may be required by the Contract Documents, comply in all respects with the Contract Documents.

30) EFFECT OF INSPECTION OR USE: Neither the inspection by an inspector, SBCLTA, Owner's Representative, construction manager, architect, engineer, or anyone acting in their behalf, nor any measurement, approved modification, submittal, shop drawing, order, or certificate, nor acceptance of any part or whole of the work, or payment of money, nor any possession or use by SBCLTA or its agents, shall operate as a waiver of any provisions of the Contract or of any power or authority reserved therein, or of any right to damages thereunder; nor shall the waiver of any breach of this Contract be held to be a waiver of any subsequent or other breach.

31) INSPECTION: All work done and all materials and equipment furnished under this Contract shall be subject to the inspection and approval of the Owner's Representative and/or SBCLTA. They shall at all times have access to the work during its construction, and shall be furnished with every reasonable facility and assistance for ascertaining that the materials and workmanship are in accordance with the requirements and intent of the Contract Documents. Any work constructed without inspection as provided above, except with the specific written consent or approval of the Owner's Representative and Construction Manager, or constructed contrary to the instructions or orders of the Owner's Representative, Construction Manager, or his or her authorized representative, must, if requested by the Owner's Representative or SBCLTA, be uncovered for examination and properly restored at the Contractor's expense.

The inspection of the work by SBCLTA, SBCLTA's inspector(s), Construction Manager, architect, engineer, consultants or anyone acting in their behalf, does not relieve the Contractor of any of Contractor's obligation to fulfill the Contract as prescribed. Any work, materials, or equipment not meeting the requirements and intent of the Contract Documents shall be rejected, and unsuitable work or materials shall be made good, notwithstanding the fact that such work or materials may have previously been inspected or approved and payment therefor may have been made. If nonconforming work, materials, or equipment not meeting the requirements and intent of the Contract Documents is discovered, and the Contractor fails to remedy the nonconforming work, materials, or equipment, or SBCLTA agrees in writing to accept the nonconforming work, materials, or equipment, Contractor agrees to sign a Change Order or otherwise reimburse SBCLTA in a sum equal to the cost to remedy the nonconforming work, materials, or equipment. It is expressly understood and agreed that SBCLTA will be entitled to recover from Contractor the full cost of remedying nonconforming work, materials, or equipment, and that diminution in value will not be considered as a method for valuing SBCLTA's damages for nonconforming work, materials, or equipment, and further that the doctrine of economic waste will not be a defense to the SBCLTA's recovery from Contractor of the full and complete cost and expense of remedying nonconforming work, materials, or equipment.

Re-examination of any work may be ordered by SBCLTA, Construction Manager and/or the Owner's Representative, and such work must be uncovered by the Contractor. The Contractor shall pay the entire cost of such uncovering, re-examination, and replacement if the work does not conform to the Contract Documents.

32) REMOVAL OF REJECTED MATERIALS OR WORK: The Contractor shall, upon request and without delay, remove from the site of the work, all rejected or condemned materials of any kind brought to, or incorporated in, the work. No such rejected or condemned materials shall again be offered for use in any work under the Contract. All work which has been rejected shall be remedied, or removed and replaced, by the Contractor in a manner acceptable to SBCLTA at Contractor's expense.

Upon failure of the Contractor to comply within forty-eight (48) hours with any written order of SBCLTA or Owner's Representative made under this section, or to make satisfactory progress in so doing, SBCLTA may cause such rejected materials to be removed, or such rejected work to be remedied, or removed and replaced, and deduct and retain the costs from any sums due or to become due to the Contractor.

33) USE OF COMPLETED PORTIONS: SBCLTA shall have the right at any time during the progress of this work to take over and place in service any completed or partially completed portion of

the work, notwithstanding the time for completion of the entire work or such portions which may not have expired; but such taking possession thereof shall not be deemed an acceptance of any of the work, nor work on those portions not completed in accordance with the Contract Documents.

34) MEANS AND METHODS: Neither Owner's Representative nor SBCLTA will have control over, be in charge of, nor be responsible for construction means, methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the work, since these are solely Contractor's responsibility, unless otherwise required by the Contract Documents.

35) DELAYS: The Contractor agrees to complete all of its work required in the Contract Documents, or any subsequent revisions or modifications thereto, within the time specified in the Bid Proposal, subject to Change Orders increasing or decreasing the time specified. It is agreed by the parties to this Contract that time is of the essence to the performance of this Contract by Contractor, and that in case all work called for under the Contract is not completed in all respects and requirements within the time called for in the Contract Documents, plus any agreed upon extensions of time, damage will be sustained by SBCLTA.

36) EFFECT OF EXTENSION OF TIME: The granting of an extension of time for the completion of the work on account of delays which, in the judgment of SBCLTA, are unavoidable delays, or granted for the performance of extra or additional work, shall in no way operate as a waiver on the part of SBCLTA of any of its rights under this Contract.

37) CLAIMS: A Claim is any request by Contractor to adjust, alter, modify, or otherwise change the Contract Sum or the Contract Time, or both. A Claim must be stated with specificity, including identification of the event or occurrence giving rise to the Claim, the date of the event, and the asserted affect on the Contract Sum and the Contract Time, if any. The Claim shall include adequate supporting data. Adequate supporting data for a Claim for an adjustment of the Contract Time shall include scheduling data demonstrating the impact of the event on the critical path and completion of the Project. Adequate supporting data for a Claim for an adjustment in the Contract Sum shall include a detailed cost breakdown of items included within the Claim and documentation supporting each item of cost.

Contractor shall submit all Claims to SBCLTA before proceeding to perform the work, or portions of the work, giving rise to such Claim. Contractor hereby expressly waives any Claims of which Contractor was aware, whether or not the exact amounts of such Claims were ascertainable, and that are not submitted to SBCLTA prior to Contractor proceeding to perform the work, or portions of the work, giving rise to such Claims.

All Claims shall be submitted to SBCLTA and Owner's Representative for decision within fifteen (15) days after the event or occurrence giving rise to the Claim. Contractor hereby expressly waives all Claims not made within the aforesaid time limit.

Claims must be submitted to SBCLTA before the date of final payment. Contractor hereby expressly waives all Claims not submitted, in complete and proper form, on or before the date of final payment.

Contractor expressly waives any Claims for delay or adjustment to the Contract Time if the Contractor fails to provide written notice to SBCLTA within three (3) days of the event or occurrences giving rise to the delay. Said written notice shall include the event or occurrence giving rise to the delay, the estimated duration of the delay, and the impact of the event or occurrence upon the critical path and completion of the Project. Contractor will not be entitled to adjustments to the Contract Time for delays attributable to weather, unless such delays are attributable to weather which is abnormal and delays the completion of the Project. Abnormal is to be based upon locally recognized annual weather patterns for the month in which the abnormal weather occurs.

As used herein, the following terms shall have the following meanings:

"Excusable Delay" means any delay of the completion of the Project beyond the expiration of the Contract Time caused by conditions beyond the control and without the fault or negligence of the Contractor such as strikes, embargoes, fire, unavoidable casualties, unusual delays in transportation, national emergency, and stormy and inclement weather conditions in which the work cannot continue. The financial inability of the Contractor or any subcontractor and default of any subcontractor, without limitation, shall not be deemed conditions beyond the Contractor's control. An Excusable Delay may entitle the Contractor to an adjustment in the Contract Time.

"Compensable Delay" means any delay of the completion of the work beyond the expiration date of the Contract Time caused by the gross negligence or willful acts of SBCLTA or Owner's Representative, and which delay is unreasonable under the circumstances involved, and not within the contemplation of the parties. A Compensable Delay may entitle the Contractor to an extension of the Contract Time and/or Contract Sum. Except as provided herein, the Contractor shall have no claim for damage or compensation for any delay, interruption, hinderance, or disruption.

"Inexcusable Delay" means any delay of the completion of the Project beyond the expiration of the Contract Time resulting from causes other than those listed above. An Inexcusable Delay shall not entitle the Contractor to an extension of the Contract Time or an adjustment of the Contract Sum.

The Contractor may make a Claim for an extension of the Contract Time, for an Excusable Delay or a Compensable Delay, subject to the following:

A. If an Excusable Delay and a Compensable Delay occur concurrently, the maximum extension of the Contract Time shall be the number of days from the commencement of the first delay to the cessation of the delay which ends last.

B. If an Inexcusable Delay occurs concurrently with either an Excusable Delay or a Compensable Delay, the maximum extension of the Contract Time shall be the number of days, if any, by which the Excusable Delay or the Compensable Delay exceeds the Inexcusable Delay.

C. If an Inexcusable Delay occurs concurrently with both an Excusable Delay and a Compensable Delay, the maximum extension in the Contract Time shall be the number of days, if any, by which the number of days determined pursuant to Subparagraph (a) exceeds the number of days of the Inexcusable Delay.

D. For a Compensable Delay, the Contractor shall only be entitled to an adjustment in the Contract Sum in an amount equal to the actual additional labor costs, material costs, and unavoidable equipment costs incurred by the Contractor as a result of the Compensable Delay, plus the actual additional wages or salaries and fringe benefits and payroll taxes of supervisory and administrative personnel necessary and directly employed at the Project site for the supervision of the work during the period of Compensable Delay. Except as provided herein, the Contractor shall have no claim for damage or compensation for any delay, interruption, hinderance, or disruption. There shall be no Compensable Delay unless the event or occurrence giving rise to the Compensable Delay extends the actual completion of the Project past the Contract Time.

The parties agree that SBCLTA's exercise of its rights to order changes in the work, regardless of the extent and number of changes, or to suspend the work, is within the contemplation of the parties and shall not be the basis for any Claim for Compensable Delay. The rights of the Contractor to adjustments of the Contract Time and the Contract Sum, based on changes ordered in the work or suspension of the work, shall be solely governed by this provision.

38) FALSE CLAIMS: California Penal Code section 72, provides that any person who presents for payment with intent to defraud any SBCLTA board or officer, any false or fraudulent claim, bill,

account, voucher, or writing, is punishable by fines not exceeding ten thousand dollars ($10,000.00) and/or imprisonment in the state prison.

Government Code sections 12650, et seq., pertains to civil penalties that may be recovered from persons (including corporations, etc.) for presenting a false claim for payment or approval, presents a false record or statement to get a false claim paid or approved, or other acts, to any officer or employee of any political subdivision of the State of California. Any person or corporation violating the provisions of Government Code sections 12650, et seq., shall be liable for three times the amount of the damages of the political subdivision, plus a civil penalty, plus costs.

All Claims by Contractor, shall include the following certification, properly completed and executed by Contractor or an officer of Contractor:

I, _____, BEING THE _____ (MUST BE AN OFFICER) OF _____ (CONTRACTOR), DECLARE UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA, AND DO PERSONALLY CERTIFY AND ATTEST THAT: I HAVE THOROUGHLY REVIEWED THE ATTACHED CLAIM FOR ADDITIONAL COMPENSATION AND/OR EXTENSION OF TIME, AND KNOW ITS CONTENTS, AND SAID CLAIM IS TRUTHFUL AND ACCURATE; THAT THE AMOUNT REQUESTED ACCURATELY REFLECTS THE CONTRACT ADJUSTMENT FOR WHICH THE OWNER IS LIABLE; AND, FURTHER, THAT I AM FAMILIAR WITH CALIFORNIA PENAL CODE SECTION 72 AND CALIFORNIA GOVERNMENT CODE SECTION 12650, ET SEQ, PERTAINING TO FALSE CLAIMS, AND FURTHER KNOW AND UNDERSTAND THAT SUBMISSION OR CERTIFICATION OF A FALSE CLAIM MAY LEAD TO FINES, IMPRISONMENT AND/OR OTHER SEVERE LEGAL CONSEQUENCES.

Submission of a Claim, in conformance with all of these requirements of this Contract, and rejection of all or part of said Claim by SBCLTA, is a condition precedent to any action by Contractor against SBCLTA, including but not limited to, the filing of a lawsuit or making demand for arbitration, if arbitration is expressly provided for in this Contract.

39) CHANGES: SBCLTA may request that Contractor provide SBCLTA with estimated costs for proposed changes to the work. Contractor agrees to promptly provide SBCLTA with detailed, itemized costs for proposed changes to the work and scheduling data demonstrating the impact, if any, of the proposed changes to the work on the Contract Time. Adjustments, if any, in the amount to be paid the Contractor by reason of any modifications of the work as set forth in a Contract Change Order, Construction Change Directive, or arising from Claims shall be determined by one or more of the following methods as elected by SBCLTA:

A. Lump Sum Price - By an acceptable lump proposal from the Contractor with attached official sub-contractor breakdown of costs as submitted by each sub-trade.

B. Unit Prices - By unit prices fixed by agreement between SBCLTA and the Contractor.

C. Force Account - By ordering the Contractor to proceed with the work and to keep and present in such form as the Owner's Representative or SBCLTA may direct, a correct account of the cost of the change, together with all vouchers and associated documentation therefor. The Contractor will be paid for labor, materials, and equipment rental actually used on the Change Order work as follows:

(1) Labor - the Contractor will be paid the reasonable cost of labor for the workmen (including foremen when authorized by the Owner's Representative), used in the actual and direct performance of the work. The cost of labor, whether the employer is the Contractor, subcontractor, or other forces, will be the sum of the following:

(1-1) Actual Wages - The actual wages paid shall include any reasonable employer payments to or on behalf of the workmen for health and welfare, pension, vacation, and similar purposes.

(1-2) Labor Surcharge - The labor surcharge to be added to the actual wages shall be the reasonable cost of all additional payments made to, or on behalf of the workers, other than actual wages, as required by State or Federal laws, including by way of example but not limited to, workers' compensation, SUTA, FUTA and FICA.

(1-3) Subsistence and Travel Allowance - The actual reasonable and necessary subsistence and travel allowance paid to such workers.

(2) Materials - The actual cost of the materials to the purchaser, whether the Contractor, a subcontractor, or other forces. If the Contractor does not furnish satisfactory evidence of the cost of such materials, it shall be deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned delivered to the job site. SBCLTA reserves the right to furnish such materials as it deems advisable, and the Contractor shall have no claims for costs or profit on such SBCLTA furnished materials.

(3) Equipment - The use of equipment shall be paid for at the rates listed for such equipment in the current compilation of rental rates of the State of California, Department of Transportation (CalTrans) Division of Highways, applicable to San Benito County or competitive local rental rates of established rental agencies serving the area of the work, whichever is less. If the equipment is not shown on the above-mentioned list, Contractor shall be paid such hourly rental rates as are agreed upon by the Contractor and the Owner’s Representative prior to use of the equipment, except that in no case shall such agreed hourly rate exceed the rental rates of established distributors or equipment rental agencies serving the area, plus thirty-three and one-third percent (33-1/3%) for the cost of fuel, oil, lubrication, and field repairs and maintenance.

If the equipment is moved on to the work and used exclusively for extra work, the Contractor will be paid for the cost of transporting it to the job and returning it to its original location. The rental period shall begin when the equipment is unloaded at the site of the extra work, and shall include each day that the equipment is at the site of, and performing or utilized for, such extra work, excluding Saturdays, Sundays, and legal holidays, unless extra work is performed on such days, and shall terminate at the end of the day on which such extra work is completed or the Owner’s Representative directs the Contractor to discontinue the use of such equipment.

The rental time to be paid for equipment already on the work, or which is used for other than such extra work, shall be the actual time the equipment is in operation on the extra work, plus the time required to move the equipment to the site of the extra work and return it to its original location.

To the totals as computed above, shall be added the following percentages for profit and overhead:

Labor	Fifteen Percent (15%)
Materials	Fifteen Percent (15%)
Equipment Rental	Fifteen Percent (15%)

For Change Order work performed by a subcontractor, compensation for such work shall be based on all direct costs as listed in the subcontractor's portion of the proposal plus the above percentages. The Contractor may add five percent (5%) to the subcontractor's proposal for

Contractor's overhead and profit. Contractor may also add actual cost of subcontractor's bond (if any) and a markup on such bond not to exceed one percent (1%). Overhead and profit for all tiers of Contractor and subcontractors shall in no event exceed fifteen percent (15%) of the cost of the work. Distribution of the overhead and profit among the Contractor and the subcontractors is the responsibility of the Contractor.

The allowances for overhead and profit as enumerated in the preceding subparagraphs shall include full compensation for any and all items of overhead including but not limited to, superintendence, field overhead, home office overhead (absorbed and unabsorbed), Contractor bonds, insurance, general conditions, clean-up, safety meetings, mandated programs and processing of Claim and Change Order documents.

The amount of payment agreed upon or, in the absence of agreement, selected by SBCLTA shall be set forth in the Change Order or Construction Change Directive.

40) PAYMENTS: Within ten (10) days after signing the Contract, but in any event prior to the first application for payment, Contractor shall submit to Owner's Representative and SBCLTA a cost breakdown of the Contract Sum. The cost breakdown shall itemize, as separate line items, the cost of each work activity and all other costs, including warranties, record documents, insurance, bonds, overhead expenses, and the total allowance for profit, the total of which shall equal the Contract Sum. The cost breakdown shall include a separate line item cost for each activity listed on Contractor's initial (as-planned) schedule. The cost breakdown, when accepted by SBCLTA and Owner's Representative, shall become the basis for determining the cost of work performed for the Contractor's applications for payment.

On or before the first (1st) day of the month, Contractor shall submit to Owner's Representative an itemized application for payment for the cost of the work in permanent place, as approved by the Owner's Representative, which has been completed in accordance with the Contract Documents as of the twentieth (20th) day of the preceding month, less amounts previously paid. The application for payment shall be prepared in a form acceptable to SBCLTA and Owner's Representative, and shall contain itemized amounts in accordance with the cost breakdown. The applications for payment shall not include requests for payment on account of changes which have not been authorized by Change Orders, or for amounts Contractor does not intend to pay a subcontractor because of a dispute or other reason. By submission of an application for payment, Contractor represents to SBCLTA that all work for which Contractor is seeking compensation, has been performed in strict compliance with these Contract Documents.

If requested by SBCLTA, an application for payment shall be accompanied by a summary showing payment that will be made to subcontractors covered by such application, and unconditional waivers and releases of claims and stop notices, from each subcontractor listed in the preceding application for payment covering sums disbursed pursuant to that preceding application for payment.

Contractor warrants that upon submittal of an application for payment, all work for which certificates of payment have been previously issued and payment has been received from SBCLTA, shall be free and clear of all claims, stop notices, security interests, and encumbrances in favor of Contractor, subcontractors or other persons or firms entitled to make claims by reason of having provided labor, materials, or equipment related to the work.

Approval of all, or any part, of an application for payment may be withheld, a certificate of payment may be withheld, and all or part of a previous certificate for payment may be nullified and that amount withheld from a current certificate for payment, on account of any of the following:

(a) Defective work not remedied;
(b) Third-party claims against Contractor or SBCLTA arising from the acts or omissions of Contractor or subcontractors;

(c) Stop notices;
(d) Failure of Contractor to make timely payments due to subcontractors for material or labor;
(e) A reasonable doubt that the work can be completed for the balance of the Contract Sum then unpaid;
(f) Damage to SBCLTA or others for which Contractor is responsible;
(g) Reasonable evidence that the work cannot be completed within the Contract Time, and the unpaid balance of the Contract Sum would not be adequate to complete the work and cover SBCLTA's damages for the anticipated delay;
(h) Failure of Contractor to maintain, update, and submit record documents;
(i) Failure of Contractor to submit schedules or their updates as required by the Contract Documents;
(j) Performance of the work by Contractor without properly processed shop drawings;
(k) Liquidated damages assessed;
(l) Any other failure of Contractor to perform its obligations under the Contract Documents.

By action of the San Benito County Local Transportation Authority Board, a fund has been established, money encumbered in the current budget, and assigned to the account which is the sole source of funds available for payment of the Contract Sum. Contractor understands and agrees that Contractor will be paid only from this special fund and if for any reason this fund is not sufficient to pay Contractor, Contractor will not be entitled to payment. The availability of money in this fund, and SBCLTA's ability to draw from this fund, are conditions precedent to SBCLTA"s obligation to make payments to Contractor.

Within thirty (30) days of receipt of an approved certificate for payment, properly executed by the Contractor, Owner’s Representative, SBCLTA"s inspector of record for the Project (if any) and County's Auditor, SBCLTA agrees to pay Contractor, subject to all of the terms and conditions of these Contract Documents, an amount equal to ninety-five percent (95%) of the sum of the following (less any amounts withheld as permitted by the Contract Documents):

(a) Cost of the work in permanent place as of the end of the preceding month as set forth and approved on the certificate for payment;
(b) Less amounts previously paid;
(c) Less amounts withheld by SBCLTA as allowed in the Contract Documents.

Within forty (40) days of recordation of a Notice of Completion, SBCLTA agrees to, subject to all of the terms and conditions of these Contract Documents, pay the remaining contract balance, after all offsets and subject to the withholding of amounts due from Contractor.

41) COST AND PRICING DATA: All cost and pricing data submitted by the Contractor to the SBCLTA with respect to any change, prospective or completed, or any claim for extra compensation shall be a true, complete, accurate, and current representation of actual cost and pricing of the work. The Owner’s Representative or his or her authorized representative may require a formal certification as to cost and pricing data submitted by the Contractor. Certification shall be in the form acceptable to SBCLTA.

42) PROCEED WITH WORK: Notwithstanding the making of any Claim or the existence of any dispute regarding any Claim, Contractor shall not cause any delay, cessation, or termination in or of Contractor's performance of the work, but shall diligently proceed with performance of the work in accordance with the Contract Documents.

43) ACCESS TO RECORDS: The Owner’s Representative and/or SBCLTA, or their authorized representatives, shall have access, upon reasonable notice, during normal business hours, to Contractor and subcontractors' books, documents and accounting records, including but not limited to, bid worksheets, bids, subcontractor bids and proposals, estimates, cost accounting data, accounting records, payroll records, time sheets, cancelled checks, profit and loss statements, balance sheets,

project correspondence including but not limited to all correspondence between Contractor and its sureties and subcontractors/vendors, project files, scheduling information, and other records of the Contractor and all subcontractors directly or indirectly pertinent to the work, original as well as change and claimed extra work, to verify and evaluate the accuracy of cost and pricing data submitted with any Change Order, prospective or completed, or any Claim for which additional compensation has been requested or notice of potential Claim has been tendered.

Such access shall include the right to examine and audit such records, and make excerpts, transcriptions, and photocopies at SBCLTA's cost.

The parties agree that in the event Contractor or any subcontractor fails to comply with this section, it would be difficult for the SBCLTA to determine its actual damages; therefore, Contractor agrees to pay SBCLTA, as liquidated damages, the sum of two hundred dollars ($200.00), which Contractor agrees is reasonable under the circumstances, for each and every calendar day which Contractor or a subcontractor fails or refuses to provide the SBCLTA, Owner's Representative, and/or their authorized representatives, access to the materials specified in this section.

Contractor agrees to impose upon its subcontractors by appropriate subcontract provision, the obligations of this section of the General Conditions.

44) DISMISSAL OF UNSATISFACTORY EMPLOYEES: If any person employed by the Contractor, or any subcontractor, shall fail or refuse to carry out the directions of the Owner's Representative or SBCLTA; or, in the opinion of the Owner's Representative or SBCLTA, is incompetent, unfaithful, intemperate, or disorderly; uses threatening or abusive language to any person representing the Owner's Representative or SBCLTA on the work; or is otherwise unsatisfactory, he or she shall be removed from the work immediately, and shall not again be employed on the work.

45) TERMINATION OF UNSATISFACTORY SUBCONTRACTS: When any portion of the work which has been subcontracted by the Contractor is not being prosecuted in a satisfactory manner, the subcontract for such work shall be terminated immediately by the Contractor upon written notice from the Owner's Representative or SBCLTA, and the subcontractor shall not again be employed on the type of work in which his or her performance was unsatisfactory.

46) TEMPORARY SUSPENSION OF WORK: The SBCLTA shall have the authority to suspend the work wholly or in part for such period as it may deem necessary, due to unsuitable weather, lack of adherence to safety regulations, or to any other conditions it considers unfavorable for the suitable prosecution of the work, or for such time as it may deem necessary, due to the failure on the part of the Contractor to carry out orders given or to perform any provisions of the Contract, or for any other reason. The Contractor shall immediately comply with such written order of the SBCLTA to suspend the work wholly or in part. The suspended work shall be resumed only when conditions are favorable or methods are corrected, as ordered or approved in writing by the SBCLTA.

If a suspension of the work is ordered by the SBCLTA due to the failure on the part of the Contractor to carry out orders or to perform any provisions of the Contract, the days on which the suspension order is in effect shall count against the Contract time, and shall not in any way modify or invalidate any of the provisions of this Contract, and the Contractor shall not be entitled to any damages or compensation on account of such suspension or delay.

47) TERMINATION OF CONTRACTOR'S CONTROL OVER THE WORK: Whenever, in the opinion of the SBCLTA, the Contractor has failed to supply an adequate force of labor, equipment, or materials of proper quality, or has failed in any other respect to prosecute the work with the diligence specified in the Contract; or if Contractor should refuse or fail to comply with laws, ordinances, or directions of the Owner's Representative; or if Contractor should fail to make prompt payments to subcontractors or for labor or materials; or otherwise be in breach of this Contract; the SBCLTA may give written notice of at least five (5) calendar days to the Contractor and Contractor's sureties that if

the defaults are not remedied within a time specified in such notice, the Contractor's control over the work will be terminated.

If the Contractor should be adjudged bankrupt, or make an assignment for the benefit of Contractor's creditors, or if a receiver should be appointed on account of Contractor's insolvency, the SBCLTA may declare the Contractor's control over the work terminated, and so notify the Contractor and Contractor's sureties.

Upon such termination, the SBCLTA may take possession, and use all or any part, of the Contractor's materials, tools, equipment, and appliances upon the premises to complete the work; the SBCLTA assuming responsibility for the final relinquishment of such equipment at the conclusion of the work, or sooner, at its option, in as good condition as when it was taken over, reasonable wear and tear excepted; and the SBCLTA agrees to pay for such materials and the use of said equipment at a reasonable compensation.

Upon such termination or the SBCLTA's declaration that the Contractor is in default, the SBCLTA may direct the surety to complete, or cause to be completed, the Contract work, or the SBCLTA may direct that all or any part of the work be completed by day labor, or by employment of other contractors on informal contracts, or both. If the SBCLTA directs the surety to complete or cause to be completed, the Contract work, Contractor's performance bond surety agrees to immediately undertake to complete or cause to be completed, all Contract work.

If the Contractor's control over the work is terminated as provided above, the Contractor is not entitled to receive any portion of the amount to be paid under the Contract until it is fully completed. After completion, if the unpaid balance exceeds the sum of the amount expended by the SBCLTA in finishing the work, plus all damages sustained, or to be sustained, by the SBCLTA, plus any unpaid claims on account of labor, materials, tools, equipment, or supplies contracted for by the Contractor for the work herein contemplated, the excess not otherwise required by these Contract Documents to be retained shall be paid the Contractor. If the sum so expended exceeds the unpaid balance, the Contractor and Contractor's surety are liable to the SBCLTA for the amount of such excess. If the surety completes the Contract work as provided above, such surety shall be subrogated to money due under the Contract, and to money which shall become due in the course of completion by the surety. However, Contractor and Surety agree that any subrogation rights of surety are subordinate to and inferior to rights of SBCLTA.

The SBCLTA reserves the right to terminate the work for its convenience upon written notice to Contractor. In such event, the Contractor shall be paid its reasonable costs for that portion of the work performed to the date of termination, reasonable costs associated with demobilization, plus fifteen percent (15%) of all such costs for overhead and profit.

48) FINAL INSPECTION, FIELD ACCEPTANCE, AND ACCEPTANCE: The Contractor shall notify the Owner's Representative in writing of the completion of the work, and the architect, engineer or Construction Manager/designated SBCLTA Inspector of record shall inspect the work. The Contractor, or Contractor's representatives, may be present at the inspection. The Contractor will be notified in writing of any defects or deficiencies to be remedied prior to final acceptance. Within ten (10) calendar days of such notification, the Contractor shall proceed to correct such defects or deficiencies. When notified that this work has been completed, the architect or engineer will again inspect the work to satisfy itself that all work has been done in accordance with the Contract Documents, and will issue a final acceptance letter, and will recommend to the SBCLTA that they formally accept the work. Final acceptance by the SBCLTA shall cause the commencement of guarantee periods. Within ten (10) days of final acceptance (approval by SBCLTA Board) of all work required by these Contract Documents, a Notice of Completion will be filed with the SBCLTA Recorder of San Benito County.

49) CLEANING UP: Throughout the construction period, the Contractor shall keep the site of the work in a presentable and safe condition, dispose of any surplus materials, clean out all drainage

ditches and structures, and repair any fences or other property damaged during the progress of the work, to the satisfaction of the Owner's Representative and SBCLTA.

Upon completion of the work, and prior to requesting final inspection, the Contractor shall thoroughly clean the site of the work of all rubbish, excess material, and equipment, and all portions of the work shall be left in a neat and orderly condition. The final inspection will not be made until this has been accomplished.

If Contractor fails or refuses to fulfill these obligations to the SBCLTA's satisfaction, SBCLTA may, at its option, undertake these obligations, and withhold the cost of performing these obligations, plus an additional fee of twenty-five percent (25%) for administrative costs, from payments to Contractor.

50) COMPLIANCE WITH LAWS AND REGULATIONS: The Contractor shall keep itself fully informed of, and shall observe and comply with, and shall cause any and all persons, firms, or corporations employed by Contractor or under him, to observe and comply with all State and national laws, and SBCLTA and municipal ordinances, regulations, orders, and decrees which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work. Particular attention is called to the following:

A. HOURS OF LABOR - Eight hours of labor shall constitute a legal days' work, and the Contractor or any subcontractor under him, in the performance of the Contract, shall not require more than eight hours of labor in any calendar day, and forty hours of labor in any calendar week, from any person employed by Contractor in the performance of the work under this Contract, except as permitted under the provisions of Section 1815 of the Labor Code of the State of California. The Contractor shall forfeit, as penalty to the SBCLTA, fifty dollars ($25.00) for each workman employed by Contractor or any subcontractor under Contractor in the performance of the Contract for each calendar day during which any workman is required or permitted to labor more than eight hours and for each calendar week during which any workman is required or permitted to labor more than forty hours, in violation of the provisions of such Labor Code.

No work other than overtime and shift work shall be done between the hours of 7:00PM and 7:00AM, except such work as is necessary for the proper care and protection of the work already performed or except in case of an emergency; excepting that overtime and/or shift work may be established by the Contractor with reasonable notice and the written permission of the Owner's Representative.

B. PREVAILING WAGE - Pursuant to Section 1770, and following, of the California Labor Code, the Contractor shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. A copy of the Prevailing Wage Scale is available at the following web site: http://www.dir.ca.gov/DLSR/statistics_research.html#PWD. Failure to pay such prevailing wages shall subject the employer to the penalties set forth in Labor Code Section 1775.

C. LABOR DISCRIMINATION - Contractor shall comply with Section 1735 of the Labor Code of the State of California, which prohibits discrimination in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons.

D. APPRENTICES - Attention is directed to Section 1777.5 of the Labor Code of the State of California concerning employment of apprentices, and the Contractor is required to comply with the provisions of said Section.

E. TRAVEL AND SUBSISTENCE PAYMENTS - Attention is directed to the requirements of Section 1773.8 of the Labor Code of the State of California. The Contractor shall make

travel and subsistence payments to each workman needed to complete the work in accordance with the requirements in said Section 1773.8.

F. WORKERS' COMPENSATION - Pursuant to the requirements of Section 1860 of the Labor Code, the Contractor is required to secure the payment of Workers' Compensation to Contractor's employees in accordance with the provisions of Section 3700 of the Labor Code.

Prior to the commencement of work, the Contractor shall sign and file with the Owner's Representative a certification in the following form:

"I am aware of the provisions of Section 3700 of the Labor Code, which requires 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."

Said certification is included in the Contract, and signature and return of the Contract as provided in Paragraph 16 of these General Conditions, "Signing of Contract," shall constitute signing and filing of the said certificate.

G. USE OF PESTICIDES - The Contractor shall comply with all rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations, the County Integrated Pest Management (IPM) program, and all other agencies which govern the use of pesticides required in the performance of the work on the Contract.

Pesticides shall include, but shall not be limited to, herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilants, and repellents.

Any substance or mixture of substances intended for preventing, repelling, mitigating, or destroying weeds, insects, diseases, rodents, or nematodes, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant shall be considered a pesticide.

H. PAYROLL RECORDS - Attention is directed to Section 1776 of the California Labor Code, a portion of which is quoted below. Regulations implementing said Section 1776 are located in Section 16000, and Sections 16401 through 16403 of Title 8, California Administrative Code. The Contractor shall be responsible for compliance by Contractor's subcontractors.

(1) Each contractor and subcontractor shall keep an accurate payroll record showing the name, address, Social Security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker or other employee employed by him or her in conjunction with the public work.

(2) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis:

(a) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(b) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and

the Division of Apprenticeship Standards of the Department of Industrial Relations.

(c) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection and copies thereof made; provided, however, that a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the contractor.

(3) Each contractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within ten (10) days after receipt of a written request.

(4) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and Social Security number. The name and address of the contractor awarded the contract or performing the contract shall not be marked or obliterated.

(5) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city, and county, and shall, within five (5) working days provide a notice of a change of location and address.

(6) In the event of noncompliance with the requirements of this section, the contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects the contractor must comply with this section. Should noncompliance still be evident after the ten-day period, the contractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

The penalties specified in subdivision (f) of Labor Code Section 1776 for noncompliance with the provisions of said Section 1776 may be deducted from any moneys due or which may become due to the Contractor.

I. REPORTING REQUIREMENTS AND SANCTIONS - Failure to deliver to SBCLTA specific information, records, reports, certifications, or any other documents required for compliance with these Contract Documents shall be considered noncompliance.

Contractors found by the SBCLTA to be in noncompliance are to be advised of the specific deficiencies and urged to make immediate corrections. They should also be advised that monetary deductions may be made for failure to effect corrections or delinquencies.

If the Contractor fails to correct a deficiency within fifteen (15) days after notification, a deduction may be made. In such cases, the deduction shall be ten percent (10%) of the estimated value of the work done during the month, except that the deduction will not exceed

ten thousand dollars ($10,000.00), nor be less than one thousand dollars ($1,000.00), and shall be deducted from the next progress payment.

Deductions for noncompliance will be in addition to all other deductions provided for in this Contract, and will apply irrespective of the number of instances of noncompliance. Deductions may be made separately and additively for each estimate period in which a new deficiency appears. When all deficiencies for a period have been corrected, the deduction covering that period will be released on the next progress payment. Otherwise, the deduction will be retained.

51) RESPONSIBILITY OF THE CONTRACTOR: The Contractor shall do all of the work and furnish all labor, materials, tools, equipment, and appliances, except as otherwise herein expressly stipulated, necessary, or proper for performing and completing the work herein required, including any Change Order work, disputed work or extra work directed by the SBCLTA or Owner's Representative, within the time specified.

If the Contractor discovers any discrepancies during the course of the work between the Contract Documents and conditions in the field, or any errors or omissions in the Contract Documents and conditions in the field, or any errors or omissions in the Contract drawings, specifications, or layout given by stakes, points, or instructions, it shall be the Contractor's duty to inform the Owner's Representative immediately, and the Owner's Representative shall promptly verify the same. Any work done after such discovery until authorized in writing by the Owner's Representative will be done at the Contractor's risk.

In no case shall the use of subcontractors in any way alter the position of the Contractor or Contractor's sureties with relation to this Contract. When a subcontractor is used, the responsibility for every portion of the work shall still remain with the Contractor.

The Contractor shall pay, when due, all valid claims of subcontractors, suppliers, and workmen with respect to the project.

The mention herein of any specific duty or responsibility imposed upon the Contractor shall not be construed as a limitation or restriction of any other responsibility or duty imposed upon the Contractor by the Contract, said reference being made herein merely for the purpose of explaining the specific duty or responsibility.

52) INDEMNIFICATION:

A. CONTRACTOR'S PERFORMANCE: Contractor shall defend, indemnify, and save harmless SBCLTA and Owner's Representative (including their inspectors, construction managers, project managers, trustees, officers, agents, members, employees, affiliates, consultants, subconsultants, and representatives), and each of them, of and from any and all claims, demands, suits, causes of action, damages, costs, expenses, attorneys' fees, losses, or liability, in law or in equity, of every kind and nature whatsoever arising out of, or in connection with, Contractor's operations to be performed under this Contract, including, but not limited to:

(1) Personal injury (including, but not limited to, bodily injury, emotional injury or distress, sickness, or disease) or death to persons, including, but not limited to, any employees or agents of Contractor, SBCLTA, Owner's Representative, Construction Manager, or any subcontractor, or damage to property of anyone including the work itself (including loss of use thereof), caused or alleged to be caused in whole or in part by any negligent act or omission of Contractor, SBCLTA, or Owner's Representative, or anyone directly or indirectly employed by them, or anyone for whose acts they may be liable;

(2) Penalties threatened, sought, or imposed on account of the violation of any law, order, citation, rule, regulation, standard, ordinance, or statute, caused by the action or inaction of Contractor;

(3) Alleged infringement of any patent rights which may be brought arising out of Contractor's work;

(4) Claims and liens for labor performed or materials used or furnished to be used on the job, including all incidental or consequential damages from such claims or liens;

(5) Contractor's failure to fulfill any of the covenants set forth in these Contract Documents;

(6) Failure of Contractor to comply with the provisions of the Contract Documents relating to insurance; and,

(7) Any violation or infraction by Contractor of any law, order, citation, rule, regulation, standard, ordinance, or statute in any way relating to the occupational, health, or safety of employees.

The indemnities set forth in this section shall not be limited by the insurance requirements set forth in these Contract Documents.

Contractor's indemnification of SBCLTA will not include indemnification for claims which arise as the result of the active negligence of SBCLTA, or the sole negligence or willful misconduct of SBCLTA, its agents, servants or independent contractors who are directly responsible to SBCLTA, or for defects in design furnished by such persons.

53) PERMITS AND LICENSES: The Contractor shall procure all permits and licenses necessary for the normal conduct of its business and construction operations, and all costs associated therewith shall be paid by Contractor.

The Environmental Quality Act of 1970 may be applicable to permits, licenses, and other authorizations which the Contractor must obtain from local agencies in connection with performing the work of the Contract. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses, and other authorizations, and they shall be obtained in sufficient time to prevent delays to the work.

In the event that the SBCLTA has obtained permits, licenses, or other authorizations applicable to the work in conformance with the requirements in said Environmental Quality Act of 1970, the Contractor shall comply with the provisions of said permits, licenses, and other authorizations.

54) PROTECTION OF SBCLTA AGAINST PATENT CLAIMS: The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work.

55) PROTECTION OF WORKERS: The Contractor shall conform to the rules and regulations pertaining to safety established by the California Division of Industrial Safety and any other governing body having jurisdiction over the work. The Contractor shall immediately replace or repair any unsafe ladder, scaffolding, shoring, or bracing, or correct any other dangerous or hazardous situation that may exist or that the Owner’s Representative may indicate. Failure of the Owner’s Representative to suspend the work or notify the Contractor of the inadequacy of the safety precautions or noncompliance with the law shall not relieve the Contractor of this responsibility.

The Contractor is warned that when the work involves existing sewers and appurtenances that have been exposed to sewage and industrial wastes, these facilities shall be considered contaminated with disease-causing organisms. Personnel in contact with contaminated facilities, debris, waste water, or similar items shall be advised by the Contractor of the necessary precautions that must be taken to avoid becoming diseased. It is the Contractor's responsibility to urge his/her personnel to observe a strict regimen of proper hygienic precautions, including any inoculations recommended by the local public health officer.

Because of the potential danger of solvents, gasoline, and other hazardous material in the existing sewers and storm drain pipes, these areas shall be considered hazardous. The Contractor shall be aware of these dangers and shall comply with Article 108, "Confined Spaces," of the General Industrial Safety Orders contained in Title 8 of the California Administrative Code.

In the event that this Contract requires the excavation of any trench or trenches in excess of five feet in depth, Contractor shall prepare a detailed design plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trenches. Said detailed design plan and subsequent excavating operations shall fully comply with all local, state and federal regulations including, but not limited to, the Construction Safety Orders, Section 1539, Permits and Section 1540 et seq., Excavation.

A. Safety Program. When requested by SBCLTA, Contractor shall submit a proposed safety program which outlines the precautions to be taken by contractor to insure the safety of SBCLTA employees and the public.

B. Material Safety Data Sheets.

(1) Contractor shall provide the SBCLTA with copies of current Material Safety Data Sheets (MSDS) on all products subject to the requirements of California Code Section 5144. The MSDS submittals will be required prior to the issue of a Notice to Proceed.

(2) Contractor shall conduct operations in such a way as to comply with manufacturers' recommendations contained in Material Safety Data Sheets.

56) PROTECTION OF MATERIALS AND EQUIPMENT: The Contractor shall protect the work, materials, and equipment from damage due to the nature of the work, the action of the elements, trespassers, or other causes. The Contractor shall properly store materials and equipment, and erect such temporary structures as are required to protect them from damage, including, but not limited to, construction fencing.

57) SANITARY PROVISIONS: The necessary sanitary conveniences for the use of the workers on the project, properly obscured from public observance, shall be constructed and maintained by the Contractor.

58) EXISTING UTILITIES: It is recognized by the Contractor that the location of existing utility facilities as shown on Contract drawings and specifications are approximate; their exact location is unknown.

Recognition is given to the fact that there may be additional utilities existing on the property unknown to either party to the Contract. Location of utilities as shown on drawings and specifications represent the best information obtainable from utility maps and other information furnished by the various agencies involved. The SBCLTA warrants neither the accuracy nor the extent of actual installations as shown on the drawings and specifications.

Because of this uncertainty, it may become necessary for the Owner’s Representative to make adjustments in the line or grade of sewers or storm drains. Installation of such adjusted lines shall be

made at the regular unit price bid for the work, and no additional compensation will be paid therefor, unless the scope and character of the work has been changed.

The Contractor agrees and is required to coordinate and fully cooperate with the SBCLTA and utility owners for the location, relocation, and protection of services and utilities. The Contractor's attention is directed to the existence of services and utilities, underground and overhead, necessary for normal house and commercial service for all buildings along the line of work. The Contractor shall make arrangements with utility owners and Underground Service Alert (USA) for the location of all service or utility lines in advance of the actual construction and for the relocation of such facilities, if necessary, by the utility owner or the Contractor.

In accordance with Section 4215 of the Government Code of the State of California, the SBCLTA shall make provisions to compensate the Contractor for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, and removing or relocating such main and trunk line utility facilities not indicated in the plans and specifications with reasonable accuracy, and for equipment on the project necessarily idled during such work. Compensation will be in accordance with Paragraph 41, Changes, and subject to all of the requirements of Paragraph 39, Claims, of the General Conditions. In the event the Contractor discovers utilities not identified in the Contract Documents, the Contractor shall immediately notify the Owner’s Representative and the utility owner by the most expeditious means available and later confirm in writing.

It is understood and agreed that the failure of the Contractor or its subcontractor to comply fully with these provisions constitutes failure of the Contractor to exercise reasonable care and precludes Contractor's recovery from SBCLTA for any related costs or damages.

59) COOPERATION WITH OTHERS: The SBCLTA or adjacent property owner may perform other work adjacent to or within the project area, concurrent with the Contractor's operations. The Contractor shall cooperate fully with SBCLTA in all operations which coincide with other work being performed, and provide SBCLTA with such scheduling and other information as may be required by SBCLTA to perform such other work. The Contractor shall conduct operations to minimize interference with the work of other forces or contractors performing such work. This work performed by a second contractor may include work which is incomplete or in dispute with the Contractor.

Any disputes or conflicts which may arise between the Contractor and any other forces or contractors retained by the SBCLTA, causing delays or hindrance to each other, shall be referred to the Owner’s Representative for resolution.

If the work of the Contractor is delayed because of any acts or omissions of any other forces or contractor, the Contractor shall on that account have no claim against the SBCLTA other than for an extension of time.

60) AIR POLLUTION CONTROL: The Contractor shall comply with all air pollution control rules, regulations, ordinances, and statutes which apply to any work performed pursuant to the Contract, including any air pollution control rules, regulations, ordinances, and statutes specified in Section 11017 of the Government Code.

Unless otherwise provided in the Contract Documents, material to be disposed of shall not be burned.

61) WATER POLLUTION: The Contractor shall comply with all rules, regulations, ordinances, and statues which apply to water pollution, including but not limited to, erosion control and Section 7-1.G of the State specifications.

62) SOUND CONTROL REQUIREMENTS: The Contractor shall comply with all sound control and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the Contract.

Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

63) UNFAVORABLE WEATHER AND OTHER CONDITIONS: During unfavorable weather and other conditions, the Contractor shall pursue only such portions of the work as will not be damaged thereby. No portions of the work the satisfactory quality or efficiency of which will be affected by any unfavorable conditions shall be constructed while these conditions remain, unless, by special means or precautions acceptable to the Owner's Representative, the Contractor shall be able to overcome these conditions.

64) WEEKEND, HOLIDAY, AND NIGHT WORK: No work shall be done between the hours of 7:00PM and 7:00AM, or on Sundays or legal holidays, except with written permission of the SBCLTA and Owner's Representative. Requests to work between 7:00PM and 7:00AM, or on Sundays or legal holidays, must be submitted in writing at least two working days in advance of the intended work. In case of an emergency, the Contractor will be allowed to work at night or on Sundays or legal holidays, but must notify the Owner's Representative immediately. An emergency shall be considered an unforeseen event that poses a danger to the public or to the uncompleted work.

It is understood, however, that two or three shift operations may be established as a regular procedure by the Contractor if Contractor first obtains written permission from the SBCLTA and Owner's Representative. Such permission may be revoked by the SBCLTA or Owner's Representative at any time, without cause, or if the Contractor fails to maintain adequate force and equipment for reasonable prosecution and to justify inspection of the work, or fails to provide sufficient artificial light to permit the work to be carried on properly and safely and to permit proper inspection.

The Contractor shall give the SBCLTA and Owner's Representative two working days prior written notice of any work to be done on a Saturday, with the location and type of work to be done specified; and any work done without such notice and without the supervision of an inspector may be ordered removed and replaced at the Contractor's expense.

65) OVERLOADING: The Contractor shall determine safe loading capacities and shall not overload any structure beyond its safe capacity during construction. In addition to assuming full responsibility for bodily injury resulting from any such overloading, the Contractor shall repair to the Owner's Representative's satisfaction or reimburse the SBCLTA for the costs of repairing damage resulting therefrom.

66) SUBCONTRACTING AND ASSIGNMENT: The performance of the Contract may not be assigned except upon written consent of the SBCLTA, and no assignment shall be permitted which would relieve the original Contractor or Contractor's surety of their responsibilities under the Contract.

67) NON-RECOGNITION OF SUBCONTRACTORS: No subcontractor will be recognized as such, and all persons engaged in the work under this Contract will be considered as employees of the Contractor, and their work shall be subject to all the provisions of the Contract. The SBCLTA and its representatives will deal only with the Contractor, who shall be responsible for the proper performance of the entire work. Except as otherwise provided in the Contract Documents, or when direct communications have been specifically authorized, the SBCLTA and Contractor shall communicate through Owner's Representative. Communications by Contractor with the SBCLTA's consultants and architect or engineer's consultants shall be through the Owner's Representative. Communications by the Owner's Representative with subcontractors shall be through the Contractor.

68) LANDS AND RIGHTS OF WAY: The SBCLTA shall provide the lands, rights of way, and easements upon which the work under this Contract is to be done, and such other lands as may be designated on the Contract drawings for the use of the Contractor, and the Contractor shall confine Contractor's operations to within these limits.

The Contractor shall provide, at Contractor's own expense, any additional land and access thereto that may be required for temporary construction facilities or storage of materials.

69) LIABILITY OF SBCLTA OFFICIALS: Neither the Owner's Representative, nor officers, employees, agents, or representatives of the SBCLTA, nor any of them, shall be responsible for any liability arising under this Contract, except such obligations as are specifically set forth herein.

70) CONTRACTOR NOT AN AGENT OF SBCLTA: The right of general supervision shall not make the Contractor an agent of the SBCLTA, and the liability of the Contractor for all damages to persons or to public or private property arising from the performance of the work shall not be lessened because of such general supervision.

71) THIRD-PARTY CLAIMS: The Contractor shall be responsible for all third-party claims, and for costs or injuries incurred by a third party which result from the operations of the Contractor, or its performance under the Contract.

72) GUARANTEE: Should any failure of the work occur within a period of one year after recordation of the notice of completion of the project or portions thereof or within any designated warranty period, which can be attributed to faulty materials, poor workmanship, or defective equipment, the Contractor shall promptly make the needed repairs at Contractor's expense.

The SBCLTA is hereby authorized to make such repairs if the Contractor fails to make or undertake with due diligence the aforesaid repairs within ten (10) days after Contractor is given written notice of such failure and without notice to the surety provided, however, that in case of emergency where, in the opinion of the SBCLTA, delay would cause serious loss or damages, or a serious hazard to the public, the repairs may be made or lights, signs, and barricades erected, without prior notice to the Contractor or surety, and the Contractor shall pay the entire costs thereof.

73) ASSIGNMENT OF ANTITRUST ACTIONS: Pursuant to Section 4552 of the Government Code of the State of California, the following provisions shall be a part of this Contract:

> In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15), or under 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 the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor without further acknowledgment by the parties.

74) LEGAL ADDRESS OF THE CONTRACTOR: Both the address given in the proposal and the Contractor's office in the vicinity of the work are hereby designated as places to either of which drawings, letters, notices, or other articles or communications to the Contractor may be mailed, transmitted electronically or delivered. The mailing, electronic transmission, or delivery to either of these places shall be deemed sufficient notice thereof upon the Contractor. Nothing herein contained shall be deemed to preclude the service of any drawing, letter, notice, article, or communication to, or upon, the Contractor or Contractor's representative personally. The address named in the proposal may be changed at any time by written notice from the Contractor to the Owner's Representative.

75) SURVEYS: When set forth in the Contract Documents that the Contractor is to provide all staking and engineering services, the Contractor shall be responsible to do all necessary staking and engineering services to layout and control the work to the elevations, lines, and dimensions shown on the plans. Any deviations must receive prior written acceptance of the Owner's Representative. All staking and engineering services affecting the line or elevation of underground drainage, sewers, or utilities, and all other work within public rights of way or easements shall be performed by or under the direction and supervision of a Registered Civil Engineer or Licensed Land Surveyor, licensed by the state of California.

The Contractor shall keep the Owner's Representative informed, at least two working days in advance, of the times and places at which Contractor will need lines, elevations, and reference points. Unless authorized by the Owner's Representative, any work done without line and grade will be done at the Contractor's risk. The Contractor shall be responsible for the accuracy of Contractor's own layout work, and shall be liable for the preservation of all established lines and grades. Stakes damaged or destroyed by the operations of the Contractor will be replaced at Contractor's expense.

76) MATERIALS OR EQUIPMENT SPECIFIED BY NAME: When any materials or equipment is indicated or specified by patent or proprietary name or by the name and catalogue number of the manufacturer, it shall be considered as used for convenience in describing the material or equipment desired. The use of an alternative material or equipment which is of equal quality and of the required characteristics for the purpose intended may be permitted. Request for such substitution shall be made in writing by the Contractor within thirty (30) days of the Notice to Proceed. Failure by the Contractor to request substitution within thirty (30) days of the Notice to Proceed constitutes an agreement by Contractor to furnish only the materials or equipment listed in the Contract Documents. Until and unless such substitutions are accepted by the Owner's Representative, no deviations from the specifications shall be allowed. The burden of proof as to the quality and suitability of the alternative shall be upon the Contractor. The SBCLTA shall be the sole judge as to the quality and suitability of alternative materials or equipment, and its decision shall be final.

77) PROPERTY RIGHTS IN MATERIAL: Nothing in this Contract shall be construed as vesting in the Contractor any right of property in the materials used, after they have been installed, attached, or affixed to the work, but all such materials shall be the property of the Contractor and the SBCLTA jointly as their interest may appear, and cannot be removed from the work without the consent of the SBCLTA.

78) CONTRACTOR'S EQUIPMENT: The Contractor shall provide adequate and suitable equipment and means of construction to meet all the requirements of the work, including completion within the time allotted. Only equipment suitable to produce the quality of work required will be permitted to operate on the project, and specific types of equipment may be requested on component parts of the work.

In any case where the use of a particular type or piece of equipment has been banned, or in cases where the Owner's Representative has condemned for use on the work, any piece or pieces of equipment, the Contractor shall promptly remove such equipment from the site of the work. Failure to do so within a reasonable time may be considered a breach of contract.

79) MISCELLANEOUS PROVISIONS: This Contract shall bind and inure to the heirs, devisees, assignees, and successors in interest of Contractor, and to the successors in interest of SBCLTA, in the same manner as if such parties had been expressly named herein.

If any claim or dispute arises between the parties, the claim or dispute shall first be submitted to mediation utilizing the services of a neutral mediator. If the parties cannot agree upon the selection of a neutral mediator, the matter shall be submitted to Judicial Arbitration and Mediation Services for the selection of a neutral mediator. The parties shall share equally the costs associated with the mediation.

This Contract shall be governed by the laws of the State of California.

If any one or more of the provisions contained in the Contract should be invalid, illegal, or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

This Contract constitutes the full and complete understanding of the parties, and supersedes any previous agreements or understandings, oral or written, with respect to the subject matter hereof. The Contract may only be modified by a written instrument signed by both parties.

Contractor hereby assigns to SBCLTA all its first-tier subcontracts now or hereafter entered into by Contractor for performance of any part of the work. The assignment will be effective upon acceptance by SBCLTA in writing, and only as to those subcontracts which SBCLTA designates in writing. Such assignment is part of the consideration to SBCLTA for entering into the Contract with Contractor, and may not be withdrawn.

80) PUBLIC CONTRACT CODE SECTION 20104, ET SEQ.**:**

Public Contract Code section 20104, et seq., requires that the following language be set forth in the specifications:

§ 20104 Application of article; provisions included in plans and specifications

(a) (1) This article applies to all public works claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a contractor and a local agency.

(2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2.

(b) (1) "Public work" has the same meaning as in Sections 3100 and 3106 of the Civil Code, except that "public work" does not include any work or improvement contracted for by the state or the Regents of the University of California.

(2) "Claim" means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.

(c) The provisions of this article or a summary thereof shall be set forth in the plans or specification for any work which may give rise to a claim under this article.

(d) This article applies only to contracts entered into on or after January 1, 1991.

§ 20104.2. Claims; requirements; tort claims excluded

For any claim subject to this article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars ($50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

(c) (1) For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

(d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code.

§ 20104.4. Civil action procedures; mediation and arbitration; trial de novo; witnesses

The following procedures are established for all civil actions filed to resolve claims subject to this article:

(a) Within 60 days, but no earlier than 30 days, following the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

(b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

(2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

(3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

(4) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

§ 20104.6. Payment on undisputed portion of claim; interest on arbitration awards or judgments

(a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.

(b) In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

SUPPLEMENTAL CONDITIONS

1) TIME OF COMPLETION. The Contractor shall complete all or any designated portions of the work called for under the contract in all parts and requirements within 135 calendar days (August 18, 2023 – December 31, 2023) (except as modified in the technical specifications). The contractor shall submit a time line for construction within 10 working days upon award of the contract. Contract time shall begin five (5) calendar days after the date of dispatch of the Notice to Proceed.

It is the intent of SBCLTA to minimize disruptions to ongoing SBCLTA operations during construction projects. A total of 135 calendar days have been allowed for this project.

The bidding and construction schedule for this project is as follows:

June – July	Bidding Period
July 20, 2023	Bid Opening
August 17, 2023	Contact Award (Anticipated)
August 18, 2023	Contract Notice to Proceed
August 2023 – December 2023	Construction period (Anticipated)
December 2023	Substantial Completion

For the purpose of computing liquidated damages all days in excess of the allowed number of construction days, that the contract is in the construction phase, shall be considered in excess of the allowed number of calendar days for the overall project.

2) LIQUIDATED DAMAGES. Time is of the essence in this contract. It is agreed by the parties to the contract that in case all the work called for under the contract in all parts and requirements is not finished or completed within the number of calendar days as set forth in the Special Conditions, damage will be sustained by the SBCLTA, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the SBCLTA will sustain in the event of and by reason of such delay; and it is therefore agreed that the Contractor will pay to the SBCLTA the sum set forth below per day for each and every calendar day's delay in finishing the work in excess of the number of calendar days prescribed; and the Contractor agrees to pay said liquidated damages herein provided for, and further agrees that the SBCLTA may deduct the amount thereof from any moneys due or that may become due the Contractor under the contract.

If adverse weather conditions are the basis for a Claim for additional time, such claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated and that weather conditions had an adverse effect on the critical path schedule.

Claims due to adverse weather, when approved, shall be excusable but not compensable.

It is further agreed that in the event the Contractor fails to complete work and all requirements under this Agreement within the number of calendar days specified, the SBCLTA shall have the right (but not the obligation) to increase the number of calendar days, as the SBCLTA may in its sole discretion deem best to serve its interests.

The Contractor will be granted an extension of time and will not be assessed with liquidated damages for any portion of the delay in completion of the work beyond the time named in the Special Conditions for the completion of the work caused by acts of God or of the public enemy, fire, storms, floods, tidal waves, earthquakes, shortage of materials and freight embargoes, provided that the Contractor shall notify the Engineer in writing of the causes of delay within fifteen (15) days from the

beginning of any such delay. The Engineer shall ascertain the facts and the extent of the delay, and his findings thereon shall be final and conclusive.

The Contractor shall pay to SBCLTA a sum of $500 per day for each and every calendar day's delay in finishing the work in excess of the number of calendar days prescribed in the Time of Completion. Completion of the project includes correction of any punch list items identified by the Project Design Team.

3) FACILITIES WITH ASBESTOS CONTAINING MATERIALS SBCLTA has conducted limited surveys of its facilities to determine the presence of Asbestos Containing Materials (ACM).

The contractor shall be responsible for ensuring that any subcontractors, workmen, or others associated with the work on this project have been notified of the presence of asbestos containing materials at the construction site if known, and have been properly instructed to approach all work with caution. If during the course of construction, materials are discovered that are suspected to contain ACM, the contractor shall stop work and notify the SBCLTA project manager immediately. Within one (1) week of the project manager's notification to the Occupational Safety and Health Division (OSH) of the SBCLTA, material will be sampled and the results posted at the construction site. Construction shall not resume until approval to proceed has been obtained from OSH. The time accrued during the period when the contractor first notifies the SBCLTA of a bona fide suspicion that a project area contains ACM until the time when construction is allowed to proceed, shall not count towards the required time of completion as indicated in Section 1 of the Supplemental Conditions, provided the contractor is unable to perform work as specified during the delay and all other provisions of the specifications.

The contractor shall be responsible for informing all subcontractors, workmen or other persons associated with the project of the contents of this notification letter and any special safety precautions to be taken. If no notification letter is attached, then either the building area has not been surveyed or no ACM have been detected in areas sampled. The contractor shall bring any questions or concerns regarding ACM to the immediate attention of the SBCLTA project manager.

Asbestos notification letters are included in these bid documents for any ACM previously discovered in the area of construction. The asbestos notification letter identifies areas that have been surveyed for asbestos. However, it should be noted that the surveys conducted are not comprehensive wall-to-wall surveys. Any materials not surveyed and noted within the letters may be suspect to contain asbestos.

Under no circumstances shall a contractor remove asbestos on SBCLTA facilities, unless that contractor is properly licensed and has been specifically hired by the SBCLTA for the sole purpose of asbestos abatement as directed by the SBCLTA's Occupational Safety & Health Division.

4) SAFETY REQUIREMENTS ON ALL SBCLTA PROJECTS All General or Prime Contractors will be responsible for their Employees, and subcontractors. It will be up to them to enforce all safety regulations set forth by the SBCLTA and Cal-OSHA. This will include all safety ware and equipment necessary to provide a safe work environment for all workers and the public in and around the job site.

1. The use of safety ware and equipment, such as eye protection, ear protection, and other required safety equipment would be strictly enforced.
2. Work areas will be marked off and safe paths provided for SBCLTA employees and the general public.
3. Noise and dust will need to be contained and kept to a minimum when working in occupied areas, and may require after hours work.
4. When work above the floor or ground is required, proper use of ladders and safety harness or railing will be enforced.
5. All welding, cutting or brazing will require a fire-watch with a fire extinguisher.

6. All Contractors are responsible for their equipment and must ensure that it is safe and in good working order. All electrical equipment to be used on site will be checked by the Project Manager.
7. All Contractors are required to clean up their work area daily. Materials not used will be stored neatly or removed from the site.
8. Material Safety Data Sheets for any materials used on the project are required per OSHA standards. **No storage or disposal of hazardous materials on site is allowed.**
9. For any work site/facility that is equipped with a security system, or that has doors that must remain locked, the entering of this site/facility or shutdown of the security system will need to be authorized by the Project Manager and/or the Building Maintenance Superintendent.
10. The Project Manager will explain all policies and procedures regarding emergency alarms and exits and will also give a tour of the fire exits.
11. A dress code is required within the SBCLTA facilities. Work attire will be neat and clean, and will meet OSHA requirements. No t-shirts, shorts, or open-toed shoes will be permitted.
12. SBCLTA has all non-smoking facilities. Smoking is permitted only in designated areas outside of work site.

SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY
STATE OF CALIFORNIA

THIS CONTRACT, made and entered into this _____ day of _____, 20___ between San Benito County Local Transportation Authority, a joint powers agency formed pursuant to the joint exercise of powers provisions of California Government Code Sections 6500-6522 and located within the County of San Benito, State of California, hereinafter referred to as SBCLTA, and _____, hereinafter referred to as CONTRACTOR;

WHEREAS, the SBCLTA Board of Directors caused plans and specifications for the work hereinafter mentioned to be prepared, and approved and adopted the plans and specifications; and

WHEREAS, the SBCLTA Board of Directors caused to be noticed for the time and in the manner required by law a Notice inviting sealed Bids for the performance of the work described in the adopted plans and specifications; and

WHEREAS, CONTRACTOR, in response to the Notice, submitted a sealed Bid for the performance of the work specified in the adopted plans and specifications to the SBCLTA Board of Directors within the time and in the manner specified in the Notice; and

WHEREAS, in the manner provided by law, the SBCLTA Board of Directors received, publicly opened and canvassed the Bids submitted in response to the Notice, including the Bid submitted by CONTRACTOR; and

WHEREAS, CONTRACTOR was the lowest responsive, responsible Bidder for the performance of said work, and the SBCLTA Board of Directors, as a result of the canvass of Bids submitted, determined and declared CONTRACTOR to be the lowest responsive, responsible Bidder for the work and awarded to it a contract therefore.

NOW, THEREFORE, in consideration of the above, it is mutually agreed between the parties hereto as follows:

1. The CONTRACTOR will commence and complete the construction of the following public work project:

   Transit Maintenance & Operations Building TI Project

2. The CONTRACTOR shall do all of the work and furnish all of the materials, supplies, tools, equipment, labor, and other services necessary to construct and complete in a good, workmanlike and substantial manner and to the SBCLTA'S satisfaction, the project as described in the Invitation for Bids package, including all of the CONTRACT DOCUMENTS.

3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within five (5) calendar days after the date of the Notice To Proceed and will complete the same within 135 calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.

4. The CONTRACTOR agrees to perform all of the work described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of _____ ($_____).

5. The term "CONTRACT DOCUMENTS" means and includes the following, all of which documents are incorporated herein by reference:

a. INVITATION FOR BIDS “THE BID PACKAGE” INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

(1) INVITATION FOR BIDS

(2) CONTRACTING AND PROCUREMENT REQUIREMENTS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

(a) NOTICE TO CONTRACTORS

(b) INSTRUCTIONS TO BIDDERS

(c) GENERAL CONDITIONS

(d) SUPPLEMENTAL CONDITIONS

(3) SPECIFICATIONS AND REQUIREMENTS

(4) PLANS

(5) ADDENDA:

No. ____, dated _____, 20___ No. _____, dated _____, 20___

b. THE ACCEPTED BID INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

(1) SIGNATURE SHEET

(2) BID SCHEDULE

(3) NAMES AND TITLES FORM

(4) BIDDER’S BOND

(5) SUBCONTRACTOR LIST

(6) NON-COLLUSION AFFIDAVIT

(7) STATEMENT OF COMPLIANCE

(8) BIDDER QUALIFICATIONS

(9) GUARANTY

(10) CERTIFICATE AS TO WORKER’S COMPENSATION

(11) AFFIDAVIT CONCERNING EMPLOYMENT OF UNDOCUMENTED ALIENS

c. NOTICE OF AWARD

d. CONTRACT, SIGNED BY SBCLTA AND THE CONTRACTOR

e. PERFORMANCE BOND

f. PAYMENT BOND

g. NOTICE TO PROCEED

h. FUTURE CHANGE ORDERS

All CONTRACT DOCUMENTS are intended to cooperate, so that any work called for in one and not mentioned in another is to be executed the same as if mentioned in all. However, should there be any conflict between the terms of this instrument and the CONTRACTOR'S Bid, then this instrument shall control. It is further expressly agreed by and between the parties hereto that should there be any conflict between the terms of this instrument and the CONTRACTOR'S Bid, then this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of the Bid conflicting herewith. Where the specific terms and conditions in any of the referenced CONTRACT DOCUMENTS conflict with general terms and conditions in any referenced CONTRACT DOCUMENTS, the more specific terms and conditions shall be deemed to control. However, the general terms and conditions in any referenced CONTRACT DOCUMENTS shall remain in full force and effect, to the extent they do not conflict with the specific terms and conditions in any referenced CONTRACT DOCUMENTS.

6. The SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY will pay to the CONTRACTOR in the manner and at such times set forth in the CONTRACT DOCUMENTS such amounts as required by the CONTRACT DOCUMENTS.

7. In lieu of the SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY retaining a portion of progress payments due the CONTRACTOR, the CONTRACTOR may elect to deposit qualifying securities equivalent to the amount to be withheld. Upon such deposit under an escrow agreement substantially in the form specified in section 22300(e) of the Public Contracts Code, the funds shall be released.

8. Eight (8) hours of labor shall constitute a legal day's work, and the CONTRACTOR or any subcontractor under him, in the performance of the contract, shall not require more than eight (8) hours of labor in any calendar day, or more than forty (40) hours of labor in any calendar week, from any person employed by the CONTRACTOR in the performance of the work under this Contract, except as permitted under the provisions of Section 1815 of the Labor Code of the State of California. The CONTRACTOR shall forfeit, as penalty to SBCLTA, twenty-five dollars ($25.00) for each worker employed by the CONTRACTOR or any subcontractor under the CONTRACTOR in the performance of the contract for each calendar day during which any worker is required or permitted to labor more than eight (8) hours and for each calendar week during which any worker is required or permitted to labor more than forty (40) hours, in violation of the provisions of such Labor Code.

9. The CONTRACTOR and subcontractors shall comply with the requirements of Labor Code sections 1777.5 and 1777.6 in the employment of apprentices. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

10. Pursuant to Section 1770 et seq. of the California Labor Code, the CONTRACTOR shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. The statement of prevailing wages appearing in the General Prevailing Wage Rates, as established by the California Department of Industrial Relations, is hereby specifically referred to and by this reference is made a part of this contract. Copies of the Prevailing Wage Scale are available at the following website: http://www.dir.ca.gov/DLSR /statistics_research.html#PWD. Those copies shall be made available to any interested party upon request. Failure to pay such prevailing wages shall subject the employer to the penalties set forth in Labor Code section 1775. The difference between such prevailing wage rates and

the amount paid to each worker for each calendar day or portion thereof for which the worker was paid less than the prevailing wage rate shall be paid to each worker by the CONTRACTOR or subcontractor. An error on the part of the SBCLTA does not relieve the CONTRACTOR or any subcontractor from responsibility for payment of the prevailing rate of per diem wages and penalties pursuant to Labor Code sections 1770 through 1775.

11. The CONTRACTOR and each subcontractor must keep accurate payroll records of employees on public contracts and certify these records upon request, pursuant to Section 1776 of the California Labor Code and implementing regulations set forth in Title 8, Division 1, Chapter 8, Subchapter 3, sections 16000 and 16400 through 16404 of the California Code of Regulations. Payroll records must be made available for inspection by employees, SBCLTA, and the Division of Labor Standards Enforcement. The CONTRACTOR shall be responsible for compliance by the CONTRACTOR'S subcontractors.

12. The CONTRACTOR shall be subject to the examination and audit of the State auditor, at the request of SBCLTA or as part of any audit of SBCLTA, for a period of three (3) years after final payment under the contract.

13. During the performance of this Contract, CONTRACTOR agrees as follows:

    a. During the performance of this Contract, CONTRACTOR and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical disability, medical condition (cancer related), marital status, pregnancy, age (over 18), sex, sexual orientation, veteran's status or any other non-merit factor unrelated to job duties. CONTRACTOR and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.

    b. The CONTRACTOR shall, in all solicitations or advertisements for employees by or on behalf of the CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, ancestry, physical or mental disability, medical condition (cancer related), marital status, pregnancy, sex, sexual orientation, age (over 18), veteran status, or any other non-merit factor unrelated to job duties.

    c. The CONTRACTOR shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under this Contract.

14. The CONTRACTOR offers and agrees to assign to the SBCLTA all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the California Business and Professions Code), arising from purchases of goods, services, or materials pursuant to this CONTRACT. This assignment shall be made and become effective at the time the SBCLTA tenders final payment to the CONTRACTOR, without further acknowledgment by the parties.

15. This CONTRACT shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

16. The following individuals are the parties CONTRACT Administrators:

SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY: Contract Administrator:	CONTRACTOR'S Contract Administrator:
Name: Regina Valentine	Name:_____
Title: Transportation Planner	Title:_____
Address: 330 Tres Pinos Rd., Suite C7 Hollister, CA 95023	Address:_____
Phone: 831-637-7665 x 205	Phone:_____
Fax: 831-636-4160	Fax:_____
E-mail: regina@sanbenitocog.org	E-mail:_____

This CONTRACT shall not be effective unless and until approved by a duly authorized representative of San Benito County Local Transportation Authority Board of Directors and San Benito County Counsel.

IN WITNESS WHEREOF, the San Benito County Local Transportation Authority Board of Directors and CONTRACTOR have caused this Agreement to be signed as of the day and year first above written.

CONTRACTOR (FIRM)

_____ Date_____

Address:_____

_____

Phone:_____

Fax:_____

SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY

_____ Date_____

Bea Gonzales, Chair

APPROVED AS TO LEGAL FORM:
San Benito County Counsel's Office

_____ Date_____

Shirley Murphy, Deputy County Counsel
San Benito County Local Transportation Authority Legal Counsel

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, THAT WHEREAS the San Benito County Local Transportation Authority, a joint powers agency formed pursuant to the joint exercise of powers provisions of California Government Code Sections 6500-6522 and located within the County of San Benito, State of California, hereinafter designated as the "Obligee," has on _____, 20__, awarded to _____ hereinafter designated as "Principal," a contract for the construction of _____ _____ _ (Contract No.) _____, and

WHEREAS, said Principal is required to furnish a bond in connection and with said contract, providing that if said Principal, or any of his or its subcontractors, shall fail to pay for any materials, provisions, or other supplies used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, the Surety on this bond will pay the same to the extent hereinafter set forth:

NOW, THEREFORE, We, the Principal, and _____as Surety, are held and firmly bound unto the Obligee in the penal sum of _____ _____ lawful money of the United States for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, or any of his or its subcontractors, shall fail to pay any of the persons named in Section 3181 of the Civil Code of the State of California, or any amounts due under the Unemployment Insurance Code with respect to such work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department of the State of California, from the wages of employees of the Principal and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code of the State of California with respect to such work or labor, as required by the provisions of Section 3225 and following of the Civil Code of the State of California, then said Surety will pay the same in, or to an amount not exceeding the amount, hereinabove set forth, and also will pay, in case suit is brought upon this bond, reasonable attorneys' fees to such claimant and to the Obligee as shall be fixed by the Court.

This bond is issued pursuant to Civil Code Sections 3247 through 3252, inclusive, of the State of California, and shall inure to the benefit of any and all persons, companies, and corporations named in Section 3181 of said Civil Code so as to give a right of action to them or their assigns in any suit brought upon this bond.

The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work to be performed thereunder, or the specifications accompanying the same shall, in any way, affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract, or to the work or to the specifications. Said Surety hereby waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

IN WITNESS WHEREOF, the above-bounden parties have signed this instrument under their seals this _____ day of _____, 20__, the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned representatives, pursuant to authority of its governing body.

(SEAL)

_____
Principal

_____
Signature for Principal

_____
Title of Signatory

(SEAL)

_____
Surety

_____
Signature of Surety

_____
Title of Signatory

(This bond must be submitted in sets of four, each bearing original signatures. The signature of the Attorney-In-Fact for the Surety must be acknowledged by a Notary Public. These bonds must be accompanied by a current Power of Attorney appointing such Attorney-In-Fact.)

Bond Number:
Premium:

FAITHFUL PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS, that WHEREAS the San Benito County Local Transportation Authority, a joint powers agency formed pursuant to the joint exercise of powers provisions of California Government Code Sections 6500-6522 and located within the County of San Benito, State of California, hereinafter designated as the "Obligee," has on _____,20__, awarded to _____ hereinafter designated as the "Principal," a contract for the construction of

_____
_____ (Contract No. _____), and

WHEREAS said Principal is required, under the terms of the Contract, to furnish a bond for the faithful performance of said Contract:

NOW, THEREFORE, We, the Principal, and _____ as Surety, are held and firmly bound unto the Obligee in the penal sum of _____
_____ Dollars ($_____) lawful money of the United States for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that, if the above bounden Principal, his or its heirs, executors, administrators, successors, or assigns shall in all things stand to and abide by, and well and truly keep and faithfully perform the covenants, conditions, and agreement in the said Contract, and any alterations made as therein provided, on his or their part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the Obligee, its officers and agents as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and virtue, and Principal and Surety, in the event suit is brought on this bond, will pay to the Obligee such reasonable attorneys' fees as may be fixed by the Court.

As a condition precedent to the satisfactory completion of the said Contract, the above obligation in said amount shall hold good for a period of one (1) year after the completion and acceptance of the said work, during which time if the above bounden Principal, his or its heirs, executors, administrators, successors, or assigns shall fail to make full, complete, and satisfactory repair and replacements or totally protect the said Obligee from loss or damage made evident during said period of one (1) year from the date of acceptance of the work, and resulting from or caused by defective materials or faulty workmanship in the prosecution of the work done, the above obligation in the said sum shall remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligation of the Surety hereunder shall continue so long as any obligation of the Principal remains.

The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work to be performed thereunder, or the specifications accompanying the same, shall, in any way, affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract, or to the work or to the specifications. Said Surety hereby waives the provisions of Section 2819 and 2845 of the Civil Code of the State of California.

IN WITNESS WHEREOF, the above bounden parties have signed this instrument under their seals this _____ day of_____, 20___, the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(SEAL)

_____
Principal

_____
Signature for Principal

_____
Title of Signatory

(SEAL)

_____
Surety

_____
Signature of Surety

_____
Title of Signatory

(The signature of the Attorney-In-Fact for the Surety must be acknowledged by a Notary Public, and this bond must be accompanied by a current Power of Attorney appointing such Attorney-In-Fact. This bond must be submitted in sets of four, each bearing original signatures.)

PROCUREMENT REQUIREMENTS

SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY

SBCLTA Transit Maintenance & Operations TI Project

Sealed bids shall be delivered to the San Benito County Local Transportation Authority, 330 Tres Pinos Rd, Suite C7, Hollister, California, 95023, no later than **2:00 P.M. on Thursday, July 20, 2023.** Bids will be opened and will be publicly read in the **SBCLTA Conference Room, 330 Tres Pinos Rd, Suite C7, Hollister, California, 95023 at 2:00 P.M.** or thereafter. This project is for licensed contractors with a Type B license. The Contractor shall complete all or any designated portions of the work called for under the contract in all parts and requirements within 135 calendar days (except as modified in the technical specifications). The San Benito County Local Transportation Authority and its Board of Directors reserves the right to reject any or all bids received as the public good may require.

There will be two mandatory pre-bid meetings, only **one** of which needs to be attended by prospective bidders. The meeting(s) will take place at 3240 Southside Rd., Hollister CA. The first meeting will take place on **June 22, 2023 at 1pm** and the second will take place on **June 29, 2023 at 1pm.**

Each contractor shall include in their bid all labor, tools, and materials for a complete and working project for each trade component in conformance with the intent shown on the plans and specifications and specified herein.

Plans, Specifications and Proposal forms to be used for bidding on this project can only be obtained by requesting them via email at bidding@felice-consulting.com. If you have any questions, please call Felice Consulting at 831-856-7000.

Prospective bidders must be fully qualified, licensed, certified, and insured to perform the work requested. All work performed must meet all current applicable laws and regulations.

Each bidder must submit a bid proposal for the project for which they intend to bid to the San Benito County Local Transportation Authority on the standard forms enclosed. Said bid shall be accompanied by a cashier's check, a certified check or bidder's bond of ten percent (10%) of the amount of the bid submitted, to be made payable to the San Benito County Local Transportation Authority. Bid bonds shall be issued by a corporate surety duly admitted and authorized to issue bonds and undertakings by the State of California.

Pursuant to Section 1700, and following, of the California Labor Code, the Contractor shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Copies of such prevailing rate of per diem wages are available at the following web site: http://www.dir.ca.gov/DLSR/statistics_research.html#PWD. Those copies shall be made available to any interested party upon request. The Contractor shall forfeit, as penalty, to the San Benito County Local Transportation Authority, fifty dollars ($50.00) for each calendar day or portion thereof, for each workman paid less than the stipulated prevailing rates for any work done under the contract by it or by any subcontractor under it, in violation of the provisions of such Labor Code.

San Benito County Local Transportation Authority will be the sole judge as to the technical acceptability of any bids and any award will be as determined most advantageous to the San Benito County Local Transportation Authority considering such factors as completeness and responsiveness to the Invitation for Bids, experience, references, and anticipated costs. The San Benito County Local

Transportation Authority reserves the right to reject any or all bids or parts thereof and to waive any informality or irregularity in any bid.

Insurance requirements for the project shall be the amounts set forth in the General Conditions, Section 19, unless expressly modified below:

Commercial General Liability Insurance $_____

All Risk Property Coverage or Builders Risk Insurance $_____

Business Automobile Liability Insurance $_____

PROJECT NAME:	SBCLTA Transit Maintenance & Operation TI Project
OWNER:	San Benito County Local Transportation Authority 330 Tres Pinos Rd., Suite C7 Hollister, CA 95023
PROJECT MANAGER:	Damon Felice, Project Manager

INSTRUCTIONS TO BIDDERS

1) All portions of the Bid Proposal must be completed before the bid is submitted. Failure to do so may result in the bid being rejected as nonresponsive. Attached to and submitted with this Bid Proposal, Bidder must provide the following documents, completed and signed by the Bidder: (1) the Bidders Bond; (2) Names and Titles Form; (3) Noncollusion Affidavit; (4) Statement of Compliance; (5) Designation of Subcontractors; (6) Bidder's Qualifications; (7) Guaranty; (8) Contractor's Certificate as to Worker's Compensation; and, (9) Affidavit Concerning Employment of Undocumented Aliens. Failure to submit all required documents may result in the bid being rejected as nonresponsive.

2) An original of the Bid Proposal shall be filled in and submitted as the bid.

3) San Benito County Local Transportation Authority has obtained report(s) that may contain facts that may materially effect bidders' bids. San Benito County Local Transportation Authority has constructed other public works projects throughout the County of San Benito, and obtained reports and other information in the course of the design and construction of those other public works construction projects, all of which may contain facts that may materially effect bidders' bids. Bidders are strongly encouraged to inspect applicable San Benito County Local Transportation Authority reports, records and documents. Said reports and documents will be made available upon written request at the San Benito County Local Transportation Authority, 330 Tres Pinos Rd., Suite C7, Hollister, California, 95023 for inspection and copying at bidders' sole cost and expense, during normal working hours.

4) If a pre-bid conference has been scheduled at the site of the work, all bidders, subcontractors, material suppliers, and others who may be working on the work of improvement are strongly encouraged to attend this pre-bid conference. Due to the facts and circumstances of this particular project, the on-site pre-bid conference may be the only opportunity to conduct the pre-bid investigation of the site and satisfy the pre-bid obligations set forth in these Contract Documents. If a bidder (or others) attend the entirety of a scheduled pre-bid on-site conference and need additional time to complete their investigation of the site or other pre-bid obligations set forth in these Contract Documents, bidder must notify San Benito County Local Transportation Authority in writing, via certified or registered mail, within three days of the on-site pre-bid conference, to request additional time to complete its investigation of the site. The written request must include an estimate of the amount of additional time required by bidder at the site. San Benito County Local Transportation Authority retains discretion to determine additional time requirements, if any.

5) Investigations of subsurface conditions or otherwise, are made for the purpose of design, and the San Benito County Local Transportation Authority assumes no responsibility whatsoever with respect to the sufficiency or accuracy of borings, the log of test borings, or other preliminary investigations, or of the interpretation thereof, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unanticipated conditions may not occur. When a log of test borings or other report is made available to Contractor or included in the Contract Documents, it is expressly understood and agreed that said log of test borings or other reports does not constitute a part of the Contract, and represents only an opinion of the San Benito County Local Transportation Authority as to the character of the materials to be encountered, and is made available or included in the Contract Documents only for the convenience of the bidders. Bidders must satisfy themselves, through their own investigation, as to conditions to be encountered.

6) In addition to other minimum qualifications, the San Benito County Local Transportation Authority has determined that the successful low bidder must demonstrate to the satisfaction of the San Benito County Local Transportation Authority, the following minimum experience to be qualified to perform the work described in the Contract Documents:

a. Have possessed a valid, active and in good standing, State of California Department of Consumer Affairs, Contractor's License Board license,

appropriate for the trade being bid, for a minimum of five (5) continuous years prior to the date of bid opening.

b. Not have any pending disciplinary proceedings or investigations by the Contractor's State License Board.

c. Currently (as of the date of bid opening) or within the past year, not have any suspensions, disbarments, or similar proceedings (including stipulated agreements), restricting, limiting or prohibiting Bidder from bidding or performing other public works projects for any other public agency.

7) Following the opening of bids, the San Benito County Local Transportation Authority may request in writing that the apparent low bidder complete a Contractor Qualifications Questionnaire and furnish all required supporting documentation to enable the San Benito County Local Transportation Authority to determine whether the apparent low bidder is qualified to perform the work described in the Contract Documents. By submission of a bid, Bidder agrees to complete the Contractor Qualifications Questionnaire, furnish all required attachments, sign the Contractor Qualifications Questionnaire, all in strict conformance with the requirements of the Contract Documents and Contractor Qualifications Questionnaire, and return to the San Benito County Local Transportation Authority within ten (10) days of San Benito County Local Transportation Authority's written request. If bidder fails or refuses to complete the Contractor Qualifications Questionnaire, furnish all required attachments, sign the Contractor Qualifications Questionnaire, or return it to the San Benito County Local Transportation Authority within ten (10) days of date of dispatch of San Benito County Local Transportation Authority's written request, bidder may not be considered for award of the contract, and further, bidder agrees that the San Benito County Local Transportation Authority may either award the work to another bidder or call for new bids. In such event, the bidder shall be liable to the San Benito County Local Transportation Authority for the difference between the amount of the disqualified bid and the larger amount for which the San Benito County Local Transportation Authority procures the work plus all of the San Benito County Local Transportation Authority's costs, damages, expenses, and liabilities.

8) If for any reason the San Benito County Local Transportation Authority elects to not award the contract to the apparent low bidder, the San Benito County Local Transportation Authority may request in writing that the apparent second lowest bidder complete the Contractor Qualifications Questionnaire and furnish all required supporting documentation to enable the San Benito County Local Transportation Authority to determine whether the second low bidder is qualified to perform the work described in the Contract Documents. If for any reason the San Benito County Local Transportation Authority elects to not award the contract to the apparent second lowest bidder, the San Benito County Local Transportation Authority may request the third lowest bidder complete the Contractor Qualifications Questionnaire and furnish all required supporting documentation, and so on.

9) If the San Benito County Local Transportation Authority receives from a bidder within the time set forth in these Contract Documents, a complete Contractor Qualifications Questionnaire and all required supporting documentation as required by the Contract Documents, and if the San Benito County Local Transportation Authority determines that a bidder is not qualified to perform the work required by the Contract Documents, and if the San Benito County Local Transportation Authority elects to not award the Contract to that bidder, the San Benito County Local Transportation Authority will promptly return that bidder's bid security.

10) Bid protests shall be filed in writing with the Project Manager, San Benito County Local Transportation Authority, 330 Tres Pinos Rd., Suite C7, Hollister, California, 95023, by certified or registered mail, not later than three (3) days after the bid opening or, if the protest is based on the selection of the apparent lowest responsible bidder, not later than three (3) days after selection of the apparent lowest responsible bidder. The protest shall specify the reasons and facts upon which the protest is based.

BID PROPOSAL

For: **SBCLTA Transit Maintenance & Operations Building TI Project**

Name of Bidder _____

Business Address _____

Place of Residence _____

Telephone / Fax : ( ) _____ / ( ) _____

Email: _____

DIR PWC#: _____

1) All portions of the Bid Proposal must be completed before the bid is submitted. Failure to do so may result in the bid being rejected as nonresponsive. Attached to and submitted with this Bid Proposal, bidder must provide the following documents, completed and signed by the Bidder (1) the Bidders Bond; (2) Names and Titles Form; (3) Noncollusion Affidavit; (4) Statement of Compliance; (5) Designation of Subcontractors; (6) Bidder's Qualifications; (7) Guaranty; (8) Contractor's Certificate as to Worker's Compensation; and, (9) Affidavit Concerning Employment of Undocumented Aliens. Failure to submit all required documents may result in the bid being rejected as nonresponsive.

2) One copy of the Bid Proposal shall be filled in and submitted as the bid.

3) The Bidder, having the appropriate active license required by the State of California; and having carefully read and examined the plans, specifications, and all related bidding documents as prepared for the San Benito County Local Transportation Authority for the **SBCLTA Transit Maintenance & Operations Building TI Project** having carefully and fully examined the site of the proposed work and all information available to bidder, and being familiar with all the conditions related to the proposed work, including the availability of materials, equipment, and labor, hereby offers to furnish all labor, materials, tools, transportation, services, and equipment necessary to complete the work of the described project in accordance with the Contract Documents, and to complete all requirements of the Contract Documents for the sums quoted in this Bid Proposal. The bidder agrees that it will not withdraw its bid within sixty (60) days after the bid deadline. Bidder agrees, if requested by San Benito County Local Transportation Authority, to complete and sign the Contractor Qualification Questionnaire, furnishing all required attachments, and return it to San Benito County Local Transportation Authority within ten (10) days of date of dispatch by San Benito County Local Transportation Authority. If the bidder is selected as the apparent lowest responsible bidder, the bidder agrees, within ten (10) days after date of dispatch of Notice of Award, to sign and deliver the Contract, and to furnish the Performance Bond, the Payment Bond, Certificates of Insurance, and other required items. If awarded the Contract, the bidder agrees to complete the work within the number of calendar days specified by the Project Manager after the date of the commencement specified in the Notice to Proceed.

4) The bidder agrees that if the bidder is selected as the apparent lowest responsible bidder, and the bidder fails to sign the Contract and furnish (1) the **Performance Bond**, (2) the **Payment Bond**, (3) **Certificates of Insurance,** and (4) **other required items** within the time limit specified in the Contract Documents, the San Benito County Local Transportation Authority may award the work to another bidder or call for new bids. In such event, the bidder shall be liable to the San Benito County Local Transportation Authority for the difference between the amount of the disqualified bid and the larger amount for which the San Benito County Local Transportation Authority procures the work plus all of the San Benito County Local Transportation Authority's costs, damages, expenses and liabilities arising from bidder's failure to sign the Contract and/or furnish the required documents.

BID SCHEDULE

I will perform the work of the **SBCLTA Transit Maintenance & Operations Building TI Project** as set forth in the Contract Documents, prepared by the San Benito County Local Transportation Authority, for the following lump sum price:

BASE BID **$**_____

ADD A $5,000 UNFORSEEN ALLOWANCE **$**_____

5% of BASE BID (OWNER CONTINGENCY) **$**_____

BASE BID + UNFORSEEN ALLOWANCE + OWNER CONTINGENCY

$_____

The work for the **SBCLTA Transit Maintenance & Operations Building TI Project** specifically includes: Various building and improvements and site improvements.

The bidder acknowledges receipt of the following Addenda:

Addendum #_____, dated _____ _____ _____
Signature Date

Addendum #_____, dated _____ _____ _____
Signature Date

Addendum #_____, dated _____ _____ _____
Signature Date

Addendum #_____, dated _____ _____ _____
Signature Date

AUTHORIZED SIGNATURE OF BIDDER: _____

DATE: _____

NOTE:
Where quantities are shown they are engineer's estimated quantities. Variations may occur between actual quantities and engineer's estimated quantities. Bidder is responsible to calculate quantities when preparing their bid. Payment will be based on lump sum bid amount(s) and no allowance will be made for variations between actual quantities and engineer's estimated quantities.

BIDDER'S BOND

Know All Persons by These Presents, That we, _____

_____, As PRINCIPAL, and _____

_____,
as SURETY, are held and firmly bound unto the San Benito County Local Transportation Authority, a joint powers agency formed pursuant to the joint exercise of powers provisions of California Government Code Sections 6500-6522 and located within the County of San Benito, State of California, hereinafter designated as the "Obligee", in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the Obligee for the work described below for the payment of such sum in lawful money of the United States, well and truly to be made, and we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

In no case shall the liability of the surety exceed the sum of _____
_____ ($_____) Dollars.

THE CONDITION OF THIS OBLIGATION IS SUCH, That whereas the Principal has submitted the above mentioned bid to the County for certain construction specifically described as follows: **SBCLTA Transit Maintenance & Operations Building TI Project**: for which bids are to be opened at Hollister, California on July 20, 2023 @ 2:00 p.m.

NOW, THEREFORE, If the aforesaid Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with the Purchasing Agent, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; or should the aforementioned contract be awarded to other than the herein named Principal, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this _____ day of _____ A.D. 20____.

_____(SEAL) _____(SEAL)

_____(SEAL) _____(SEAL)

_____(SEAL) _____(SEAL)

Surety Principal

_____

_____ (Note: Signatures of those executing for the Surety must be properly acknowledged.)

Address

NAMES AND TITLES FORM

NAMES AND TITLES OF KEY MEMBERS OF FIRM:

(Name of person signing the bid on behalf of the bidder and all general partners, if a partnership, must be included.)

_____

_____

Bidder is a: (circle one)
Corporation Partnership Individual Joint Venture Other_____
(Specify)

NAME OF PRESIDENT IF A CORPORATION: _____

NAME OF SECRETARY IF A CORPORATION: _____

CALIFORNIA CONTRACTORS LICENSE(S):

Name of License(s):

Classification(s)	Number	Expiration Date
Classification(s)	Number	Expiration Date

(For Joint Ventures, list Joint Venture's license or licenses for all Joint Venture partners.)

The following documents are submitted with and made a condition of this bid:

Bid security in the form of _____ (fill in type of bid security)

Corporation is organized under the laws of the State of _____.

Corporate Seal:

NAMES AND TITLES FORM (continued)

NAME OF BIDDER'S FIRM: _____

Address: _____

_____

Phone: _____

Fax: _____

Email: _____

By: _____
(Signature)

_____
(Print or Type Name)

_____
(Print or Type Title)

By: _____
(Signature)

_____
(Print or Type Name)

_____
(Print or Type Title)

(If signature is by other than the sole proprietor, general partner, or corporate officers, attach an original Power of Attorney.)

NONCOLLUSION AFFIDAVIT

TO BE SIGNED BY BIDDER AND SUBMITTED WITH BID
Pursuant to Section 7106 of the Public Contract Code,

_____
(Name)
being first duly sworn, deposes and says that he or she is _____
(Title)
of _____,
(DBA)
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, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; 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, or to secure any advantage against the public body awarding the Contract of anyone interested in the proposed Contract; all statements contained in the bid are true; and, further, that 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, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive sham bid.

_____
Signature

STATEMENT OF COMPLIANCE

_____
(Company Name)

(hereinafter referred to as "prospective Contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 and California Administrative Code, Title II, Division 4, Chapter 5, in matters relating to the development, implementation, and maintenance of a nondiscrimination program. Prospective Contractor agrees not to unlawfully discriminate against any employee or applicants for employment because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, sex, sexual orientation, physical and mental disabilities, or age (over forty).

I, _____
(Name of Official)

hereby swear that I am duly authorized to legally bind the prospective Contractor to the above-described certification. I am fully aware that this certification, signed on

_____
(date)

in the County of _____, is made under the penalty of perjury under the
(County)
laws of the State of California.

_____
(Signature)

_____
(Print or Type Title)

SUBCONTRACTOR LIST

In compliance with the provisions of Section 4100 through 4114, inclusive, of the Public Contract Code, and any amendments thereto, each bidder shall set forth in his or her bid, **the name** and **location of the place of business** of each subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent of the prime contractor's total bid and the portion of the work which will be done by each subcontractor under this act. The prime contractor shall list only one subcontractor for each portion as is defined by the prime contractor in his or her bid.

	1.	2.	3.
Trade			
Name			
Location			
CSLB & DIR PWC #:			

	4.	5.	6.
Trade			
Name			
Location			
CSLB & DIR PWC #:			

	7.	8.	9.
Trade			
Name			
Location			
CSLB & DIR PWC #:			

	10.	11.	12.
Trade			
Name			
Location			
CSLB & DIR PWC #:			

BIDDER QUALIFICATIONS

This form must be completed, signed by bidder, and submitted to San Benito County Local Transportation Authority with bidder's bid. Failure to complete, sign, and submit with bidder's bid may result in bidder's bid being rejected as not responsive.

San Benito County Local Transportation Authority has determined that bidders must meet the following minimum qualifications to bid the work of improvement contemplated herein:

1. Have possessed a valid, active and in good standing, State of California Department of Consumer Affairs, Contractor's License Board license, appropriate for the trade being bid, for a minimum of five (5) continuous years prior to the date of bid opening.

2. Not have any pending disciplinary proceedings or investigations by the Contractor's State License Board.

3. Currently (as of the date of bid opening) or within the past year, not have any suspensions, disbarments, or similar proceedings (including stipulated agreements), restricting, limiting or prohibiting Bidder from bidding or performing other public works for any other public agency.

I, being the _____ (insert title) of bidder herein, declare that bidder meets all of the minimum criteria set forth above.

_____
Signature

_____
Print Name

_____
Date

GUARANTY

TO THE SAN BENITO COUNTY LOCAL TRANSPORTATION AUTHORITY

The undersigned, as prime Contractor, guarantees the construction and installation of the following work included in this project:

SBCLTA Transit Maintenance & Operations Building TI Project

Should any of the materials or equipment prove defective, due to faulty workmanship, material furnished or methods of installation or should the work or any part thereof fail to operate properly as originally intended and in accordance with the plans and specifications, due to any of the above causes, all within **one year** after the date on which this contract work is accepted by San Benito County Local Transportation Authority, the undersigned agrees to reimburse the San Benito County Local Transportation Authority, upon demand, for San Benito County Local Transportation Authority's expenses incurred in restoring said work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs, or, upon demand by the San Benito County Local Transportation Authority, to replace any such material and to repair said work completely without cost to the San Benito County Local Transportation Authority so that said work will function successfully as originally contemplated. (Ordinary wear and tear and unusual abuse or neglect excepted).

The San Benito County Local Transportation Authority shall have the unqualified option to make any needed replacement or repairs itself or to have such replacements or repairs done by the undersigned. In the event the San Benito County Local Transportation Authority elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after the receipt of demand from the San Benito County Local Transportation Authority. If the undersigned shall fail or refuse to comply with his obligations under this guaranty, the San Benito County Local Transportation Authority shall be entitled to all costs and expenses, including attorney's fees, reasonably incurred by reason of said failure or refusal.

_____

_____

_____

Contractor, Name and Address

_____ By _____

Date Signature of Principal

CONTRACTOR'S CERTIFICATE AS TO WORKER'S COMPENSATION

(Labor Code section 1861)

Labor Code section 3700 provides, in relevant part:

> "Every employer except the state shall secure the payment of compensation in one or more of the following ways:
>
> (a) By being insured against liability to pay compensation in one or more insurers duly authorized to write compensation insurance in this state.
>
> (b) By securing from the Director of Industrial Relations a certificate of consent to self-insure, either as an individual employer, or as one employer in a group of employers, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees."

I certify that I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this contract.

Dated: _____

_____
Bidder's business name

By:
Print Name:
And Title:

AFFIDAVIT CONCERNING EMPLOYMENT OF UNDOCUMENTED ALIENS
TO BE SUBMITTED WITH BID

(Public Contract Code section 6101)

Public Contract Code section 6101 provides that,

"No state agency or department, as defined in [Public Contract Code] Section 10335.7, that is subject to this code, shall award a public works or purchase contract to a bidder or contractor, nor shall a bidder or contractor be eligible to bid for or receive a public works or purchase contract, who has, in the preceding five years, been convicted of violating a state or federal law respecting the employment of undocumented aliens.

_____ (Name), being first duly sworn, deposes and says (1) that he or she is the _____ (Title) of _____ (DBA), the party making the foregoing bid; and (2) that the party making the foregoing bid has not, within the preceding five years, been convicted of violating a state or federal law respecting the employment of undocumented aliens.

Dated: _____

_____
Bidder's business name

By:
Print Name:
And Title:

ALTERATIONS TO THE
TRANSIT MAINTENANCE & OPERATIONS BUILDING
SAN BENITO COUNTY COUNCIL OF GOVERNMENTS
3240 SOUTHSIDE ROAD, HOLLISTER
SAN BENITO COUNTY, CALIFORNIA 95023

LOCATION MAP

GENERAL REQUIREMENTS

ALL WORK SHALL COMPLY WITH APPLICABLE CODES & REGULATIONS INCLUDING:

2022 CALFORNIA BUILDING CODE

2022 CALIFORNIA ELECTRICAL CODE

2022 CALFORNIA MECHANICAL CODE

2022 CALFORNIA PLUMBING CODE

2022 CALFORNIA ENERGY CODE

2022 CALFORNIA EXISTING BUILDING CODE

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

2022 CALFORNIA FIRE CODE

COUNTY OF SAN BENITO COUNTY, CALIFORNIA CODE OF ORDINANCES

NFPA 13 STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS

CONTRACTOR SHALL OBTAIN REQUIRED PERMITS & INSPECTIONS

DEFERRED SUBMITTAL:
LAYOUT DRAWINGS FOR ALTERATIONS TO FIRE SPRINKLER SYSTEM

PROJECT DESCRIPTION

CONSTRUCT ALTERATIONS TO THE TRANSIT MAINTENANCE AND OPERATIONS BUILDING:
ENLARGE AND RENOVATE THE DISPATCH OFFICE.
REPLACE ALL EXTERIOR SLIDING WINDOWS AND RELATED TRIM.
PROVIDE NEW FLOORING AND BASE AT THE EXISTING OFFICES, TRAINING ROOM, AND DISPATCH OFFICE. PAINT WALLS AND CEILINGS AT EXISTING OFFICES, TRAINING ROOM, AND DISPATCH OFFICE.
REPLACE COFFEE BAR AND SINK AT THE TRAINING ROOM.
REPLACE CEILING, FIRE SPRINKLER HEAD, AND LIGHT FIXTURE AT THE JANITOR CLOSET.
PROVIDE NEW LIGHT FIXTURES AND ELECTRICAL POWER OUTLETS AT DISPATCH OFFICE.
MODIFY EXISTING WET PIPE FIRE SPRINKLER SYSTEM TO COMPLY WITH NFPA 13.
CONSTRUCT A TRAFFIC ISLAND WITH CURBS AND GUTTER TO DIVERT STORMWATER
MARK EXISTING PAVEMENT FOR NEW PARKING STALLS.

DRAWINGS LIST

REID LERNER, LICENSED ARCHITECT, C16293, STATE OF CALIFORNIA, 31 AUG 2023

ISSUED / REVISED
15 APRIL 2023
21 APRIL 2023
13 MAY 2023
22 MAY 2023
4 JUNE 2023

REID LERNER ARCHITECTS

REID LERNER ARCHITECTS
7980 MONTEREY STREET #105
GILROY, CALIFORNIA 95020
phone 408 842 9942
www.reidlerner.com

ALTERATIONS TO THE
TRANSIT MAINTENANCE & OPERATIONS BUILDING
SAN BENITO COUNTY COUNCIL OF GOVERNMENTS
3240 SOUTHSIDE ROAD, HOLLISTER
SAN BENITO COUNTY, CALIFORNIA 95023

COVER

SCALE:

SCALE:

DRAWN: RL

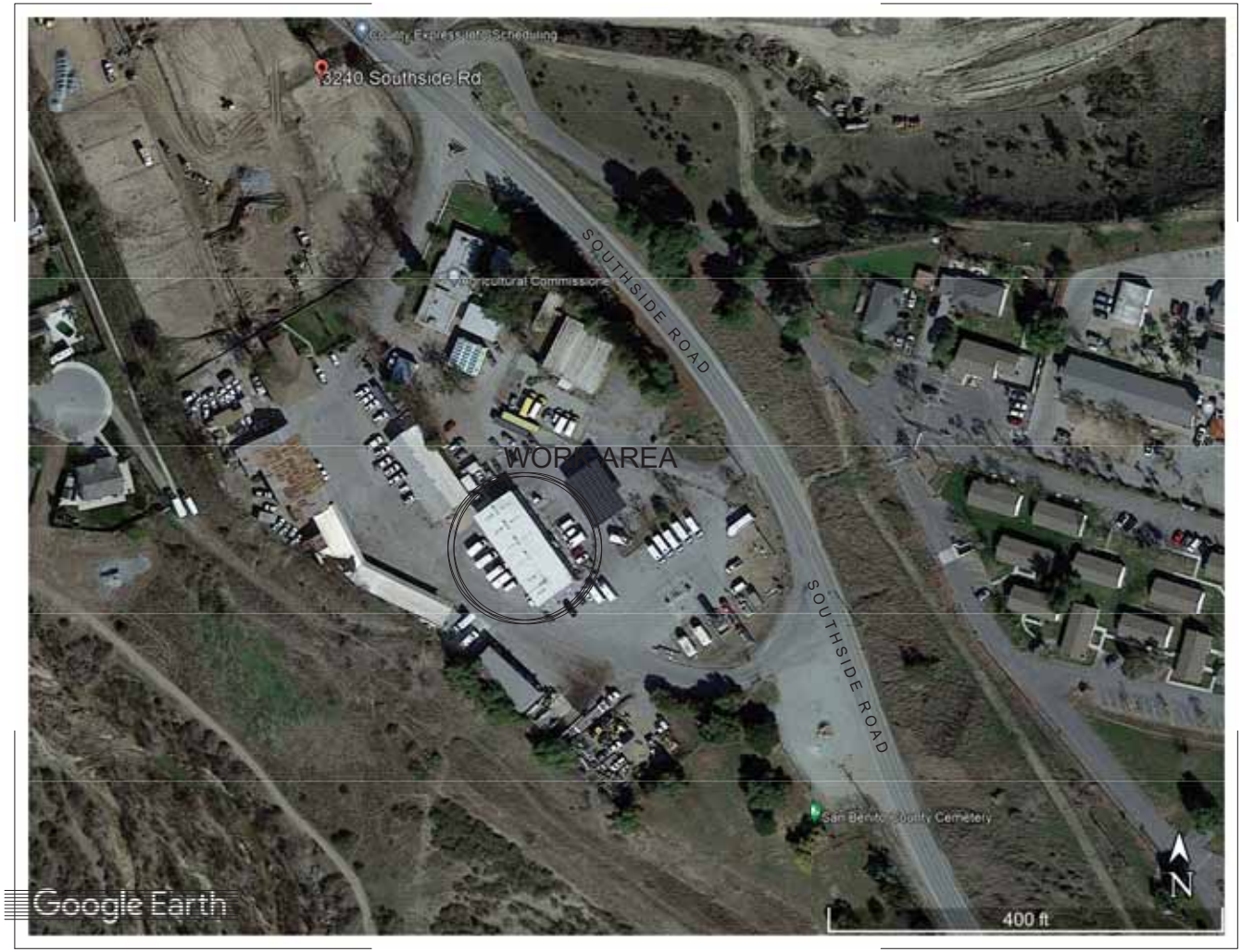
CHECKED: Lerner

A-1

NORTH

0 50' 100' 150'

GRAPHIC SCALE



SITE PLAN

ISSUED / REVISED
18 APRIL 2023
13 MAY 2023
4 JUNE 2023

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7980 MONTEREY STREET #105
GILROY, CALIFORNIA 95020
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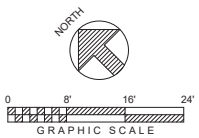
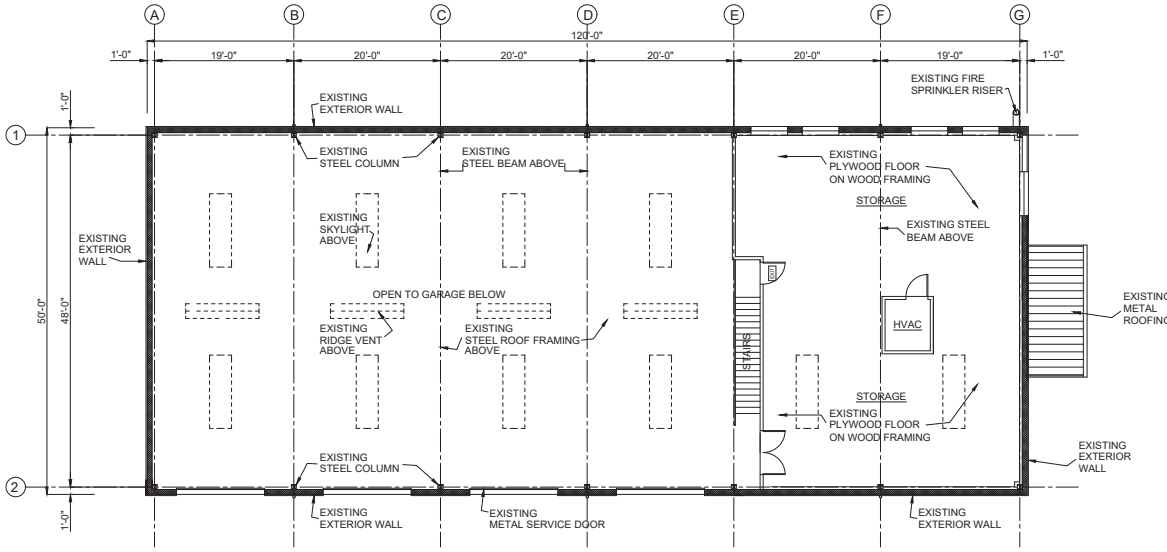
TRANSIT MAINTENANCE & OPERATIONS BUILDING
SAN BENITO COUNTY COUNCIL OF GOVERNMENTS
3240 SOUTHSIDE ROAD
HOLLISTER, SAN BENITO COUNTY, CALIFORNIA 95023

SITE PLAN

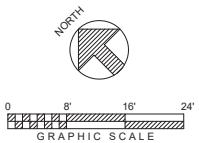
SCALE: GRAPHIC
SCALE: NTS
DRAWN: RL
CHECKED: Lerner

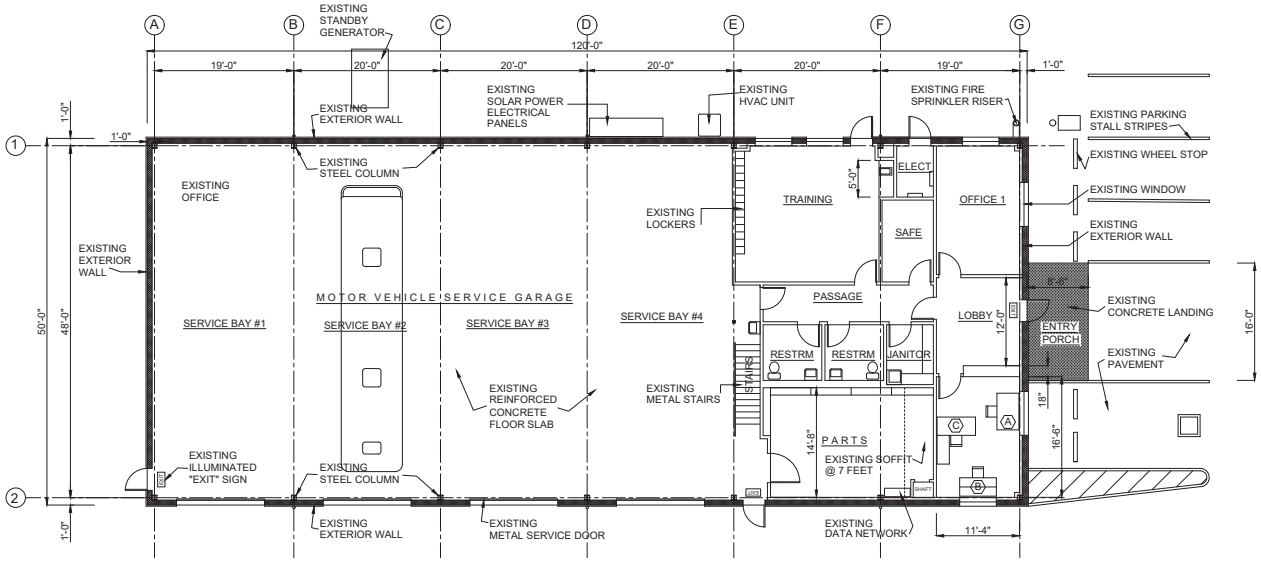
A-2





EXISTING UPPER FLOOR PLAN





EXISTING GROUND FLOOR PLAN

ISSUED / REVISED
26 MARCH 2023
30 MARCH 2023
13 APRIL 2023
13 MAY 2023
4 JUNE 2023

REID LERNER ARCHITECTS
7680 MONTEREY STREET #105
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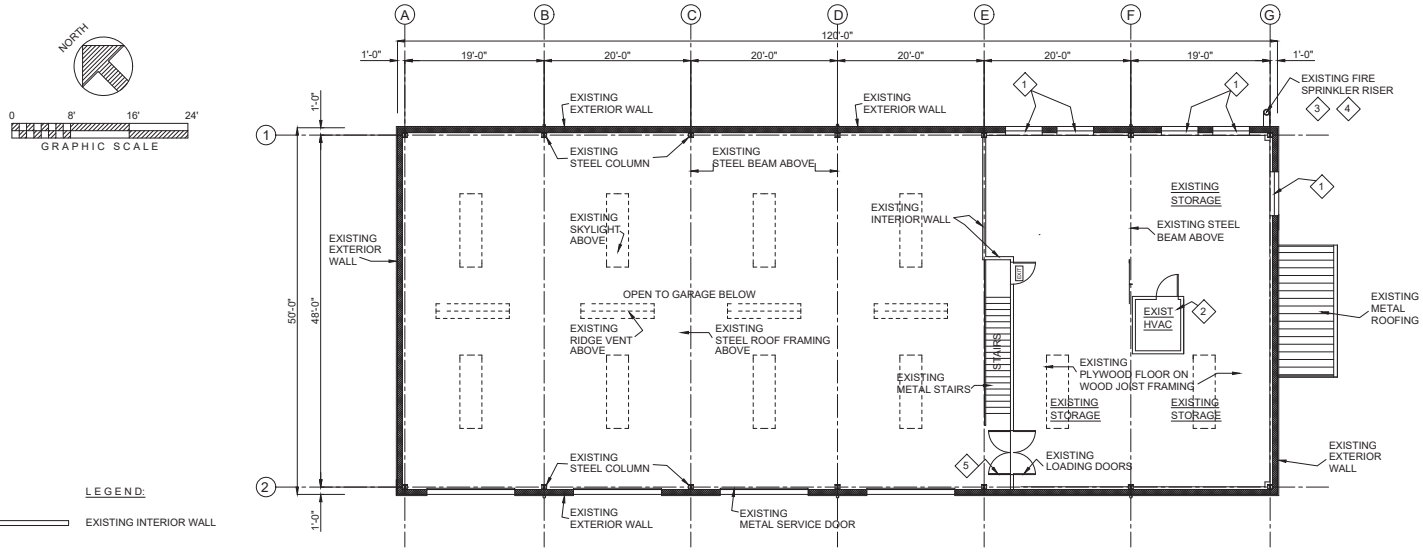
SAN BENITO COUNTY COUNCIL OF GOVERNMENTS
3240 SOUTHSIDE ROAD, HOLLISTER
SAN BENITO COUNTY, CALIFORNIA 95023

EXISTING
FLOOR PLANS

SCALE: 1/8" = 1'-0"
SCALE: 1 / 96
DRAWN: RL
CHECKED: Lerner

A-3



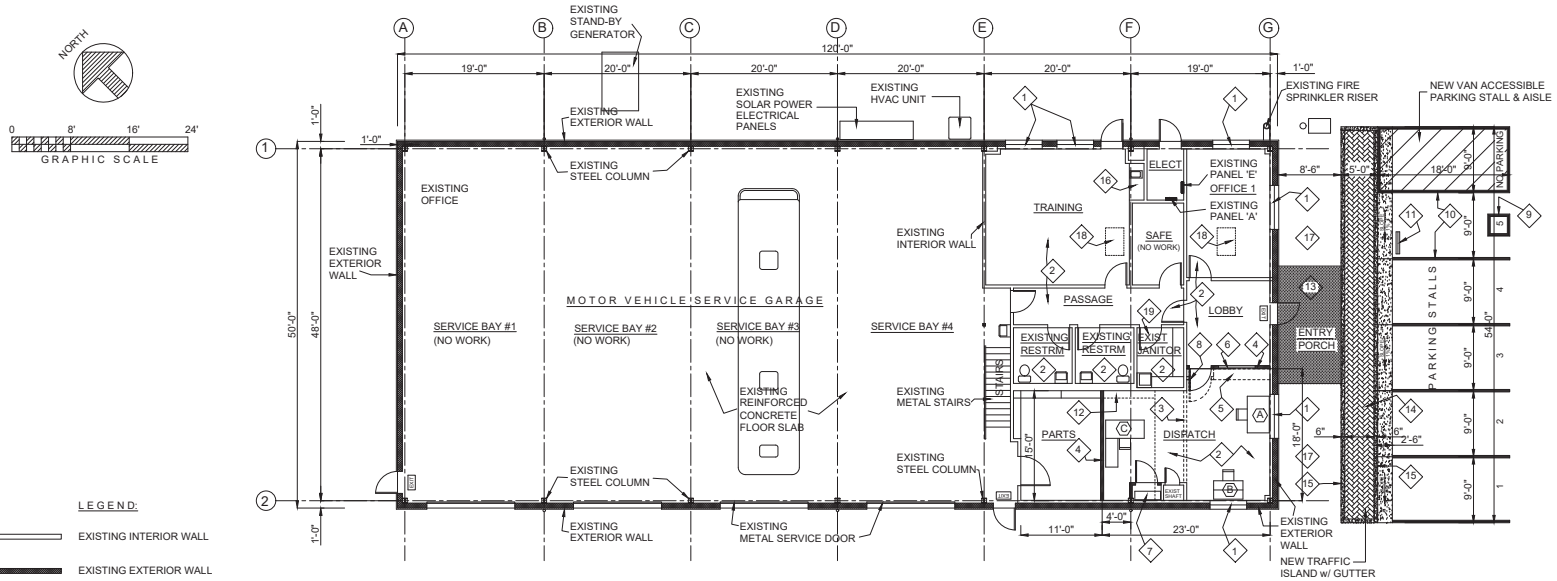
UPPER FLOOR PLAN

LEGEND:

- EXISTING INTERIOR WALL
- EXISTING EXTERIOR WALL
- EXISTING SKYLIGHT OR VENT ABOVE

KEY NOTES:

1. REPLACE WINDOWS
2. CLEAN HEATING, VENTILATING, and AIR CONDITIONING SYSTEMS TYPICAL @ BOTH FLOORS
3. PROVIDE NEW CHECK VALVE @ WET PIPE FIRE SPRINKLER SYSTEM
4. PROVIDE NEW FDC FIRE DEPARTMENT CONNECTION @ WET PIPE FIRE SPRINKLER SYSTEM
5. PROVIDE METAL GATES @ EXISTING LOADING DOORS



PROPOSED GROUND FLOOR PLAN

LEGEND:

- EXISTING INTERIOR WALL
- EXISTING EXTERIOR WALL
- NEW INTERIOR WALL OR PARTITION
- REMOVE INTERIOR WALL OR PARTITION

KEY NOTES:

1. REPLACE EXTERIOR WINDOWS, TYPICAL
2. NEW RESILIENT FLOORING & BASE
3. REMOVE INTERIOR PARTITION
4. NEW INTERIOR PARTITION
5. REMOVE COUNTER & GATE
6. NEW INTERIOR WINDOW
7. PROVIDE CLOSET for (E) DATA NETWORK NEW INTERIOR PARTITION with DOOR
8. NEW INTERIOR DOOR & FRAME
9. NEW UNIVERSAL ACCESS SYMBOL FOR VAN ACCESSIBLE PARKING
10. NEW PAVEMENT STRIPES
11. PRECAST WHEEL STOP
12. REMOVE WOOD SHELVES
13. EXISTING CONCRETE LANDING
14. NEW CONCRETE PAVERS
15. NEW REINFORCED CONCRETE CURBS & GUTTER PER CITY OF HOLLISTER ENGINEERING STANDARDS
16. PROVIDE ACCESSIBLE COFFEE BAR w/ COUNTER, CABINETS, & SINK PER ADA & STATE STANDARDS
17. EXISTING PAVEMENT
18. PATCH OPENING @ EXISTING GYPSUM BOARD CEILING TO MATCH
19. REPLACE FIRE SPRINKLER HEAD @ JANITOR CLOSET
20. CLEAN HEATING, VENTILATING, and AIR CONDITIONING SYSTEMS

ISSUED / REVISED
30 MARCH 2023
13 APRIL 2023
4 JUNE 2023

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GILROY, CALIFORNIA 95020
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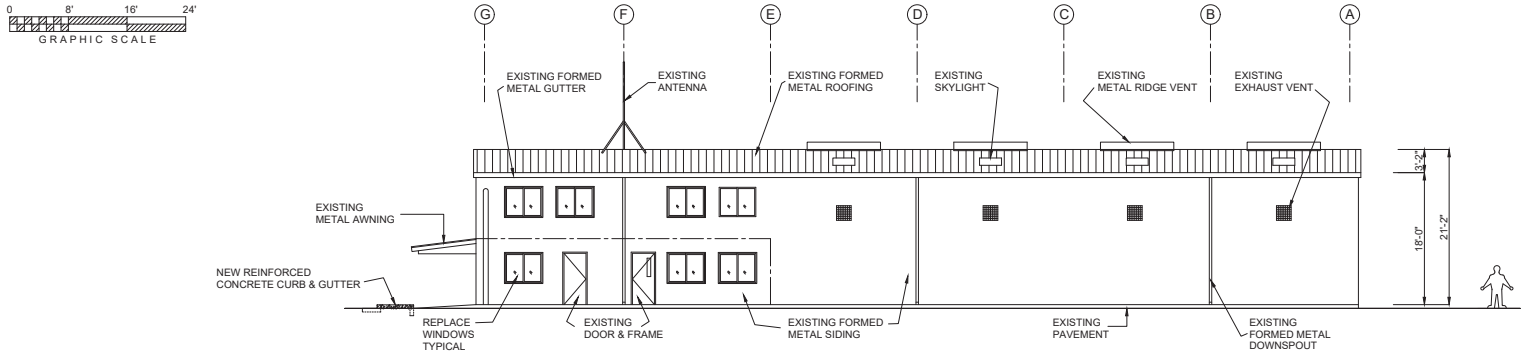
ALTERATIONS TO THE
TRANSIT MAINTENANCE & OPERATIONS BUILDING
SAN BENITO COUNTY COUNCIL OF GOVERNMENTS
3240 SOUTHSIDE ROAD, HOLLISTER
SAN BENITO COUNTY, CALIFORNIA 95023

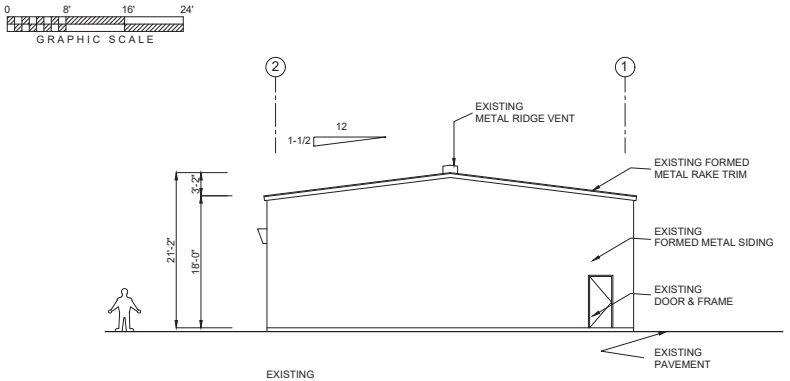
PROPOSED
FLOOR PLANS

SCALE: 1/8" = 1'-0"
SCALE: 1 / 96
DRAWN: RL
CHECKED: Lerner

A-4



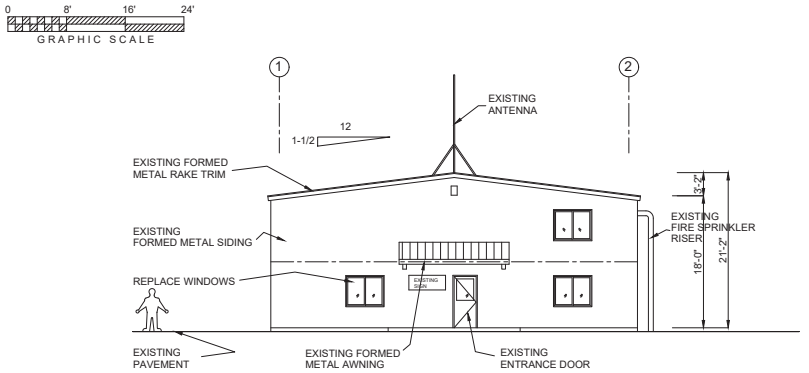
NORTH ELEVATION



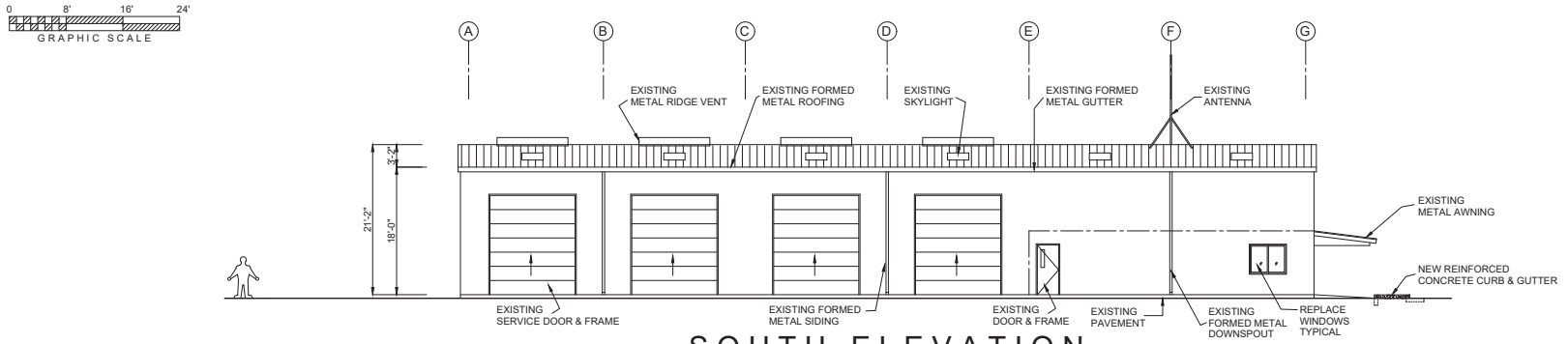
EXISTING

WEST ELEVATION

(NO WORK)



EAST ELEVATION



SOUTH ELEVATION

ISSUED / REVISED
30 MARCH 2023
13 APRIL 2023
13 MAY 2023

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ALTERATIONS TO THE
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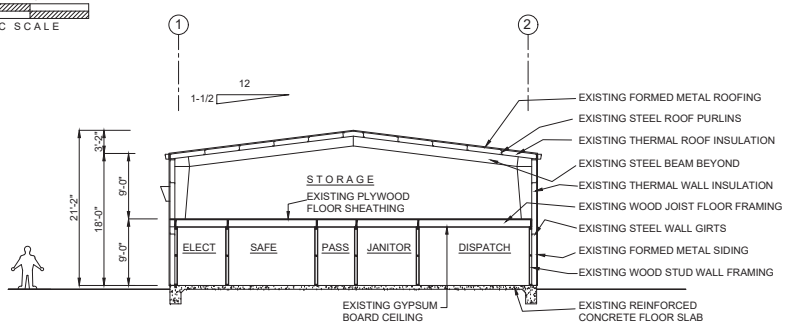
SAN BENITO COUNTY COUNCIL OF GOVERNMENTS
3240 SOUTHSIDE ROAD, HOLLISTER
SAN BENITO COUNTY, CALIFORNIA 95023

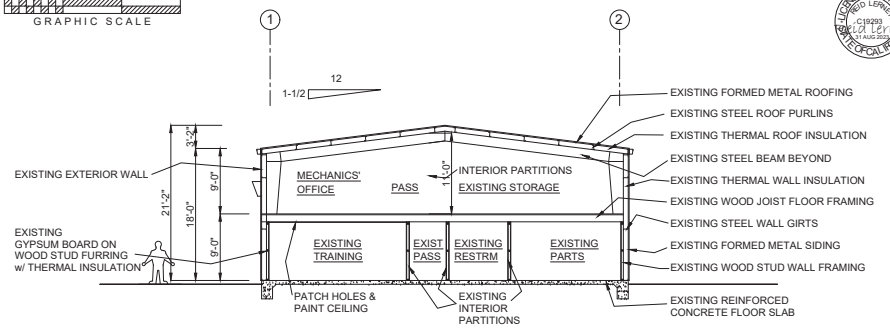
EXTERIOR
ELEVATIONS

SCALE: 1/8" = 1'-0"
SCALE: 1 / 96
DRAWN: RL
CHECKED: Lerner

A-5



1 BUILDING SECTION @ DISPATCH OFFICE



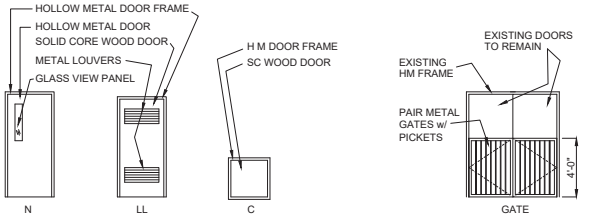
2 BUILDING SECTION @ TRAINING ROOM

ROOM FINISHES SCHEDULE

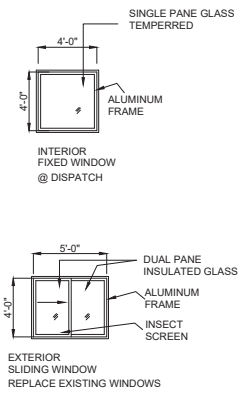
LOCATION	FLOOR							WALLS				CEILING					STATUS		
	EXISTING CONCRETE SLAB	EXISTING PLYWOOD SHEATHING	NEW VCT	RESILIENT FLOORING NEW	RESILIENT BASE SHEET	NEW SHEET VINYL RESIL FLOORING	NO WORK	GYPSUM BOARD	PATCH PREPARE & PAINT	NO WORK	EXISTING METAL SIDING	EXISTING GYPSUM BOARD	PATCH PREPARE & PAINT	EXISTING VAPOR BARRIER	NEW GYPSUM BOARD	NO WORK	NO WORK		
GROUND FLOOR																			
OFFICE 1	X		X	X				X	X			X	X						
DISPATCH	X		X	X				X	X			X	X						
LOBBY	X		X	X				X	X			X	X						
PARTS	X			X			X	X	X			X	X						
ELECTRICAL	X		X	X				X	X			X	X						
TRAINING	X		X	X				X	X			X	X						
PASSAGE	X		X	X				X	X			X	X						
SAFE	X		X	X				X	X			X	X						
RESTROOM 1	X			X	X			X	X			X	X						
RESTROOM 2	X			X	X			X	X			X	X						
JANITOR	X		X	X				X	X				X		X				
SERVICE BAY #1	X						X			X	X			X		X	X		
SERVICE BAY #2	X						X			X	X			X		X	X		
SERVICE BAY #3	X						X			X	X			X		X	X		
SERVICE BAY #4	X						X	X	X		X			X		X			
DATA CLOSET	X		X	X				X				X							
UPPER FLOOR																			
STORAGE		X					X			X				X		X	X		
HVAC ROOM		X					X			X				X		X	X		

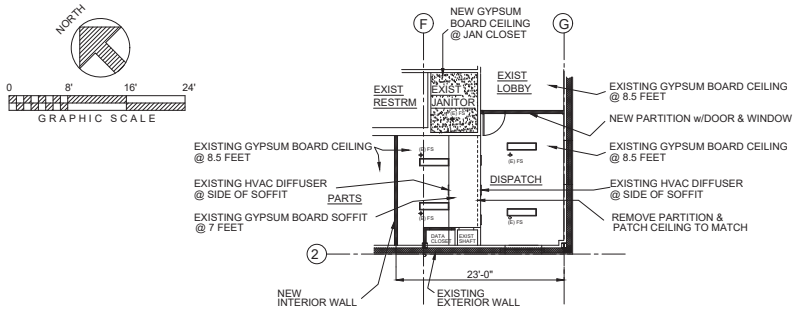
DOOR & FRAME SCHEDULE

MARK	LOCATION	HARDWARE	OPENING SIZE	TYPE	EXPOSURE	FINISH
	GROUND FLOOR					
1	DISPATCH	GROUP 1	3'-0" x 7'-0"	N	INTERIOR	PAINT
2	DISPATCH	GROUP 2	3'-0 x 6'-8"	LL	INTERIOR	PAINT
3	DISPATCH	GROUP 3	2'-6" x 2'-6" verify	C	INTERIOR	PAINT
	UPPER FLOOR					
4	STORAGE	GROUP 4	EXISTING 6'-0" WIDE	GATE	INTERIOR	PAINT



WINDOW SCHEDULE





5 REFLECTED CEILING PLAN @ DISPATCH OFFICE
GROUND FLOOR

ISSUED / REVISED
15 APRIL 2023
23 APRIL 2023
30 APRIL 2023
13 MAY 2023
4 JUNE 2023

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ALTERATIONS TO THE
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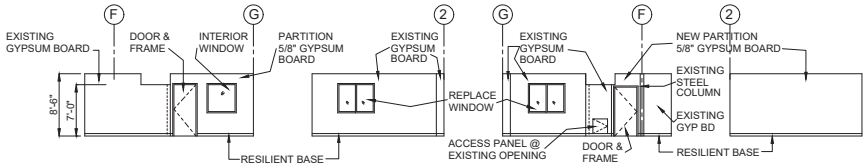
3240 SOUTHSIDE ROAD, HOLLISTER
SAN BENITO COUNTY, CALIFORNIA 95023

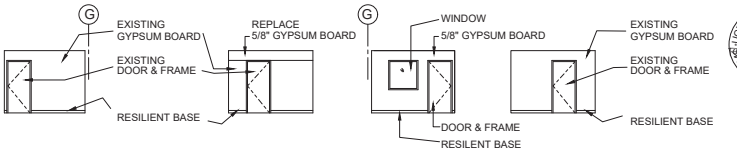
BUILDING SECTIONS
DOOR SCHEDULES
WINDOW SCHEDULE
CEILING PLANS

SCALE: 1/8" = 1'-0"
SCALE: 1 / 96
DRAWN: RL
CHECKED: Lerner

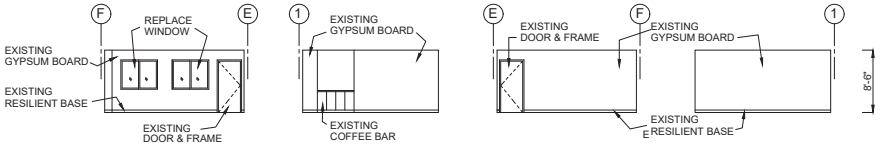
A-6



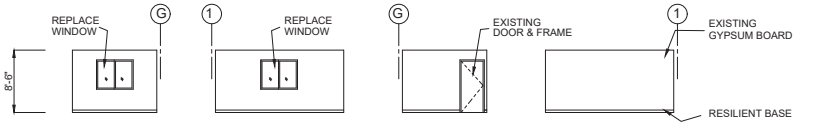
1 INTERIOR ELEVATIONS @ DISPATCH OFFICE



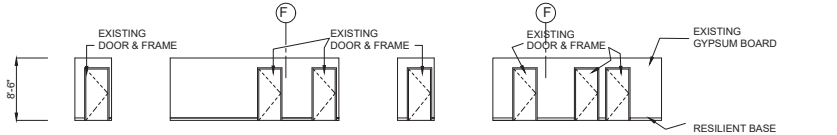
2 INTERIOR ELEVATIONS @ LOBBY



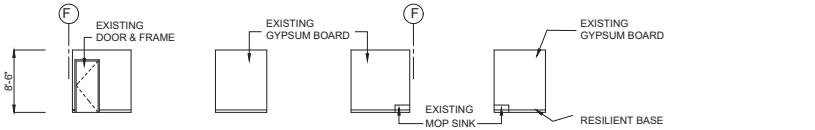
3 INTERIOR ELEVATIONS @ TRAINING / BREAK ROOM



4 INTERIOR ELEVATIONS @ OFFICE 1



5 INTERIOR ELEVATIONS @ GROUND FLOOR PASSAGE



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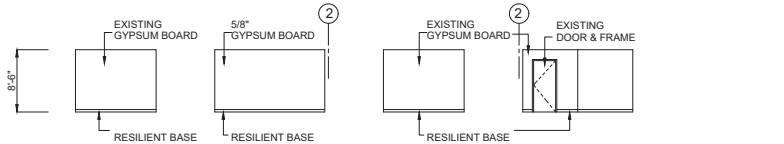
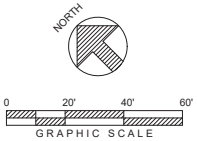
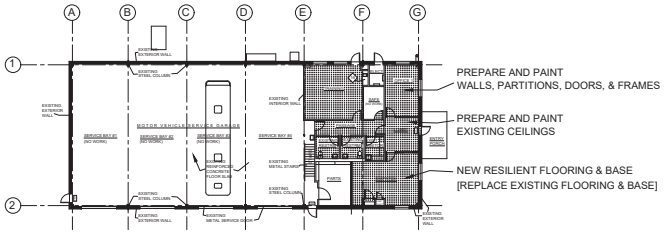
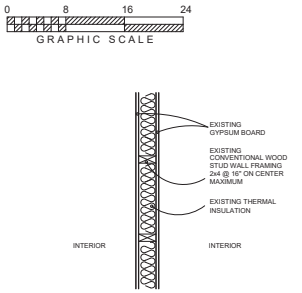


7 INTERIOR ELEVATIONS @ PARTS

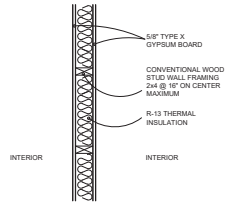




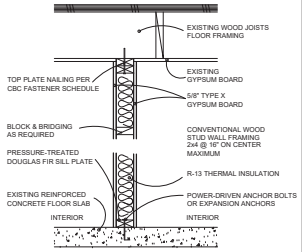
8 GROUND FLOOR FINISH PLAN



A EXISTING INTERIOR WALL PLAN
TYPICAL



B INTERIOR WALL & PARTITION PLAN
TYPICAL



C INTERIOR WALL SECTION
GROUND FLOOR

ISSUED / REVISED
23 APRIL 2023
13 MAY 2023
4 JUNE 2023

REID LERNER ARCHITECTS
7680 MONTEREY STREET #105
GILROY, CALIFORNIA 95020
phone 408 842 9942
www.reidlerner.com

ALTERATIONS TO THE
TRANSIT MAINTENANCE & OPERATIONS BUILDING
SAN BENITO COUNTY COUNCIL OF GOVERNMENTS
3240 SOUTHSIDE ROAD, HOLLISTER
SAN BENITO COUNTY, CALIFORNIA 95023

INTERIOR ELEVATIONS

SCALE: 1/8" = 1'-0"
SCALE: 1 / 96
DRAWN: RL
CHECKED: Lerner

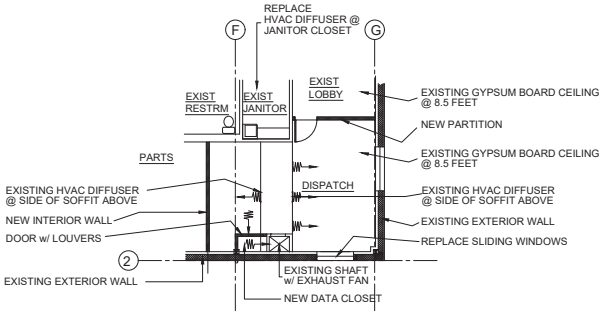
A-7

NORTH

0 8' 16' 24'

GRAPHIC SCALE

GENERAL NOTE:
CLEAN EXISTING HVAC SYSTEMS TYPICAL @ BOTH FLOORS

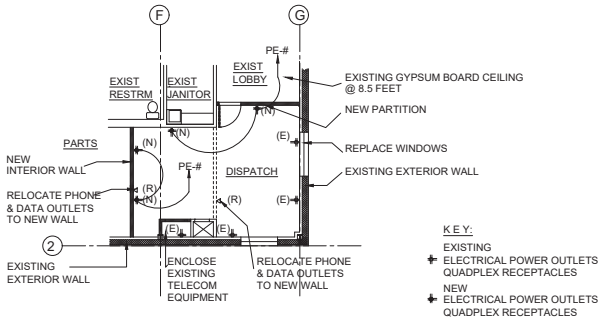


1 HVAC PLAN @ DISPATCH OFFICE
GROUND FLOOR

NORTH

0 8' 16' 24'

GRAPHIC SCALE

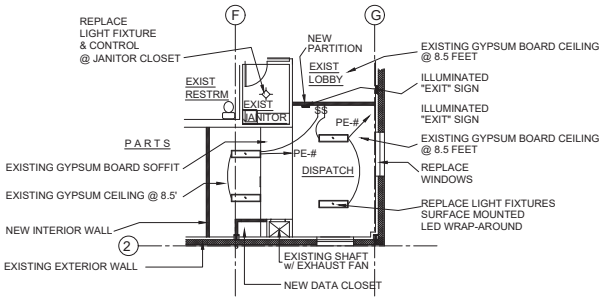


2 ELECTRICAL POWER PLAN @ DISPATCH OFFICE
GROUND FLOOR

NORTH

0 8' 16' 24'

GRAPHIC SCALE



3 LIGHTING PLAN @ DISPATCH OFFICE
GROUND FLOOR

ISSUED / REVISED
19 APRIL 2023
12 May 2023
4 JUNE 2023

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SAN BENITO COUNTY, CALIFORNIA 95023

MECHANICAL PLAN
ELECTRICAL PLAN

SCALE: 1/8" = 1'-0"
SCALE: 1 / 96
DRAWN: RL
CHECKED: Lerner

ME-1

REID LERNER ARCHITECTS

SPECIFICATIONS
Alterations to Operations & Maintenance Building
San Benito County Local Transportation Authority **Revised 4 June 2023**

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements
XX YY ZZ Coordinate with Client Requirements

Division 02 – Existing Conditions
02 41 00 Demolition and Deconstruction

Division 06 – Wood, Plastics, and Composites
06 10 00 Rough Carpentry
06 45 16 Architectural Cabinets

Division 07 – Thermal and Moisture Protection
07 21 16 Insulation, Mineral Fiber Blanket
07 92 00 Joint Sealants

Division 08 – Openings
08 11 13 Steel Doors & Frames
08 14 00 Wood Doors
08 51 13 Aluminum Windows
08 71 00 Door Hardware

Division 09 – Finishes
09 29 00 Gypsum Board
09 65 00 Resilient Flooring
09 90 00 Paints and Coatings

Division 12 - Furnishings
12 21 00 Window Blinds

Division 13 – Special Construction
13 34 19 Metal Building Systems

Division 21 – Fire Suppression
21 13 13 Wet Pipe Sprinkler System, Fire Protection

Division 23 – Heating, Ventilating, and Air Conditioning
23 01 30 HVAC System Cleaning

Division 26 – Electrical
26 20 00 Interior Distribution System
26 51 00 Interior Lighting

Division 32 – Exterior Improvements
32 14 13 Interlocking Precast Concrete Unit Paving
32 16 19 Concrete Curbs, Gutters, and Sidewalks
32 17 23 Pavement Markings

SECTION 02 41 00

DEMOLITION AND DECONSTRUCTION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)

AHRI Guideline K	(2009) Guideline for Containers for Recovered Non-Flammable Fluorocarbon Refrigerants

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 145	(1991; R 2012) Standard Specification for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
AASHTO T 180	(2017) Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ASSP A10.6	(2006) Safety & Health Program Requirements for Demolition Operations - American National Standard for Construction and Demolition Operations

ASTM INTERNATIONAL (ASTM)

ASTM D2487	(2017; E 2020) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

CARPET AND RUG INSTITUTE (CRI)

CRI 104	(2015) Carpet Installation Standard for Commercial Carpet

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 61	National Emission Standards for Hazardous Air Pollutants

40 CFR 82	Protection of Stratospheric Ozone
49 CFR 173.301	Shipment of Compressed Gases in Cylinders and Spherical Pressure Vessels

1.2 PROJECT DESCRIPTION

1.2.1 Definitions

1.2.1.1 Demolition

Demolition is the process of tearing apart and removing any feature of a facility together with any related handling and disposal operations.

1.2.1.2 Deconstruction

Deconstruction is the process of taking apart a facility with the primary goal of preserving the value of all useful building materials.

1.2.1.3 Demolition Plan

Demolition Plan is the planned steps and processes for managing demolition activities and identifying the required sequencing activities and disposal mechanisms.

1.2.1.4 Deconstruction Plan

Deconstruction Plan is the planned steps and processes for dismantling all or portions of a structure or assembly, to include managing sequencing activities, storage, re-installation activities, salvage and disposal mechanisms.

1.2.2 General Requirements

Do not begin demolition or deconstruction until authorization is received from the Client. Remove rubbish and debris from the project site; do not allow accumulations inside or outside the building, or on pavements. The work includes demolition, deconstruction, salvage of identified items and materials, and removal of resulting rubbish and debris. Remove rubbish and debris from Government property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the Client. In the interest of occupational safety and health, perform the work in accordance with personal protective equipment.

1.3 ITEMS TO REMAIN IN PLACE

Comply with FAR 52.236-9 to protect existing vegetation, structures, equipment, utilities, and improvements. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract. Do not overload structural elements or pavements. Provide new supports and reinforcement for existing construction weakened by demolition, deconstruction, or removal work. Repairs, reinforcement, or structural replacement require approval by the client prior to performing such work.

1.3.1 Existing Construction Limits and Protection

Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove water, dust, dirt, and debris from work areas daily.

1.3.2 Weather Protection

For portions of the building to remain, protect building interior and materials and equipment from the weather at all times. Where removal of existing roofing is necessary to accomplish work, have materials and workmen ready to provide adequate and temporary covering of exposed areas.

1.3.3 Utility Service

Maintain existing utilities indicated to stay in service and protect against damage during demolition and deconstruction operations.

1.3.4 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, must remain standing without additional bracing, shoring, or lateral support until demolished or deconstructed, unless directed otherwise by the Contracting Officer. Ensure that no elements determined to be unstable are left unsupported and place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract.

1.4 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted. Where burning is permitted, adhere to federal, state, and local regulations.

1.5 AVAILABILITY OF WORK AREAS

Areas in which the work is to be accomplished will be available at contract award.

1.6 QUALITY ASSURANCE

Submit timely notification of demolition, deconstruction, and renovation project to regional and local authorities, local air pollution control district/agency and the client in writing 10 working days prior to the commencement of work. Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," conform to the safety requirements contained in ASSP A10.6. Comply with the Environmental Protection Agency requirements specified.

Use of explosives will not be permitted.

1.6.2 Dust and Debris Control

Prevent the spread of dust and debris to occupied portions of the building and pavements and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Vacuum and dust the work area daily.Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to transit vehicles.

1.7 PROTECTION

1.7.1 Protection of Personnel

Before, during and after the demolition and deconstruction work continuously evaluate the condition of the site specific features and structure being demolished and deconstructed and take immediate action to protect all personnel working in and around the project site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.8 FOREIGN OBJECT DAMAGE (FOD)

Transit vehicles and engines are subject to FOD from debris and waste material lying on transportation pavements. Remove all such materials that may appear on operational pavements due to the Contractor's operations. If necessary, the client may require the Contractor to install a temporary barricade at the Contractor's expense to control the spread of FOD potential debris. Provide a barricade consisting of a fence covered with a fabric designed to stop the spread of debris. Anchor the fence and fabric to prevent displacement by winds or blasts. Remove barricade when no longer required.

1.9 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair or replace items to be relocated which are damaged by the Contractor with new undamaged items as approved by the Client.

1.10 EXISTING CONDITIONS

Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the Contracting Officer [or the Contracting Officer's Representative] [and a representative from the non-federal sponsor] showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs or electronic images with a minimum resolution of 3072 x 2304 pixels, capable of a print resolution of 300 dpi, will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of

existing cracks and other damage and description of surface conditions that exist prior to starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document. Submit survey results to the Contracting Officer [or the Contracting Officer's Representative].

PART 2 PRODUCTS

2.1 Not Used

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

Inspect and evaluate existing structures onsite for reuse. Disassemble existing construction scheduled to be removed for reuse. Dismantled and removed materials are to be separated, set aside, and prepared as specified, and stored or delivered to a collection point for reuse, remanufacture, recycling, or other disposal, as specified. Designate materials for reuse onsite whenever possible.

3.1.1 Structures

a. Remove existing structures indicated to be removed. Remove interior walls and partitions, other than bearing walls or shear walls, to the top of concrete slab on ground.

b. Demolish and deconstruct structures in a systematic manner from the top of the structure to the ground. Complete demolition work above each tier or floor before the supporting members on the lower level are disturbed. Remove structural framing members and lower to ground by means of derricks, platforms hoists, or other suitable methods as approved by the client.

c. Locate demolition and deconstruction equipment throughout the structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing.

3.1.2 Utilities and Related Equipment

3.1.2.1 General Requirements

Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Contracting Officer. Do not interrupt existing utilities serving facilities occupied and used by the Government except when approved in writing and then only after temporary utility services have been approved and provided. Do not begin demolition or deconstruction work until all utility disconnections have been made. Shut off and cap utilities for future use, as indicated.

3.1.3 Carpentry

Salvage for [reuse] [recycle] lumber, millwork items, and finished boards, and sort by type and size. [[Chip or shred and]recycle salvaged wood unfit for reuse, except stained, painted, or treated wood.] [Salvage] [Remove] windows, doors, frames, and cabinets, and similar items as whole

units, complete with trim and accessories. [Do not remove hardware attached to units, except for door closers.] [Salvage hardware attached to units for reuse.] Brace the open end of door frames to prevent damage.

3.1.4 Carpet

Remove existing carpet for reclamation in accordance with manufacturer recommendations and as follows. Remove used carpet in large pieces, roll tightly, and pack neatly in a container. Remove adhesive according to recommendations of the Carpet and Rug Institute (CRI). Provide adhesive removal solvents in compliance with CRI 104/CRI 105. Recycle removed carpet cushion.

3.1.5 Acoustic Ceiling Tile

Remove, neatly stack, and recycle acoustic ceiling tiles. Recycling may be available with manufacturer. Otherwise, give priority to a local recycling organization. Recycling is not required if the tiles contain or may have been exposed to asbestos material.

3.1.6 Patching

Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces, using on-site materials when available. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Make finished surfaces of patched area flush with the adjacent existing surface and match the existing adjacent surface as closely as possible to texture and finish. Provide patching as specified and indicated, and include the following:

a. Where existing partitions have been removed leaving damaged or missing resilient tile flooring, patch to match the existing floor tile.

b. Patch acoustic lay-in ceiling where partitions have been removed. Make the transition between the different ceiling heights by continuing the higher ceiling level over to the first runner on the lower ceiling and closing the vertical opening with a painted sheet metal strip

3.1.7 Mechanical Equipment and Fixtures

3.1.8 Electrical Equipment and Fixtures

Salvage motors, motor controllers, and operating and control equipment that are attached to the driven equipment. Salvage wiring systems and components. Box loose items and tag for identification. Disconnect primary, secondary, control, communication, and signal circuits at the point of attachment to their distribution system.

3.1.8.1 Fixtures

Remove and salvage electrical fixtures. Salvage unprotected glassware from the fixture and salvage separately. Salvage incandescent, mercury-vapor, and fluorescent lamps and fluorescent ballasts manufactured prior to 1978, boxed and tagged for identification, and protected from breakage.

3.1.8.2 Electrical Devices

Remove and salvage switches, switchgear, transformers, conductors including wire and nonmetallic sheathed and flexible armored cable, regulators, meters, instruments, plates, circuit breakers, panelboards, outlet boxes, and similar items. Box and tag these items for identification according to type and size.

3.1.8.3 Wiring Ducts or Troughs

Remove and salvage wiring ducts or troughs. Dismantle plug-in ducts and wiring troughs into unit lengths. Remove plug-in or disconnecting devices from the busway and store separately.

3.1.8.4 Conduit and Miscellaneous Items

Salvage conduit except where embedded in concrete or masonry. Consider corroded, bent, or damaged conduit as scrap metal. Sort straight and undamaged lengths of conduit according to size and type. Classify supports, knobs, tubes, cleats, and straps as debris to be removed and disposed.

3.2 DISPOSITION OF MATERIAL

3.2.1 Title to Materials

Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, become the property of the Contractor and must be removed from Government property. Materials approved for storage by the Contracting Officer must be removed before completion of the contract. Title to materials resulting from demolition and deconstruction, and materials and equipment to be removed, is vested in the Contractor upon approval by the Client. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Showing for sale or selling materials and equipment on site is prohibited.

3.2.2 Reuse of Materials and Equipment

Remove and store materials and equipment indicated to be reused or relocated to prevent damage, and reinstall as the work progresses. Coordinate the re-use of materials and equipment with the re-use requirements.

3.2.3 Salvaged Materials and Equipment

Remove materials and equipment that are listed and specified to be removed by the Contractor and that are to remain the property of the Government, and deliver to a storage site as directed.

a. Salvage items and material to the maximum extent possible.

b. Store all materials salvaged for the Contractor as approved by the Contracting Officer and remove from Government property before completion of the contract. Coordinate the salvaged materials with tracking requirements

c. Remove salvaged items to remain the property of the Government in a manner to prevent damage, and packed or crated to protect the items from damage while in storage or during shipment. Items damaged during removal or storage must be repaired or replaced to match existing items. Properly identify the contents of containers.

d. Remove historical items in a manner to prevent damage. Deliver the following historical items to the Government for disposition: Corner stones, contents of corner stones, and document boxes wherever located on the site.

3.2.4 Unsalvageable and Non-Recyclable Material

Dispose of unsalvageable and non-recyclable combustible material off the site.

3.3 CLEANUP

Remove debris and rubbish from project site and staging area. Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.4 DISPOSAL OF REMOVED MATERIALS

3.4.1 Regulation of Removed Materials

Dispose of debris, rubbish, scrap, and other nonsalvageable materials resulting from removal operations with all applicable federal, state and local regulations as contractually specified.

3.4.2 Burning on Government Property

Burning of materials removed from demolished and deconstructed structures will not be permitted on Government property.

3.4.3 Removal to Spoil Areas on Government Property

Transport noncombustible materials removed from demolition and deconstruction structures to designated spoil areas on Government property.

3.4.4 Removal from Government Property

Transport waste materials removed from demolished and deconstructed structures, except waste soil, from Government property for legal disposal. Dispose of waste soil as directed.

3.5 REUSE OF SALVAGED ITEMS

Recondition salvaged materials and equipment designated for reuse before installation. Replace items damaged during removal and salvage operations or restore them as necessary to usable condition.

-- End of Section --

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN FOREST FOUNDATION (AFF)

ATFS STANDARDS	(2015) American Tree Farm System Standards of Sustainability 2015-2020

AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)

AITC 111	(2005) Recommended Practice for Protection of Structural Glued Laminated Timber During Transit, Storage and Erection
AITC TCM	(2012) Timber Construction Manual, 5th Edition
ANSI/AITC A190.1	(2007) American National Standard, Structural Glued Laminated Timber

AMERICAN LUMBER STANDARDS COMMITTEE (ALSC)

ALSC PS 20	(2015) American Softwood Lumber Standard

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B18.2.1	(2012; Errata 2013) Square and Hex Bolts and Screws (Inch Series)
ASME B18.2.2	(2022) Nuts for General Applications: Machine Screw Nuts, and Hex, Square, Hex Flange, and Coupling Nuts (Inch Series)
ASME B18.5.2.1M	(2006; R 2011) Metric Round Head Short Square Neck Bolts
ASME B18.5.2.2M	(1982; R 2010) Metric Round Head Square Neck Bolts
ASME B18.6.1	(2016) Wood Screws (Inch Series)

AMERICAN WOOD COUNCIL (AWC)

AWC NDS	(2015) National Design Specification (NDS) for Wood Construction
AWC WFCM	(2012) Wood Frame Construction Manual for One- and Two-Family Dwellings

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)

AWPA BOOK	(2015) AWPA Book of Standards
AWPA M2	(2019) Standard for the Inspection of Preservative Treated Wood Products for Industrial Use
AWPA M6	(2013) Brands Used on Preservative Treated Materials
AWPA P5	(2015) Standard for Waterborne Preservatives
AWPA P18	(2014) Nonpressure Preservatives
AWPA T1	(2022) Use Category System: Processing and Treatment Standard
AWPA U1	(2022) Use Category System: User Specification for Treated Wood

APA - THE ENGINEERED WOOD ASSOCIATION (APA)

APA E30	(2016) Engineered Wood Construction Guide
APA E445	(2002) Performance Standards and Qualification Policy for Structural-Use Panels (APA PRP-108)
APA EWS R540	(2013) Builder Tips: Proper Storage and Handling of Glulam Beams
APA EWS T300	(2007) Technical Note: Glulam Connection Details
APA F405	(19) Product Guide: Performance Rated Panels
APA L870	(2010) Voluntary Product Standard, PS 1-09, Structural Plywood
APA S350	(2014) PS 2-10, Performance Standard for Wood-Based Structural-Use Panels

ASTM INTERNATIONAL (ASTM)

ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM A307	(2021) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM A653/A653M	(2022) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM C1396/C1396M	(2017) Standard Specification for Gypsum Board
ASTM D198	(2015) Standard Test Methods of Static Tests of Lumber in Structural Sizes
ASTM D3498	(2019a) Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Stand Board) to Wood Based Floor System Framing
ASTM E96/E96M	(2022a) Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials
ASTM F547	(202) Standard Terminology of Nails for Use with Wood and Wood-Base Materials
ASTM F1667/F1667M	(2021a) Standard Specification for Driven Fasteners: Nails, Spikes, and Staples

CALIFORNIA AIR RESOURCES BOARD (CARB)

CARB 93120	(2007) Airborne Toxic Control Measure (ATCM) to Reduce Formaldehyde Emissions from Composite Wood Products

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

CSA GROUP (CSA)

CSA Z809-08	(R2013) Sustainable Forest Management

FOREST STEWARDSHIP COUNCIL (FSC)

FSC STD 01 001	(2015) Principles and Criteria for Forest Stewardship

GREEN SEAL (GS)

GS-36	(2013) Adhesives for Commercial Use

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC	(2021) International Building Code

NATIONAL HARDWOOD LUMBER ASSOCIATION (NHLA)

NHLA Rules	(2015) Rules for the Measurement & Inspection of Hardwood & Cypress

NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION (NELMA)

NELMA Grading Rules	(2013) Standard Grading Rules for Northeastern Lumber

PROGRAMME FOR ENDORSEMENT OF FOREST CERTIFICATION (PEFC)

PEFC ST 2002:2013	(2015) PEFC International Standard Chain of Custody of Forest Based Products Requirements

REDWOOD INSPECTION SERVICE (RIS) OF THE CALIFORNIA REDWOOD ASSOCIATION (CRA)

RIS Grade Use	(1998) Redwood Lumber Grades and Uses

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168	(2017) Adhesive and Sealant Applications

SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION (SCMA)

SCMA Spec	(1986; Supple. No. 1, Aug 1993) Standard Specifications for Grades of Southern Cypress

SUSTAINABLE FOREST INITIATIVE (SFI)

SFI 2015-2019	(2015) Standards, Rules for Label Use, Procedures and Guidance

U.S. DEPARTMENT OF COMMERCE (DOC)

DOC/NIST PS56	(1973) Structural Glued Laminated Timber

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

CID A-A-1923	(Rev A; Notice 3) Shield, Expansion (Lag, Machine and Externally Threaded Wedge Bolt Anchors)
CID A-A-1924	(Rev A; Notice 3) Shield, Expansion (Self Drilling Tubular Expansion Shell Bolt Anchors
CID A-A-1925	(Rev A; Notice 3) Shield Expansion (Nail Anchors)

FS UU-B-790	(Rev A; Notice 2) Building Paper Vegetable Fiber: (Kraft, Waterproofed, Water Repellent and Fire Resistant)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 770	Formaldehyde Standards for Composite Wood Products

UNDERWRITERS LABORATORIES (UL)

UL 2818	(2013) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

WEST COAST LUMBER INSPECTION BUREAU (WCLIB)

WCLIB 17	(2015) Standard Grading Rules

WESTERN WOOD PRODUCTS ASSOCIATION (WWPA)

WWPA G-5	(2017) Western Lumber Grading Rules

1.2 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-03 Product Data

Underlayment

Fiberboard Wall Sheathing

Oriented Strand Board

Adhesives

Sheathing;

1.3 DELIVERY AND STORAGE

Deliver materials to the site in an undamaged condition. Store, protect, handle, and install prefabricated structural elements in accordance with manufacturer's instructions and as specified. Store materials off the ground to provide proper ventilation, with drainage to avoid standing water, and protection against ground moisture and dampness. Store materials with a moisture barrier at both the ground level and as a cover forming a well ventilated enclosure. Adhere to requirements for stacking, lifting, bracing, cutting, notching, and special fastening requirements. Handle and store laminated timber in accordance with AITC 111 or APA EWS R540. Do not use materials that have visible moisture or biological growth. Remove defective and damaged materials and provide new materials. Store separated reusable wood waste convenient to cutting station and area of work.

1.4 GRADING AND MARKING

1.4.1 Lumber

Mark each piece of framing and board lumber or each bundle of small pieces of lumber with the grade mark of a recognized association or independent inspection agency. Such association or agency must be certified by the Board of Review, American Lumber Standards Committee, to grade the species used. Surfaces that are to be exposed to view must not bear grademarks, stamps, or any type of identifying mark. Hammer marking will be permitted on timbers when all surfaces will be exposed to view.

1.4.2 Structural Glued Laminated Timber

Mark each member with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of structural glued laminated timber products. The marking must indicate compliance with ANSI/AITC A190.1 and must include all identification information required by ANSI/AITC A190.1. Structurally end-jointed lumber must also be certified and grade marked in accordance with ANSI/AITC A190.1.

1.4.3 Plywood

Mark each sheet with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood. The mark must identify the plywood by species group or span rating, exposure durability classification, grade, and compliance with APA L870. Surfaces that are to be exposed to view must not bear grademarks or other types of identifying marks.

1.4.4 Structural-Use and OSB Panels

Mark each panel with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the panel. The mark must indicate end use, span rating, and exposure durability classification. Oriented Strand Board (OSB), APA F405.

1.4.5 Preservative-Treated Lumber and Plywood

The Contractor is responsible for the quality of treated wood products. Each treated piece must be inspected in accordance with AWPA M2 and permanently marked or branded, by the producer, in accordance with AWPA M6. The Contractor must provide Contracting Officer's Representative (COR) with the inspection report of an approved independent inspection agency that offered products comply with applicable AWPA Standards. The appropriate Quality Mark on each piece will be accepted, in lieu of inspection reports, as evidence of compliance with applicable AWPA treatment standards.

1.4.6 Hardboard, Gypsum Board, and Fiberboard

Mark each sheet or bundle to identify the standard under which the material is produced and the producer.

1.5 SIZES AND SURFACING

ALSC PS 20 for dressed sizes of yard and structural lumber. Lumber must be surfaced four sides. Size references, unless otherwise specified, are nominal sizes, and actual sizes must be within manufacturing tolerances allowed by the standard under which the product is produced. Other

measurements are IP or SI standard.

1.6 MOISTURE CONTENT

Air-dry or kiln-dry lumber. Kiln-dry treated lumber after treatment. Maximum moisture content of wood products must be as follows at the time of delivery to the job site:

a. Framing lumber and board, 19 percent maximum

b. Timbers 5 inches and thicker, 25 percent maximum

] d. Materials other than lumber; moisture content must be in accordance with standard under which the product is produced

1.7 PRESERVATIVE TREATMENT

All wood must be air or kiln dried after treatment. Specific treatments must be verified by the report of an approved independent inspection agency, or the AWPA Quality Mark on each piece. Brush coat areas that are cut or drilled after treatment with either the same preservative used in the treatment or with a 2 percent copper naphthenate solution.

The following items must be preservative treated:

(1) Wood members that are in contact with water.

(2) Wood sills, soles, plates, furring, and sleepers that are less than 24 inches from the ground,

(3) furring and nailers that are set into or in contact with concrete or masonry.

(4) Nailers, edge strips, crickets, curbs, and cants for roof decks or exterior exposure.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Virgin Lumber

Lumber fabricated from old growth timber is not permitted.

2.1.4 Natural Decay- and Insect-Resistant Wood

Naturally durable wood must be certified sustainably harvested natural-decay and insect-resistant wood. An occasional piece with corner sapwood is permitted if 90 percent or more of the width of each side on which the sapwood occurs is heartwood. The primary species to use on this project is redwood.

2.2 LUMBER

2.2.1 Framing Lumber

Framing lumber such as studs, plates, caps, collar beams, cant strips,

bucks, sleepers, nailing strips, and nailers and board lumber such as subflooring and wall and roof sheathing must be one of the species listed in the table below. Minimum grade of species must be as listed. Finger-jointed lumber may be used in the same applications as solid lumber of an equivalent species and grade, provided the finger-jointed lumber meets all the requirements of the certification and the quality control programs of the rules writing agency having jurisdiction and all applicable requirements of DOC/NIST PS56.

2.3 PLYWOOD, STRUCTURAL-USE, AND ORIENTED STRAND BOARD (OSB) PANELS

APA L870, APA S350, APA E445, and APA F405 respectively.

2.3.1 Subflooring

2.3.1.1 Plywood

C-D Grade, Exposure 1 durability classification,

2.3.1.2 Structural-Use and OSB Panels

Sheathing grade with durability equivalent to Exposure 1, Span Rating of or greater. OSB, APA E445, Rated Sturd-I-Floor

2.4

2.4.1 Hardboard

AHA A135.4 service class, sanded one side, 6 mm 1/4 inch thick, 1200 mm 4 feet wide.

2.4.2 Plywood

Plywood must conform to APA L870, underlayment grade with exterior glue, or C-C (Plugged) exterior grade 9 mm 11/32 inch thick, 1200 mm 4 feet wide.[Provide certified sustainably harvested plywood underlayment.]

2.4.3 Oriented Strand Board

OSB underlayment grade 6 mm 0.225 inch.

2.5 OTHER MATERIALS

2.5.1 Hardboard Underlayment

DOC/NIST PS58, service class, sanded on one side, 6 mm 1/4 inch thick 1200 mm 4 feet wide.

2.5.2

2.5.3 Gypsum Wall Sheathing

ASTM C1396/C1396M, fire retardant (Type X) 5/8 inch thick

2.5.4 Building Paper

FS UU-B-790, Type I, Grade D, Style 1.

2.5.5 Miscellaneous Wood Members

2.5.5.1 Nonstress Graded Members

Members must include bridging, corner bracing, furring, grounds, and nailing strips. Members must be in accordance with TABLE I for the species used. Sizes must be as follows unless otherwise shown:

Member	Size mm inch
Bridging	25 x 75 1 x 3 or 25 x 100 1 x 4 for use between members 50 x 300 2 x 12 and smaller; 50 x 100 2 x 4 for use between members larger than 50 x 300 2 x 12.
Corner bracing	25 x 100 1 x 4.
Furring	25 x [50] [75] 1 x [2] [3]
Grounds	Plaster thickness by 38.
Nailing strips	25 x 75 1 x 3 or 25 x 100 1 x 4 when used as shingle base or interior finish, otherwise 50 mm 2 inch stock.

2.5.5.2 Sill Plates

Sill plates must be standard or number 2 grade.

2.5.5.3 Blocking

Blocking must be standard or number 2 grade.

2.6 ROUGH HARDWARE

Unless otherwise indicated or specified, rough hardware must be of the type and size necessary for the project requirements. Sizes, types, and spacing of fastenings of manufactured building materials must be as recommended by the product manufacturer unless otherwise indicated or specified. Rough hardware exposed to the weather or embedded in or in contact with preservative treated wood, or concrete walls or slabs must be hot-dip zinc-coated in accordance with ASTM A153/A153M.

2.6.1 Bolts, Nuts, Studs, and Rivets

ASME B18.2.1, ASME B18.5.2.1M, ASME B18.5.2.2M and ASME B18.2.2.

2.6.2 Anchor Bolts

ASTM A307, size as indicated, complete with nuts and washers.

2.6.3 Expansion Shields

CID A-A-1923, CID A-A-1924, and CID A-A-1925. Except as shown otherwise, maximum size of devices must be 3/8 inch.

2.6.4 Lag Screws and Lag Bolts

ASME B18.2.1.

2.6.5 Wood Screws

ASME B18.6.1.

2.6.6 Nails

ASTM F547, size and type best suited for purpose. For sheathing and subflooring, length of nails must be sufficient to extend 1 inch into supports. In general, 8-penny or larger nails must be used for nailing through 1 inch thick lumber and for toe nailing 50 mm 2 inch thick lumber; 16-penny or larger nails must be used for nailing through 50 mm 2 inch thick lumber. Nails used with treated lumber and sheathing must be hot-dipped galvanized in accordance with ASTM A153/A153M. Nailing must be in accordance with the recommended nailing schedule contained in AWC WFCM. Where detailed nailing requirements are not specified, nail size and spacing must be sufficient to develop an adequate strength for the connection. The connection's strength must be verified against the nail capacity tables in AWC NDS. Reasonable judgment backed by experience must ensure that the designed connection will not cause the wood to split. If a load situation exceeds a reasonable limit for nails, a specialized connector must be used.

2.6.7 Wire Nails

ASTM F1667/F1667M.

2.6.8 Timber Connectors

Unless otherwise specified, timber connectors must be in accordance with TPI 1, APA EWS T300 or AITC TCM.

2.6.9 Clip Angles

Steel, size best suited for intended use; or zinc-coated steel or iron commercial clips designed for connecting wood members.

2.6.10 Metal Bridging

Where not indicated or specified otherwise, No. 16 U.S. Standard gage, cadmium-plated or zinc-coated.

2.6.11 Toothed Rings and Shear Plates

AWC NDS.

PART 3 EXECUTION

3.1 INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

Conform to AWC WFCM unless otherwise indicated or specified. Select lumber sizes to minimize waste. Fit framing lumber and other rough carpentry, set accurately to the required lines and levels, and secure in place in a rigid manner. Do not splice framing members between bearing points. Set joists, rafters, and purlins with their crown edge up. Frame members for the passage of pipes, conduits, and ducts. Do not cut or bore structural members for the passage of ducts or pipes without approval. Reinforce all members damaged by such cutting or boring by means of specially formed and approved sheet metal or bar steel shapes, or remove and provide new, as approved. Provide as necessary for the proper completion of the work all framing members not indicated or specified. Spiking and nailing not indicated or specified otherwise must be in accordance with the Nailing Schedule contained in ICC IBC; perform bolting in an approved manner. Spikes, nails, and bolts must be drawn up tight. Do not use shimming on wood or metal bearings.

3.1.1 Sills

Set sills level and square and wedge with steel or slate shims; point or grout with non-shrinking cement mortar to provide continuous and solid bearing. Anchor sills to the foundations as indicated. Where sizes and spacing of anchor bolts are not indicated, provide not less than 5/8 inch diameter bolts at all corners and splices and space at a maximum of 6 feet o.c. between corner bolts. Provide at least two bolts for each sill member. Lap and splice sills at corners and bolt through the laps or butt the ends and through-bolt not more than 6 inches from the ends. Provide bolts with plate washers and nuts. Bolts in exterior walls must be zinc-coated.

3.1.1.1 Anchors in Concrete

Powder-actuated fasteners may be provided in lieu of anhor bolts for single thickness plates on concrete.

3.1.2 Wall Framing

3.1.2.1 Studs

Select studs for straightness and set plumb, true, and in alignment. In walls and partitions more than 8 feet tall, provide horizontal bridging at not more than 8 feet o.c. using nominal 2 inch material of the same width as the studs; install the bridging flat. Sizes and spacing of studs must be as indicated. Double studs at jambs and heads of openings and triple at corners to form corner posts. Frame corner posts to receive sheathing, lath, and interior finish. Over openings exceeding 4 feet in width or use a header of sufficient depth. Toe-nail studs to sills or sole plates with four 8-penny nails or fasten with metal nailing clips or connectors. Anchor studs abutting concrete or masonry walls thereto near the top and bottom and at midheight of each story using expansion bolts or powder-actuated drive studs.

3.1.2.2 Plates

Use plates for walls and partitions of the same width as the studs to form continuous horizontal ties. Splice single plates; stagger the ends of

double plates. Double top plates in walls and bearing partitions, built up of two nominal 2 inch thick members. Top plates for nonbearing partitions must be single or double plates of the same size as the studs. Nail lower members of double top plates and single top plates to each stud and corner post with two 16-penny nails. Nail the upper members of double plates to the lower members with 10-penny nails, two near each end, and stagger 16 inches o.c. intermediately between. Nail sole plates on wood construction through the subfloor to each joist and header; stagger nails. Anchor sole plates on concrete with expansion bolts, one near each end and at not more than 6 feet o.c., or with powder-actuated fasteners, one near each end and at not more than 3 feet o.c. Provide plates cut for the passage of pipes or ducts with a steel angle as a tie for the plate and bearing for joist.

3.1.2.3 Firestops

Provide firestops for wood framed walls and partitions and for furred spaces of concrete or masonry walls at each floor level and at the ceiling line in the top story. Where firestops are not automatically provided by the framing system used, they must be formed of closely fitted wood blocks of nominal 2 inch thick material of the same width as the studs and joists.

3.1.2.4 Diagonal Bracing

Provide diagonal bracing at all external corners and internal angles and at maximum 40 foot centers in stud walls, except that bracing may be omitted where diagonally applied wood sheathing, plywood or structural-use panel sheathing, 4 by 8 foot fiberboard sheathing, or gypsum board sheathing is used. Bracing must be of 1 by 6 material, let into the exterior face of studs. Extend bracing from top plates to sill at an angle of approximately 45 degrees and double nail at each stud. When openings occur near corners, provide diagonal knee braces extending from the corner post above headers to top plates and from below window sills to the main sill. Nail bracing at each bearing with two 8-penny nails.

3.1.3 Wall Sheathing

3.1.3.1 Gypsum Sheathing Board

Apply gypsum sheathing board either horizontally or vertically. Butt joints and locate over the centerlines of supports. Horizontally applied sheathing must be T&G, applied with tongued edge up. Stagger vertical joints and abut sheet closely to frames of openings. Nail sheathing with 11 gage, 9.5 mm 3/8 inch head, zinc-coated nails 40 mm 1-1/2 inches long for 12.7 mm 1/2 inch sheathing and 45 mm 1-3/4 inches long for 16 mm 5/8 inch sheathing, spaced 10 mm 3/8 inch minimum from edges. Provide 2 by 4 blocking for horizontal edges of 1200 mm 4 foot wide panels not otherwise supported.

a. Gypsum Sheathing Board Used with Diagonal-Braced Framing: Sheathing must be either 600 or 1200 mm 2 or 4 feet wide. Apply sheathing 600 mm 2 feet wide horizontally. Nail 100 mm 4 inches maximum o.c. at edges and over intermediate bearings. Apply sheathing 1200 mm 4 feet wide either horizontally or vertically. Nail 150 mm 4 inches maximum o.c. at edges and 200 mm 8 inches maximum o.c. at intermediate bearings.

b. Gypsum Sheathing Board Used with Unbraced Frames: Sheathing must be 1200 mm 4 feet wide and applied vertically. Extend sheathing over and nail to both sill and top plates. Nail 100 mm 4 inches maximum o.c. at

edges and 200 mm 8 inches maximum o.c. at intermediate bearings.

3.2 MISCELLANEOUS

3.2.1 Wood Blocking

Provide proper sizes and shapes at proper locations for the installation and attachment of wood and other finish materials, fixtures, equipment, and items indicated or specified.

3.2.2 Wood Furring

Provide where shown and as necessary for facing materials specified. Except as shown otherwise, furring strips must be nominal one by 3, continuous, and spaced 16 inches o.c. Erect furring vertically or horizontally as necessary. Nail furring strips to masonry. Do not use wood plugs. Provide furring strips around openings, behind bases, and at angles and corners. Furring must be plumb, rigid, and level and must be shimmed as necessary to provide a true, even plane with surfaces suitable to receive the finish required. Form furring for [cornices,] offsets and breaks in walls or ceilings on 1 by 4 wood strips spaced 16 inches o.c.

3.2.3 Corner Bracing

Install corner bracing when required by type of sheathing used or when siding, other than panel siding, is applied directly to studs. Corner bracing must be let into the exterior surfaces of the studs at an angle of approximately 45 degrees, must extend completely over wall plates, and must be secured at each bearing with two nails.

3.2.4 Sill Plates

Sill plates must be set level and square and anchor bolted at not more than 6 feet on centers and not more than 12 inches from end of each piece. A minimum of two anchors must be used for each piece.

3.3 INSTALLATION OF TIMBER CONNECTORS

Install timber connectors in conformance with requirements of AWC NDS.

3.4 ERECTION TOLERANCES

a. Framing members which will be covered by finishes such as wallboard, plaster, or ceramic tile set in a mortar setting bed, must be within the following limits:

   (1) Layout of walls and partitions: 6 mm 1/4 inch from intended position;

   (2) Plates and runners: 6 mm in 2400 mm 1/4 inch in 8 feet from a straight line;

   (3) Studs: 6 mm in 2400 mm 1/4 inch in 8 feet out of plumb, not cumulative; and

   (4) Face of framing members: 6 mm in 2400 mm 1/4 inch in 8 feet from a true plane

3.5 SCHEDULE

Some metric measurements in this section are based on mathematical conversion of inch-pound measurements. Typical conversion is as shown:

PRODUCTS	INCH-POUND Nominal	METRIC Conversion
Sawn lumber	2 by 4	38 by 89 mm
	1 by	19 mm by
Stud spacing	16 inches	400 mm
	If not 48 inches panel	406 mm
Plywood	48 by 96 inches	1200 mm by 2400 mm

-- End of Section --

SECTION 06 41 16

ARCHITECTURAL CABINETS, PLASTIC-LAMINATE-CLAD

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A161.2	(1998) Decorative Laminate Countertops, Performance Standards for Fabricated High Pressure

ASTM INTERNATIONAL (ASTM)

ASTM D1037	(2012) Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
ASTM E84	(2020) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM F547	(202) Standard Terminology of Nails for Use with Wood and Wood-Base Materials

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

ANSI/BHMA A156.9	(2020) Cabinet Hardware

COMPOSITE PANEL ASSOCIATION (CPA)

CPA A208.1	(2016) Particleboard
CPA A208.2	(2016) Medium Density Fiberboard (MDF) for Interior Applications

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI/NEMA LD 3	(2005) Standard for High-Pressure Decorative Laminates

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED BD C	(2009; R 2010) Leadership in Energy and

	Environmental Design(tm) Building Design and Construction (LEED-NC)

UL ENVIRONMENT (ULE)

ULE Greenguard	UL Greenguard Certification Program

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)

ANSI/WDMA I.S.1A	(2013) Interior Architectural Wood Flush Doors

WOODWORK INSTITUTE (WI)

NAAWS 3.1	(2017; 2018 Errata Edition) North American Architectural Woodwork Standards

1.2 SYSTEM DESCRIPTION

Work in this section includes laminate clad custom casework,cabinets, and solid surface counters as shown on the drawings and as described in this specification. This Section includes high-pressure laminate surfacing and cabinet hardware. Comply with EPA requirements. Sand smooth and apply a clear finish of polyurethane to all exposed and semi-exposed surfaces, whose finish is not otherwise noted on the drawings or finish schedule. Wood finish may be shop finished or field applied

1.3 SUBMITTALS

Client review and approval is required for submittals Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-02 Shop Drawings
Shop Drawings
Installation

SD-03 Product Data
Wood Materials
Wood Finishes
Finish Schedule
Certification

SD-04 Samples
Plastic Laminates
Solid Polymer Counter
Cabinet Hardware

1.4.1

1.5 DELIVERY, STORAGE, AND HANDLING

Casework may be delivered knockdown or fully assembled. Deliver all units to the site in undamaged condition, stored off the ground in fully enclosed areas, and protected from damage. Ventilate the storage area and do not subject to extreme changes in temperature or humidity.

1.6 SEQUENCING AND SCHEDULING

Coordinate work with other trades. Do not install units in any room or space until painting, and ceiling installation are complete within the room where the units are located. Install floor cabinets before finished flooring materials are installed.

PART 2 PRODUCTS

2.1 WOOD MATERIALS

2.1.1 Lumber

a. Provide kiln-dried Grade III framing lumber to dimensions as shown on the drawings. Frame front must be nominal 19 mm 3/4 inch hardwood.

2.1.2 Panel Products

2.1.2.1 Plywood

Use veneer core hardwood plywood, NAAWS 3.1 Grade AA panels for framing purposes. Indicate nominal thickness of plywood panels in this specification and on the drawings.

2.1.2.2 Particleboard

Provide industrial grade, medium density (640 to 800 kg per cubic meter 40 to 50 pounds per cubic foot), 19 mm 3/4 inch thick particleboard. Use a moisture-resistant particleboard in grade Type 2-M-2 or 2-M-3 as the substrate for plastic laminate covered countertops, backsplashes, and other areas subjected to moisture. Provide particleboard meeting the minimum standards listed in ASTM D1037 and CPA A208.1.

2.1.2.3 Medium Density Fiberboard

Medium density fiberboard (MDF) must be an acceptable panel substrate where noted on the drawings. Provide medium density fiberboard meeting the minimum standards listed in CPA A208.2.

2.2 SOLID POLYMER MATERIAL

Provide solid surfacing counter components:

Natural Stone Material: Granite
Synthetic Material: Corian, Engineered Quartz, G

2.3 HIGH PRESSURE DECORATIVE LAMINATE (HPDL)

Provide plastic laminates meeting the requirements of ANSI/NEMA LD 3 and ANSI A161.2 for high-pressure decorative laminates. Submit two samples of each plastic laminate pattern and color. Provide plastic laminate types and nominal minimum thicknesses for casework components as indicated in the following paragraphs.

2.3.1 Horizontal General Purpose Standard (HGS) Grade

Provide horizontal general purpose standard grade plastic laminate that is 1.22 mm (plus or minus 0.127 mm) 0.048 inches (plus or minus 0.005 inches) in thickness. This laminate grade is intended for horizontal surfaces where

postforming is not required.

2.3.2 Vertical General Purpose Standard (VGS) Grade

Provide vertical general purpose standard grade plastic laminate that is 0.71 mm (plus or minus 0.012 mm) 0.028 inches (plus or minus 0.004 inches) in thickness. This laminate grade is intended for exposed exterior vertical surfaces of casework components where postforming is not required.

2.3.3 Horizontal General Purpose Postformable (HGP) Grade

Provide horizontal general purpose postformable grade plastic laminate that is 1.07 mm (plus or minus 0.127 mm) 0.042 inches (plus or minus 0.005 inches) in thickness. This laminate grade is intended for horizontal surfaces where post forming is required.

2.3.4 Vertical General Purpose Postformable (VGP) Grade

Provide vertical general purpose postformable grade plastic laminate that is 0.71 mm (plus or minus 0.012 mm) 0.028 inches (plus or minus 0.004 inches) in thickness. This laminate grade is intended for exposed exterior vertical surfaces of components where postforming is required for curved surfaces.

2.3.5 Cabinet Liner Standard (CLS) Grade

Provide cabinet liner standard grade plastic laminate that is 0.51 mm 0.020 inches in thickness. This laminate grade is intended for light duty semi-exposed interior surfaces of casework components.

2.3.6 Backing Sheet (BK) Grade

Undecorated backing sheet grade laminate is formulated specifically to be used on the backside of plastic laminated panel substrates to enhance dimensional stability of the substrate. Backing sheet thickness must be 0.51 mm 0.020 inches. Provide backing sheets for all laminated casework components where plastic laminate finish is applied to only one surface of the component substrate.

2.4 THERMOSET DECORATIVE OVERLAYS (MELAMINE)

Use thermoset decorative overlays (melamine panels) for casework cabinet interior, drawer interior, and semi-exposed surfaces.

2.5 EDGE BANDING

Provide PVC vinyl, edge banding for casework doors and drawer fronts. Color and pattern must match exposed door and drawer front laminate pattern and color

2.6 CABINET HARDWARE

Submit one sample of each cabinet hardware item specified to include hinges, pulls, drawer glides, and accessories. Provide hardware conforming to ANSI/BHMA A156.9, unless otherwise noted, and consisting of the following components:

2.6.1 Door Hinges

2.6.2 Cabinet Pulls

D-shaped pull wire-type or other ADA accessible type

2.6.3 Drawer Slide

Side mounted with full extension. Include a stop to avoid accidental drawer removal.

2.6.4 Adjustable Shelf Support System

Metal standards with support clips

2.7 FASTENERS

Provide nails, screws, and other suitable fasteners that are the size and type best suited for the purpose and conforming to ASTM F547 where applicable.

2.8 ADHESIVES, CAULKS, AND SEALANTS

2.8.1 Adhesives

Use formula and type of adhesives recommended by AWI. Select adhesives for their ability to provide a durable, permanent bond and take into consideration such factors as materials to be bonded, expansion and contraction, bond strength, fire rating, and moisture resistance. Meet local regulations regarding VOC emissions and off-gassing.

2.8.1.1 Wood oinery

Use Type II for interior use urea-formaldehyde resin formula or polyvinyl acetate resin emulsion adhesives to bond wood members. Adhesives must withstand a bond test as described in ANSI/WDMA I.S.1A.

2.8.1.2 Laminate Adhesive

Adhesive used to join high-pressure decorative laminate to wood must be a water-based contact adhesive. Adhesive shall be consistent with AWI and laminate manufacturer's recommendations]. Adhere PVC edgebanding using a polymer-based hot melt glue.

2.8.2 Caulk

Use clear, 100 percent silicone caulk to fill voids and joints between laminated components and between laminated components and adjacent surfaces.

2.8.3 Sealant

Use sealant recommended by the substrate manufacturer to provide a moisture barrier at sink cutouts and all other locations where unfinished substrate edges may be subjected to moisture.

2.9 Sink and Faucet

Stainless steel sink and faucet

PART 3 EXECUTION

3.1 INSTALLATION

Installation must comply with applicable requirements for NAAWS 3.1 custom quality standards. Install countertops and fabricated assemblies level, plumb, and true to line, in locations shown on the drawings. Attach and securely anchor cabinets and other laminate clad casework assemblies to the floor and walls with mechanical fasteners that are appropriate for the wall and floor construction.

3.1.1 Anchoring Systems

3.1.1.1 Floor

Utilize a floor anchoring system for base cabinets. Anchoring and mechanical fasteners must not be visible from the finished side of the casework assembly. Attach cabinet assemblies to anchored bases without visible fasteners. Where assembly abuts a wall surface, include a minimum 13 mm 1/2 inch thick lumber or panel product hanging strip, minimum 60 mm 2-1/2 inch width; securely attached to the top of the wall side of the cabinet back.

3.1.1.2 Wall

Utilize minimum 13 mm 1/2 inch thick lumber or panel product hanging strips, minimum 60 mm 2-1/2 inch width to wall mount cabinet; securely attach to the wall side of the cabinet back, both top and bottom.

3.1.2 Countertops

Install countertops in locations as indicated on the drawings. Fasten countertops to supporting casework structure with mechanical fasteners, hidden from view. Fill all joints formed by the countertop or countertop splash and adjacent wall surfaces with a clear silicone caulk. Adhere loose [back] [side] splashes to both the countertop surface perimeter and the adjacent wall surface with adhesives appropriate for the type of materials to be adhered. Fill joints between the countertop surface and splash with clear silicone caulk in a smooth consistent concave bead. Bead size must be the minimum necessary to fill the joint and any surrounding voids or cracks.

3.1.3 Hardware

Install casework hardware in types and locations as indicated on the drawings. Where fully concealed European-style hinges are specified to be used with particleboard or fiberboard doors, use plastic or synthetic insertion dowels to receive 5 mm 3/16 inch Euroscrews . The use of wood screws without insertion dowels is prohibited.

3.1.4 Doors, Drawers and Removable Panels

Accomplish the fitting of doors, drawers and removable panels within target fitting tolerances for gaps and flushness in accordance with NAAWS 3.1 custom grade requirements.

3.1.5 Plumbing Fixtures

Install sinks, sink hardware, and other plumbing fixtures in locations as indicated on the drawing

-- End of Section --

SECTION 07 21 16

MINERAL FIBER BLANKET INSULATION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C665	(2017) Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
ASTM C930	(2019) Standard Classification of Potential Health and Safety Concerns Associated with Thermal Insulation Materials and Accessories
ASTM D3575	(2020) Flexible Cellular Materials Made From Olefin Polymers
ASTM D3833/D3833M	(1996; R 2011) Water Vapor Transmission of Pressure-Sensitive Tapes
ASTM D4397	(2016) Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM D5359	(2015) Standard Specification for Glass Cullet Recovered from Waste for Use in Manufacture of Glass Fiber
ASTM E84	(2020) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM E96/E96M	(2022a) Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials
ASTM E136	(2022) Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile

	Organic Chemical Emissions from Indoor Sources using Environmental Chambers

GREEN SEAL (GS)

GS-36	(2013) Adhesives for Commercial Use

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 54	(2021) National Fuel Gas Code
NFPA 70	(2023) National Electrical Code
NFPA 211	(2019) Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168	(2017) Adhesive and Sealant Applications

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY (TAPPI)

TAPPI T803 OM	(2010) Puncture Test of Container Board

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.134	Respiratory Protection

UNDERWRITERS LABORATORIES (UL)

UL 2818	(2013) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

1.2 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-03 Product Data

Blanket Insulation

Sill Sealer Insulation

Vapor Retarder

Pressure Sensitive Tape

Accessories

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery

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

1.3.2 Storage

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

1.4 SAFETY PRECAUTIONS

1.4.1 Respirators

Provide installers with dust/mist respirators, training in their use, and protective clothing, all approved by National Institute for Occupational Safety and Health (NIOSH)/Mine Safety and Health Administration (MSHA) in accordance with 29 CFR 1910.134.

1.4.2 Other Safety Concerns

Consider other safety concerns and measures as outlined in ASTM C930.

PART 2 PRODUCTS

2.1 BLANKET INSULATION

ASTM C665, Type [I, blankets without membrane coverings] [and] [II, blankets with non-reflecting coverings] [and] [III, blankets with reflective coverings]; Class [A, membrane-faced surface with a flame spread of 25 or less] [B, membrane-faced surface with a flame propagation resistance; critical radiant flux of 0.12 W/m2 0.11 Btu/ft2 or greater], except a flame spread rating of [25] [75] [100] or less [and a smoke developed rating of 150 or less] when tested in accordance with ASTM E84.

2.1.1 Thermal Resistance Value (R-VALUE)

The R-Value must be as indicated on drawings.

2.1.2 Recycled Materials

Provide insulation materials containing recycled material

2.1.3 Prohibited Materials

Do not provide asbestos-containing materials

2.2 SILL SEALER INSULATION

Provide polyethylene foam sill sealer with the following characteristics:.

Physical Properties	Test Method	Measurement
Nominal Thickness	ASTM D3575	4.76 mm 3/16 inch
Compressive Strength	ASTM D3575	8.27 kPa 1.2 psi
- Vertical Direction	Suffix D	
Tensile Strength	ASTM D3575	220 kPa 32 psi
	Suffix T	

2.3 BLOCKING

Wood, metal, unfaced mineral fiber blankets in accordance with ASTM C665, Type I, or other approved materials. Use only non-combustible materials meeting the requirements of ASTM E136 for blocking around chimneys and heat producing devices.

2.4 VAPOR RETARDER

a. 0.15 mm 6 mil thick polyethylene sheeting conforming to ASTM D4397 and having a water vapor permeance of 57.2 ng/(Pa s m2) 1 perm or less when tested in accordance with ASTM E96/E96M.

b. Membrane with the following properties:

Water Vapor Permeance: ASTM E96/E96M: 57.2 ng/(Pa s m2) 1 perm
Maximum Flame Spread: ASTM E84:
Combustion Characteristics: Passing ASTM E136
Puncture Resistance: TAPPI T803 OM:

2.5 PRESSURE SENSITIVE TAPE

As recommended by the vapor retarder manufacturer and having a water vapor permeance rating of 57.2 ng/(Pa s m2) one perm or less when tested in accordance with ASTM D3833/D3833M.

2.6 ACCESSORIES

2.6.1 Adhesive

As recommended by the insulation manufacturer. Provide non-aerosol adhesive products used on the interior of the building (defined as inside of the weatherproofing system) that meet either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide aerosol adhesives used on the interior of the building that meet either emissions requirements of CDPH SECTION 01350 (use the office or classroom requirements, regardless of space type) or VOC content requirements of GS-36.

2.6.2 Mechanical Fasteners

Corrosion resistant fasteners as recommended by the insulation manufacturer.

2.6.3 Wire Mesh

Corrosion resistant and as recommended by the insulation manufacturer.

PART 3 EXECUTION

3.1 EXISTING CONDITIONS

Before installing insulation, ensure that areas that will be in contact with the insulation are dry and free of projections which could cause voids, compressed insulation, or punctured vapor retarders. If moisture or other conditions are found that do not allow the workmanlike installation of the insulation, do not proceed but notify Contracting Officer of such conditions.

3.2 PREPARATION

3.2.1 Blocking at Attic Vents and Access Doors

Prior to installation of insulation, install permanent blocking to prevent insulation from slipping over, clogging, or restricting air flow through vents.

3.2.2 Blocking Around Heat Producing Devices

Install non-combustible blocking around heat producing devices to provide the following clearances:

a. Recessed lighting fixtures, including wiring compartments, ballasts, and other heat producing devices, unless these are certified by the manufacturer for installation surrounded by insulation: 75 mm 3 inches from outside face of fixtures and devices or as required by NFPA 70 and, if insulation is to be placed above fixture or device, 600 mm 24 inches above fixture.

c. Vents and vent connectors used for venting the products of combustion, flues, and chimneys other than masonry chimneys: Minimum clearances as required by NFPA 211.

d. Gas Fired Appliances: Clearances as required in NFPA 54.

e. Oil Fired Appliances: Clearances as required in NFPA 31.

3.3 INSTALLATION

3.3.1 Insulation

Install and handle insulation in accordance with manufacturer's instructions. Keep material dry and free of extraneous materials. Any materials that show visual evidence of biological growth due to presence of moisture must not be installed on the building project. Ensure personal protective clothing and respiratory equipment is used as required. Observe safe work practices.

3.3.1.1 Electrical wiring

Do not install insulation in a manner that would sandwich electrical wiring between two layers of insulation.

3.3.1.2 Continuity of Insulation

Install blanket insulation to butt tightly against adjoining blankets and to studs, rafters, joists, sill plates, headers and any obstructions. Provide continuity and integrity of insulation at corners, wall to ceiling joints, roof, and floor. Avoid creating thermal bridges.

3.3.1.3 Insulation Blanket with Affixed Vapor Retarder

Locate vapor retarder as indicated. Do not install blankets with affixed vapor retarders unless so specified. Unless the insulation manufacturer's instructions specifically recommend not to staple the flanges of the vapor retarder facing, staple flanges of vapor retarder at 150 mm 6 inch intervals flush with face or set in the side of truss, joist, or stud. Avoid gaps and bulges in insulation and fishmouth in vapor retarders. Overlap both flanges when using face method. Seal joints and edges of vapor retarder with pressure sensitive tape. Stuff pieces of insulation into small cracks between trusses, joists, studs and other framing, such as at attic access doors, door and window heads, jambs, and sills, band joists, and headers. Cover these insulated cracks with vapor retarder material and tape all joints with pressure sensitive tape to provide air and vapor tightness.

3.3.1.4 Insulation without Affixed Vapor Retarder

Provide snug friction fit to hold insulation in place. Stuff pieces of insulation into cracks between trusses, joists, studs and other framing, such as at attic access doors, door and window heads, jambs, and sills, band joists, and headers.

3.3.1.5 Sizing of Blankets

Provide only full width blankets when insulating between trusses, joists, or studs. Size width of blankets for a snug fit where trusses, joists or studs are irregularly spaced.

3.3.1.6 Special Requirements for Ceilings

Place insulation under electrical wiring occurring across joists. Pack insulation into narrowly spaced framing. Do not block flow of air through soffit vents. [Attach insulation to attic door by adhesive or staples.]

3.3.1.7 Installation of Sill Sealer

Size sill sealer insulation and place insulation over top of masonry or concrete perimeter walls or concrete perimeter floor slab on grade. Fasten sill plate over insulation.

3.3.1.8 Special Requirements for Floors

Hold insulation in place with corrosion resistant wire mesh, wire fasteners, or wire lacing.

3.3.1.9 Access Panels and Doors

Affix blanket insulation to access panels greater than one square foot and access doors in insulated floors and ceilings. Use insulation with same R-Value as that for floor or ceiling.

3.3.2 Installation of Separate Vapor Retarder

Apply continuous vapor retarder as indicated. Overlap joints at least 150 mm 6 inches and seal with pressure sensitive tape. Seal at sill, header, windows, doors and utility penetrations. Repair punctures or tears with pressure sensitive tape.

] -- End of Section --

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SECTION 07 92 00

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PART 1 GENERAL

1.1 REFERENCES

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The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C509	(2006; R 2021) Standard Specifiaction for Elastomeric Cellular Preformed Gasket and Sealing Material
ASTM C734	(2015; R 2019) Low-Temperature Flexibility of Latex Sealants After Artificial Weathering
ASTM C834	(2017) Standard Specification for Latex Sealants
ASTM C919	(2022) Standard Practice for Use of Sealants in Acoustical Applications
ASTM C920	(2018) Standard Specification for Elastomeric oint Sealants
ASTM C1193	(2013) Standard Guide for Use of oint Sealants
ASTM C1311	(2022) Standard Specification for Solvent Release Agents

ASTM C1521	(2013) Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant oints
ASTM D217	(2019b) Standard Test Methods for Cone Penetration of Lubricating Grease
ASTM D1056	(2020) Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber
ASTM D1667	(2017) Standard Specification for Flexible Cellular Materials - Poly (Vinyl Chloride) Foam (Closed-Cell)
ASTM D2452	(2015; R 2019) Standard Test Method for Extrudability of Oil- and Resin-Base Caulking Compounds
ASTM D2453	(2015; R 2020; E 2020) Standard Test Method for Shrinkage and Tenacity of Oil- and Resin-Base Caulking Compounds
ASTM E84	(2020) Standard Test Method for Surface Burning Characteristics of Building Materials

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168	(2017) Adhesive and Sealant Applications

UNDERWRITERS LABORATORIES (UL)

UL 2818	(2013) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

1.2 SUBMITTALS

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Government approval is required for submittals with a G or S classification. Submittals not having a G or S classification are [for Contractor Quality Control approval.][for information only. When used, a code following the G classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Sealants; G

Primers; G

Bond Breakers; G

Backstops; G

SD-06 Test Reports

Field Adhesion; G

SD-07 Certificates

Indoor Air Quality For Interior Sealants; S

Indoor Air Quality For Interior Floor oint Sealants; S

Indoor Air Quality For Interior Acoustical Sealants; S

Indoor Air Quality For Interior Caulking; S

1.3 PRODUCT DATA

Include storage requirements, shelf life, curing time, instructions for mixing and application, and accessories. Provide manufacturer's Safety Data Sheets (SDS) for each solvent, primer and sealant material proposed.

clude the ollowi sectio where these products are used o the i terior o the buildi de i ed as i side o the weatherproo i syste

1.4 CERTIFICATIONS

1.4.1 Indoor Air Quality Certifications

Submit required indoor air quality certifications in one submittal package.

1.4.1.1 Adhesives and Sealants

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party program that products meet the requirements of this Section. Provide current product certification documentation from certification body.. When product does not have certification, provide validation that product meets the indoor air quality product requirements cited herein.

1.5 ENVIRONMENTAL CONDITIONS

Apply sealant when the ambient temperature is between 4 and 32 degrees C 40 and 90 degrees F.

1.6 DELIVERY AND STORAGE

Deliver materials to the jobsite in unopened manufacturers' sealed shipping containers, with brand name, date of manufacture, [color,] and material designation clearly marked thereon. Label elastomeric sealant containers to identify type, class, grade, and use. Handle and store materials in accordance with manufacturer's printed instructions. Prevent exposure to foreign materials or subjection to sustained temperatures exceeding 32 degrees C 90 degrees F or lower than 4 degrees C 0 degrees F. Keep materials and containers closed and separated from absorptive materials such as wood and insulation.

1.7 QUALITY ASSURANCE

1.7.1 Compatibility with Substrate

Verify that each sealant is compatible for use with each joint substrate in accordance with sealant manufacturer's printed recommendations for each application.

1.7.2 oint Tolerance

Provide joint tolerances in accordance with manufacturer's printed instructions.

1.7.3 Mock-Up

Provide a mock-up of each type of sealant using materials, colors, and techniques approved for use on the project. Approved mock-ups may be incorporated into the Work.

1.7.4 Adhesion

Provide in accordance with ASTM C1193 or ASTM C1521.

PART 2 PRODUCTS

2.1 SEALANTS

Provide sealant products that have been tested, found suitable, and documented as such by the manufacturer for the particular substrates to which they will be applied.

2.1.1 Interior Sealants

Provide ASTM C834 or ASTM C920, Type S or M, Grade NS, Class 12.5, Use NT]. Provide sealant products used on the interior of the building (defined as inside of the weatherproofing system) meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide certification or validation of indoor air quality for interior sealants. Location(s) and color(s) of sealant for the following. Note, color as selected refers to manufacturer's full range of color options

LOCATION	COLOR
a. Small voids between walls or partitions and adjacent lockers, casework, shelving, door frames, built-in or surface mounted equipment and fixtures, and similar items.	[As selected] [Gray] [White] [ ]
	[ ]
	[ ]
	[ ]
e. Interior locations, not otherwise indicated or specified, where small voids exist between materials specified to be painted.	[ ]
	[ ]
g. oints formed between tile floors and tile base cove; joints between tile and dissimilar materials; joints occurring where substrates change.	[ ]
	[ ]

LOCATION	COLOR
i. [ ]	[ ]

2.1.2 Exterior Sealants

For joints in vertical surfaces, provide ASTM C920, Type S or M, Grade NS, Class 25, Use NT. For joints in horizontal surfaces, provide ASTM C920, Type S or M, Grade P, Class 25, Use T. Provide location(s) and color(s) of sealant as follows. Note, color as selected refers to manufacturer's full range of color options:

LOCATION	COLOR
a. oints and recesses formed where frames and subsills of windows, doors, louvers, and vents adjoin masonry, concrete, or metal frames. Use sealant at both exterior and interior surfaces of exterior wall penetrations.	[Match adjacent surface color] [As selected] [Gray] [White] [ ]
	[ ]
	[ ]
	[ ]
e. Expansion and control joints.	[ ]
	[ ]
g. Voids where items pass through exterior walls.	[ ]
h. Metal reglets, where flashing is inserted into masonry joints, and where flashing is penetrated by coping dowels.	[ ]
i. Metal-to-metal joints where sealant is indicated or specified.	[ ]
	[ ]
k. [ ]	[ ]

2.1.3 Floor oint Sealants

ASTM C920, Type S or M, Grade P, Class 25, Use T. Provide sealant products used on the interior of the building (defined as inside of the weatherproofing system) meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide location(s) and color(s) of sealant as follows. Note, color as selected refers to manufacturer's full range of color options:

LOCATION	COLOR
a. Seats of metal thresholds for exterior doors.	[As selected] [Gray] [White] [ ]
b. Control and expansion joints in floors, slabs, ceramic tile, and walkways.	[ ]

2.1.4 Preformed Sealants

Provide preformed sealants of polybutylene or isoprene-butylene based pressure sensitive weather resistant tape or bead sealants capable of sealing out moisture, air and dust when installed as recommended by the manufacturer. At temperatures from minus 34 to plus 71 degrees C 30 to plus 160 degrees F, sealants must be non-bleeding and have no loss of adhesion.

2.1.4.1 Tape

Tape sealant

2.1.4.2 Bead

Bead sealant:

2.2 PRIMERS

Non-staining, quick drying type and consistency as recommended by the sealant manufacturer for the particular application. Provide primers for interior applications that meet the indoor air quality requirements of the paragraph SEALANTS above.

2.3 BOND BREAKERS

Type and consistency as recommended by the sealant manufacturer to prevent adhesion of the sealant to the backing or to the bottom of the joint. Provide bond breakers for interior applications that meet the indoor air quality requirements of the paragraph SEALANTS above.

2.4 BACKSTOPS

Provide glass fiber roving, neoprene, butyl, polyurethane, or polyethylene foams free from oil or other staining elements as recommended by sealant

manufacturer. Provide 25 to 33 percent oversized backing for closed cell and 40 to 50 percent oversized backing for open cell material, unless otherwise indicated. Provide backstop material that is compatible with sealant. Do not use oakum or other types of absorptive materials as backstops.

2.4.1 Rubber

Provide in accordance with ASTM D1056, Type 2, closed cell, Class A, Grade for cellular rubber sponge backing.

2.4.2

2.4.3 Synthetic Rubber

Provide in accordance with ASTM C509, Option I, Type I preformed rods or tubes for synthetic rubber backing.

2.4.4 Neoprene

Provide in accordance with ASTM D1056, closed cell expanded neoprene cord Type 2, Class C, Grade 2C2 or open cell neoprene sponge Type 1, Class C, Grade 1C3 for neoprene backing.

2.4.5 Butyl Rubber Based

Provide in accordance with ASTM C1311, from a single component, with solvent release. color as selected from manufacturer's full range of color choices

2.4.6 Silicone Rubber Base

Provide in accordance with ASTM C920, from a single component, with solvent release, Non-sag, , Class 25. Color as selected from manufacturer's full range of color choices.

2.5 CLEANING SOLVENTS

Provide type(s) recommended by the sealant manufacturer and in accordance with environmental requirements herein. [Protect adjacent aluminum and bronze surfaces from solvents]. Provide solvents for interior applications that meet the indoor air quality requirements of the paragraph SEALANTS above.

PART 3 EXECUTION

3.1 FIELD QUALITY CONTROL

Perform a field adhesion test in accordance with manufacturer's instructions and ASTM C1193, Method A or ASTM C1521, Method A, Tail Procedure. Remove sealants that fail adhesion testing; clean substrates, reapply sealants, and re-test. Test sealants adjacent to failed sealants. Submit field adhesion test report indicating tests, locations, dates, results, and remedial actions taken.

3.2 SURFACE PREPARATION

Prepare surfaces according to manufacturer's printed installation instructions. Clean surfaces from dirt, frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would destroy or impair adhesion. Remove oil and grease with solvent; thoroughly remove solvents prior to sealant installation. Wipe surfaces dry with clean cloths. When resealing an existing joint, remove existing caulk or sealant prior to applying new sealant. For surface types not listed below, provide in accordance with sealant manufacturer's printed instructions for each specific surface.

3.2.1 Steel Surfaces

Remove loose mill scale by sandblasting or, if sandblasting is impractical or would damage finished work, scraping and wire brushing. Remove protective coatings by sandblasting or using a residue free solvent. Remove resulting debris and solvent residue prior to sealant installation.

3.2.2 Aluminum or Bronze Surfaces

Remove temporary protective coatings from surfaces that will be in contact with sealant. When masking tape is used as a protective coating, remove tape and any residual adhesive prior to sealant application. For removing protective coatings and final cleaning, use non-staining solvents recommended by the manufacturer of the item(s) containing aluminum or bronze surfaces.

3.2.3 Concrete and Masonry Surfaces

Where surfaces have been treated with curing compounds, oil, or other such materials, remove materials by sandblasting or wire brushing. Remove laitance, efflorescence and loose mortar from the joint cavity. Remove resulting debris prior to sealant installation.

3.2.4 Wood Surfaces

Ensure wood surfaces that will be in contact with sealants are free of splinters, sawdust and other loose particles.

3.3 SEALANT PREPARATION

Do not add liquids, solvents, or powders to sealants. Mix multicomponent elastomeric sealants in accordance with manufacturer's printed instructions.

3.4 APPLICATION

3.4.1 oint Width-To-Depth Ratios

Acceptable Ratios:

OINT WIDTH	OINT DEPTH	
	Minimum	Maximum
For metal, glass, or other nonporous surfaces:		

OINT WIDTH	OINT DEPTH	
	Minimum	Maximum
6 mm (minimum)	6 mm	6 mm
over 6 mm	1/2 of width	Equal to width
For wood, concrete, masonry, stone, or [ ]:		
6 mm (minimum)	6 mm	6 mm
over 6 mm to 13 mm	6 mm	Equal to width
over 13 mm to 25 mm	50 mm	16 mm
Over 25 mm	prohibited	

OINT WIDTH	OINT DEPTH	
	Minimum	Maximum
For metal, glass, or other nonporous surfaces:		
1/4 inch (minimum)	1/4 inch	1/4 inch
over 1/4 inch	1/2 of width	Equal to width
For wood, concrete, masonry, stone, or [ ]:		
1/4 inch (minimum)	1/4 inch	1/4 inch
over 1/4 inch to 1/2 inch	1/4 inch	Equal to width
over 1/2 inch to 1 inch	1/2 inch	5/8 inch
Over 1 inch	prohibited	

Unacceptable Ratios: Where joints of acceptable width-to-depth ratios have not been provided, clean out joints to acceptable depths and grind or cut to acceptable widths without damage to the adjoining work. Grinding is prohibited at metal surfaces.

3.4.2 Unacceptable Sealant Use

Do not install sealants in lieu of other required building enclosure weatherproofing components such as flashing, drainage components, and joint closure accessories, or to close gaps between walls, floors, roofs, windows, and doors, that exceed acceptable installation tolerances. Remove sealants that have been used in an unacceptable manner and correct building

enclosure deficiencies to comply with contract documents requirements.

3.4.3 Masking Tape

Place masking tape on the finished surface on one or both sides of joint cavities to protect adjacent finished surfaces from primer or sealant smears. Remove masking tape within 10 minutes of joint filling and tooling.

3.4.4 Backstops

Provide backstops dry and free of tears or holes. Tightly pack the back or bottom of joint cavities with backstop material to provide joints in specified depths. Provide backstops where indicated and where backstops are not indicated but joint cavities exceed the acceptable maximum depths specified in OINT WIDTH-TO-DEPTH RATIOS Table.

3.4.5 Primer

Clean out loose particles from joints immediately prior to application of. Apply primer to joints in concrete masonry units, wood, and other porous surfaces in accordance with sealant manufacturer's printed instructions. Do not apply primer to exposed finished surfaces.

3.4.6 Bond Breaker

Provide bond breakers to surfaces not intended to bond in accordance with, sealant manufacturer's printed instructions for each type of surface and sealant combination specified.

3.4.7 Sealants

Provide sealants compatible with the material(s) to which they are applied. Do not use a sealant that has exceeded its shelf life or has jelled and cannot be discharged in a continuous flow from the sealant gun. Apply sealants in accordance with the manufacturer's printed instructions with a gun having a nozzle that fits the joint width. Work sealant into joints so as to fill the joints solidly without air pockets. Tool sealant after application to ensure adhesion. Apply sealant uniformly smooth and free of wrinkles. Upon completion of sealant application, roughen partially filled or unfilled joints, apply additional sealant, and tool smooth as specified. Apply sealer over sealants in accordance with the sealant manufacturer's printed instructions.

3.5 PROTECTION AND CLEANING

3.5.1 Protection

Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled and no residual tape marks remain.

3.5.2 Final Cleaning

Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.

a. Masonry and Other Porous Surfaces: Immediately remove fresh sealant

that has been smeared on adjacent masonry, rub clean with a solvent, and remove solvent residue, in accordance with sealant manufacturer's printed instructions. Allow excess sealant to cure for 24 hour then remove by wire brushing or sanding. Remove resulting debris.

b. Metal and Other Non-Porous Surfaces: Remove excess sealant with a solvent moistened cloth. Remove solvent residue in accordance with solvent manufacturer's printed instructions.

-- End of Section --

SECTION 08 11 13

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2020; Errata 1 2021) Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM A653/A653M	(2022) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A879/A879M	(2012; R 2017) Standard Specification for Steel Sheet, zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface
ASTM A924/A924M	(2022a) Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
ASTM E1300	(2016) Standard Practice for Determining Load Resistance of Glass in Buildings

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

ANSI/BHMA A156.115	(2016) Hardware Preparation in Steel Doors and Steel Frames

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM HMMA 810	(2009) Hollow Metal Doors

STEEL DOOR INSTITUTE (SDI/DOOR)

SDI/DOOR 111	(2009) Recommended Details for Standard Steel Doors, Frames, and Accessories and Related Components

SDI/DOOR 113	(2013; R2018) Standard Practice for Determining the Steady-State Thermal Transmittance of Steel Door and Frame Assemblies
SDI/DOOR A250.3	(2019) Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames
SDI/DOOR A250.4	(2018) Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors
SDI/DOOR A250.6	(2015) Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames
SDI/DOOR A250.8	(2017) Specifications for Standard Steel Doors and Frames
SDI/DOOR A250.11	(2012) Recommended Erection Instructions for Steel Frames

1.2 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Doors;

Frames;

Accessories

Schedule of Doors;

Schedule of Frames;

SD-03 Product Data

Doors;

Frames;

Accessories

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver doors, frames, and accessories undamaged and with protective wrappings or packaging. Store doors and frames on platforms under cover in clean, dry, ventilated, and accessible locations, with 1/4 inch airspace between doors. Remove damp or wet packaging immediately and wipe affected surfaces dry. Replace damaged materials with new.

PART 2 PRODUCTS

2.1 STANDARD STEEL DOORS

SDI/DOOR A250.8, except as specified otherwise. Prepare doors to receive door hardware. Undercut where indicated. Provide exterior doors with top edge closed flush and sealed to prevent water intrusion. Provide doors at 4 1-3/4 inch thick, unless otherwise indicated. Provide door material that uses recycled content.

2.1.1 Classification - Level, Performance, Model

2.1.1.1 Standard Duty Doors

SDI/DOOR A250.8, Level 1, of size(s) and design(s) indicated and core construction as required by the manufacturer. Provide where shown on plans and door schedule.

2.2 ACCESSORIES

2.2.1 Louvers

2.2.1.1 Interior Louvers

SDI/DOOR 111. Where indicated, provide louvers of stationary type where scheduled. Detachable moldings on room or non security side of door; on security side of door, moldings to be integral part of louver. Form louver frames of 0.9 mm thick 20 gage steel and louver blades of a minimum 0.6 mm 24 gage.

2.2.2 Moldings

Provide moldings around glass of interior and exterior doors and louvers of interior doors. Provide nonremovable moldings on outside of exterior doors and on corridor side of interior doors. Other moldings may be stationary or removable. Secure inside moldings to stationary moldings, or provide snap-on moldings.

2.3 STANDARD STEEL FRAMES

SDI/DOOR A250.8, Level 1. Form frames to sizes and shapes indicated, with welded corners or knock-down field-assembled corners. Provide steel frames for new doors unless otherwise indicated. Provide frame product that uses recycled content.

2.3.1 Welded Frames

Continuously weld frame faces at corner joints. Mechanically interlock or continuously weld stops and rabbets. Grind welds smooth.

Weld frames in accordance with the recommended practice of the Structural Welding Code Sections 1 through 6, AWS D1.1/D1.1M and in accordance with the practice specified by the producer of the metal being welded.

2.3.2 Knock-Down Frames

Design corners for simple field assembly by concealed tenons, splice plates, or interlocking joints that produce square, rigid corners and a tight fit and maintain the alignment of adjoining members. Provide

locknuts for bolted connections.

2.3.3 Stops and Beads

Provide form and loose stops and beads from 0.9 mm thick 20 gage steel. Provide for glazed and other openings in standard steel frames. Secure beads to frames with oval-head, countersunk Phillips self-tapping sheet metal screws or concealed clips and fasteners. Space fasteners approximately 300 to 400 mm 12 to 16 inch on center. Miter molded shapes at corners. Butt or miter square or rectangular beads at corners.

2.3.4 Anchors

Provide anchors to secure the frame to adjoining construction. Provide steel anchors, zinc-coated not lighter than 1.2 mm thick 18 gage.

2.3.4.1 Wall Anchors

Provide at least three anchors for each jamb. For frames which are more than 2285 mm 7.5 feet in height, provide one additional anchor for each jamb for each additional 760 mm 2.5 feet or fraction thereof.

b. Stud partitions: Weld or otherwise securely fasten anchors to backs of frames. Design anchors to be fastened to wood studs with nails or screws.

2.4 HARDWARE PREPARATION

Drill and tap doors and frames to receive finish hardware. Prepare doors and frames for hardware in accordance with the applicable requirements of SDI/DOOR A250.8 and SDI/DOOR A250.6. For additional requirements refer to ANSI/BHMA A156.115. Drill and tap for surface-applied hardware at the project site. Build additional reinforcing for surface-applied hardware into the door at the factory. Punch door frames[, with the exception of frames that will have weatherstripping or gasketing, to receive a minimum of two rubber or vinyl door silencers on lock side of single doors and one silencer for each leaf at heads of double doors. Set lock strikes out to provide clearance for silencers.

2.5 FINISHES

2.5.1 Factory-Primed Finish

Thoroughly clean all surfaces of doors and frames then chemically treat and factory prime with a rust inhibiting coating as specified in SDI/DOOR A250.8, or paintable A25 galvannealed steel without primer. Where coating is removed by welding, apply touchup of factory primer.

2.5.2 Electrolytic Zinc-Coated Anchors and Accessories

Provide electrolytically deposited zinc-coated steel in accordance with ASTM A879/A879M, Commercial Quality, Coating Class A. Phosphate treat and factory prime zinc-coated surfaces as specified in SDI/DOOR A250.8.

2.6 FABRICATION AND WORKMANSHIP

Provide finished doors and frames that are strong and rigid, neat in

appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Provide molded members that are clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded and soldered joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints must be well formed and in true alignment. Conceal fastenings where practicable.

2.7 PROVISIONS FOR GLAZING

Materials as specified

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Frames

Set frames in accordance with SDI/DOOR A250.11. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction.

3.1.2 Doors

Hang doors in accordance with clearances specified in SDI/DOOR A250.8. After erection and glazing, clean and adjust hardware.

3.2 PROTECTION

Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed. Wire brush rusted frames until rust is removed. Clean thoroughly. Apply an all-over coat of rust-inhibitive paint of the same

type used for shop coat.

3.3 CLEANING

Upon completion, clean exposed surfaces of doors and frames thoroughly. Remove mastic smears and other unsightly marks.

-- End of Section --

SECTION 08 14 00

WOOD DOORS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN FOREST FOUNDATION (AFF)

ATFS STANDARDS	(2015) American Tree Farm System Standards of Sustainability 2015-2020

CALIFORNIA AIR RESOURCES BOARD (CARB)

CARB 93120	(2007) Airborne Toxic Control Measure (ATCM) to Reduce Formaldehyde Emissions from Composite Wood Products

CSA GROUP (CSA)

CSA Z809-08	(R2013) Sustainable Forest Management

FOREST STEWARDSHIP COUNCIL (FSC)

FSC STD 01 001	(2015) Principles and Criteria for Forest Stewardship

PROGRAMME FOR ENDORSEMENT OF FOREST CERTIFICATION (PEFC)

PEFC ST 2002:2013	(2015) PEFC International Standard Chain of Custody of Forest Based Products Requirements

SUSTAINABLE FOREST INITIATIVE (SFI)

SFI 2015-2019	(2015) Standards, Rules for Label Use, Procedures and Guidance

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 770	Formaldehyde Standards for Composite Wood Products

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)

ANSI/WDMA I.S.1A	(2013) Interior Architectural Wood Flush Doors

WOODWORK INSTITUTE (WI)

NAAWS 3.1 (2017; 2018 Errata Edition) North American Architectural Woodwork Standards

1.2 SUBMITTALS

Government review and approval is required for submittal. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-03 Product Data

Doors

Accessories

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver doors to the site in an undamaged condition and protect against damage and dampness. Stack doors flat under cover. Support on blocking, a minimum of 100 mm 4 inch thick, located at each end and at the midpoint of the door. Store doors in a well-ventilated building so that they will not be exposed to excessive moisture, heat, dryness, direct sunlight, or extreme changes of temperature and humidity.Replace defective or damaged doors with new ones.

PART 2 PRODUCTS

2.1 DOORS

Provide doors of the types, sizes, and designs indicated free of urea-formaldehyde resins.

2.1.1 Flush Doors

Conform to ANSI/WDMA I.S.1A for flush doors. Provide solid core doors with lock blocks and 25 mm 1 inch minimum thickness hinge stile. Provide mill option for stile edge of doors scheduled to be painted.

2.1.1.1 Interior Flush Doors

Provide [staved lumber] [particleboard] [agrifiber] [hollow] core, Type II flush doors conforming to ANSI/WDMA I.S.1A with faces of [sound grade hardwood or hardboard for painted finish] [[premium] [good] grade natural birch] [select [premium white] [red] birch] [[premium] [good] grade [red] [white] oak] [[premium] [good] grade walnut] [plastic laminate]. [Hardwood veneers must be [[rotary cut] [plain sliced] [quarter sliced]] [[random] [slip] [book] matched]]. [Finish plastic laminate faced doors on both vertical edges with [wood] [laminated plastic] of color matching faces.] [Door cores must have a minimum recycled content of 45 percent. Provide data identifying percentage of recycled content for door cores.] [Products must contain no added urea-formaldehyde resins. Provide certification of indoor air quality for particleboard and agrifiber door cores.]

2.2 ACCESSORIES

2.2.1 Door Louvers

Fabricate from metal and of sizes indicated. Provide louvers with a

minimum of 50 percent free air.

2.2.2 Additional Hardware Reinforcement

Provide the minimum lock blocks to secure the specified hardware. The measurement of top, bottom, and intermediate rail blocks are a minimum 125 mm 5 inch by full core width. Comply with the manufacturer's labeling requirements for reinforcement blocking, but not mineral material similar to the core.

2.3 FABRICATION

2.3.1 Quality and Construction

Identify the standard on which the construction of the door was based [, identify the standard under which preservative treatment was made,] and identify doors having a Type I glue bond.

2.3.2 Adhesives and Bonds

ANSI/WDMA I.S.1A. Use Type II bond for interior doors. Provide a nonstaining adhesive on doors with a natural finish.

2.3.3 Prefitting

Provide factory [prefinished] [finished] [and] factory prefitted doors for the specified hardware, door frame and door-swing indicated. Machine and size doors at the factory by the door manufacturer in accordance with the standards under which the doors are produced and manufactured. The work includes sizing, beveling edges, mortising, and drilling for hardware and providing necessary beaded openings for glass and louvers. Provide the door manufacturer with the necessary hardware samples, and frame and hardware schedules to coordinate the work.

2.3.4 Finishes

2.3.4.1 Field Painting

Factory prime or seal doors, and field paint.

2.3.4.2 Factory Finish

Provide doors finished at the factory by the door manufacturer. Seal edges, cutouts, trim, and wood accessories, and apply two coats of finish compatible with the door face finish. Touch-up finishes that are scratched or marred, or where exposed fastener holes are filled, in accordance with the door manufacturer's instructions. Match color and sheen of factory finish using materials compatible for field application.

PART 3 EXECUTION

3.1 INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

Before installation, seal top and bottom edges of doors with the approved

water-resistant sealer. Seal cuts made on the job immediately after cutting using approved water-resistant sealer. Fit, trim, and hang doors with a 2 mm 1/16 inch minimum, 3 mm 1/8 inch maximum clearance at sides and top, and a 5 mm 3/16 inch minimum, 6 mm 1/4 inch maximum clearance over thresholds. Provide 10 mm 3/8 inch minimum, 11 mm 7/16 inch maximum clearance at bottom where no threshold occurs. Bevel edges of doors at the rate of 3 mm in 50 mm 1/8 inch in 2 inch. Door warp must not exceed 6 mm 1/4 inch when measured in accordance with ANSI/WDMA I.S.1A.

3.1.1 Prehung Doors

Install doors in accordance with the manufacturer's instructions and details. Provide fasteners for [stops] [and] [casing trim] within 75 mm 3 inch of each end and spaced 279 mm 11 inch on center maximum. Provide side and head jambs joined together with a dado or notch of 5 mm 3/16 inch minimum depth.

-- End of Section --

SECTION 08 51 13

ALUMINUM WINDOWS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ALUMINUM ASSOCIATION (AA)

AA DAF45	(2003; Reaffirmed 2009) Designation System for Aluminum Finishes

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA 611	(2014) Voluntary Specification for Anodized Architectural Aluminum
AAMA 701/702	(2011) Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals
AAMA 901	(2016) Voluntary Specification for Rotary & Linear Operators in Window Applications
AAMA 907	(2015) Voluntary Specification for Corrosion Resistant Coatings on Carbon Steel Components Used in Windows, Doors and Skylights
AAMA 1302.4	(1973) Specifications for Forced-Entry Resistant Aluminum Prime Windows
AAMA 1503	(2009) Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections
AAMA 2603	(2020) Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
AAMA 2604	(2017a) Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
AAMA WSG.1	(1995) Window Selection Guide

AAMA/WDMA/CSA 101/I.S.2/A440	(2017) North American Fenestration Standard/Specification for Windows, Doors, and Skylights

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 169	(2013) Climate Data for Building Design Standards

ASTM INTERNATIONAL (ASTM)

ASTM A276/A276M	(2017) Standard Specification for Stainless Steel Bars and Shapes
ASTM D3656/D3656M	(2013) Standard Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns
ASTM E90	(2009; R2016) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
ASTM E413	(2022) Classification for Rating Sound Insulation
ASTM E1300	(2016) Standard Practice for Determining Load Resistance of Glass in Buildings
ASTM E1332	(2016) Standard Classification for Rating Outdoor-Indoor Sound Attenuation
ASTM E1886	(2019) Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
ASTM E1996	(2017) Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

NATIONAL FENESTRATION RATING COUNCIL (NFRC)

NFRC 100	(2020) Procedure for Determining Fenestration Product U-Factors
NFRC 200	(2020) Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101	(2021; TIA 21-1) Life Safety Code

SCREEN MANUFACTURERS ASSOCIATION (SMA)

SMA 1004	(1987; R 1998) Aluminum Tubular Frame Screens for Windows
SMA 1201	(R 2013) Specifications for Insect Screens for Windows, Sliding Doors and Swinging Doors

U.S. DEPARTMENT OF ENERGY (DOE)

Energy Star	(1992; R 2006) Energy Star Energy Efficiency Labeling System (FEMP)

1.2 SUBMITTALS

Government approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Windows;

SD-03 Product Data

Windows;

Hardware;

Fasteners;

Window Performance;

Screens;

Weatherstripping;

Accessories;

Thermal Performance;

SD-04 Samples

Finish Sample

SD-10 Operation and Maintenance Data

Windows,

Plastic Identification

1.3 QUALITY ASSURANCE

1.3.1 Qualification of Manufacturer

Window manufacturer must specialize in designing and manufacturing the type of aluminum windows specified in this section, and have a minimum of 5 years of documented successful experience. Manufacturer must have the facilities capable of meeting contract requirements, single-source responsibility and warranty.

1.3.2 Shop Drawing Requirements

Take field measurements prior to preparation of drawings and fabrications. Provide drawings that indicate elevations of windows, full-size sections, thickness and gages of metal, fastenings, proposed method of anchoring, size and spacing of anchors, details of construction, method of glazing, details of operating hardware, mullion details, method and materials for weatherstripping, method of attaching screens, sills, trim, installation details, and other related item

1.3.3 Sample Requirements

1.3.3.1 Finish Sample Requirements

Submit color chart of standard factory color coatings when factory-finish color coating is to be provided.

1.3.3.2 Window Sample Requirements

Submit one full-size corner of each window type proposed for use. Where screens or weatherstripping is required, fit sample with such items that are to be used.

1.3.4 Certification

Ensure that construction is performed with products that meet or exceed State of California criteria,and be current in their certification.

Each prime window unit must bear the AAMA Label warranting that the product complies with AAMA/WDMA/CSA 101/I.S.2/A440. Certified test reports attesting that the prime window units meet the requirements of AAMA/WDMA/CSA 101/I.S.2/A440, including test size, will be acceptable in lieu of product labeling.

1.4 DELIVERY AND STORAGE

Deliver windows to project site in an undamaged condition. Use care in handling and hoisting windows during transportation and at the jobsite. Store windows and components out of contact with the ground, under a weathertight covering, so as to prevent bending, warping, or otherwise damaging the windows. Repair damaged windows to an as new condition as approved. If windows can not be repaired, provide a new unit.

1.5 PERFORMANCE REQUIREMENTS

1.5.1 Wind Loading Design Pressure

Design window components, including mullions, hardware, and anchors, to withstand a wind-loading design pressure

1.6 WINDOW PERFORMANCE

Aluminum windows must meet the following performance requirements. Perform testing requirements by an independent testing laboratory or agency.

1.6.1 Air Infiltration

Air infiltration must not exceed the amount established by AAMA/WDMA/CSA 101/I.S.2/A440 for each window type.

1.6.2 Water Penetration

Water penetration must not exceed the amount established by AAMA/WDMA/CSA 101/I.S.2/A440 for each window type.

1.6.3 Thermal Performance

Windows (including frames and glass) will be independently tested and certified with a Solar Heat Gain Coefficient (SHGC) determined according to NFRC 200 procedures and a whole window U-factor determined in accordance with NFRC 100 within the ranges as indicated below according to the ASHRAE 169 Climate Zone of the project location. Windows used solely within the interior of a conditioned envelope are exempted from meeting U-Factor and SHGC requirements, unless otherwise noted. Provide visual Transmittance (VT) of 0.5 or greater. Submit documentation supporting compliance with energy codes.

1.7 WARRANTY

Provide Manufacturer's standard performance guarantees or warranties that extend beyond a 1 year period.

PART 2 PRODUCTS

2.1 WINDOWS

Provide prime windows that comply with AAMA/WDMA/CSA 101/I.S.2/A440 and the requirements specified herein. In addition to compliance with AAMA/WDMA/CSA 101/I.S.2/A440, window framing members for each individual light of glass must not deflect to the extent that deflection perpendicular to the glass light exceeds L/175 of the glass edge length when subjected to uniform loads at specified design pressures. Provide windows of types, performance classes, performance grades, combinations, and sizes indicated or specified. Design windows to accommodate hardware, glass, weatherstripping, screens, and accessories to be furnished. Each window must be a complete factory assembled unit with or without glass installed. Dimensions shown are minimum. Provide windows with insulating glass and thermal break necessary in accordance with AAMA 1503. Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.

2.1.1 Horizontal Sliding Windows (HS)

Type HS-[R15] [LC25] [CW30] [AW40]

2.1.2 Fixed Windows (F)

Type F-[R15] [LC25] [CW30] [AW40]

2.1.3 Glass and Glazing

Materials as specified

2.1.4 Caulking and Sealing

As specified

2.1.5 Weatherstripping

AAMA/WDMA/CSA 101/I.S.2/A440. Provide for all ventilating (operable) sash for all windows. Provide woven wool pile weatherstripping 5.3 millimeter 0.210 inch thick, conforming to AAMA 701/702, or polypropylene multifilament fiber weatherstripping installed in an integral weatherstripping groove in the sash or frame, and flexible polyvinylchloride weatherstripping installed in the sill member.

2.2 FABRICATION

Fabrication of window units must comply with AAMA/WDMA/CSA 101/I.S.2/A440.

2.2.1 Provisions for Glazing

Design windows and rabbets suitable for glass thickness shown or specified. Design sash for inside double glazing and for securing glass with metal beads, glazing clips,or glazing channels.

2.2.2 Fasteners

Use window manufacturer's standard for windows, trim, and accessories. Self-tapping sheet-metal screws are not acceptable for material more than 2 mm 1/16 inch thick.

2.2.3 Adhesives

Provide joint sealants as specified in Section 07 92 00 OINT SEALANTS. For interior application of joint sealants, comply with applicable regulations regarding reduced VOC's, and as specified

2.2.4 Drips and Weep Holes

Provide continuous drips over heads of top ventilators. Where fixed windows adjoin ventilators, drips must be continuous across tops of fixed windows. Provide drips and weep holes as required to return water to the outside.

2.2.5 Combination Windows

Windows used in combination must be factory assembled of the same class and grade. Where factory assembly of individual windows into larger units is limited by transportation considerations, prefabricate, match mark, transport, and field assemble.

2.2.6 Accessories

Provide windows complete with necessary hardware, fastenings, clips, fins, anchors, glazing beads, and other appurtenances necessary for complete installation and proper operation.

2.2.6.1 Hardware

AAMA/WDMA/CSA 101/I.S.2/A440. The item, type, and functional characteristics must be the manufacturer's standard for the particular window type. Provide hardware of suitable design and of sufficient strength to perform the function for which it is used. Equip all operating ventilators with a lock or latching device which can be secured from the inside.

2.2.6.2 Fasteners

Provide concealed anchors of the type recommended by the window manufacturer for the specific type of construction. Anchors and fasteners must be compatible with the window and the adjoining construction. Provide a minimum of three anchors for each jamb located approximately 150 mm 6 inches from each end and at midpoint.

2.2.7 Finishes

Comply with NAAMM's Metal Finishes Manual for applying and designating finishes. Exposed aluminum surfaces must be factory finished with an anodic coating or organic coating. Color must be as indicated . All windows for each building must have the same finish.

2.2.7.1 Anodic Coating

Clean exposed aluminum surfaces and provide an anodized finish conforming to AA DAF45 and AAMA 611. Finish must be:

a. Architectural Class II (0.01 to 0.0175 mm 0.4 mil to 0.7 mil), designation AA-M10-C22-[A31, clear (natural)] [A32, integral color] [A34, electrolytically deposited color] anodized.

2.2.7.2 Organic Coating

Clean and prime exposed aluminum surfaces. Provide a baked enamel finish in accordance with AAMA 2603 with total dry film thickness not less than 0.02 mm 0.8 mil

2.2.8 Screens

AAMA/WDMA/CSA 101/I.S.2/A440. Provide one insect screen for each operable exterior sash or ventilator. Design screens to be rewirable, easily removable from inside the building, and to permit easy access to operating hardware. Manufacturers standard aluminum frame complying with SMA 1004 or SMA 1201. Fabricate frames with mitered or coped joints or corner extrusion, concealed fasteners and removable PVC spline/anchors concealing edge of frame.

2.2.8.1 Insect Screen

Insect screen mesh to be[Glass-fiber mesh, 18x16 of PVC-coated glass-fiber threads; woven and fused to form a fabric mesh in accordance with

ASTM D3656/D3656M or Aluminum wire fabric, 18x16 mesh of 0.2794 mm 0.011 inch diameter coated aluminum wire.

PART 3 EXECUTION

3.1 SCHEDULE

Some metric measurements in this section are based on mathematical conversion of inch-pound measurements, and not on metric measurement commonly agreed to by the manufacturers or other parties. The inch-pound and metric measurements are as follows:

PRODUCTS	INCH-POUND	METRIC
Metal Casing	0.0625 inch	1.59 mm
Aluminum Tube (Diameter)	0.0625 inch	1.59 mm
	1 inch	25 mm

3.2 INSTALLATION

3.2.1 Method of Installation

Install in accordance with the window manufacturer's printed instructions and details. Build in windows as the work progresses or install without forcing into prepared window openings. Set windows at proper elevation, location, and reveal; plumb, square, level, and in alignment; and brace, strut, and stay properly to prevent distortion and misalignment. Protect ventilators and operating parts against accumulation of dirt and building materials by keeping ventilators tightly closed and locked to frame. Bed screws or bolts in sill members, joints at mullions, contacts of windows with sills, built-in fins, and subframes in mastic sealant of a type recommended by the window manufacturer. Install and caulk windows in a manner that will prevent entrance of water and wind. Fasten insect screens securely in place.

Any materials that show visual evidence of biological growth due to the presence of moisture must not be installed on the building project.

3.2.2 Dissimilar Materials

Where aluminum surfaces are in contact with, or fastened to masonry, concrete, wood, or dissimilar metals, except stainless steel or zinc, protect the aluminum surface from dissimilar materials as recommended in the Appendix to AAMA/WDMA/CSA 101/I.S.2/A440. Do not coat surfaces in contact with sealants after installation with any type of protective material. Do not apply coatings or lacquers to surfaces to which caulking and glazing components must adhere.

3.2.3 Anchors and Fastenings

Make provision for securing units to each other, to masonry, and to other adjoining construction. Windows installed in masonry walls must have head

and jamb members designed to recess into masonry wall not less than 11 mm 7/16 inch.

3.2.4 Adjustments After Installation

After installation of windows and completion of glazing and field painting, adjust all ventilators and hardware to operate smoothly and to provide weathertight sealing when ventilators are closed and locked. Lubricate hardware and operating parts as necessary. Verify that products are properly installed, connected, and adjusted.

3.3 CLEANING

Clean interior and exterior surfaces of window units of mortar, plaster, paint spattering spots, and other foreign matter to present a neat appearance, to prevent fouling of weathering surfaces and weather-stripping, and to prevent interference with the operation of hardware. Replace all stained, discolored, or abraded windows that cannot be restored to their original condition with new windows.

-- End of Section --

SECTION 09 29 00

GYPSUM BOARD

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A108.11	(1992; Reaffirmed 2005) Specifications for Interior Installation of Cementitious Backer Units

ASTM INTERNATIONAL (ASTM)

ASTM C475/C475M	(2017; R 2022) Standard Specification for oint Compound and oint Tape for Finishing Gypsum Board
ASTM C514	(2004; R 2020) Standard Specification for Nails for the Application of Gypsum Board
ASTM C557	(2003; R 2017) Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing
ASTM C840	(2020) Standard Specification for Application and Finishing of Gypsum Board
ASTM C1002	(2022) Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
ASTM C1047	(2019) Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base
ASTM C1178/C1178M	(2013) Standard Specification for Glass Mat Water-Resistant Gypsum Backing Panel
ASTM C1396/C1396M	(2017) Standard Specification for Gypsum Board
ASTM D624	(2000; R 2020) Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers

ASTM D1149	(2007; R 2012) Standard Test Method for Rubber Deterioration - Surface Ozone Cracking in a Chamber
ASTM D3273	(2016) Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
ASTM D5420	(2016) Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Strike Impacted by a Falling Weight (Gardner Impact)
ASTM E84	(2020) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM E90	(2009; R2016) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
ASTM E336	(2020) Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings
ASTM E695	(2022) Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

FM GLOBAL (FM)

FM APP GUIDE	(updated on-line) Approval Guide http://www.approvalguide.com/

GREEN SEAL (GS)

GS-36	(2013) Adhesives for Commercial Use

GYPSUM ASSOCIATION (GA)

GA 214	(2010) Recommended Levels of Gypsum Board Finish
GA 216	(2016) Application and Finishing of Gypsum Panel Products
GA 253	(2012) Application of Gypsum Sheathing

GA 600	(2015) Fire Resistance Design Manual Sound Control

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168	(2017) Adhesive and Sealant Applications

UNDERWRITERS LABORATORIES (UL)

UL 2818	(2013) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings
UL Fire Resistance	(2014) Fire Resistance Directory

1.2 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-03 Product Data

Accessories

Gypsum Board

VOC Content of oint Compound;

SD-07 Certificates

Asbestos Free Materials;

Indoor Air Quality for Gypsum Board;

Indoor Air Quality for Non-aerosol Adhesives;

Indoor Air Quality for Aerosol Adhesives;

1.3 CERTIFICATIONS

1.3.1 Indoor Air Quality Certifications

Submit required indoor air quality certifications in one submittal package.

1.3.1.1 Ceiling and Wall Systems

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party program that products meet the requirements of this Section. Provide current product certification documentation from certification body. When product does not have certification, provide validation that product meets the indoor air

quality product requirements cited herein.

1.3.1.2 Adhesives and Sealants

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party program that products meet the requirements of this Section. Provide current product certification documentation from certification body. When product does not have certification, provide validation that product meets the indoor air quality product requirements cited herein.

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Delivery

Deliver materials in the original packages, containers, or bundles with each bearing the brand name, applicable standard designation, and name of manufacturer, or supplier.

1.4.2 Storage

Keep materials dry by storing inside a sheltered building. Where necessary to store gypsum board and cementitious backer units outside, store off the ground, properly supported on a level platform, and protected from direct exposure to rain, snow, sunlight, and other extreme weather conditions. Provide adequate ventilation to prevent condensation. Store per manufacturer's recommendations for allowable temperature and humidity range. Do not store panels near materials that may offgas or emit harmful fumes, such as kerosene heaters, fresh paint, or adhesives. Do not use materials that have visible moisture or biological growth.

1.4.3 Handling

Neatly stack gypsum board and cementitious backer units flat to prevent sagging or damage to the edges, ends, and surfaces.

1.5 QUALIFICATIONS

Furnish type of gypsum board work specialized by the installer with a minimum of 3 years of documented successful experience.

1.7 ENVIRONMENTAL REQUIREMENTS

Do not expose the gypsum board to excessive sunlight prior to gypsum board application. Maintain a continuous uniform temperature of not less than 50 degrees F and not more than 80 degrees F for at least one week prior to the application of gypsum board work, while the gypsum board application is being done, and for at least one week after the gypsum board is set. Shield air supply and distribution devices to prevent any uneven flow of air across the plastered surfaces. Provide ventilation to exhaust moist air to the outside during gypsum board application, set, and until gypsum board jointing is dry. In glazed areas, keep windows open top and bottom or side to side 3 to 4 inches. Reduce openings in cold weather to prevent freezing of joint compound when applied. For enclosed areas lacking natural ventilation, provide temporary mechanical means for ventilation. In unglazed areas subjected to hot, dry winds or temperature differentials

from day to night of C 20 degrees F or more, screen openings with cheesecloth or similar materials. Avoid rapid drying. During periods of low indoor humidity, provide minimum air circulation following gypsum boarding and until gypsum board jointing complete and is dry.

PART 2 PRODUCTS

2.1 MATERIALS

Conform to specifications, standards and requirements specified. Provide gypsum board types, gypsum backing board types, cementitious backing units, and joint treating materials manufactured from asbestos free materials only.

2.1.1 Gypsum Board

ASTM C1396/C1396M.

2.1.1.1 Regular

48 inch wide, 5/8 inch thick, Type X fire-rated

2.1.2 oint Treatment Materials

ASTM C475/C475M. Product must be low emitting VOC types with VOC limits not exceeding 50 g/L. Provide data identifying VOC content of joint compound. [Use all purpose joint and texturing compound containing inert fillers and natural binders, including lime compound. Pre-mixed compounds must be free of antifreeze, vinyl adhesives, preservatives, biocides and other slow releasing compounds.]

2.1.2.1 Embedding Compound

Specifically formulated and manufactured for use in embedding tape at gypsum board joints and compatible with tape, substrate and fasteners.

2.1.2.2 Finishing or Topping Compound

Specifically formulated and manufactured for use as a finishing compound.

2.1.2.3 All-Purpose Compound

Specifically formulated and manufactured to serve as both a taping and a finishing compound and compatible with tape, substrate and fasteners.

2.1.2.4 Setting or Hardening Type Compound

Specifically formulated and manufactured for use with fiber glass mesh tape.

2.1.2.5 oint Tape

Use cross-laminated, tapered edge, reinforced paper, or fiber glass mesh tape recommended by the manufacturer.

2.1.3 Fasteners

2.1.3.1 Nails

ASTM C514.

2.1.3.2 Screws

ASTM C1002, Type G , Type S or Type W steel drill screws for fastening gypsum board to gypsum board, wood framing members and steel framing members less than 0.84 mm 0.033 inch thick. ASTM C954 steel drill screws for fastening gypsum board to steel framing members 0.84 to 2.84 mm 0.033 to 0.112 inch thick. Provide cementitious backer unit screws with a polymer coating.

2.1.3.3 Staples

1.5 mm thick No. 16 USS gage flattened galvanized wire staples with 11.1 mm 7/16 inch wide crown outside measurement and divergent point for base ply of two-ply gypsum board application. Use as follows:

Length of Legs	Thickness of Gypsum Board
28.6 mm 1-1/8 inches	12.7 mm 1/2 inch
31.8 mm 1-1/4 inches	15.9 mm 5/8 inch

2.1.4 Adhesives

Provide non-aerosol adhesive products used on the interior of the building (defined as inside of the weatherproofing system) meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide aerosol adhesive products used on the interior of the building (defined as inside of the weatherproofing system) meeting either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of GS-36. Provide certification or validation of indoor air quality for non-aerosol adhesives applied on the interior of the building (inside of the weatherproofing system). Provide certification or validation of indoor air quality for aerosol adhesives used on the interior of the building (inside of the weatherproofing system).

2.1.4.1 Adhesive for Fastening Gypsum Board to Metal Framing

Type recommended by gypsum board manufacturer.

2.1.4.2 Adhesive for Fastening Gypsum Board to Wood Framing

ASTM C557.

2.1.5 Accessories

ASTM C1047. Fabricate from corrosion protected steel or plastic designed for intended use. Accessories manufactured with paper flanges are not acceptable. Flanges must be free of dirt, grease, and other materials that may adversely affect bond of joint treatment. Provide prefinished or job decorated materials.

2.1.6 Water

Provide clean, fresh, and potable water.

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Framing and Furring

Verify that framing and furring are securely attached and of sizes and spacing to provide a suitable substrate to receive gypsum board and cementitious backer units. Verify that all blocking, headers and supports are in place to support plumbing fixtures and to receive soap dishes, grab bars, towel racks, and similar items. Do not proceed with work until framing and furring are acceptable for application of gypsum board and cementitious backer units.

3.1.2 Gypsum Board and Framing

Verify that surfaces of gypsum board and framing to be bonded with an adhesive are free of dust, dirt, grease, and any other foreign matter. Do not proceed with work until surfaces are acceptable for application of gypsum board with adhesive.

3.1.3 Building Construction Materials

Do not install building construction materials that show visual evidence of biological growth.

3.2 APPLICATION OF GYPSUM BOARD

Apply gypsum board to framing and furring members in accordance with ASTM C840 or GA 216 and the requirements specified. Apply gypsum board with separate panels in moderate contact; do not force in place. Stagger end joints of adjoining panels. Neatly fit abutting end and edge joints. Use gypsum board of maximum practical length; select panel sizes to minimize waste. Cut out gypsum board to make neat, close, and tight joints around openings. In vertical application of gypsum board, provide panels in lengths required to reach full height of vertical surfaces in one continuous piece. Lay out panels to minimize waste; reuse cutoffs whenever feasible. Surfaces of gypsum board and substrate members may be bonded together with an adhesive, except where prohibited by fire ratings. Treat edges of cutouts for plumbing pipes, screwheads, and joints with water-resistant compound as recommended by the gypsum board manufacturer. Provide type of gypsum board for use in each system specified herein as indicated.

3.2.1 Application of Single-Ply Gypsum Board to Wood Framing

Apply in accordance with ASTM C840, System I or GA 216.

3.2.2 Adhesive Nail-On Application to Wood Framing

Apply in accordance with ASTM C840, System III or GA 216. This method may be used in lieu of ASTM C840, System I at the option of the Contractor.

3.2.3 Floating Interior Angles

Minimize framing by floating corners with single studs and drywall clips. Locate the attachment fasteners adjacent to ceiling and wall intersections in accordance with ASTM C840, System XII or GA 216, for single-ply applications of gypsum board to wood framing.

3.3 FINISHING OF GYPSUM BOARD

Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216.

Finish walls and ceilings on the upper floor can be Level 4. Finish walls and ceilings without critical lighting to receive flat paints, light textures, or wall coverings to Level 4 in accordance with GA 214.

Unless otherwise specified, finish all gypsum board walls, partitions and ceilings to Level 5 in accordance with GA 214.

Provide joint, fastener depression, and corner treatment. Tool joints as smoothly as possible to minimize sanding and dust. Do not use self-adhering fiber glass mesh tape with conventional drying type joint compounds; use setting or hardening type compounds only. Provide treatment for water-resistant gypsum board as recommended by the gypsum board manufacturer. Protect workers, building occupants, and HVAC systems from gypsum dust.

3.3.1 Uniform Surface

Wherever gypsum board is to receive eggshell, semigloss or gloss paint finish, or where severe, up or down lighting conditions occur, finish gypsum wall surface in accordance to GA 214 Level 5. In accordance with GA 214 Level 5, apply a thin skim coat of joint compound to the entire gypsum board surface, after the two-coat joint and fastener treatment is complete and dry.

3.4 SEALING

Seal openings around pipes, fixtures, and other items projecting through gypsum board and cementitious backer units as specified. Apply material with exposed surface flush with gypsum board or cementitious backer units.

3.5 PATCHING

Patch surface defects in gypsum board to a smooth, uniform appearance, ready to receive finishes.

-- End of Section --

SECTION 09 65 00

RESILIENT FLOORING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN FOREST FOUNDATION (AFF)

ATFS STANDARDS	(2015) American Tree Farm System Standards of Sustainability 2015-2020

ASTM INTERNATIONAL (ASTM)

ASTM E648	(2019a) Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
ASTM F710	(2022) Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
ASTM F1066	(2004; R 2014; E 2014) Standard Specification for Vinyl Composition Floor Tile
ASTM F1303	(2004; R 2021) Standard Specification for Sheet Vinyl Floor Covering with Backing
ASTM F1482	(2021) Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
ASTM F1861	(2021) Standard Specification for Resilient Wall Base
ASTM F1869	(2022) Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
ASTM F1913	(2004; R 2014) Vinyl Sheet Floor Covering Without Backing
ASTM F2170	(2019a) Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

CSA GROUP (CSA)

CSA Z809-08	(R2013) Sustainable Forest Management

FOREST STEWARDSHIP COUNCIL (FSC)

FSC STD 01 001	(2015) Principles and Criteria for Forest Stewardship

GREEN SEAL (GS)

GS-36	(2013) Adhesives for Commercial Use

PROGRAMME FOR ENDORSEMENT OF FOREST CERTIFICATION (PEFC)

PEFC ST 2002:2013	(2015) PEFC International Standard Chain of Custody of Forest Based Products Requirements

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168	(2017) Adhesive and Sealant Applications

SUSTAINABLE FOREST INITIATIVE (SFI)

SFI 2015-2019	(2015) Standards, Rules for Label Use, Procedures and Guidance

UNDERWRITERS LABORATORIES (UL)

UL 2818	(2013) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

1.2 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-03 Product Data

Resilient Flooring and Accessories;

Adhesives

SD-04 Samples

Resilient Flooring and Accessories;

SD-10 Operation and Maintenance Data

Resilient Flooring and Accessories;

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver materials to the building site in original unopened containers bearing the manufacturer's name, style name, pattern color name and number, production run, project identification, and handling instructions. Store materials in a clean, dry, secure, and well-ventilated area with ambient air temperature maintained above 68 degrees F and below 85 degrees F, stacked according to manufacturer's recommendations. Protect materials from the direct flow of heat from hot-air registers, radiators and other heating fixtures and appliances. Observe ventilation and safety procedures specified in the MSDS. Do not store near materials that may offgas or emit harmful fumes, such as kerosene heaters, fresh paint, or adhesives.

1.4 ENVIRONMENTAL REQUIREMENTS

Maintain areas to receive resilient flooring at a temperature above 68 degrees F and below 85 degrees F for 3 days before application, during application and 2 days after application, unless otherwise directed by the flooring manufacturer for the flooring being installed. Maintain a minimum temperature of 55 degrees F thereafter. Provide adequate ventilation to remove moisture from area and to comply with regulations limiting concentrations of hazardous vapors.

1.5 SCHEDULING

Schedule resilient flooring application after the completion of other work which would damage the finished surface of the flooring.

1.6 WARRANTY

Provide manufacturer's standard performance guarantees or warranties that extend beyond a one year period.

1.7 EXTRA MATERIALS

Provide extra flooring material of each color and pattern installed. Provide extra wall base material of each type, color and pattern. Package all extra materials in original properly marked containers bearing the manufacturer's name, brand name, pattern color name and number, production run, and handling instructions. Provide extra materials from the same lot as those installed. Leave extra stock at the site in location assigned by client.

PART 2 PRODUCTS

2.1 VINYL COMPOSITION TILE

Conform to ASTM F1066 Class 2, (through pattern tile), Composition 1, asbestos-free, 12inch square and 1/8 inch thick. Provide color and pattern uniformly distributed throughout the thickness of the tile.

2.2 SHEET VINYL FLOORING

Conform to ASTM F1303, Type I, Grade 1, (minimum overall thickness 0.080 inch) and a minimum 6 feet wide.

2.10 WALL BASE

Conform to ASTM F1861, Style B (coved - installed with resilient flooring). Provide 6 inch high and a minimum 1/8 inch thick wall base. Provide preformed or job formed corners in matching height, shape, and color.

2.11 INTEGRAL COVE BASE

Extend integral coved base for sheet vinyl flooring up the wall 6 inch. Provide a vinyl, rubber, or clear anodized aluminum cap strip and vinyl, rubber, or wood fillet strip with a minimum radius of 3/4 inch for integral coved bases at perimeter and fixed vertical interruptions to flooring. Provide integral cove of the same material as flooring.

2.13 MOULDING

Provide tapered mouldings of vinyl, rubber, clear anodized aluminum, and types as recommended by flooring manufacturer for both edges and transitions of flooring materials specified. Provide vertical lip on moulding of maximum 1/4 inch. Provide bevel change in level between 1/4 and 1/2 inch with a slope no greater than 1:2.

2.14 ADHESIVES

Provide adhesives for flooring, base and accessories as recommended by the manufacturer and comply with local indoor air quality standards.

Provide non-aerosol adhesive products used on the interior of the building (defined as inside of the weatherproofing system) that meet either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide aerosol adhesives used on the interior of the building that meet either emissions requirements of CDPH SECTION 01350 (use the office or classroom requirements, regardless of space type) or VOC content requirements of GS-36.

2.15 SURFACE PREPARATION MATERIALS

Provide surface preparation materials, such as panel type underlayment, lining felt, and floor crack fillers as recommended by the flooring manufacturer for the subfloor conditions. Comply with ASTM F1482 for panel type underlayment products.

2.16 POLISH/FINISH

Provide polish finish as recommended by the manufacturer and conform to ASTM D4078 for polish.

2.17 CAULKING AND SEALANTS

Provide caulking and sealants in accordance with Section 07 92 00 OINT SEALANTS.

2.18 MANUFACTURER'S COLOR, PATTERN AND TEXTURE

Provide color, pattern and texture for resilient flooring and accessories as selected by client from manufacturer's standard colors. Provide flooring in any one continuous area or replacement of damaged flooring in continuous area from same production run with same shade and pattern. Submit manufacturer's descriptive data and three samples of each indicated color and type of flooring, base, mouldings, and accessories sized a minimum 2-1/2 by 4 inch.

2.19 FIRE RESISTANCE TESTING REQUIREMENTS

Provide a minimum average critical radiant flux of 0.22 watts per square centimeter for flooring in corridors and exits when tested in accordance with ASTM E648.

PART 3 EXECUTION

3.1 EXAMINATION

Examine and verify that site conditions are in agreement with the design package. Report all conditions that will prevent a proper installation. Do not take any corrective action without written permission from the Government. Work will proceed only when conditions have been corrected and accepted by the installer.

3.2 SURFACE PREPARATION

Provide a smooth, true, level plane for surface preparation of the flooring, except where indicated as sloped. Floor to be flat to within 3/16 inch in 10 feet. Prepare subfloor in accordance with flooring manufacturer's recommended instructions. Prepare the surfaces of lightweight concrete slabs (as defined by the flooring manufacturer) as recommended by the flooring manufacturer. Comply with ASTM F710 for concrete subfloor preparation. Floor fills or toppings may be required as recommended by the flooring manufacturer. Install underlayments, when required by the flooring manufacturer, in accordance with manufacturer's recommended printed installation instructions. Comply with ASTM F1482 for panel type underlayments. Before any work under this section is begun, correct all defects such as rough or scaling concrete, chalk and dust, cracks, low spots, high spots, and uneven surfaces. Repair all damaged portions of concrete slabs as recommended by the flooring manufacturer. Remove concrete curing and sealer compounds from the slabs, other than the type that does not adversely affect adhesion. Remove paint, varnish, oils, release agents, sealers, waxes, and adhesives, as required by the flooring product in accordance with manufacturer's printed installation instructions.

3.3 MOISTURE, ALKALINITY AND BOND TESTS

Determine the suitability of the concrete subfloor for receiving the resilient flooring with regard to moisture content and pH level by moisture and alkalinity tests. Conduct moisture testing in accordance with ASTM F1869 or ASTM F2170, unless otherwise recommended by the flooring manufacturer. Conduct alkalinity testing as recommended by the flooring manufacturer. Determine the compatibility of the resilient flooring adhesives to the concrete floors by a bond test in accordance with the flooring manufacturer's recommendations. Submit copy of test reports for moisture and alkalinity content of concrete slab, and bond test stating

date of test, person conducting the test, and the area tested.

3.4 GENERAL INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

3.5 PLACING VINYL COMPOSITION TILES

Install tile flooring and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's directions. Keep tile lines and joints square, symmetrical, tight, and even. Keep each floor in true, level plane, except where slope is indicated. Vary edge width as necessary to maintain full-size tiles in the field, no edge tile to be less than one-half the field tile size, except where irregular shaped rooms make it impossible. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Cut, fit, and scribe edge tile to walls and partitions after field flooring has been applied.

3.6 PLACING SHEET VINYL FLOORING

Install sheet vinyl flooring and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Provide square, symmetrical, tight, and even flooring lines and joints. Keep each floor in true, level plane, except where slope is indicated. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Lay out sheets to minimize waste. Cut, fit, and scribe flooring to walls and partitions after field flooring has been applied. Provide chemically bonded or heat welded seams and edges in accordance with the manufacturer's written installation instructions. Finish joints flush, free from voids, recesses, and raised areas. Install flooring with an integral coved base.

3.12 PLACING MOULDING

Provide moulding where flooring termination is higher than the adjacent finished flooring and at transitions between different flooring materials. When required, locate moulding under door centerline. Moulding is not required at doorways where thresholds are provided. [Secure moulding with adhesive as recommended by the manufacturer. Prepare and apply adhesives in accordance with manufacturer's printed directions.] [Anchor aluminum moulding to floor surfaces as recommended by the manufacturer.]

3.13 PLACING WALL BASE

Install wall base in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Tighten base joints and make even with adjacent resilient flooring. Fill voids along the top edge of base at masonry walls with caulk. Roll entire vertical surface of base with hand roller, and press toe of base with a straight piece of wood to ensure proper alignment. Avoid excess adhesive in corners.

3.15 PLACING INTEGRAL COVED BASE

Install integral cove base in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Shape integral coved base by extending the flooring material 6 inch onto the wall surface. Support cove by a filler. Provide a cap strip at the top of the base. Fill voids along the top edge of base at masonry walls with caulk.

3.16 CLEANING

Immediately upon completion of installation of flooring in a room or an area, dry and clean the flooring and adjacent surfaces to remove all surplus adhesive. Clean flooring as recommended in accordance with manufacturer's printed maintenance instructions and within the recommended time frame. As required by the manufacturer, apply the recommended number of coats and type of polish and finish in accordance with manufacturer's written instructions.

3.17 PROTECTION

From the time of installation until acceptance, protect flooring from damage as recommended by the flooring manufacturer. Remove and replace flooring which becomes damaged, loose, broken, or curled and wall base which is not tight to wall or securely adhered.

-- End of Section --

SECTION 12 21 00

WINDOW BLINDS

PART 1 GENERAL

1.1 SUMMARY

Provide window treatment, conforming to NFPA 701, complete with necessary brackets, fittings, and hardware. Provide each window treatment type as a complete unit in accordance with paragraph WINDOW TREATMENT PLACEMENT SCHEDULE. Mount and operate equipment in accordance with manufacturer's instructions. Completely cover windows to receive a treatment.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701	(2019) Standard Methods of Fire Tests for Flame Propagation of Textiles and Films

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

UNDERWRITERS LABORATORIES (UL)

UL 2818	(2013) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

1.3 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES

SD-03 Product Data

Window Blinds;

SD-04 Samples

Window Blinds;

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver components to the jobsite in the manufacturer's original packaging with the brand or company name, item identification, and project reference clearly marked. Store components in a dry location that is adequately ventilated and free from dust, water, or other contaminants and has easy access for inspection and handling. Store materials flat in a clean dry area with temperature maintained above 1 0 degrees C 50 degrees F. Do not open containers until needed for installation unless verification inspection is required.

1.6 WARRANTY

Provide manufacturer's standard performance guarantees or warranties that extend beyond a 1 year period.

PART 2 PRODUCTS

2.1 WINDOW BLINDS

Provide each blind, including hardware, accessory items, mounting brackets and fastenings, as a complete unit produced by one manufacturer. Unless otherwise indicated, all parts will be the same color and will match the color of the blind slat. Treat steel features for corrosion resistance. Submit product data and samples of each type and color of window treatment. Provide slat / louver samples 150 mm 6 inch in length for each color. Window blinds must meet emissions requirements of CDPH SECTION 01350 (use the office or classroom requirement, regardless of space type).

Provide Aluminum Components with recycled content.

2.1.1 Horizontal Blinds

Provide horizontal blinds with 25 mm 1 inch slats. Blind units must be capable of nominally 180 degree partial tilting operation and full-height raising. Blinds must be inside mount. Tapes for 25 mm1 inch slats must be braided polyester or nylon.

2.1.1.1 Head Channel and Slats

Provide head channel made of steel or aluminum with corrosion-resistant finish nominal 0.61 mm 0.024 inch for 25 mm 1 inch slats. Provide slats of aluminum, and of sufficient strength to prevent sag or bow in the finished blind. Provide a sufficient amount of slats to assure proper control, uniform spacing, and adequate overlap. Enclose all hardware in the headrail.

2.1.1.2 Controls

A transparent tilting wand will be provided to tilt the slats, it will hang vertically by its own weight, and will swivel for easy operation. Provide a tilter control of enclosed construction. Provide moving parts and mechanical drive made of compatible materials which do not require lubrication during normal expected life. The tilter will tilt the slats to any desired angle and hold them at that angle so that any vibration or movement of ladders and slats will not drive the tilter and change the angle of slats. Include a mechanism to prevent over tightening. Provide a

wand of sufficient length to reach to within 1500 mm 5 feet of the floor.

2.1.1.3 Intermediate Brackets

Provide intermediate brackets for installation, as recommended by the manufacturer, of blinds over [1200] mm[48] inch wide.

2.1.1.4 Bottom Rail

Provide bottom rail made of corrosion-resistant steel with factory applied finish. Provide closed oval shaped bottom rail with double-lock seam for maximum strength. Bottom rail and end caps to match slats in color.

2.1.1.5 Braided Ladders

Provide braided ladders of 100 percent polyester yarn, color to match the slat color. Space ladders 15.2 slats per 300 mmfoot of drop in order to provide a uniform overlap of the slats in a closed position.

2.2 COLOR

Provide color, pattern and texture selected from manufacturer's standard colors. Color listed is not intended to limit the selection of equal colors from other manufacturers.

PART 3 EXECUTION

3.1 EXAMINATION

After becoming familiar with details of the work, verify all dimensions in the field, and advise the Contracting Officer of any discrepancy before performing the work.

3.2 WINDOW TREATMENT PLACEMENT SCHEDULE

All exterior windows.

3.3 INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

Perform installation of window blinds in accordance with the approved detail drawings and manufacturer's installation instructions. Install units level, plumb, secure, and at proper height and location relative to window units. Provide and install supplementary or miscellaneous items in total, including clips, brackets, or anchorages incidental to or necessary for a sound, secure, and complete installation. Do not start installation until completion of room painting and finishing operations.

3.4 CLEAN-UP

Upon completion of the installation, inspect window treatments for soiling, damage or blemishes; and adjust them for form and appearance and proper operating condition. Repair or replace damaged units as directed by the Contracting Officer. Isolate metal parts from direct contact with concrete, mortar, or dissimilar metals. Ensure blinds installed in recessed pockets can be removable without disturbing the pocket. The

entire blind, when retracted, must be contained behind the pocket. For blinds installed outside the jambs and mullions, overlap each jamb and mullion 20 mm 0.75 inch or more when the jamb and mullion sizes permit. Include all hardware, brackets, anchors, fasteners, and accessories necessary for a complete, finished installation.

-- End of Section --

SECTION 13 34 19

METAL BUILDING SYSTEMS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA/WDMA/CSA 101/I.S.2/A440	(2017) North American Fenestration Standard/Specification for Windows, Doors, and Skylights

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 325	(2017) Steel Construction Manual
AISC 360	(2016) Specification for Structural Steel Buildings

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7-16	(2017; Errata 2018; Supp 1 2018) Minimum Design Loads and Associated Criteria for Buildings and Other Structures

ASTM INTERNATIONAL (ASTM)

ASTM A36/A36M	(2019) Standard Specification for Carbon Structural Steel
ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip)on Iron and Steel Hardware
ASTM A307	(2021) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM A463/A463M	(2022) Standard Specification for Steel Sheet, Aluminum-Coated, by the Hot-Dip Process
ASTM A500/A500M	(2021a) Standard Specification for Cold-Formed Welded and Seamless Carbon

	Steel Structural Tubing in Rounds and Shapes
ASTM A563	(2021; E 2022a) Standard Specification for Carbon and Alloy Steel Nuts
ASTM A563M	(2007; R 2013) Standard Specification for Carbon and Alloy Steel Nuts (Metric)
ASTM A653/A653M	(2022) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A755/A755M	(2018) Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products
ASTM A780/A780M	(2020) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A792/A792M	(2022) Standard Specification for Steel Sheet, 55 Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
ASTM A992/A992M	(2022) Standard Specification for Structural Steel Shapes
ASTM A1008/A1008M	(2021a) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM A1011/A1011M	(2018a) Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
ASTM B695	(2021) Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel
ASTM C518	(2021) Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM C553	(2013; R 2019) Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
ASTM C612	(2014; R 2019) Standard Specification for

	Mineral Fiber Block and Board Thermal Insulation
ASTM C665	(2017) Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
ASTM C920	(2018) Standard Specification for Elastomeric oint Sealants
ASTM C991	(2016) Flexible Glass Fiber Insulation for Metal Buildings
ASTM C1363	(2019) Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus
ASTM D522/D522M	(2017) Mandrel Bend Test of Attached Organic Coatings
ASTM D523	(2014; R 2018) Standard Test Method for Specular Gloss
ASTM D714	(2002; R 2017) Standard Test Method for Evaluating Degree of Blistering of Paints
ASTM D822	(2013; R 2018) Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings
ASTM D968	(2017) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1056	(2020) Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber
ASTM D1308	(2002; R 2013) Effect of Household Chemicals on Clear and Pigmented Organic Finishes
ASTM D2247	(2015) Testing Water Resistance of Coatings in 100 Relative Humidity
ASTM D2794	(1993; R 2019) Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM DEFONLINE	(2008) ASTM Online Dictionary of Engineering Science and Technology
ASTM E84	(2020) Standard Test Method for Surface Burning Characteristics of Building Materials

ASTM E96/E96M	(2022a) Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials
ASTM E119	(2022) Standard Test Methods for Fire Tests of Building Construction and Materials
ASTM E136	(2022) Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C
ASTM E283	(2019) Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
ASTM E331	(2000; R 2016) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
ASTM E1592	(2017) Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
ASTM F436/F436M	(2019) Standard Specification for Hardened Steel Washers Inch and Metric Dimensions
ASTM F844	(2019) Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use
ASTM F1554	(2020) Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

METAL BUILDING MANUFACTURERS ASSOCIATION (MBMA)

MBMA MBSM	(2018) Metal Building Systems Manual

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM AMP 500	(2006) Metal Finishes Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80	(2022) Standard for Fire Doors and Other Opening Protectives
NFPA 252	(2022) Standard Methods of Fire Tests of Door Assemblies

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

SMACNA 1793	(2012) Architectural Sheet Metal Manual, 7th Edition

SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC Painting Manual	(2002) Good Painting Practice, Steel Structures Painting Manual, Volume 1
SSPC SP 2	(2018) Hand Tool Cleaning

UNDERWRITERS LABORATORIES (UL)

UL Bld Mat Dir	(updated continuously online) Building Materials Directory

1.2 GENERAL REQUIREMENTS

1.2.1 Design Parameters

Design and construct pre-engineered metal buildings of size, shape, height, fenestration, siting, and configuration indicated. Coordinate site utility services, accessibility requirements, vehicular and pedestrian access, mechanical, electrical, plumbing and fire protection requirements, interior construction and finishes, and such other items as may be necessary for a complete, functional building.

1.2.2 Structural Performance

Provide metal building systems capable of withstanding the effects of gravity loads and the following loads and stresses within the limits and conditions indicated.

1.2.2.1 Engineering

Design metal building systems conforming to procedures described in MBMA MBSM.

1.2.2.2 Design Loads

Design and construct to the requirements of UFC 3-301-01, Structural Engineering.

1.2.3 Standards

1.2.3.1 Metal Wall Panel Assemblies

1.2.4 Air Infiltration for Metal Wall Panels

Air leakage through assembly tested per ASTM E283

1.2.5 Water Penetration for Metal Wall Panels

No water penetration when tested according to ASTM E331

1.2.6 Wind-Uplift Resistance

Design for wind-uplift resistance in accordance with UFC 3-301-01.

1.3 DEFINITIONS

a. Bay: Dimension between main frames measured normal to frame (at centerline of frame) for interior bays, and dimension from centerline of first interior main frame measured normal to end wall (outside face of end-wall girt) for end bays.

b. Clear Span: Distance between supports of beams, girders, or trusses (measured from lowest level of connecting area of a column and a rafter frame or knee).

c. Eave Height: Vertical dimension from finished floor to eave (the line along the sidewall formed by intersection of the planes of the roof and wall).

d. Terminology Standard: Refer to MBMA Metal Building Systems Manual for definitions of terms for metal building system construction not otherwise defined in this Section or in referenced standards.

1.4 SYSTEM DESCRIPTION

metal building of existing size and with spacing, slopes, and spans indicated.

1.4.1 Primary Frame Type

a. Existing Rigid Clear Span: Solid-member, structural-framing system without interior columns.

1.4.2 Eave Height

Eave height is Manufacturer's standard height as indicated by height on Drawings.

1.4.3 Exterior Wall System

Modify field-assembled, un-insulated metal wall panels where required.

1.5 QUALITY ASSURANCE

1.5.1 Qualification of Erection Contractor

An experienced erector who has specialized in erecting and installing work similar in material, design, and extent to that indicated for this Project and must be approved and certified by the metal building system manufacturer.

1.5.2 Fabrication

Modify existing metal wall panels to allow installation of new replacement windows.

Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA 1793 that apply to the design, dimensions, metal, and other characteristics of item indicated:

a. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

b. End Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

c. Sealed oints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

d. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.

e. Fabricate cleats and attachment devices of size and metal thickness recommended by SMACNA or by metal building system manufacturer for application, but not less than thickness of metal being secured.

1.5.3 Finishes

Comply with NAAMM AMP 500 for recommendations for applying and designating finishes.

Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

1.6 PRO ECT CONDITIONS

1.6.1 Weather Limitations

Proceed with installation preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing panel system or building.

1.6.2 Field Measurements

1.6.2.1 Verification Record

Verify locations of all framing and opening dimensions by field measurements.

1.7 COORDINATION

Coordinate installation of HVAC system, equipment supports, and accessories.

Coordinate metal panel assemblies with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leak-proof, secure, and non-corrosive installation.

PART 2 PRODUCTS

2.1 STRUCTURAL FRAMING MATERIALS

2.1.1 Non-High-Strength Bolts, Nuts, and Washers

ASTM A307, ASTM A563M ASTM A563, and ASTM F844.

Finish: [Plain][ASTM A153/A153M][ASTM B695].

2.1.2 Primer

SSPC-Paint 15, Type I, red oxide.

2.2 FABRICATION

2.2.1 General

Comply with MBMA MBSM - Metal Building Systems Manual : Chapter IV, Section 9, Fabrication and Erection Tolerances.

2.3 PANEL MATERIAL

2.3.1 Repair Of Finish Protection

Repair paint for enameled metal panel must be compatible paint of the same formula and color as the specified finish furnished by the metal panel manufacturer, conforming to ASTM A780/A780M.

2.4 MISCELLANEOUS METAL FRAMING

2.4.1 General

Cold-formed metallic-coated steel sheet conforming to ASTM A653/A653M

2.5 FASTENERS

2.5.1 General

Type, material, corrosion resistance, size and sufficient length to penetrate the supporting member a minimum of 25.4 mm 1 inch with other properties required to fasten miscellaneous metal framing members to substrates in accordance with the metal panel manufacturer's and ASCE 7-16 requirements.

2.5.2 Exposed Fasteners

Fasteners for metal panels to be corrosion resistant coated steel, aluminum, stainless steel, or nylon capped steel compatible with the sheet panel or flashing and of a type and size recommended by the manufacturer to meet the performance requirements and design loads. Fasteners for accessories to be the manufacturer's standard. Provide an integral metal washer matching the color of attached material with compressible sealing EPDM gasket approximately .09 mm 3/32 inch thick.

2.5.3 Screws

Screws to be corrosion resistant coated steel, aluminum or stainless steel being the type and size recommended by the manufacturer to meet the performance requirements.

2.5.4 Rivets

Rivets to be closed-end type, corrosion resistant coated steel, aluminum or stainless steel where watertight connections are required.

2.5.5 Attachment Clips

Fabricate clips from steel hot-dipped galvanized in accordance with ASTM A653/A653M or Series 300 stainless steel. Size, shape, thickness and capacity as required meeting the insulation thickness and design load criteria specified.

2.6 FRAMES AND MATERIALS FOR OPENINGS

2.6.1 Doors

Fire-Rated and Non-Fire-Rated Door Assemblies conforming with NFPA 80 and based on testing according to NFPA 252 as specified in Division 08 - OPENINGS unless otherwise indicated.

2.6.2 Windows

Aluminum Window Assemblies conforming to AAMA/WDMA/CSA 101/I.S.2/A440 as specified unless otherwise indicated.

2.7 ACCESSORIES

2.7.1 General

All accessories to be compatible with the metal panels; sheet metal flashing, trim, metal closure strips, caps and similar metal accessories must not be less than the minimum thickness specified for the metal panels. Exposed metal accessories/finishes to match the panels, except as otherwise indicated. Molded foam rib, ridge and other closure strips to be non-absorbent closed-cell or solid-cell synthetic rubber or pre-molded neoprene to match configuration of the panels.

2.7.2 Rubber Closure Strips

Closed-cell, expanded cellular rubber conforming to ASTM D1056 and ASTM D1667; extruded or molded to the configuration of the specified metal panel and in lengths supplied by the metal panel manufacturer.

2.7.3 Metal Closure Strips

Factory fabricated closure strips to be the same material, thickness, color, finish and profile of the specified wall panel.

2.7.4 oint Sealants

2.7.4.1 Sealants

Sealants are to be an approved gun type for use in hand or air-pressure caulking guns at temperatures above 4 degrees C 40 degrees F(or frost-free application at temperatures above minus 12 degrees C 10 degrees F with minimum solid content of 85 percent of the total volume. Sealant is to dry with a tough, durable surface skin which permits it to remain soft and pliable underneath, providing a weather-tight joint. No migratory staining is permitted on painted or unpainted metal, stone, glass, vinyl, or wood.

Prime all joints to receive sealants with a compatible one-component or two-component primer as recommended by the metal panel manufacturer.

2.7.4.2 Shop-Applied

Sealant for shop-applied caulking must be an approved gun grade, non-sag one component polysulfide or silicone conforming to ASTM C920, Type II, and with a curing time to ensure the sealant's plasticity at the time of field erection.

2.7.4.3 Field-Applied

Sealant for field-applied caulking must be an approved gun grade, non-sag one component polysulfide or two-component polyurethane with an initial maximum Shore A durometer hardness of 25, and conforming to ASTM C920, Type II. Color to match panel colors.

2.7.4.4 Tape Sealant

Pressure sensitive, 100 percent solid with a release paper backing; permanently elastic, non-sagging, non-toxic and non-staining as approved by the metal panel manufacturer.

2.8 SHEET METAL FLASHING AND TRIM

2.8.1 Fabrication

Shop fabricate sheet metal flashing and trim where practicable to comply with recommendations in SMACNA 1793 that apply to design, dimensions, metal, and other characteristics of item indicated. Obtain field measurements for accurate fit before shop fabrication.

Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.

2.9 FINISHES

2.9.1 General

Comply with NAAMM AMP 500 for recommendations for applying and designating finishes.

2.9.2 Appearance of Finished Work

Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 EXECUTION

3.1 EXAMINATION

Examine primary and secondary framing to verify that rafters, purlins, angles, channels, and other structural and metal panel support members and anchorages have been installed within alignment tolerances required by metal building manufacturer, UL, ASTM, ASCE 7-16 and as required by the building code for the geographical area where construction will take place.

Examine roughing-in for components and systems penetrating metal roof or wall panels to verify actual locations of penetrations relative to seam locations of metal panels before metal roof or wall panel installation.

3.2 PREPARATION

Miscellaneous Framing: Install girts, angles, furring, and other miscellaneous support members or anchorage for the metal wall panels, doors, and windows, according to metal building manufacturer's written instructions.

3.3 METAL WALL PANEL INSTALLATION

Remove and reinstall existing metal wall panels.

Provide metal wall panels of full length from sill to eave as indicated, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, in accordance with MBMA MBSM.

Sheets are not to be subjected to overloading, abuse, or undue impact. Do not install bent, chipped, or defective sheets.

Sheets must be erected true and plumb and in exact alignment with the horizontal and vertical edges of the building, securely anchored, and with the indicated eave, and sill.

Work is to allow for thermal movement of the wall panel, movement of the building structure, and to provide permanent freedom from noise due to wind pressure.

Field cutting metal wall panels by torch is not permitted.

3.4 METAL PANEL FASTENER INSTALLATION

Anchor metal panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

3.5 FLASHING, TRIM AND CLOSURE INSTALLATION

a. Comply with performance requirements, manufacturer's written installation instructions, and SMACNA 1793. Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

b. Sheet metalwork is to be accomplished to form weather-tight construction without waves, warps, buckles, fastening stresses or distortion, and allow for expansion and contraction. Cutting, fitting, drilling, and other operations in connection with sheet metal required to accommodate the work of other trades is to be performed by sheet metal mechanics.

3.6 WINDOW INSTALLATION

Install windows plumb, rigid, properly aligned, without warp or rack of frames or sash, and securely fastened in place according to manufacturer's

written instructions. Coordinate installation with metal panel flashings and other components. Caulk and seal perimeter of each window frame with elastomeric sealant compatible with for metal panels. Comply with installation requirements in Division 08 - OPENINGS.

3.7 ACCESSORY INSTALLATION

3.7.1 General

Install accessories with positive anchorage to building and weather-tight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

3.7.2 Dissimilar Metals

Where dissimilar metals contact one another or corrosive substrates are present, protect against galvanic action by painting dissimilar metal surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each surface, or by other permanent separation techniques as recommended by the metal building manufacturer

3.7.3 Insulation

Comply with performance requirements and manufacturer's written installation instructions. Install insulation concurrently with metal panel installation, in thickness indicated to cover entire roof and wall area, as specified in Division 07 - THERMAL AND MOISTURE PROTECTION.

3.7.4 Roof and Wall Accessories and Specialties

Install roof and wall accessories and specialties complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports as specified in Division 07 - THERMAL AND MOISTURE PROTECTION, unless otherwise indicated.

3.8 CLEAN-UP AND PROTECTION

3.8.1 Structural Framing

Clean all exposed structural framing at completion of installation. Remove metal shavings, filings, bolts, and wires from work area. Remove grease and oil films, excess sealants, handling marks, contamination from steel wool, fittings and drilling debris and scrub the work clean. Exposed metal surfaces to be free of dents, creases, waves, scratch marks, solder or weld marks, and damage to the finish coating.

3.8.2 Metal Panels

Clean all exposed sheet metal work at completion of installation. Remove metal shavings, filings, nails, bolts, and wires from work area. Remove protective coverings/films, grease and oil films, excess sealants, handling marks, contamination from steel wool, fittings and drilling debris and scrub the work clean. Exposed metal surfaces to be free of dents, creases, waves, scratch marks, solder or weld marks, and damage to the finish coating.

3.8.3 Touch-Up Painting

After erection, promptly clean, prepare, and prime or re-prime field connections, rust spots, and abraded surfaces of prime-painted structural framing and accessories. Clean and touch-up paint.

3.9 WASTE MANAGEMENT

Dispose of construction waste in accordance with the requirements

-- End of Section --

SECTION 21 13 13

WET PIPE SPRINKLER SYSTEMS, FIRE PROTECTION

PART 1 GENERAL

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B16.1	(2020) Gray Iron Pipe Flanges and Flanged Fittings Classes 25, 125, and 250
ASME B16.3	(2021) Malleable Iron Threaded Fittings, Classes 150 and 300
ASME B16.4	(2021) Gray Iron Threaded Fittings; Classes 125 and 250
ASME B16.18	(2021) Cast Copper Alloy Solder oint Pressure Fittings
ASME B16.21	(2021) Nonmetallic Flat Gaskets for Pipe Flanges
ASME B16.22	(2021) Wrought Copper and Copper Alloy Solder oint Pressure Fittings
ASME B16.26	(2018) Standard for Cast Copper Alloy Fittings for Flared Copper Tubes

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE)

ASSE 1013	(2021) Performance Requirements for Reduced Pressure Principle Backflow Prevention Assemblies
ASSE 1015	(2021) Performance Requirements for Double Check Backflow Prevention Assemblies

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C104/A21.4	(2022) Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
AWWA C110/A21.10	(2021) Ductile-Iron and Gray-Iron Fittings
AWWA C111/A21.11	(2017) Rubber-Gasket oints for Ductile-Iron Pressure Pipe and Fittings
AWWA C203	(2020) Coal-Tar Protective Coatings and

	Linings for Steel Water Pipelines - Enamel and Tape - Hot-Applied
AWWA M14	(2015) Manual: Recommended Practice for Backflow Prevention and Cross-Connection Control

ASTM INTERNATIONAL (ASTM)

ASTM A47/A47M	(1999; R 2022; E 2022) Standard Specification for Ferritic Malleable Iron Castings
ASTM A53/A53M	(2022) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A135/A135M	(2021) Standard Specification for Electric-Resistance-Welded Steel Pipe
ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A183	(2014; R 2020) Standard Specification for Carbon Steel Track Bolts and Nuts
ASTM A536	(1984; R 2019; E 2019) Standard Specification for Ductile Iron Castings
ASTM B62	(2017) Standard Specification for Composition Bronze or Ounce Metal Castings
ASTM B75/B75M	(2020) Standard Specification for Seamless Copper Tube
ASTM B88	(2022) Standard Specification for Seamless Copper Water Tube
ASTM B88M	(2020) Standard Specification for Seamless Copper Water Tube (Metric)
ASTM F442/F442M	(2020) Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)

FM GLOBAL (FM)

FM 1637	(2010) Flexible Sprinkler Hose with Threaded End Fittings
FM APP GUIDE	(updated on-line) Approval Guide http://www.approvalguide.com/

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

MSS SP-71	(2018) Gray Iron Swing Check Valves, Flanged and Threaded Ends

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 13	(2022; ERTA 3 2022) Standard for the Installation of Sprinkler Systems
NFPA 13R	(2022) Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies
NFPA 15	(2022) Standard for Water Spray Fixed Systems for Fire Protection
NFPA 24	(2022) Standard for the Installation of Private Fire Service Mains and Their Appurtenances
NFPA 101	(2021; TIA 21-1) Life Safety Code
NFPA 291	(2022) Recommended Practice for Fire Flow Testing and Marking of Hydrants
NFPA 1963	(2019) Standard for Fire Hose Connections

NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET)

NICET 1014-7	(2012) Program Detail Manual for Certification in the Field of Fire Protection Engineering Technology (Field Code 003) Subfield of Automatic Sprinkler System Layout

UNDERWRITERS LABORATORIES (UL)

UL 193	(2016) UL Standard for Safety Alarm Valves for Fire-Protection Service
UL 199	(2020) UL Standard for Safety Automatic Sprinklers for Fire-Protection Service
UL 262	(2004; Reprint Oct 2011) Gate Valves for Fire-Protection Service
UL 312	(2022) UL Standard for Safety Check Valves for Fire-Protection Service
UL 405	(2013; Bul. 2020) UL Standard for Safety Fire Department Connection Devices
UL 668	(2004; Reprint Oct 2021) UL Standard for Safety Hose Valves for Fire-Protection Service
UL 789	(2004; Reprint May 2017) UL Standard for

	Safety Indicator Posts for Fire-Protection Service
UL 1626	(2008; Bul. 2018) UL Standard for Safety Residential Sprinklers for Fire-Protection Service
UL 2443	(2015; Reprint May 2020) UL Standard for Safety Flexible Sprinkler Hose with Fitings for Fire Protection Service
UL Fire Prot Dir	(2012) Fire Protection Equipment Directory

SYSTEM DESCRIPTION

Inspect, repair, and test wet pipe sprinkler in all areas of the building. Except as modified herein, the system must meet the requirements of NFPA 13. Pipe sizes which are not indicated on the Contract drawings must be determined.

Qualified Fire Protection Engineer (QFPE)

An individual who is a licensed professional engineer (P.E.) who has passed the fire protection engineering written examination administered by the National Council of Examiners for Engineering and Surveying (NCEES) and has relevant fire protection engineering experience. Services of the QFPE must include:

a. Reviewing SD-02, SD-03, and SD-05 submittal packages for completeness and compliance with the provisions of this specification. Working (shop) drawings and calculations must be prepared by, or prepared under the immediate supervision of, the QFPE. The QFPE must affix their professional engineering stamp with signature to the shop drawings, calculations, and material data sheets, indicating approval prior to submitting the shop drawings to the DFPE.

b. Provide a letter documenting that the SD-02, SD-03, and SD-05 submittal package has been reviewed and noting all outstanding comments.

c. Performing in-progress construction surveillance prior to installation of ceilings (rough-in inspection).

d. Witnessing pre-Government [and final Government]functional performance testing and performing a final installation review.

e. Signing applicable certificates under SD-07.

SUBMITTALS

Government review and approval is required for submittals. Documents for SD-02, SD-03 and SD-05 must be submitted simultaneously.

Shop drawings (SD-02), product data (SD-03) and calculations (SD-05) must be prepared by the designer and combined and submitted as one complete package.

Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Shop Drawing;

SD-03 Product Data

SD-05 Design Data

[Seismic Bracing;

] Hydraulic Calculations;

SD-06 Test Reports

Test Procedures;

SD-07 Certificates

Verification of Compliant Installation;

5-Year NFPA Inspection Report

SD-10 Operation and Maintenance Data

Operating and Maintenance (O&M) Instructions;

Spare Parts Data;

SD-11 Closeout Submittals

As-built drawings

QUALITY ASSURANCE

Preconstruction Submittals

Within 36 days of contract award but no less than 14 days prior to commencing work on site, the prime Contractor must submit the following for review and approval.

Shop Drawing

Working drawings conforming to the requirements prescribed in NFPA 13 and must be no smaller than the Contract Drawings. Each set of drawings must include the following:

a. A descriptive index with drawings listed in sequence by number. A legend sheet identifying device symbols, nomenclature, and conventions used in the package.

b. Floor plans drawn to a scale not less than 1/8-inch equals 1-foot clearly showing locations of devices, equipment, risers, and other details required to clearly describe the proposed arrangement.

c. Actual center-to-center dimensions between sprinklers on branch lines and between branch lines; from end sprinklers to adjacent walls; from

walls to branch lines; from sprinkler feed mains, cross mains and branch lines to finished floor and roof or ceiling. A detail must show the dimension from the sprinkler and sprinkler deflector to the ceiling in finished areas.

d. Longitudinal and transverse building sections showing typical branch line and cross main pipe routing, elevation of each typical sprinkler above finished floor and elevation of cloud or false ceilings in relation to the building ceilings.

e. Plan and elevation views which establish that the equipment will fit the allotted spaces with clearance for installation and maintenance.

f. Riser layout drawings drawn to a scale of not less than 1/2-inch equals 1-foot to show details of each system component, clearances between each other and from other equipment and construction in the room.

g. Details of each type of riser assembly, pipe hanger, sway bracing for earthquake protection, and restraint of underground water main at point-of-entry into the building, and electrical devices and interconnecting wiring. The dimension from the edge of vertical piping to the nearest adjacent wall(s) must be indicated on the drawings when vertical piping is located in stairs or other portions of the means of egress.

h. Details of each type of pipe hanger, seismic bracing/restraint and related components.

Product Data

Annotated catalog data to show the specific model, type, and size of each item. Catalog cuts must also indicate the NRTL listing. The data must be highlighted to show model, size, options, and other pertinent information, that are intended for consideration. Data must be adequate to demonstrate compliance with all contract requirements. Product data for all equipment must be combined into a single submittal.

Hydraulic Calculations

Calculations must be as outlined in NFPA 13

Regulatory Requirements

Equipment and material must be listed or approved. Listed or approved, as used in this Section, means listed, labeled or approved by a Nationally Recognized Testing Laboratory (NRTL) such as UL Fire Prot Dir or FM APP GUIDE. The omission of these terms under the description of an item or equipment described must not be construed as waiving this requirement. All listings or approvals by testing laboratories must be from an existing ANSI or UL published standard. The recommended practices stated in the manufacturer's literature or documentation are mandatory requirements.

DELIVERY, STORAGE, AND HANDLING

Protect all equipment delivered and placed in storage from the weather, excessive humidity and temperature variations, dirt and dust, or other contaminants. All pipes must be either capped or plugged until installed.

EXTRA MATERIALS

Spare sprinklers and wrench(es) must be provided as spare parts in accordance with NFPA 13.

PART 2 PRODUCTS

MATERIALS AND EQUIPMENT

Standard Products

Provide materials, equipment, and devices listed for fire protection service when so required by NFPA 13 or this specification. Select material from one manufacturer, where possible, and not a combination of manufacturers, for a classification of material. Material and equipment must be standard products of a manufacturer regularly engaged in the manufacture of the products for at least 2 years prior to bid.

Nameplates

Major components of equipment must have the manufacturer's name, address, type or style, model or serial number, catalog number, date of installation, installing Contractor's name and address, and the contract number provided on a new name plate permanently affixed to the item or equipment. Nameplates must be etched metal or plastic, permanently attached by screws to control units, panels or adjacent walls.

Identification and Marking

Pipe and fitting markings must include name or identifying symbol of manufacturer and nominal size. Pipe must be marked with ASTM designation. Valves and equipment markings must have name or identifying symbol of manufacturer, specific model number, nominal size, name of device, arrow indicating direction of flow, and position of installation (horizontal or vertical), except if valve can be installed in either position. Markings must be included on the body casting or on an etched or stamped metal nameplate permanently on the valve or cover plate.

Pressure Ratings

Valves, fittings, couplings, alarm switches, and similar devices must be rated for the maximum working pressures that can be experienced in the system, but in no case less than [175][250] psi.

ABOVEGROUND PIPING COMPONENTS

Steel Piping Components

Steel Pipe

Except as modified herein, steel pipe must be black as permitted by NFPA 13 and conform to the applicable provisions of ASTM A53/A53M, ASTM A135/A135M or ASTM A153/A153M.
Steel pipe must be Schedule 40 only. Steel piping with wall thickness less than Schedule 40 must not be threaded.

Fittings

Fittings must be welded, threaded, or grooved-end type. Threaded fittings must be cast-iron conforming to ASME B16.4, malleable-iron conforming to ASME B16.3 or ductile-iron conforming to ASTM A536. Plain-end fittings with mechanical couplings, fittings that use steel gripping devices to bite into the pipe, steel press fittings and field welded fittings are not permitted. Fittings, mechanical couplings, and rubber gaskets must be supplied by the same manufacturer. Threaded fittings must use Teflon tape or manufacturer's approved joint compound. Saddle tees using rubber gasketed fittings are permitted only when connecting to existing piping for additions or modifications. Saddle tees must use a connection method that completely wraps around the pipe. Reducing couplings are not permitted except as allowed by NFPA 13.

Grooved Mechanical oints and Fittings

 oints and fittings must be designed for not less than 175 psi service and the product of the same manufacturer. Field welded fittings must not be used. Fitting and coupling housing must be malleable-iron conforming to ASTM A47/A47M, Grade 32510; ductile-iron conforming to ASTM A536, Grade 65-45-12. Rubber gasketed grooved-end pipe and fittings with mechanical couplings are permitted in pipe sizes 2 inches and larger. Gasket must be the flush type that fills the entire cavity between the fitting and the pipe. Nuts and bolts must be heat-treated steel conforming to ASTM A183 and must be cadmium-plated or zinc-electroplated.

Flanges

Flanges must conform to NFPA 13 and ASME B16.1. Gaskets must be non-asbestos compressed material in accordance with ASME B16.21, 1/16-inch thick, and full face or self-centering flat ring type.

Flexible Sprinkler Hose

Flexible sprinkler hose must comply with UL 2443 and FM 1637.

Pipe Hangers and Supports

Provide galvanized pipe hangers, supports, and seismic bracing in accordance with NFPA 13. Design and install seismic protection in accordance with the requirements of NFPA 13 section titled Protection of Piping Against Damage Where Subject to Earthquakes for Seismic Design Category D

Valves

Provide valves of types approved for fire service. Valves must open by counterclockwise rotation.

Control Valve

Manually operated sprinkler control/gate valve must be outside stem and yoke (OS&Y) type or butterfly type and must be listed.

Check Valves

Check valves must comply with UL 312. Check valves 4 inches and larger must be of the swing type, have a clear waterway and meet the requirements of MSS SP-71, for Type 3 or 4. Inspection plate must be provided on valves larger than 6 inches.

Hose Valve

Valve must comply with UL 668.

Riser Check Valves

Provide riser check valve, pressure gauges and main drain.

FIRE DEPARTMENT CONNECTION

Fire department connection must be cast-brass body, matching escutcheon lettered Auto Spkr with a standard finish. Verify requirments for Fire Hose Connection Screw Threads (NH) per NFPA 1963. Comply with UL 405.

SPRINKLERS

Sprinklers must comply with UL 199 and NFPA 13. Sprinklers with internal O-rings are not acceptable. Sprinklers in high heat areas including attic spaces or in close proximity to unit heaters must have temperature classification in accordance with NFPA 13. Extended coverage sprinklers are permitted for loading docks, residential occupancies and high-piled torage applications only.

ACCESSORIES

Pendent Sprinkler Escutcheon

Escutcheon must be one-piece metallic type with a depth of less than 3/4-inch and suitable for installation on pendent sprinklers. The escutcheon must have a factory finish that matches the pendent sprinkler.

Pipe Escutcheon

Provide split hinge metal plates for piping entering walls, floors, and ceilings in exposed spaces. Provide polished stainless steel plates or chromium-plated finish on copper alloy plates in finished spaces. Provide paint finish on metal plates in unfinished spaces.

Sprinkler Guard

Listed guard must be a steel wire cage designed to encase the sprinkler and protect it from mechanical damage. Guards must be provided on sprinklers located within 7 feet of the floor and as indicated.

Relief Valve

Relief valves must be listed and installed at the riser in accordance with NFPA 13.

Air Vent

Air vents must be of the automatic type and piped to drain to the building

exterior.

Identification Sign

Valve identification sign must be minimum 6 inches wide by 2 inches high with enamel baked finish on minimum 18 gage steel or 0.024-inch aluminum with red letters on a white background or white letters on red background. Wording of sign must include, but not be limited to main drain , auxiliary drain , inspector's test , alarm test , alarm line , and similar wording as required to identify operational components. Where there is more than one sprinkler system, signage must include specific details as to the respective system.

PART 3 EXECUTION

VERIFYING ACTUAL FIELD CONDITIONS

Before commencing work, examine all adjoining work on which the contractor's work that is dependent for perfect workmanship according to the intent of this specification section, and report to the Contracting Officer's Representative a condition that prevents performance of first class work. No waiver of responsibility for incomplete, inadequate or defective adjoining work will be considered unless notice has been filed before submittal of a proposal.

INSTALLATION

The installation must be in accordance with the applicable provisions of NFPA 13, NFPA 24 and publications referenced therein. Locate sprinklers in a consistent pattern with ceiling grid, lights, and air supply diffusers. Install sprinkler system over and under ducts, piping and platforms when such equipment can negatively affect or disrupt the sprinkler discharge pattern and coverage.

a. Piping offsets, fittings, and other accessories required must be furnished to provide a complete installation and to eliminate interference with other construction.

b. Wherever the contractor's work interconnects with work of other trades the Contractor must coordinate with other Contractors to insure all Contractors have the information necessary so that they may properly install all necessary connections and equipment. Identify all work items needing access (dampers and similar equipment) that are concealed above hung ceilings by permanent color coded pins/tabs in the ceiling directly below the item.

c. Provide required supports and hangers for piping, conduit, and equipment so that loading will not exceed allowable loadings of structure. Submittal of a bid must be a deemed representation that the contractor submitting such bid has ascertained allowable loadings and has included in his estimates the costs associated in furnishing required supports.

Waste Removal

At the conclusion of each day's work, clean up and stockpile on site all waste, debris, and trash which may have accumulated during the day as a

result of work by the contractor and of his presence on the job. Sidewalks and streets adjoining the property must be kept broom clean and free of waste, debris, trash and obstructions caused by work of the contractor, which will affect the condition and safety of streets, walks, utilities, and property.

ABOVEGROUND PIPING INSTALLATION

The methods of fabrication and installation of the aboveground piping must fully comply with the requirements and recommended practices of NFPA 13 and this specification section.

Protection of Piping Against Earthquake Damage

Seismic restraint is required.

Piping in Exposed Areas

Install exposed piping without diminishing exit access widths, corridors or equipment access. Exposed horizontal piping, including drain piping, must be installed to provide maximum headroom.

Piping in Finished Areas

In areas with suspended or dropped ceilings and in areas with concealed spaces above the ceiling, piping must be concealed above ceilings. Piping must be inspected, hydrostatically tested and approved before being concealed. Risers and similar vertical runs of piping in finished areas must be concealed.

Pendent Sprinklers

Upright Sprinklers

Riser nipples or sprigs to upright sprinklers must contain no fittings between the branch line tee and the reducing coupling at the sprinkler.

Pipe oints

Pipe joints must conform to NFPA 13, except as modified herein. Not more than four threads must show after joint is made up. Welded joints will be permitted, only if welding operations are performed as required by NFPA 13 at the Contractor's fabrication shop, not at the project construction site. Flanged joints must be provided where indicated or required by NFPA 13. Grooved pipe and fittings must be prepared in accordance with the manufacturer's latest published specification according to pipe material, wall thickness and size. Grooved couplings, fittings and grooving tools must be products of the same manufacturer. For copper tubing, pipe and groove dimensions must comply with the tolerances specified by the coupling manufacturer. The diameter of grooves made in the field must be measured using a go/no-go gauge, vernier or dial caliper, narrow-land micrometer, or other method specifically approved by the coupling manufacturer for the intended application. Groove width and dimension of groove from end of pipe must be measured and recorded for each change in grooving tool setup to verify compliance with coupling manufacturer's tolerances.

Reducers

Reductions in pipe sizes must be made with one-piece tapered reducing fittings. When standard fittings of the required size are not manufactured, single bushings of the face or hex type will be permitted. Where used, face bushings must be installed with the outer face flush with the face of the fitting opening being reduced. Bushings cannot be used in elbow fittings, in more than one outlet of a tee, in more than two outlets of a cross, or where the reduction in size is less than 1/2-inch.

Pipe Penetrations

a. Cutting structural members for passage of pipes or for pipe-hanger fastenings will not be permitted. Pipes that must penetrate concrete or masonry walls or concrete floors must be core-drilled and provided with pipe sleeves. Each sleeve must be Schedule 40 galvanized steel, ductile-iron or cast-iron pipe and extend through its respective wall or floor and be cut flush with each wall surface. Sleeves must provide required clearance between the pipe and the sleeve per NFPA 13. The space between the sleeve and the pipe must be firmly packed with mineral wool insulation.

c. In penetrations that are not fire-rated or not a floor penetration, the space between the sleeve and the pipe must be sealed at both ends with plastic waterproof cement that will dry to a firm but pliable mass or with a mechanically adjustable segmented elastomer seal.

Escutcheons

Escutcheons must be provided for pipe penetration in finished areas of ceilings, floors and walls. Escutcheons must be securely fastened to the pipe at surfaces through which piping passes.

Inspector's Test Connection

Unless otherwise indicated, the test connection must consist of 1-inch pipe connected [to the remote branch line][at the riser as a combination test and drain valve]; a test valve located approximately 7 feet above the floor; a smooth bore brass outlet equivalent to the smallest orifice sprinkler used in the system; and a painted metal identification sign affixed to the valve with the words Inspector's Test . All test connection piping must be inside of the building and penetrate the exterior wall at the location of the discharge orifice only. The discharge orifice must be located outside the building wall no more than 2 feet above finished grade, directed so as not to cause damage to adjacent construction or landscaping during full flow discharge, or to the sanitary sewer. Discharge to the exterior must not interfere with exiting from the facility. Water discharge or runoff must not cross the path of egress from the building. Do not discharge to the roof. Discharge to floor drains, janitor sinks or similar fixtures is not permitted.

Backflow Preventer

Locate within the building or in a heated enclosure in locations subject to freezing. For heated enclosures, provide a low temperature supervisory alarm connected to the facility fire alarm system. Heat trace is not permitted to be used.

Install backflow preventers so that the bottom of the assembly is a minimum of 6 inches above the finished floor/grade. Install horizontal backflow

preventers so that the bottom of the assembly is no greater than 24 inches above the finished floor/grade. Install vertical backflow preventers so that the upper operating handwheel is no more than 6 feet above the finished floor/grade. Clearance around control valve handles must be minimum 6 inches above grade/finished floor and away from walls.

Test Connection

Provide downstream of the backflow prevention assembly UL 668 hose valves with 2.5-inch National Standard male hose threads with cap and chain. Provide one valve for each 250 gpm of system demand or fraction thereof. Provide a permanent sign in accordance with paragraph entitled Identification Signs which reads, Test Valve . Indicate location of test header. If an exterior connection, provide a control valve inside a heated mechanical room to prevent freezing.

Drains

a. Main drain piping must be provided to discharge at a safe point outside the building, no more than 2 feet above finished grade. Provide a concrete splash block at drain outlet. Discharge to the exterior must not interfere with exiting from the facility. Water discharge or runoff must not cross the path of egress from the building.

b. Auxiliary drains must be provided as required by NFPA 13. Auxiliary drains are permitted to discharge to a floor drain if the drain is sized to accommodate full flow (min 40 gpm). Discharge to service sinks or similar plumbing fixtures is not permitted.

Installation of Fire Department Connection

Connection must be mounted on the exterior wall approximately 3 feet above finished grade. The piping between the connection and the check valve must be provided with an automatic drip in accordance with NFPA 13 and piped to drain to the outside or a floor drain within the same room.

Identification Signs

Signs must be affixed to each control valve, inspector test valve, main drain, auxiliary drain, test valve, and similar valves as appropriate or as required by NFPA 13. Main drain test results must be etched into main drain identification sign. Hydraulic design data must be etched into the nameplates and permanently affixed to each sprinkler riser as specified in NFPA 13. Provide labeling on the surfaces of all feed and cross mains to show the pipe function (e.g., Sprinkler System , Fire Department Connection , Standpipe) and normal valve position (e.g. Normally Open , Normally Closed). For pipe sizes 4-inch and larger provide white painted stenciled letters and arrows, a minimum of 2 inches in height and visible from at least two sides when viewed from the floor. For pipe sizes less than 4-inch, provide white painted stenciled letters and arrows, a minimum of 0.75-inch in height and visible from the floor.

ELECTRICAL

Alarm signal wiring connected to the building fire alarm control system must be installed by the fire alarm installer.

FIELD QUALITY CONTROL

Test Procedures

The test data forms must be in a check-off format (pass/fail with space to add applicable test data; similar to the forms in NFPA 13). The test procedures and accompanying test data forms must be used for the pre-Government testing and the Government final testing.

a. Provide space to identify the date and time of each test. Provide space to identify the names and signatures of the individuals conducting and witnessing each test.

Pre-Government Testing

Verification of Compliant Installation

Conduct inspections and tests to ensure that equipment is functioning properly. Tests must meet the requirements of paragraph entitled Minimum System Tests and System Acceptance as noted in NFPA 13. The Contractor [and QFPE] must be in attendance at the pre-Government testing to make necessary adjustments. After inspection and testing is complete, provide a signed Verification of Compliant Installation letter by the QFPE that the installation is complete, compliant with the specification and fully operable. The letter must include the names and titles of the witnesses to the pre-Government tests. Provide all completion documentation as required by NFPA 13 and the test reports noted below.

a. NFPA 13 Aboveground Material and Test Certificate

b. NFPA 13 Underground Material and Test Certificate

MINIMUM SYSTEM TESTS

The system, including the underground water mains, and the aboveground piping and system components, must be tested to ensure that equipment and components function as intended. The underground and aboveground interior piping systems and attached appurtenances subjected to system working pressure must be tested in accordance with NFPA 13 and NFPA 24.

Underground Piping

Flushing

Underground piping must be flushed at a minimum of 10 fps in accordance with NFPA 24.

Hydrostatic Test

New underground piping must be hydrostatically tested in accordance with NFPA 24.

Aboveground Piping

Hydrostatic Test

Aboveground piping must be hydrostatically tested in accordance with NFPA 13.

There must be no drop in gauge pressure or visible leakage when the system is subjected to the hydrostatic test. The test pressure must be read from a gauge located at the low elevation point of the system or portion being tested.

Backflow Prevention Assembly Forward Flow Test

Each backflow prevention assembly must be tested at system flow demand, including all applicable hose streams, as specified in NFPA 13. The Contractor must provide all equipment and instruments necessary to conduct a complete forward flow test, including 2.5-inch diameter hoses, playpipe nozzles or flow diffusers, calibrated pressure gauges, and pitot tube gauge. The Contractor must provide all necessary supports to safely secure hoses and nozzles during the test. At the system demand flow, the pressure readings and pressure drop (friction loss) across the assembly must be recorded. A metal placard must be provided on the backflow prevention assembly that lists the pressure readings both upstream and downstream of the assembly, total pressure drop, and the system test flow rate determined during the preliminary testing. The pressure drop must be compared to the manufacturer's data and the readings observed during the final inspections and tests.

SYSTEM ACCEPTANCE

Following acceptance of the system, as-built drawings and O&M manuals must be delivered to the Contracting Officer for review and acceptance. Submit six sets of detailed as-built drawings. The drawings must show the system as installed, including deviations from both the project drawings and the approved shop drawings. These drawings must be submitted within two weeks after the final acceptance test of the system. At least one set of as-built (marked-up) drawings must be provided at the time of, or prior to the final acceptance test.

a. Provide one set of full size paper as-built drawings and schematics. The drawings must be prepared electronically and sized no less than the contract drawings. [Furnish one set of CDs or DVDs containing software back-up and CAD based drawing

b. Provide operating and maintenance (O&M) instructions.

ONSITE TRAINING

Conduct a training course for the responding fire department and operating and maintenance personnel as designated by the client.

-- End of Section --

SECTION 23 01 30.41

HVAC SYSTEM CLEANING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 62.1	(2016) Ventilation for Acceptable Indoor Air Quality

INSTITUTE OF INSPECTION, CLEANING, AND RESTORATION CERTIFICATION (IICRC)

ANSI/IICRC S520	(2015) Standard and Reference Guide for Professional Mold Remediation

NATIONAL AIR DUCT CLEANERS ASSOCIATION (NADCA)

NADCA	(2005) Introduction to HVAC System Cleaning Services
NADCA ACR	(2013) Standard for Assessment, Cleaning, and Restoration of HVAC Systems
NADCA ASCS	(2013) Air Systems Cleaning Specialist to the NADCA Standard ACR
NADCA HVAC Inspection Manual	(2021) Procedures for Assessing the Cleanliness of Commercial HVAC Systems

NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION (NAIMA)

NAIMA AH112	(1993) Cleaning Fibrous Glass or Lined Sheet Metal Ducts
NAIMA AH122	(2006) Cleaning Fibrous Insulated Duct Systems - Recommended Practices
NAIMA AH127	(1999) Facts About the Impact of Duct Cleaning on Internal Duct Insulation

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

SMACNA 1966	(2020) HVAC Duct Construction Standards Metal and Flexible, 4th Edition

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 402-C-01-001	(2001) IAQ Building Education and Assessment Tool (I-BEAM)
EPA 402-F-91-102	(1991) Building Air Quality: A Guide for Building Owners and Facility Managers

UNDERWRITERS LABORATORIES (UL)

UL 181	(2013; Reprint Dec 2021) UL Standard for Safety Factory-Made Air Ducts and Air Connectors
UL 181A	(2013; Reprint Dec 2021) Standard for Safety Closure Systems for Use with Rigid Air Ducts
UL 181B	(2013; Reprint Dec 2021) UL Standard for Safety Closure Systems for Use with Flexible Air Ducts and Air Connectors

1.2 DEFINITIONS

1.2.1 NADCA Standards

Perform the services specified here in accordance with the current published standards of the National Air Duct Cleaners Association (NADCA, NADCA ASCS, NADCA ACR and NADCA HVAC Inspection Manual).

a. All terms in this specification are defined as stated in the NADCA Standards.

b. Follow NADCA Standards without modification or deviation.

1.3 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Record of Existing Conditions

Coordination Plan

Records of Experience in the Field of HVAC System Cleaning

NADCA Work Execution Schedule

SD-03 Product Data

Safety Data Sheets (SDS)

SD-06 Test Reports

Testing Procedures Summary

Post-Project Report

1.4 QUALITY CONTROL

1.4.1 Experience

Submit records of experience in the field of HVAC system cleaning. Bids will only be considered from firms which are regularly engaged in HVAC system maintenance with an emphasis on HVAC system cleaning and decontamination.

1.4.2 Equipment, Materials and Labor

Possess and furnish all necessary equipment, materials and labor to adequately perform the specified services and comply with the applicable provisions of NADCA General Specifications for the Cleaning of Commercial HVAC Systems and ASHRAE 62.1.

a. Assure that all employees have received safety equipment training, medical surveillance programs, individual health protection measures, and manufacturer's product and Safety Data Sheets (SDS) as required for the work by the U.S. Occupational Safety and Health Administration, and as described by this specification.

b. Maintain a copy of all current SDS documentation and safety certifications at the site at all times, as well as comply with all other site documentation requirements of applicable OSHA programs and this specification.

c. Submit all Safety Data Sheets (SDS) for all chemical products proposed used in the cleaning process, including all VOC ratings.

1.4.3 Licensing

Provide proof of maintaining the proper license(s), if any, as required to do work in the sState of California. Comply with all Federal, State and local rules, regulations, and licensing requirements.

1.4.4 Health And Safety

1.4.4.1 Safety Standards

Comply with all applicable Federal, State, and local requirements for protecting the safety of the contractors' employees, building occupants, and the environment. In particular, follow all applicable standards of the Occupational Safety and Health Administration (OSHA) when working in accordance with this specification[, and EM 385-1-1].

1.4.4.2 Occupant Safety

Employ no processes or materials in such a manner that introduce additional hazards into occupied spaces.

1.4.4.3 Disposal of Debris

Dispose of all debris removed from the HVAC System in accordance with applicable Federal, State and local requirements.

1.5 PRO ECT/SITE CONDITIONS

1.5.1 Mechanical Drawings

Obtain one copy of the following documents:

a. Project drawings and specifications

b. Approved construction revisions pertaining to the HVAC system

c. Any existing indoor air quality (IAQ) assessments or environmental reports prepared for the facility.

Submit a NADCA Work Execution Schedule to the Client within 10 working days of the contract award.

1.5.2 Site Conditions

The HVAC system includes any interior surface of the facility's air distribution system for conditioned spaces and/or occupied zones. This includes the entire heating, air-conditioning and ventilation system from the points where the air enters the system to the points where the air is discharged from the system. The return air grilles, return air ducts (except ceiling plenums and mechanical room) to the air handling unit (AHU), the interior surfaces of the AHU, mixing box, coil compartment, condensate drain pans, humidifiers and dehumidifiers, supply air ducts, fans, fan housing, fan blades, filters, filter housings, reheat coils, and supply diffusers are all considered part of the HVAC system. The HVAC system may also include other components such as dedicated exhaust and ventilation components and make-up air systems.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Perform the services specified here in accordance with the current published standards of the National Air Duct Cleaners Association (NADCA, NADCA ASCS,NADCA ACR and NADCA HVAC Inspection Manual).

a. All terms in this specification have their meaning defined as stated in the NADCA Standards.

b. Follow NADCA Standards with no modifications or deviations being allowed. Remove visible surface contaminants and deposits from within the HVAC system in strict accordance with these specifications.

3.1 PREPARATION

3.1.1 HVAC System Inspections And Site Preparations

3.1.1.1 HVAC System Evaluation

Prior to the commencement of any cleaning work, perform a visual inspection of the HVAC system in the presence of the Client to determine appropriate methods, tools, and equipment required to satisfactorily complete this project. Cleanliness inspection should include air handling units and representative areas of HVAC system components and ductwork. In HVAC systems that include multiple air handling units, a representative sample of units should be inspected. Notify the Client 10 days prior to the planned inspection. As part of evaluation, record photographs and videos of each inspection location to document the as found condition prior to cleaning.

Document damaged system components found during the inspection and submit to the Contracting Officer, clearly labeled Record of Existing Conditions.

3.1.1.2 Site Evaluation and Preparations

Conduct without negatively impacting indoor environment through excessive disruption of settled dust, microbial amplification or other debris. In cases where contamination is suspected, and/or in sensitive environments where even small amounts of contaminant may be of concern, implement environmental engineering control measures.

Conduct a site evaluation, and establish a specific, coordination plan which details how each area of the building is protected during the various phases of the project.

3.2 APPLICATION

3.2.1 General HVAC System Cleaning Requirements

3.2.1.1 Containment

Collect debris removed during cleaning and take precautions to ensure that debris is not otherwise dispersed outside the HVAC system during the cleaning process.

3.2.1.2 Particulate Collection

Where the Particulate Collection Equipment (PCE) is exhausting inside the building, use HEPA filtration with 99.97 percent collection efficiency for 0.3-micron size (or greater). When the PCE is exhausting outside the building, undertake mechanical cleaning operations only with PCE, including adequate filtration to contain debris removed from the HVAC system. When the PCE is exhausting outside the building, take precautions to locate the equipment down wind and away from all air intakes and other points of entry into the building.

3.2.1.3 Controlling Odors

Take all reasonable measures to control offensive odors and/or mist vapors during the cleaning process.

3.2.1.4 Component Cleaning

Employ cleaning methods such that all HVAC system components are Visibly Clean as defined in applicable standards. Upon completion, return all components to those settings recorded just prior to cleaning operations.

3.2.1.5 Air-Volume Control Devices

Mark the position of dampers and any air-directional mechanical devices inside the HVAC system prior to cleaning and, upon completion, restore to their marked position.

3.2.1.6 Service Openings

Utilize service openings, as required for proper cleaning, at various points of the HVAC system for physical and mechanical entry, and inspection. Utilize the existing service openings already installed in the HVAC system where possible.

Create other openings where needed, created and resealed in conformance with NADCA Standard 05. Place closures so they do not significantly hinder, restrict, alter the air-flow within the system, or compromise the structural integrity of the system. Properly insulate closures to prevent heat loss/gain or condensation on surfaces within the system. Conform construction techniques used in the creation of openings to requirements of applicable building and fire codes, and applicable NFPA, SMACNA and NADCA Standards. Cutting service openings into flexible duct is not permitted. Disconnect flexible duct at the ends as needed for proper cleaning and inspection.

Reseal rigid fiber glass ductboard duct systems in accordance with NAIMA recommended practices; NAIMA AH112, NAIMA AH122, and NAIMA AH127. Only closure techniques which comply with UL 181, UL 181A, or UL 181B are suitable for fiber glass duct system closures.

Provide access doors for openings that need to be re-opened for future inspection or remediation. Clearly mark all service openings, capable of being re-opened for future inspection or remediation, and report their location in project report documents.

3.2.1.7 Ceiling Sections (Tile)

Carefully remove and reinstall ceiling sections to gain access to HVAC systems during the cleaning process. Replace any damaged ceiling sections caused by the removal at no cost to the Government.

3.2.1.8 Air Distribution Devices (Registers, Grilles and Diffusers)

Clean all air distribution devices.

3.2.1.9 Air Handling Units, Terminal Units, Blowers and Exhaust Fans

Ensure that supply, return, and exhaust fans and blowers are thoroughly cleaned. Areas for cleaning include blowers, fan housings, plenums (except ceiling supply and return plenums), scrolls, blades, or vanes, shafts, baffles, dampers and drive assemblies. Remove all visible surface contamination deposits in accordance with NADCA Standards.

a. Clean all air handling unit (AHU) internal surfaces, components and condensate collectors and drains.

b. Assure that a suitable operative drainage system is in place prior to beginning wash down procedures.

c. Clean all coils and related components, including evaporator fins.

3.2.1.10 Duct Systems

a. Create service openings in the system as necessary in order to accommodate cleaning of otherwise inaccessible areas.

b. Mechanically clean all duct systems to remove all visible contaminants, such that the systems are capable of passing NADCA Cleaning Verification Testings Standards.

c. Any exposed edges in internal duct lining within duct, including but not limited to interfaces with externally insulated duct, must be fully protected, sealed and encapsulated to prevent future erosion.

3.2.2 Mechanical Cleaning Methodology

3.2.2.1 Source Removal Cleaning Methods

Clean the HVAC system using Source Removal mechanical cleaning methods designed to extract contaminants from within the HVAC system and safely remove contaminants from the facility. Select Source Removal methods which will render the HVAC System Visibly Clean and capable of passing NADCA cleaning verification methods Standards and other specified standards and tests, in accordance with all general requirements. Use no cleaning method, or combination of methods, which could potentially damage components of the HVAC system or negatively alter the integrity of the system.

Incorporate the use of vacuum collection devices that are operated continuously during cleaning for all methods used. Connect a vacuum device to the downstream end of the section being cleaned through a predetermined opening. Use a vacuum collection device of sufficient power to render all areas being cleaned under negative pressure, such that containment of debris and the protection of the indoor environment is assured.

Equip all vacuum devices exhausting air inside the building, including hand-held vacuums and wet-vacuums, with HEPA filters (minimum efficiency).

Equip all vacuum devices exhausting air outside the facility with Particulate Collection including adequate filtration to contain Debris removed from the HVAC system, in a manner that does not allow contaminants to re-enter the facility. Release of debris outdoors which violates any outdoor environmental standards, codes or regulations is not allowed.

All methods require mechanical agitation devices to dislodge debris adhered to interior HVAC system surfaces, such that debris may be safely conveyed to vacuum collection devices. Acceptable methods include those which will not potentially damage the integrity of the ductwork, nor damage porous surface materials such as liners inside the ductwork or system components.

3.2.2.2 Methods of Cleaning Fibrous Glass Insulated Components

Thoroughly clean glass [thermal] [acoustical] insulation elements present in any equipment or ductwork with HEPA vacuuming equipment. Clean while the HVAC system is under constant negative pressure, and not permitted to get wet in accordance with applicable NADCA and NAIMA standards and

recommendations.

Do not use cleaning methods that cause damage to fibrous glass components or renders the system capable of passing Cleaning Verification Tests NADCA Standards.

Provide surface treatment for insulation for sections of internally-lined duct. Select and apply encapsulants, coatings, and insulation repair products to completely restore surface integrity of fibrous glass surfaces in accordance with applicable standards and manufacturer's installation instructions.

3.2.2.3 Damaged Fibrous Glass Material

If there is any evidence of damage, deterioration, delamination, friable material, mold or fungus growth, or moisture such that fibrous glass materials cannot be restored by cleaning or resurfacing with an acceptable insulation repair coating, identify them to the Contracting Officer for replacement.

When requested or specified, remediate exposed damaged insulation in air handlers and/or ductwork requiring replacement.

If insulation is damaged as a result of this work under this specification, notify Contracting Officer and initiate a meeting with same to determine options for repair or replacement of insulation.

3.2.2.4 Replacement Material

If replacement of fiber glass materials is required, conform all materials to applicable industry codes and standards, including those of UL and SMACNA 1966.

Replacement of damaged insulation is **ot** covered by this specification. Refer to Section 23 07 00 - Thermal Insulation for Mechanical Systems.

3.2.2.5 Cleaning of Coils

Use any cleaning method which renders the coil visibly clean and capable of passing NADCA Coil Cleaning Verification Standards. Coil drain pans are subject to Non-Porous Surfaces Cleaning Verification. Maintain operability of the drain for the condensate at all times. Do not damage, displace, inhibit heat transfer, or cause erosion of the coil surface or fins, and conform to coil manufacturer recommendations when available. Thoroughly rinse coils with clean water to remove any latent residues.

3.2.2.6 Antimicrobial Agents and Coatings

Perform application of antimicrobial agents used to control the growth of fungal or bacteriological contaminants after the removal of surface deposits and debris. Perform mold remediation in accordance with ANSI/IICRC S520.

Use only antimicrobial agents registered by the U.S. Environmental Protection Agency (EPA 402-F-91-102)(EPA 402-C-01-001) specifically for use within HVAC system.

Apply antimicrobial agents in strict accordance with manufacturer's instructions.

Use only antimicrobial coating products, for both porous and non-porous surfaces, which are EPA registered, water soluble solutions with supporting efficacy data and SDS records.

Apply antimicrobial coatings according to manufacturer's instructions. Spray coatings directly onto interior ductwork surfaces, rather than fog downstream onto surfaces. Achieve a continuous film on the surface treated by the coating application, and apply in strict accordance with manufacturer's minimum millage surface application rate standards for effectiveness.

3.3 FIELD QUALITY CONTROL

3.3.1 CLEANLINESS VERIFICATION

3.3.1.1 General

Verification of HVAC System cleanliness is determined after mechanical cleaning and before the application of any treatment or introduction of any treatment-related substance to the HVAC system, including antimicrobial agents and coatings.

3.3.1.2 Visual Inspection

Visually inspect the HVAC system to ensure that no visible contaminants are present.

If no contaminants are evident through visual inspection, consider the HVAC system clean; however, further verification of the system cleanliness through gravimetric or wipe testing analysis testing may be requested at the discretion of the Contracting Officer.

If visible contaminants are evident through visual inspection, re-clean those portions of the system where contaminants are visible, and subject to re-inspection for cleanliness.

As part of inspection, record photographs and videos of inspection locations to document post-cleaning condition.

3.3.1.3 Gravimetric Analysis

At the expense of the **o tractor**, test sections of the HVAC system for cleanliness using the NADCA Vacuum Test (gravimetric analysis) as specified in applicable NADCA Standards. Ensure levels of debris collected are equal to or less than acceptable levels defined in applicable NADCA Standards.

If gravimetric analysis determines that levels of debris are equal to or lower than those levels specified, the system is considered clean and to have passed cleanliness verification.

If gravimetric analysis determines that levels of debris exceed those specified in applicable NADCA standards, the system will not be considered clean, and re-cleaning of those sections of the system which failed cleanliness verification will be required at the expense of the HVAC system

cleaning contractor.

Perform cleanliness verification immediately after mechanical cleaning and before the HVAC system is restored to normal operation.

3.3.1.4 Verification of Coil Cleaning

Cleaning is to restore the coil pressure drop to within 10 percent of the pressure drop measured when the coil was first installed. If the original pressure drop is not known, the coil will be considered clean only if the coil is free of foreign matter and chemical residue, based on a thorough visual inspection (see NADCA HVAC Inspection Manual Standards).

3.3.2 Post-Project Report

At the conclusion of the project, provide a Testing Procedures Summary and Post-Project Report indicating the following:

a. Success of the cleaning project, as verified through visual inspection [and][or] gravimetric analysis.

b. Areas of the system found to be damaged and/or in need of repair.

-- End of Section --

SECTION 26 51 00

INTERIOR LIGHTING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A580/A580M	(2018) Standard Specification for Stainless Steel Wire
ASTM A641/A641M	(2019) Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
ASTM A653/A653M	(2022) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A1008/A1008M	(2021a) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM B164	(2003; R 2014) Standard Specification for Nickel-Copper Alloy Rod, Bar, and Wire
ASTM B633	(2019) Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
ASTM D4674 REV A	(2002; R 2010) Standard Practice for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Office Environments

CALIFORNIA ENERGY COMMISSION (CEC)

CEC Title 20	(2022) Appliance Efficiency Regulations / Public Utilities and Energy Division 2. State Energy Resources Conservation and Development Commission
CEC Title 24	(2022) Building Energy Efficiency Standards For Residential and Nonresidential Buildings

ILLUMINATING ENGINEERING SOCIETY (IES)

ANSI/IES LM-79	(2019) Approved Method: Electrical and Photometric Measurements of Solid State Lighting Products
ANSI/IES LM-80	(2020) Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules
ANSI/IES LS-1	(2020) Lighting Science: Nomenclature and Definitions for Illuminating Engineering
ANSI/IES TM-21	(2021) Technical Memorandum: Projecting Long-TermLuminous, Photon, and Radiant Flux Maintenance of LED Light Sources
ANSI/IES TM-30	(2020) Technical Memorandum: IES Method for Evaluating Light Source Color Rendition
IES Lighting Library	IES Lighting Library

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 100	(2000; Archived) The Authoritative Dictionary of IEEE Standards Terms
IEEE C2	(2023) National Electrical Safety Code
IEEE C62.41	(1991; R 1995) Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI C78.54	(2019) Specification Sheet for Tubular Fluorescent Replacement and Retrofit LED Lamps
NEMA 77	(2017) Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria
NEMA 250	(2020) Enclosures for Electrical Equipment (1000 Volts Maximum)
NEMA ANSLG C78.377	(2017) Electric Lamps Specifications for the Chromaticity of Solid State Lighting Products
NEMA C82.77-10	(2020) Harmonic Emission Limits - Related Power Quality Requirements
NEMA ICS 2	(2000; R 2020) Industrial Control and Systems Controllers, Contactors, and Overload Relays Rated 600 V

NEMA ICS 6	(1993; R 2016) Industrial Control and Systems: Enclosures
NEMA SSL 1	(2016) Electronic Drivers for LED Devices, Arrays, or Systems
NEMA SSL 3	(2011) High-Power White LED Binning for General Illumination
NEMA SSL 7A	(2015) Phase-Cut Dimming for Solid State Lighting: Basic Compatibility
NEMA WD 1	(1999; R 2020) Standard for General Color Requirements for Wiring Devices
NEMA WD 7	(2011; R 2016; R 2021) Occupancy Motion Sensors Standard

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2023) National Electrical Code
NFPA 101	(2021; TIA 21-1) Life Safety Code
NFPA 110	(2022) Standard for Emergency and Standby Power Systems

U.S. DEPARTMENT OF ENERGY (DOE)

Energy Star	(1992; R 2006) Energy Star Energy Efficiency Labeling System (FEMP)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

47 CFR 15	Radio Frequency Devices

UNDERWRITERS LABORATORIES (UL)

UL 20	(2018; Reprint an 2021) UL Standard for Safety General-Use Snap Switches
UL 94	(2013; Reprint Apr 2022) UL Standard for Safety Tests for Flammability of Plastic Materials for Parts in Devices and Appliances
UL 508	(2018; Reprint ul 2021) UL Standard for Safety Industrial Control Equipment
UL 844	(2012; Reprint Oct 2021) UL Standard for Safety Luminaires for Use in Hazardous (Classified) Locations
UL 924	(2016; Reprint May 2020) UL Standard for Safety Emergency Lighting and Power Equipment

UL 1598	(2021; Reprint un 2021) Luminaires
UL 1598C	(2014) Standard for Light-Emitting Diode (LED) Retrofit Luminaire Conversion Kits
UL 1993	(2017) Self-Ballasted Lamps and Lamp Adapters
UL 2043	(2013) Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
UL 8750	(2015; Reprint Sep 2021) UL Standard for Safety Light Emitting Diode (LED) Equipment for Use in Lighting Products

1.2 RELATED REQUIREMENTS

Materials not considered to be luminaires, luminaire accessories, or lighting equipment are specified in Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM.

1.3 DEFINITIONS

a. Unless otherwise specified or indicated, electrical and electronics terms used in these specifications and on the drawings, must be as defined in IEEE 100 and ANSI/IES LS-1.

b. For LED luminaire light sources, Useful Life is the operating hours before reaching 70 percent of the initial rated lumen output (L70) with no catastrophic failures under normal operating conditions. This is also known as 70 percent Rated Lumen Maintenance Life as defined in ANSI/IES LM-80.

c. For LED luminaires, Luminaire Efficacy (LE) is the appropriate measure of energy efficiency, measured in lumens/watt. This is gathered from LM-79 data for the luminaire, in which absolute photometry is used to measure the lumen output of the luminaire as one entity, not the source separately and then the source and housing together.

d. Total harmonic distortion (THD) is the root mean square (RMS) of all the harmonic components divided by the total fundamental current.

1.4 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-03 Product Data

Luminaires;

Light Sources;

LED Drivers;

Switches;

Occupancy/Vacancy Sensors;

Photosensors;

Exit Signs;

Linear LED Lamps;

PART 2 PRODUCTS

2.1 PRODUCT COORDINATION

2.2 LUMINAIRES

UL 1598, NEMA C82.77-10. Provide luminaires as indicated in the luminaire schedule and NL plates or details on project plans, complete with light source, wattage, and lumen output indicated. All luminaires of the same type must be provided by the same manufacturer. Luminaires must be specifically designed for use with the driver and light source provided.

2.2.1 Luminaires

UL 8750, ANSI/IES LM-79, ANSI/IES LM-80. For all luminaires, provide:

a. Complete system with LED drivers and light sources.

b. Housings constructed of non-corrosive materials. All new aluminum housings must be anodized or powder-coated. All new steel housings must be treated to be corrosion resistant.

c. ANSI/IES TM-21, ANSI/IES LM-80. Minimum L70 lumen maintenance value of 50,000 hours unless otherwise indicated in the luminaire schedule. Luminaire drive current value must be identical to that provided by test data for luminaire in question.

d. Minimum efficacy as specified in the luminaire schedule. Theoretical models of initial lamp lumens per watt are not acceptable. If efficacy values are not listed in the luminaire schedule, provide luminaires that meet the following minimum values:

Luminaire Style	Minimum Luminaire Efficacy
Recessed 1 by 4, 2 by 4, and 2 by 2	100 LPW
Recessed Downlight (fixed, adjustable, wallwash)	80 LPW
Linear, Accent (undercabinet, cove)	45 LPW
Linear, Ambient (indirect wall mount, linear pendent)	100 LPW
High Bay, Low Bay, and Industrial Locations	100 LPW

Luminaire Style	Minimum Luminaire Efficacy
Food Service and Hazardous Locations	60 LPW
Other (track, residential diffusers)	50 LPW
Exterior Wall Sconce	50 LPW
Steplight	30 LPW
Parking Garage Luminaire	100 LPW

e. UL listed for dry or damp location typical of interior installations.[Any luminaire mounted on the exterior of the building must be UL listed for wet location typical of exterior installations.]

f. LED driver and light source package, array, or module are accessible for service or replacement without removal or destruction of luminaire.

g. Lenses constructed of heat tempered borosilicate glass, UV-resistant acrylic, or silicone.[Provide polycarbonate vandal-resistant lenses as indicated.] Sandblasting, etching and polishing must be performed as indicated in the luminaire description.

i. For all recessed luminaires that are identified to be in contact with insulation, provide luminaires that are IC-rated.

2.2.2 Luminaires for Hazardous Locations

In addition to requirements stated herein, provide LED luminaires for hazardous locations which conform to UL 844 or which have Factory Mutual certification for the class and division indicated.

2.3 LIGHT SOURCES

NEMA ANSLG C78.377, NEMA SSL 3. Provide type, delivered lumen output, and wattage as indicated in the luminaire schedule on project plans.

2.3.1 LED Light Sources

CEC Title 20. Provide LED light sources that meet the following requirements:

a. NEMA ANSLG C78.377. Emit white light and have a nominal CCT of [3000][2700][3500][4000] Kelvin.

b. Minimum Color Rendering Index (CRI) of [80][90][95 with an R9 value of 95].[Fidelity index greater than or equal to 80, gamut index between 97 and 110, determined in accordance with ANSI/IES TM-30.]

c. Directive 2011/65/EU. Restriction of Hazardous Substances (RoHS) compliant.

d. Light source color consistency by utilizing a binning tolerance within

a 3-step McAdam ellipse.

e. Color maintenance value of no greater than 0.003 (delta u'v') at 6000 hours as listed in ANSI/IES LM-79 Test Report.

2.3.1.1 Linear LED Lamps

Provide linear LED Lamps that are compatible with existing instant-start or programmed-start ballasts, and meet the following additional requirements:

a. UL 1993 UL Type A linear LED lamp.

b. Power Factor greater than or equal to 0.90 at full input power and across specified dimming range.

c. Maximum Total Harmonic Distortion (THD) less than or equal to 20 percent at full input power and across specified dimming range.

d. Lumen per watt efficacy no less than 120.

e. Minimum beam angle of [270][180] degrees.

f. Lamp datasheet complies with ANSI C78.54. Manufacturer must provide list of all ballasts that are compatible for use with lamp.

2.4 LIGHTING CONTROLS

Provide lighting control systems that do not switch off battery-operated or emergency backup luminaires or exit signs in path of egress. Provide system with override of lighting control devices controlling luminaires in path of egress with activation of fire alarm system.

2.4.1 System

Provide lighting control system that operates the lighting system as described in the lighting control strategies in the project plans. Submit Sequence of Operation for Lighting Control System describing the operation of the proposed lighting control system and devices. Sequence of Operation must provide the strategies identified in the lighting control strategies.

2.4.1.1 Localized Control Systems

Provide room or area-wide lighting control system capable of manual control, time-based control, and receiving input from photosensors and occupancy/vacancy sensors.

2.4.2 Devices

2.4.2.1 Switches

Provide line-voltage toggle switches as specified in Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM. When used for non-digital loads, devices must be rated at 20 Amps inductive load, and be compatible with the lighting control systems.

2.4.2.2 Occupancy/Vacancy Sensors

IEEE C62.41, NEMA WD 1, UL 94, UL 916, UL 508, ASTM D4674 REV A, NEMA WD 7, CEC Title 24, CEC Title 20. Provide occupancy/vacancy sensors with coverage patterns as indicated on [project plans][manufacturer shop drawings].[Provide no less quantity of sensors as shown on plans, but add additional sensors when required to fulfill coverage requirement for the specific model of sensor provided.][Provide sensor types as described in the sequence of operations. Sensor locations and quantities are shown in shop drawings provided by the lighting control system manufacturer.][Provide occupancy sensor operation that requires movement to activate luminaires controlled and turns luminaires off after a set time of inactivity.][Provide vacancy sensor operation that requires manual control to activate luminaires and turns luminaires off after a set time of inactivity.] Provide ceiling or wall-mounted occupancy/vacancy sensors that meet the following requirements:

a. Operating voltage of [12-24][120-277][120][277] volts.

b. Time delay of 30 seconds to 30 minutes with at least four intermediate time delay settings.

c. Sensors are [ceiling mounted][wall-box mounted][wall mounted][integral to luminaire].

e. Shielded or controlled by internal logic to adjust sensitivity to avoid false triggering due to ambient temperature, air temperature variations or HVAC air movement.

f. Sensor is equipped to automatically energize the connected load upon loss of normal power when located in a means of egress.

g. Occupancy and vacancy operation is field-adjustable and [programmable via lighting control system processor.][programmable with push-button or dip switch on the sensor device.]

h. No leakage current to load when in the off mode.

i. Utilize zero-crossing circuitry to prevent damage from high inrush current and to promote long life operation.

][k. Provide an isolated relay for integrating control of HVAC or other automated systems.

2.4.2.2.1 Passive Infrared Sensors

Provide Passive Infrared Sensors (PIR) sensors that detect occupancy by sensing heat and movement in the area of coverage. Provide sensors are constructed of a housing of high-impact, injection-molded thermoplastic. Provide PIR sensors that are temperature compensated, with a dual element sensor and a multi-element fresnel lens of POLY IR4 material.

2.4.2.2.2 Ultrasonic Sensors

Provide ultrasonic sensors that detect occupancy by sensing a change in pattern of reflected ultrasonic waves in the area of coverage. Provide sensors that are constructed of a housing of high-impact, injection-molded thermoplastic. Provide ultrasonic sensors that operate at 40 kHz.

2.4.2.2.3 Dual Technology Sensors

Provide dual technology sensors that meet the requirements for PIR sensors and ultrasonic sensors indicated above. If either the PIR or ultrasonic sensing registers occupancy, the luminaires must remain on

2.4.2.2.4 Power Packs

UL 2043, CEC Title 24. Provide power packs to provide power to lighting control sensors as required in accordance with the manufacturer's specifications. Provide power packs that meet the following requirements:

a. Operate at an input voltage of [120][277][120-277] VAC, with an output voltage [12-24][12][24] VDC at 225 mA.

b. Constructed of plenum-rated, high-impact thermoplastic enclosure.

c. Utilizes zero-crossing circuitry to prevent damage from inrush current.

d. Maximum load rating of 16 [ ] amps for electronic [ ] lighting loads.

e. Directive 2011/65/EU. Restriction of Hazardous Substances (RoHS) compliant.

2.5 EXIT AND EMERGENCY LIGHTING EQUIPMENT

2.5.1 Exit Signs

UL 924, NFPA 101. Provide wattage as indicated in the luminaire schedule on project plans. Provide LED Exit Signs that meet the following criteria:

a. [Housing constructed of [UV-stable, thermo-plastic][clear polycarbonate housing][painted, die-cast aluminum][painted steel].][Edge-lit type with clear acrylic, edge-lit face and aluminum trim having [clear aluminum][white][chrome][brass][ ] finish.]

b. UL listed for [damp][wet] location.

c. Configured for [universal][ceiling][wall][end] mounting.

d. 150 mm 6 inch high, 19 mm 3/4 inch stroke [red][green] lettering on face of sign with chevrons on either side of lettering to indicate direction.

e. Single or double face as indicated in project plans and luminaire schedule.

2.5.1.1 Exit Signs with Battery Backup

Equip with automatic power failure device, test switch, and pilot light, and fully automatic high/low trickle charger in a self-contained power pack. Battery must be sealed, maintenance free nickel-cadmium type, and must operate unattended for a period of not less than five years. Emergency run time must be a minimum of 1-1/2 hours. LEDs must have a minimum rated life of 10 years.[Provide self-diagnostic circuitry integral to emergency LED driver.] In lieu of battery, can use a

nonradioactive photoluminescent plate.

2.5.1.2 Remote-Powered Exit Signs

Provide exit sign that contains provision for [120-277 VAC][120 VAC][277 VAC][6-48 VDC] input from remote source.

2.5.2 LED Emergency Drivers

UL 924, NFPA 101. Provide LED emergency driver with automatic power failure detection, test switch and LED indicator (or combination switch/indicator) located on luminaire exterior, and fully-automatic solid-state charger, battery and inverter integral to a self-contained housing.[Provide self-diagnostic function integral to emergency driver.] Integral nickel-cadmium[lead-calcium][ ] battery is required to supply a minimum of 90 minutes of emergency power at [5][7][10][ ] watts, [10-50][ ] VDC[compatible with LED forward voltage requirements], constant output. Driver must be RoHS compliant, rated for installation in plenum-rated spaces and damp locations, and be warranted for a minimum of five years.

2.5.3 Mini Inverters

UL 924, NFPA 101. Provide mini inverters that are designed to provide power to emergency luminaires. Provide mini inverters that are suitable for [dry] [damp] [wet] installations, operate at a voltage of [120-277] [120] [277] volts at 50/60 hertz, and are capable of operating 0-10V dimming override. Provide mini inverters that supply a minimum of 90 minutes of emergency power.

2.6 LUMINAIRE MOUNTING ACCESSORIES

2.6.1 Suspended Luminaires

a. Provide hangers capable of supporting twice the combined weight of luminaires supported by hangers.

b. Hangers must allow luminaires to swing within an angle of 45 degrees. Brace pendents 1.2 meters 4 feet or longer to limit swinging.

c. Single-unit suspended luminaires must have [cable][twin-stem] hangers. Multiple-unit or continuous row luminaires with a separate power supply cord must have a tubing or stem for wiring at one point and a tubing or rod suspension provided for each unit length of chassis, including one at each end.

d. Provide all linear pendent and surface mounted luminaires with two supports per four-foot section or three per eight-foot section unless otherwise recommended by manufacturer.

2.6.2 Luminaire Support Hardware

2.6.2.1 Wire

ASTM A641/A641M. Galvanized, soft tempered steel, minimum 2.7 mm 0.11 inches in diameter, or galvanized, braided steel, minimum 2 mm 0.08 inches in diameter.

2.6.2.2 Wire for Humid Spaces

ASTM A580/A580M. Composition 302 or 304, annealed stainless steel, minimum 2.7 mm 0.11 inches in diameter.

ASTM B164. UNS NO4400, annealed nickel-copper alloy, minimum 2.7 mm 0.11 inches in diameter.

2.6.2.3 Threaded Rods

Threaded steel rods, 4.76 mm 3/16 inch diameter, zinc or cadmium coated.

2.6.2.4 Straps

Galvanized steel, 25 by 4.76 mm one by 3/16 inch, conforming to ASTM A653/A653M, with a light commercial zinc coating or ASTM A1008/A1008M with an electrodeposited zinc coating conforming to ASTM B633, Type RS.

2.6.3 Power Hook Luminaire Hangers

UL 1598. Provide an assembly consisting of through-wired power hook housing, interlocking plug and receptacle, power cord, and luminaire support loop. Power hook housing must be cast aluminum having two 19 mm 3/4 inch threaded hubs. Support hook must have safety screw. Luminaire support loop must be cast aluminum with provisions for accepting 19 mm 3/4 inch threaded stems. Power cord must include 410 mm 16 inches of 3 conductor No. 16 Type SO cord. Assembly must be rated 120 volts or 277 volts, 15 amperes.

2.7 EQUIPMENT IDENTIFICATION

2.7.1 Manufacturer's Nameplate

Each item of equipment must have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

2.7.2 Labels

UL 1598. All luminaires must be clearly marked for operation of specific light sources and LED drivers. The labels must be easy to read when standing next to the equipment, and durable to match the life of the equipment to which they are attached. Note the following light source characteristics in the format Use Only :

a. Correlated Color Temperature (CCT) and Color Rendering Index (CRI) for all luminaires.

b. Driver and dimming protocol.

All markings related to light source type must be clear and located to be readily visible to service personnel, but unseen from normal viewing angles when light sources are in place. LED drivers must have clear markings indicating dimming type and indicate proper terminals for the various outputs.

2.8 FACTORY APPLIED FINISH

NEMA 250. Provide all luminaires and lighting equipment with factory-applied painting system that as a minimum, meets requirements of corrosion-resistance testing.

PART 3 EXECUTION

3.1 INSTALLATION

IEEE C2, NFPA 70.

3.1.1 Light Sources

When light sources are not provided as an integral part of the luminaire, deliver light sources of the type, wattage, lumen output, color temperature (CCT), color rendering index (CRI), and voltage rating indicated to the project site and install just prior to project completion, if not already installed in the luminaires from the factory.

3.1.2 Luminaires

Set luminaires plumb, square, and level with ceiling and walls, in alignment with adjacent luminaires and secure in accordance with manufacturers' directions and approved drawings. Provide accessories as required for ceiling construction type indicated on Finish Schedule. Luminaire catalog numbers do not necessarily denote specific mounting accessories for type of ceiling in which a luminaire may be installed. Provide wires, straps, or rods for luminaire support in this section. Install luminaires with vent holes free of air blocking obstacles.

3.1.2.1 Suspended Luminaires

Measure mounting heights from the bottom of the luminaire for ceiling-mounted luminaires and to center of luminaire for wall-mounted luminaires. Obtain architect approval of the exact mounting height on the job before commencing installation and, where applicable, after coordinating with the type, style, and pattern of the ceiling being installed. Support suspended luminaires from structural framework of ceiling or from inserts cast into slab.

a. Provide suspended luminaires with 45 degree swivel hangers so that they hang plumb and level.

b. Locate so that there are no obstructions within the 45 degree range in all directions.

c. The stem, canopy and luminaire must be capable of 45 degree swing.

d. Rigid pendent stem, aircraft cable, rods, or chains 1.2 meters 4 feet or longer excluding luminaire must be braced to prevent swaying using three cables at 120 degree separation.

e. Suspended luminaires in continuous rows must have internal wireway systems for end to end wiring and must be properly aligned to provide a straight and continuous row without bends, gaps, light leaks or filler pieces.

f. Utilize aligning splines on extruded aluminum luminaires to assure minimal hairline joints.

g. Support steel luminaires to prevent oil-canning effects.

h. Match supporting pendents with supported luminaire. Aircraft cable must be stainless steel.

i. Match finish of canopies to match the ceiling, and provide low profile canopies unless otherwise shown.

j. Maximum distance between suspension points must be 3.1 meters 10 feet or as recommended by the manufacturer, whichever is less.

3.1.3 LED Drivers

Provide LED drivers integral to luminaire as constructed by the manufacturer.

3.1.4 Exit Signs

NFPA 101. Wire exit signs and emergency lighting units ahead of the local switch, to the normal lighting circuit located in the same room or area.

3.1.5 Lighting Controls

3.1.5.1 Occupancy/Vacancy Sensors

a. Provide quantity of sensor units indicated as a minimum. Provide additional units to give full coverage over controlled area. Full coverage must provide hand and arm motion detection for office and administration type areas and walking motion for industrial areas, warehouses, storage rooms and hallways.

b. Locate ceiling-mounted sensors no closer than 2 meters 6 feet from the nearest HVAC supply or return diffuser.

c. Locate the sensor(s) as indicated and in accordance with the manufacturer's recommendations.

3.1.5.2 Photosensors

Locate and aim sensor as indicated and in accordance with the manufacturer's recommendations. Adjust sensor set-point in accordance with the manufacturer's recommendations and for the indicated light level of the area of coverage, measured at the work plane.

3.2 FIELD QUALITY CONTROL

3.2.1 Tests

3.2.1.1 Lighting Control Verification Tests

Verify lighting control system and devices operate according to approved sequence of operations. Verification tests are to be completed after commissioning.

a. Verify occupancy/vacancy sensors operate as described in sequence of operations. Provide testing of sensor coverage, sensitivity, and time-out settings in all spaces where sensors are placed. This is to be completed only after all furnishings have been installed. Submit occupancy/vacancy sensor verification test.

b. Verify photosensors operate as described in sequence of operations. Provide testing of sensor coverage, aiming, and calibration in all spaces where sensors are placed. This is to be completed only after all furnishings have been installed. Submit photosensor verification test.

3.2.1.2 Emergency Lighting Test

Interrupt power supply to demonstrate proper operation of emergency lighting. If adjustments are made to the lighting system, re-test system to show compliance with standards.

3.3 CLOSEOUT ACTIVITIES

3.3.1 Training

3.3.1.1 Maintenance Staff Training

Submit a Maintenance Staff Training Plan at least 30 calendar days prior to training session that describes training procedures for Owner's personnel in the operation and maintenance of lighting and lighting control system. Provide on-site training which demonstrates full system functionality, assigning schedules, calibration adjustments for light levels and sensor sensitivity, integration procedures for connecting to third-party devices, and manual override including information on appropriate use. Provide protocols for troubleshooting, maintenance, repair, and replacement, and literature on available system updates and process for implementing update.

-- End of Section --

SECTION 32 14 13.13

INTERLOCKING PRECAST CONCRETE UNIT PAVING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 301	(2016) Specifications for Structural Concrete
ACI 301M	(2016) Metric Specifications for Structural Concrete

ASTM INTERNATIONAL (ASTM)

ASTM C33/C33M	(2018) Standard Specification for Concrete Aggregates
ASTM C88	(2018) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	(2017) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131/C131M	(2020) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136/C136M	(2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C140/C140M	(2022b) Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
ASTM C144	(2018) Standard Specification for Aggregate for Masonry Mortar
ASTM C535	(2016) Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C936/C936M	(2021a) Standard Specification for Solid Concrete Interlocking Paving Units

ASTM C979/C979M	(2016) Standard Specification for Pigments for Integrally Colored Concrete
ASTM C1645/C1645M	(2022) Standard Test Method for Freeze-thaw and De-icing Salt Durability of Solid Concrete Interlocking Paving Units
ASTM D75/D75M	(2019) Standard Practice for Sampling Aggregates
ASTM D2488	(2017; E 2018) Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)
ASTM D4318	(2017; E 2018) Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D5821	(2013; R 2017) Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D7428	(2015) Standard Test Method for Resistance of Fine Aggregate to Degradation by Abrasion inthe Micro-Deval Apparatus
ASTM E11	(2022) Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves

1.2 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-04 Samples

Concrete Paving Unit;

1.3 DELIVERY, STORAGE AND HANDLING

Deliver materials in manufacturer's original, unopened, undamaged container packaging with identification tags intact on each paver bundle. Coordinate delivery and paving schedule to minimize interference with normal use of buildings adjacent to paving. Deliver concrete pavers to the site in steel banded, plastic banded, or plastic wrapped bundles capable of transfer by forklift or clamp lift. Unload pavers at job site in such a manner that no damage occurs to the product or to existing construction.

Stockpile jointing, bedding, base and subbase aggregates such that they do not segregate within each pile. Keep piles (1) free from standing water, (2) free of organic material, sediment, or debris, and (3) ready for placement. Store aggregates on paved surfaces. Do not store aggregates on exposed soil or grassed areas unless first covered with geotextile to keep the aggregates clean.

1.4 QUALITY ASSURANCE

1.4.1 Pre-Construction Meeting

Prior to starting work, hold a pre-construction meeting with the project engineer or other Government representative responsible for the project. Determine the following:

a. Delivery and storage locations for aggregates and concrete paving unit bundles;

b. Anticipated start date;

c. Starting point(s) and direction(s) of paving;

d. Methods for checking slopes and surface tolerances for smoothness and elevations;

e. Estimated daily production for installation of aggregates, edge restraints and paving units; and

f. Diagram(s) of the concrete paver laying pattern and how the paver layers or clusters join together to provide a continuous pattern across the pavement surface.

1.4.2 Weather Requirements

Do not install paver units during rain or snow events or when jointing sand, bedding sand, base or subbase aggregates are frozen. Do not place base or subbase aggregates on frozen soil subgrades.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Bedding and ointing Sand

Use two separate sand gradations for the bedding layer and for the paver unit joints.

Prepare bedding sand and gradation in accordance with:

a. ASTM C33/C33M with a maximum amount passing the 0.075 mm No. 200 sieve of 1 percent.

b. A maximum loss of 8 percent in accordance with ASTM D7428 and a maximum loss of 7 percent in accordance with ASTM C88.

c. A minimum of 60 percent combined sub-angular and sub-rounded particle shapes in accordance with ASTM D2488

Prepare jointing sand gradtion in accordance with:

a. ASTM C144 with a maximum of 100 percent passing the 1.18 mm No. 16 sieve and no more than 5 percent passing the 0.075 mm No. 200 sieve.

Prepare bedding and jointing sand in accordance with:

a. Material consisting of crushed sand, natural sand, or a combination of

crushed and natural sand.

b. A minimum L.A. Abrasion of 40 percent when tested in accordance with ASTM C131/C131M and ASTM C535.

c. A minimum of 90 percent fractured faces in accordance with ASTM D5821.

d. Nonplastic when tested in accordance with ASTM D4318 and free of lumps, clay, vegetation, soft particles, sulphates, and other contaminants.

e. The following gradations, determined in accordance with ASTM C136/C136M and ASTM C117, using ASTM E11 sieve.

Sieve, mm (ASTM E11)	Percent Passing	
	Bedding Sand	ointing Sand
9.5 3/8 in	100	-
4.75 No. 4	95-100	100
2.36 No. 8	80-100	95-100
1.18 No. 16	50-85	70-100
0.600 No. 30	25-60	40-75
0.300 No. 50	5-30	10-35
0.150 No. 100	0-10	2-15
0.075 No. 200	0-1	0-5

2.1.2 Concrete Paving Unit

Submit a sample of five paving units prior to the start of the work. Use concrete paving units that are in accordance with ASTM C936/C936M and in color as selected, and rectangle in shape. Use units with a pigmentation in accordance with ASTM C979/C979M.

2.1.3 Edge Restraints

2.1.3.1 Cast-in-Place Concrete

Place edge restraints using Portland cement concrete with the dimensions shown in the plans. Use concrete in conformance with the requirements of ACI 301MACI 301 and Section 321619 Concrete Curbs and Gutters.

2.2 TESTS, INSPECTIONS AND VERIFICATIONS

Submit a written report within seven (7) calendar days after completion of the work, covering the following testing which is required for each lot.

2.2.1 Paving Unit

Conduct the tests prescribed by ASTM C936/C936M and the following tests on the remaining units of each sample from each lot

2.2.2 Bedding and ointing Sand

Obtain representative samples of bedding and jointing sand in accordance with ASTM D75/D75M from each 75 cubic m 100 cubic yds of sand to be used in the project. If the sand fails to meet the gradation requirements take another sample and retest it at no cost to the Government. If this retest fails or if no second test is taken, reject the sand and remove from the job site.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Edge Restraint Location

Install the edge restraint as shown in the drawings prior to placement of the units.

3.1.2 Bedding Sand Layer

Spread the bedding sand evenly over the area to be paved and screed to an uncompacted average thickness of 25 mm 1 in with a tolerance for grade and surface smoothness of plus or minus 6 mm 1/4 in. Do not use this bedding sand to fill low areas that exceed the specified tolerance for the base. Lease the sand uncompacted and do not disturb by pedestrian or vehicle construction traffic.

3.2 UNIT PLACEMENT

Place the paving units by hand or machine in the indicated pattern. Start the placement of paving units from a corner or straight edge and proceed forward over the undisturbed sand bedding layer. Do not permit the joints, excluding chamfer between paving units, to be less than 2 mm 1/16 in or more than 5 mm 3/16 in in width. After seating, check that the unit surface is flush or up to 6 mm 1/4 in above the edge restraint.

3.2.1 Unfilled Gaps

Fill gaps between paving units and the edge restraint, drainage structure, or other member that cannot be filled with a whole unit with a paving unit cut to fit the gap, except do not allow slivers and the minimum size of cut unit is be per manufacturer's recommendatoins. Use a hydraulic splitter, a masonry saw, or other device that accurately leaves a clean, vertical face without spalling for cutting. Do not accept a remaining gap between the unit and adjoining edge restraint, drainage structures, or other member that is greater than 6 mm 1/4 in. Cut or rearrangeadjacent units to prevent this.

3.2.2 Seating Units

Seat the units in the bedding sand by compacting them with a minimum of three passes of a vibratory plate compactor,or equal.

3.2.3 ointing Sand

Sweep the jointing sand into joints and vibrate with a vibratory plate or vibratory roller compactor. Continue this process until sweeping and vibrating have filled joints with sand and further vibration cannot force additional sand into the joints. Sweep the coarser sand particles that did not enter the joints and remain on the surface and excess sand on the surface off the pavement.

3.2.4 Timing of Operations

Seating of units and placement of jointing sand can be done concurrently with unit placement. However, do not allow seating of units and placement of jointing sand within 1.5 m 5 ft of an unfinished edge of the pavement that is not supported by the edge restraint.

3.2.5 Final Rolling

Roll the final finished paving unit surface with four passes of a vibratory or pneumatic roller with a static weight of not less than 4.5 metric tons 10,000 lbs.

3.2.6 Construction Traffic

Do not allow construction traffic on the paving unit surface until the jointing sand has been placed and vibrated into the joints and debris and excess sand have been swept off.

3.3 SMOOTHNESS AND GRADE TOLERANCES

3.3.1 Smoothness

Do not allow a portion of the finished pavement surface to deviate by more than 10 mm 3/8 in from a 3 m 10 ft long metal straightedge placed on the pavement surface.

3.3.2 Unit Height

Check that the finished unit surface is either flush or up to 6 mm 1/4 in higher than edge restraints or drainage structures.

3.3.3 Grade

Check that the finished pavement is within 12 mm 1/2 in of the planned grade shown on the plans.

3.3.4 Remedial Action

Remove paver units and sand in those area not meeting the smoothness, unit height, or grade tolerance , adjust aggregate base grade, and relay the units and sand.

3.4 CLEANUP

Sweep the entire pavement surface and remove excess sand, units and debris from the project area.

-- End of Section --

SECTION 32 16 19

CONCRETE CURBS, GUTTERS AND SIDEWALKS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 182	(2005; R 2017) Standard Specification for Burlap Cloth Made from ute or Kenaf and Cotton Mats

ASTM INTERNATIONAL (ASTM)

ASTM A615/A615M	(2022) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A1064/A1064M	(2022) Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31/C31M	(2022) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C94/C94M	(2022a) Standard Specification for Ready-Mixed Concrete
ASTM C143/C143M	(2020) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C171	(2020) Standard Specification for Sheet Materials for Curing Concrete
ASTM C172/C172M	(2017) Standard Practice for Sampling Freshly Mixed Concrete
ASTM C173/C173M	(2016) Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C231/C231M	(2022) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C920	(2018) Standard Specification for Elastomeric oint Sealants
ASTM D1751	(2018) Standard Specification for Preformed Expansion oint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D1752	(2018) Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion oint Fillers for Concrete Paving and Structural Construction
ASTM D5893/D5893M	(2016) Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone oint Sealant for Portland Cement Concrete Pavements

1.2 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with Section SUBMITTAL PROCEDURES:

SD-03 Product Data

Concrete

SD-06 Test Reports

Field Quality Control

1.3 EQUIPMENT, TOOLS, AND MACHINES

1.3.1 General Requirements

Plant, equipment, machines, and tools used in the work will be subject to approval and must be maintained in a satisfactory working condition at all times. Use equipment capable of producing the required product, meeting grade controls, thickness control and smoothness requirements as specified. Discontinue using equipment that produces unsatisfactory results.

1.4 ENVIRONMENTAL REQUIREMENTS

1.4.1 Placing During Cold Weather

Do not place concrete when the air temperature reaches 5 degrees C 40 degrees F and is falling, or is already below that point. Placement may begin when the air temperature reaches 2 degrees C 35 degrees F and is rising, or is already above 5 degrees C 40 degrees F. Make provisions to protect the concrete from freezing during the specified curing period.

1.4.2 Placing During Warm Weather

The temperature of the concrete as placed must not exceed 30 degrees C 85 degrees F except where an approved retarder is used. Cool the mixing water

and aggregates as necessary to maintain a satisfactory placing temperature. The placing temperature must not exceed 35 degrees C 95 degrees F at any time.

PART 2 PRODUCTS

2.1 CONCRETE

Provide concrete conforming to the applicable requirements of ASTM C94/C94M except as otherwise specified. Concrete must have a minimum compressive strength of 24 MPa 3500 psi at 28 days. Size of aggregate must not exceed 37.5 mm 1-1/2 inches. Submit copies of certified delivery tickets for all concrete used in the construction

2.1.1 Slump

Use concrete with a slump of 75 mm 3 inches plus or minus 25 mm 1 inch for hand placed concrete or 25 mm 1 inch plus or minus 10 mm 1/2 inch for slipformed concrete as determined in accordance with ASTM C143/C143M.

2.1.2 Reinforcement Steel

Use reinforcement bars conforming to ASTM A615/A615M. Use wire mesh reinforcement conforming to ASTM A1064/A1064M.

2.2 CONCRETE CURING MATERIALS

2.2.1 Impervious Sheet Materials

Use impervious sheet materials conforming to ASTM C171, type optional, except that polyethylene film, if used, must be white opaque.

2.2.2 Burlap

Use burlap conforming to AASHTO M 182.

2.3 OINT FILLER STRIPS

2.3.1 Contraction oint Filler for Curb and Gutter

Use hard-pressed fiberboard contraction joint filler for curb and gutter.

2.3.2 Expansion oint Filler, Premolded

Onless otherwise indicated, use 13 mm 1/2 inch thick premolded expansion joint filler conforming to ASTM D1751 or ASTM D1752.

2.4 OINT SEALANTS

Use cold-applied joint sealant conforming to ASTM C920 or ASTM D5893/D5893M.

2.5 FORM WORK

Design and construct form work to ensure that the finished concrete will conform accurately to the indicated dimensions, lines, and elevations, and within the tolerances specified. Use wood or steel forms that are straight and of sufficient strength to resist springing during depositing and

consolidating concrete.

2.5.1 Wood Forms

Use forms that are surfaced plank, 50 mm 2 inches nominal thickness, straight and free from warp, twist, loose knots, splits or other defects. Use forms with a nominal length of 3 m 10 feet. Radius bends may be formed with 19 mm 3/4 inch boards, laminated to the required thickness.

2.5.2 Steel Forms

Use channel-formed sections with a flat top surface and welded braces at each end and at not less than two intermediate points. Use forms with interlocking and self-aligning ends. Provide flexible forms for radius forming, corner forms, form spreaders, and fillers as needed. Use forms with a nominal length of 3 m 10 feet and that have a minimum of 3 welded stake pockets per form. Use stake pins consisting of solid steel rods with chamfered heads and pointed tips designed for use with steel forms.

2.5.3 Sidewalk Forms

Use sidewalk forms that are of a height equal to the full depth of the finished sidewalk.

2.5.4 Curb and Gutter Forms

Use curb and gutter outside forms that have a height equal to the full depth of the curb or gutter. Use rigid forms for curb returns, except that benders or thin plank forms may be used for curb or curb returns with a radius of 3 m 10 feet or more, where grade changes occur in the return, or where the central angle is such that a rigid form with a central angle of 90 degrees cannot be used. Back forms for curb returns may be made of 38 mm 1-1/2 inch benders, for the full height of the curb, cleated together. In lieu of inside forms for curbs, a curb mule may be used for forming and finishing this surface, provided the results are approved.

2.5.5 Biodegradable Form Release Agent

Use form release agent that is colorless and biodegradableand that is composed of at least 87 percent biobased material. Provide product that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces. Provide form release agent that does not contain diesel fuel, petroleum-based lubricating oils, waxes, or kerosene.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

Construct subgrade to the specified grade and cross section prior to concrete placement.

3.1.1 Sidewalk Subgrade

Place and compact the subgrade in accordance with the municipal standards. Test the subgrade for grade and cross section with a template extending the full width of the sidewalk and supported between side forms.

3.1.2 Curb and Gutter Subgrade

Place and compact the subgrade in accordance with municipal standards. Test the subgrade for grade and cross section by means of a template extending the full width of the curb and gutter. Use subgrade materials equal in bearing quality to the subgrade under the adjacent pavement.

3.1.3 Maintenance of Subgrade

Maintain subgrade in a smooth, compacted condition in conformity with the required section and established grade until the concrete is placed. The subgrade must be in a moist condition when concrete is placed. Prepare and protect subgrade so that it is free from frost when the concrete is deposited.

3.2 FORM SETTING

Set forms to the indicated alignment, grade and dimensions. Hold forms rigidly in place by a minimum of 3 stakes per form placed at intervals not to exceed 1.2 m 4 feet. Use additional stakes and braces at corners, deep sections, and radius bends, as required. Use clamps, spreaders, and braces where required to ensure rigidity in the forms. Remove forms in a manner that will not injure the concrete. Do not use bars or heavy tools against the concrete when removing the forms. Promptly and satisfactorily repair concrete found to be defective after form removal. Clean forms and coat with form oil or biodegradable form release agent each time before concrete is placed. Wood forms may, instead, be thoroughly wetted with water before concrete is placed, except that with probable freezing temperatures, oiling is mandatory.

3.2.1 Sidewalks

Set forms for sidewalks with the upper edge true to line and grade with an allowable tolerance of 3 mm 1/8 inch in any 3 m 10 foot long section. After forms are set, grade and alignment must be checked with a 3 m 10 foot straightedge. Do not remove side forms less than 12 hours after finishing has been completed.

3.2.2 Curbs and Gutters

Remove forms used along the front of the curb not less than 2 hours nor more than 16 hours after the concrete has been placed. Do not remove forms used along the back of curb until the face and top of the curb have been finished, as specified for concrete finishing. Do not remove gutter forms while the concrete is sufficiently plastic to slump in any direction

3.3 CURB AND GUTTER CONCRETE PLACEMENT AND FINISHING

3.3.1 Formed Curb and Gutter

Place concrete to the required section in a single lift. Consolidate concrete using approved mechanical vibrators. Curve shaped gutters must be finished with a standard curb mule .

3.3.2 Curb and Gutter Finishing

Approved slipformed curb and gutter machines may be used in lieu of hand

placement.

3.3.3 Concrete Finishing

Float and finish exposed surfaces with a smooth wood float until true to grade and section and uniform in texture. Brush floated surfaces with a fine-hair brush using longitudinal strokes. Round the edges of the gutter and top of the curb with an edging tool to a radius of 13 mm 1/2 inch. Immediately after removing the front curb form, rub the face of the curb with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. Brush the front curb surface, while still wet, in the same manner as the gutter and curb top. Finish the top surface of gutter and entrance to grade with a wood float.

3.3.4 oint Finishing

Finish curb edges at formed joints as indicated.

3.3.5 Surface and Thickness Tolerances

Finished surfaces must not vary more than 6 mm 1/4 inch from the testing edge of a 3 m 10-foot straightedge. Permissible deficiency in section thickness will be up to 6 mm 1/4 inch.

3.4 CURB AND GUTTER OINTS

Construct curb and gutter joints at right angles to the line of curb and gutter.

3.4.1 Contraction oints

Construct contraction joints directly opposite contraction joints in abutting portland cement concrete pavements and spaced so that monolithic sections between curb returns will not be less than 1.5 m 5 feet nor greater than 4.5 m 15 feet in length.

a. Construct contraction joints (except for slip forming) by means of 3 mm 1/8 inch thick separators and of a section conforming to the cross section of the curb and gutter. Remove separators as soon as practicable after concrete has set sufficiently to preserve the width and shape of the joint and prior to finishing.

b. When slip forming is used, cut the contraction joints in the top portion of the gutter/curb hardened concrete in a continuous cut across the curb and gutter, using a power-driven saw. Cut the contraction joint to a depth of at least one-fourth of the gutter/curb depth using a 3 mm 1/8 inch saw blade.

3.4.2 Expansion oints

Form expansion joints by means of preformed expansion joint filler material cut and shaped to the cross section of curb and gutter. Construct expansion joints in curb and gutter directly opposite expansion joints of abutting portland cement concrete pavement using the same type and thickness of joints as joints in the pavement. Where curb and gutter do not abut portland cement concrete pavement, provide expansion joints at least 13 mm 1/2 inch in width at intervals not less than 10 meters 30 feet

nor greater than 36 meters 120 feet. Seal expansion joints immediately following curing of the concrete or as soon thereafter as weather conditions permit. Seal expansion joints and the top 25 mm 1 inch depth of curb and gutter contraction-joints with joint sealant. Thoroughly clean the joint opening before the sealing material is placed. Do not spill sealing material on exposed surfaces of the concrete. Concrete at the joint must be surface dry and atmospheric and concrete temperatures must be above 10 degrees C 50 degrees F at the time of application of joint sealing material. Immediately remove excess material on exposed surfaces of the concrete and clean concrete surfaces.

3.5 CURING AND PROTECTION

3.5.1 General Requirements

Protect concrete against loss of moisture and rapid temperature changes for at least 7 days from the beginning of the curing operation. Protect unhardened concrete from rain and flowing water. All equipment needed for adequate curing and protection of the concrete must be on hand and ready for use before actual concrete placement begins. Protect concrete as necessary to prevent cracking of the pavement due to temperature changes during the curing period.

3.5.1.1 Mat Method

Cover the entire exposed surface with two or more layers of burlap. Overlap mats at least 150 mm 6 inches. Thoroughly wet the mat with water prior to placing on concrete surface and keep the mat continuously in a saturated condition and in intimate contact with concrete for not less than 7 days.

3.5.1.2 Impervious Sheeting Method

Wet the entire exposed surface with a fine spray of water and then cover with impervious sheeting material. Lay sheets directly on the concrete surface with the light-colored side up and overlapped 300 mm 12 inches when a continuous sheet is not used. Use sheeting that is not less than 450 mm 18-inches wider than the concrete surface to be cured. Secure sheeting using heavy wood planks or a bank of moist earth placed along edges and laps in the sheets. Satisfactorily repair or replace sheets that are torn or otherwise damaged during curing. Sheeting must remain on the concrete surface to be cured for not less than 7 days.

3.5.2 Backfilling

After curing, remove debris and backfill, grade, and compact the area adjoining the concrete to conform to the surrounding area in accordance with lines and grades indicated.

3.5.3 Protection

Protect completed concrete from damage until accepted. Repair damaged concrete and clean concrete discolored during construction. Remove and reconstruct concrete that is damaged for the entire length between regularly scheduled joints. Refinishing the damaged portion will not be acceptable. Dispose of removed material as directed

3.6 FIELD QUALITY CONTROL

Submit copies of all test reports within 24 hours of completion of the test.

3.6.1 General Requirements

Perform the inspection and tests described and meet the specified requirements for inspection details and frequency of testing. Based upon the results of these inspections and tests, take the action and submit reports as required below, and additional tests to ensure that the requirements of these specifications are met.

3.6.2 Concrete Testing

3.6.2.1 Strength Testing

Take concrete samples in accordance with ASTM C172/C172M not less than once a day nor less than once for every 190 cubic meters 250 cubic yards of concrete placed. Mold cylinders in accordance with ASTM C31/C31M for strength testing by an approved laboratory. Each strength test result must be the average of 2 test cylinders from the same concrete sample tested at 28 days, unless otherwise specified or approved. Concrete specified on the basis of compressive strength will be considered satisfactory if the averages of all sets of three consecutive strength test results equal or exceed the specified strength, and no individual strength test result falls below the specified strength by more than 4 MPa 500 psi.

3.6.2.2 Air Content

Determine air content in accordance with ASTM C173/C173M or ASTM C231/C231M. Use ASTM C231/C231M with concretes and mortars made with relatively dense natural aggregates. Make two tests for air content on randomly selected batches of each class of concrete placed during each shift. Make additional tests when excessive variation in concrete workability is reported by the placing foreman or the Government inspector. Notify the placing foreman if results are out of tolerance. The placing foreman must take appropriate action to have the air content corrected at the plant. Additional tests for air content will be performed on each truckload of material until such time as the air content is within the tolerance specified.

3.6.2.3 Slump Test

Perform two slump tests on randomly selected batches of each class of concrete for every 190 cubic meters 250 cubic yards, or fraction thereof, of concrete placed during each shift. Perform additional tests when excessive variation in the workability of the concrete is noted or when excessive crumbling or slumping is noted along the edges of slip-formed concrete.

3.6.3 Thickness Evaluation

Determine the anticipated thickness of the concrete prior to placement by passing a template through the formed section or by measuring the depth of opening of the extrusion template of the curb forming machine. If a slip form paver is used for sidewalk placement, construct the subgrade true to grade prior to concrete placement. The thickness will be determined by

measuring each edge of the completed slab.

3.6.4 Surface Evaluation

Provide finished surfaces for each category of the completed work that are uniform in color and free of blemishes and form or tool marks.

3.7 SURFACE DEFICIENCIES AND CORRECTIONS

3.7.1 Thickness Deficiency

When measurements indicate that the completed concrete section is deficient in thickness by more than 6 mm 1/4 inch the deficient section will be removed, between regularly scheduled joints, and replaced.

3.7.2 High Areas

In areas not meeting surface smoothness and plan grade requirements, reduce high areas either by rubbing the freshly finished concrete with carborundum brick and water when the concrete is less than 36 hours old or by grinding the hardened concrete with an approved surface grinding machine after the concrete is 36 hours old or more. The area corrected by grinding the surface of the hardened concrete must not exceed 5 percent of the area of any integral slab, and the depth of grinding must not exceed 6 mm 1/4 inch. Remove and replace pavement areas requiring grade or surface smoothness corrections in excess of the limits specified.

3.7.3 Appearance

Exposed surfaces of the finished work will be inspected by the Contracting Officer and deficiencies in appearance will be identified. Remove and replace areas which exhibit excessive cracking, discoloration, form marks, or tool marks or which are otherwise inconsistent with the overall appearances of the work.

-- End of Section --

SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 248	(1991; R 2012) Standard Specification for Ready-Mixed White and Yellow Traffic Paints
AASHTO M 249	(2012; R2016) Standard Specification for White and Yellow Reflective Thermoplastic Striping Material (Solid Form)

ASTM INTERNATIONAL (ASTM)

ASTM D476	(2015) Dry Pigmentary Titanium Dioxide Pigments
ASTM D522/D522M	(2017) Mandrel Bend Test of Attached Organic Coatings
ASTM D638	(2014) Standard Test Method for Tensile Properties of Plastics
ASTM D695	(2010) Standard Test Method for Compressive Properties of Rigid Plastics
ASTM D711	(2010; R 2015) No-Pick-Up Time of Traffic Paint
ASTM D823	(2018) Standard Practices for Producing Films of Uniform Thickness of Paint, Coatings, and Related Products on Test Panels
ASTM D1652	(2011; E 2012) Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2621	(1987; R 2016) Standard Test Method for Infrared Identification of Vehicle Solids from Solvent-Reducible Paints
ASTM D2697	(2003; R 2014) Volume Nonvolatile Matter in Clear or Pigmented Coatings

ASTM D3335	(1985a; R 2020) Low Concentrations of Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy
ASTM D3718	(1985a; R 2015) Low Concentrations of Chromium in Paint by Atomic Absorption Spectroscopy
ASTM D3924	(2016) Standard Specification for Environment for Conditioning and Testing Paint, Varnish, Lacquer, and Related Materials
ASTM D3960	(2005; R 2013) Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
ASTM D4060	(2019) Abrasion Resistance of Organic Coatings by the Taber Abraser
ASTM D4541	(2017) Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
ASTM D6628	(2003; R 2015) Standard Specification for Color of Pavement Marking Materials
ASTM D7234	(2012) Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers
ASTM E1347	(2006; R 2020) Standard Test Method for Color and Color Difference Measurement by Tristimulus (Filter) Colorimetry
ASTM G154	(2016) Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI)

ICRI 03732	(1997) Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays

MASTER PAINTERS INSTITUTE (MPI)

MPI 32	(2012) Traffic Marking Paint, S.B.
MPI 97	(2012) Traffic Marking Paint, Latex

SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)

SAE AMS-STD-595A	(2017) Colors used in Government Procurement

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

MUTCD	(2009; Rev 2012) Manual on Uniform Traffic Control Devices

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS TT-P-1952	(2015; Rev F; Notice 1) Paint, Traffic and Airfield Markings, Waterborne

1.2 SUBMITTALS

Government review and approval is required for submittals. Submit the following in accordance with SUBMITTAL PROCEDURES:

SD-03 Product Data

Safety Data Sheets;

Reflective media for roads;

Waterborne Paint;

Solventborne Paint;

Thermoplastic compound;

1.3 QUALITY ASSURANCE

1.3.1 Regulatory Requirements

Submit certificate stating that the proposed pavement marking paint meets the Volatile Organic Compound, (VOC) regulations of the local Air Pollution Control District having jurisdiction over the geographical area in which the project is located. Submit Safety Data Sheets for each product.

1.3.2 Qualifications

Submit documentation certifying that pertinent personnel are qualified for equipment operation and handling of applicable chemicals. The documentation should include experience on five projects of similar size and scope with references for all personnel.

1.4 DELIVERY AND STORAGE

Deliver paint materials, thermoplastic compound materials, and reflective media in original sealed containers that plainly show the designated name, specification number, batch number, color, date of manufacture, manufacturer's directions, and name of manufacturer.

Provide storage facilities at the job site, only in areas approved by the Client, for maintaining materials at temperatures recommended by the manufacturer.]

1.5 PRO ECT/SITE CONDITIONS

1.5.1 Environmental Requirements

1.5.1.1 Weather Limitations for Application

Apply pavement markings to clean, dry surfaces, and unless otherwise approved, only when the air and pavement surface temperature is at least 3 degrees C 5 degrees F above the dew point and the air and pavement temperatures are within the limits recommended by the pavement marking manufacturer. Allow pavement surfaces to dry after water has been used for cleaning or rainfall has occurred prior to striping or marking. Test the pavement surface for moisture before beginning work each day and after cleaning. Do not commence marking until the pavement is sufficiently dry and the pavement condition has been approved by the Contracting Officer.

PART 2 PRODUCTS

2.1 MATERIALS

Use non-reflectorized waterborne or solventborne paint for automotive parking areas. The maximum allowable VOC content of pavement markings is 150 grams per liter. Color of markings are indicated on the drawings and must conform to ASTM D6628 for roads and automotive parking areas and SAE AMS-STD-595A for airfields. Provide materials conforming to the requirements specified herein.

2.1.1 Waterborne Paint

2.2.2 Solventborne Paint

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Testing for Moisture

Test the pavement surface for moisture before beginning pavement marking after each period of rainfall, fog, high humidity, or cleaning, or when the ambient temperature has fallen below the dew point. Do not commence marking until the pavement is sufficiently dry and the pavement condition has been approved by the Contracting Officer or authorized representative.

Employ the plastic wrap method to test the pavement for moisture as follows: Cover the pavement with a 300 mm by 300 mm 12 inch by 12 inch section of clear plastic wrap and seal the edges with tape. After 15 minutes, examine the plastic wrap for any visible moisture accumulation inside the plastic. Do not begin marking operations until the test can be performed with no visible moisture accumulation inside the plastic wrap. Re-test surfaces when work has been stopped due to rain.

3.2 EXTERIOR SURFACE PREPARATION

Allow new pavement surfaces to cure for a period of not less than 30 days before application of marking materials. Thoroughly clean surfaces to be marked before application of the paint. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods as required. Remove rubber deposits, existing paint markings, residual curing compounds, and other coatings adhering to the pavement by water blasting or approved chemical removal method.

a. For Portland Cement Concrete pavement, grinding, light shot blasting,

or light scarification, to a resulting profile equal to ICRI 03732 CSP 2, CSP 3, and CSP 4, respectively, can be used in addition to water blasting on most pavements, to either remove existing coatings, or for surface preparation.

b. Do not use shot blasting on pavements due to the potential of Foreign Object Damage (FOD) to vehicles. Scrub affected areas, where oil or grease is present on old pavements to be marked, with several applications of trisodium phosphate solution or other approved detergent or degreaser and rinse thoroughly after each application. After cleaning oil-soaked areas, seal with shellac or primer recommended by the manufacturer to prevent bleeding through the new paint. Do not commence painting in any area until pavement surfaces are dry and clean.

3.3 APPLICATION

Apply pavement markings to dry pavements only.

3.3.1 Paint

Apply paint with approved equipment at rate of coverage specified herein. Provide guidelines and templates as necessary to control paint application. Take special precautions in marking numbers, letters, and symbols. Manually paint numbers, letters, and symbols. Sharply outline all edges of markings. The maximum drying time requirements of the paint specifications will be strictly enforced, to prevent undue softening of bitumen, and pickup, displacement, or discoloration by tires of traffic. If there is a deficiency in drying of the markings, painting operations must cease until the cause of the slow drying is determined and corrected.

3.3.1.1 Waterborne Paint

3.3.1.1.1 Roads

Apply paint at a rate of 2.6 plus or minus 0.1 square meter per liter 105 plus or minus 5 square feet per gallon.

3.3.1.2 Solventborne Paint

Apply paint at a minimum wet film thickness of 0.381 mm 15 mils.

3.3.2 Cleanup and Waste Disposal

Keep the worksite clean and free of debris and waste from the removal and application operations. Immediately cleanup following removal operations in areas subject to vehicular traffic. Dispose of debris at approved sites.

3.4 FIELD QUALITY CONTROL

3.4.1 Material Inspection

Examine material at the job site to determine that it is the material referenced in the report of test results or certificate of compliance. Provide test results substantiating conformance to the specified requirements with each certificate of compliance.

3.4.2 Dimensional Tolerances

Apply all markings in the standard dimensions provide in the drawings. New markings may deviate a maximum of 10 percent larger than the standard dimension. The maximum deviation allowed when painting over an old marking is up to 20 percent larger than the standard dimensions.

3.4.3 Bond Failure Verification

Inspect newly applied markings for signs of bond failure based on visual inspection

-- End of Section --